CIAO Time Presents:

Urine Drug Screening

The Center for Innovation in Academic Detailing on Opioids

San Francisco Department of Public Health

Agenda

1. CIAO program update
2. **Content:** Approaches to Urine drug screening (UDS)
3. **Activity:** Mock academic detailing visit on UDS
4. Questions & Answers

Please submit questions in the Chat!

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The Center for Innovation in Academic Detailing on Opioids

Our vision: We aim to decrease opioid-related morbidity and mortality by promoting balanced approaches to opioid management.

Our mission: We collaborate with healthcare providers to improve opioid and chronic pain-related care through innovative training and technical assistance services.

CIAO Program Updates

Services Offered

- Nationwide
  - Training and technical assistance in academic detailing on opioids and chronic pain management in the primary care setting
- In California (and nationally, when identified by CDC's Opioid Rapid Response Program)
  - Webinars and one-to-one education on caring for patients on long-term opioids

CIAO Program Updates (cont.)

Notable Resources

Guidebook: *Opioids and Chronic Pain: A Guide for Primary Care Providers*

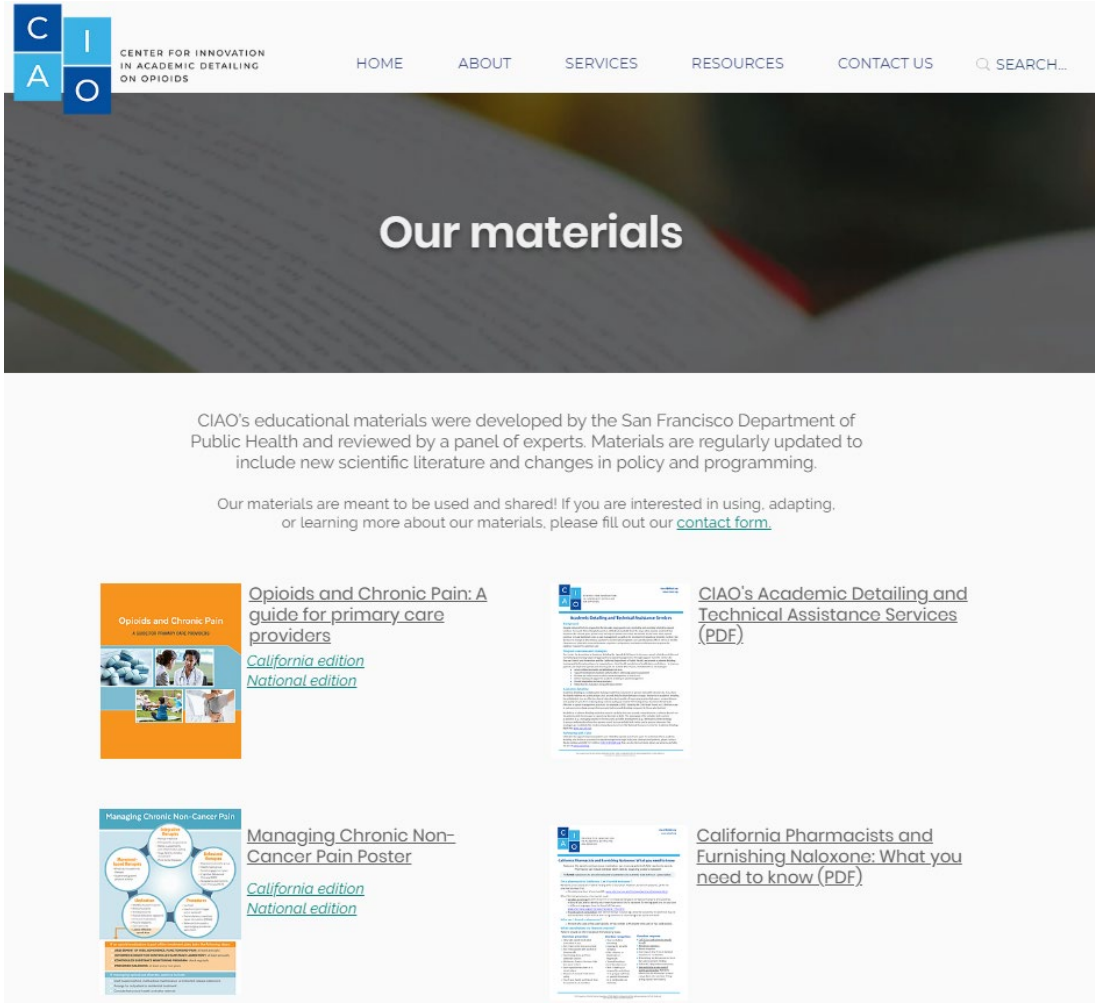
- Note: Newly update version scheduled for release in July 2022. New sections to include co-prescribing benzodiazepines and opioids, buprenorphine overlap initiation, and stigma and racial bias in opioid management

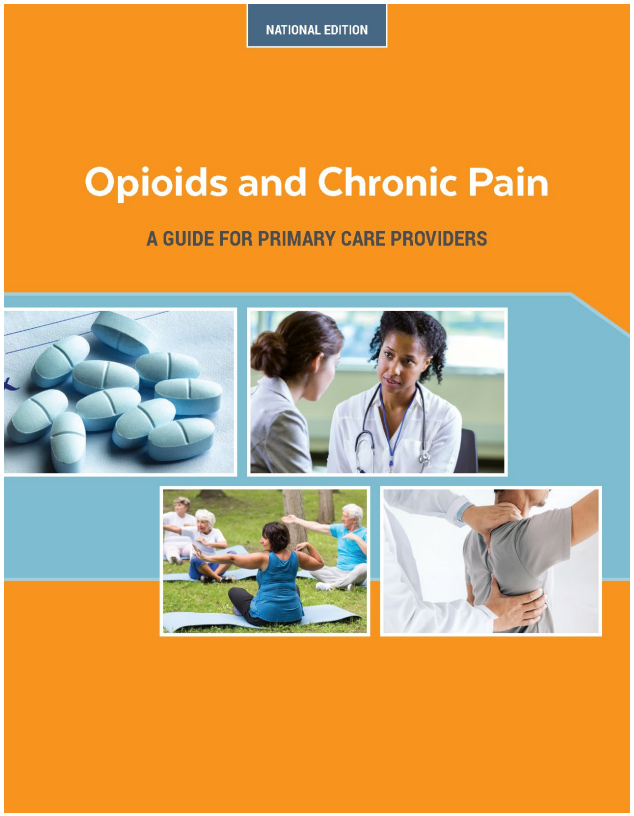
CIAO Program Updates (cont.)

Notable Resources (in development)

Online coursework (with tentative completion dates):

- Naloxone (July 2022)
- Opioid Use Disorder (July 2022)
- Buprenorphine (July 2022)
- Substance Use Disorder (August 2022)
- Urine Drug Screens (August 2022)
- Starting Opioids for Chronic Pain (September 2022)
- Reducing or Stopping Opioids (September 2022)
- Chronic Pain Management (late 2022)
- Opioid Stewardship (late 2022)
- Motivational Interviewing (2023)
- Academic detailing (2023)





View more of our academic detailing materials at **www.ciaosf.org/materials**

Urine Drug Screening

First Poll

Brief History of UDS

- 1970s: mandatory testing requirements for methadone and other substance use treatment settings
- 1980s: due to drug use in the military, laboratory and testing standards were developed for processing large numbers of drug tests
- 1984: executive order for Federal Drug-Free Workplace Program
- 1987: public law 100-01 provisions for drug testing
- 1989: US Department of Transportation starts testing employees
  - Guidelines recommended testing for amphetamines, cocaine metabolites, marijuana metabolites, opiate metabolites, phencyclidine (Federal 5)
- Non-federal workplaces can establish their own drug testing panels

Second Poll

Why do urine drug screening?

Goal of UDS: Support patient care

UDS does:	UDS does not:
Support patient care	Prevent opioid-related problems among patients with chronic pain[18]
Detect whether a substance has been used in a particular window of time	Diagnose addiction, dependence or diversion of controlled substances
Guide optimal care, like hemoglobin A1c	Singlehandedly provide justification to stop prescribing opioids for patients

HOW FREQUENTLY SHOULD I ORDER UDS FOR MY PATIENTS?

- CDC recommends UDS at first opioid prescription and at least annually thereafter.
- Most clinics adopt a uniform testing policy to prevent unintentional bias.
- Some facilities establish UDS frequency and timing independently of clinicians.

EXAMPLE

Use risk assessment to guide urine drug screening frequency.

- **Low risk:** every 12 mo
- **Higher risk or opioid dose > 120 MME/day:** consider more frequent screening

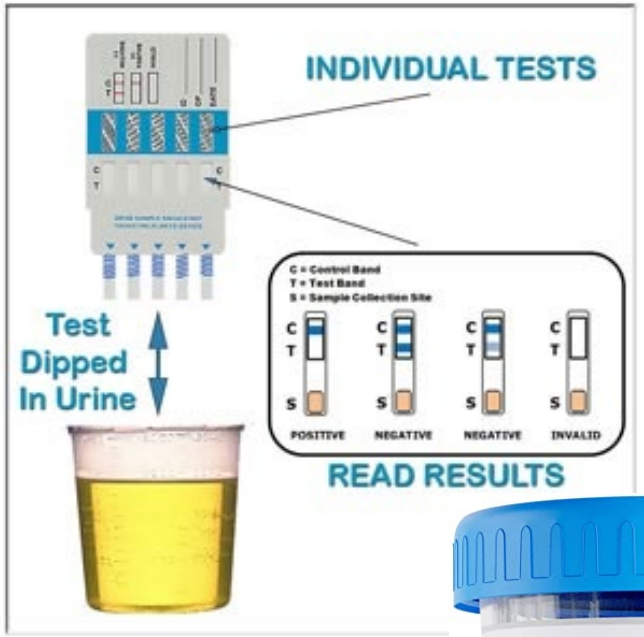
Most UDS is in the form of immunoassays:

- Point-of-care
- Qualitative
- Show both metabolites and parent drug

Know your lab's standard testing panel/options.

LIMITATIONS:

- Do not test for all substances
- Methadone, buprenorphine, and fentanyl often require a separate test
- Many false positives/negatives


INDIVIDUAL TESTS
Test Dipped In Urine
C = Control Band
T = Test Band
S = Sample Collection Site
POSITIVE
NEGATIVE
NEGATIVE
INVALID
READ RESULTS


T-Cup Compact
Results
NuBo


READING A DRUG TEST
in 3 Easy Steps
1 Collect a Specimen
Obtain at least 30 mL of urine to activate the test. Return to cup to collector for analysis.
2 Wait 5 Minutes
Results should appear in 5 minutes or less.
Tip: DO NOT read test after 10 minutes.
3 Interpret Lines
POSITIVE: No line appears in Test Region.
NEGATIVE: A line appears in Test Region.
Tip: Find Control Region line to ensure test is valid.

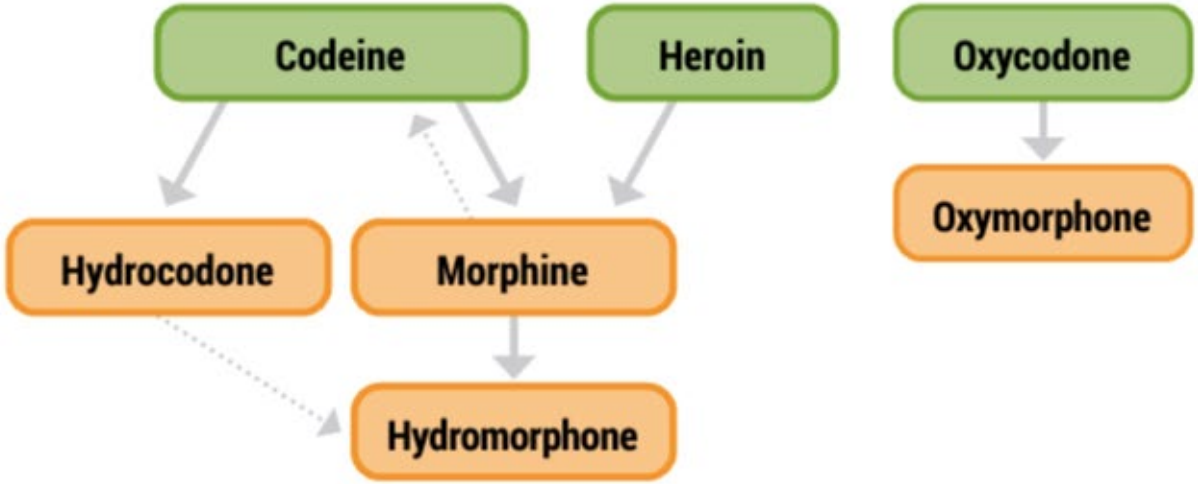
Types of Urine Drug Screening

- Screening tests
  - Immunoassays (use antibodies in urine to test for the substance)
  - Qualitative (positive or negative)
  - Presumptive ositive result means class of drug is present
- Advantages:
  - Cost
  - Speed
  - Point-of-care
- Disadvantages:
  - Not very precise
  - Vary based on hydration status, time lapse,

- Confirmatory Tests ("definitive testing")
  - Use laboratory-based technology to quantify the amount of substance present in a urine sample
    - "Molecular fingerprint"
  - Gas chromatography or liquid chromatography with mass spectrometry
- Advantages:
  - Results show concentrations and which drugs are present (parent drug vs metabolite)
  - Less false positives and negatives
- Disadvantages:
  - Not point of care
  - More expensive

Third Poll

OPIOID METABOLIC PATHWAYS



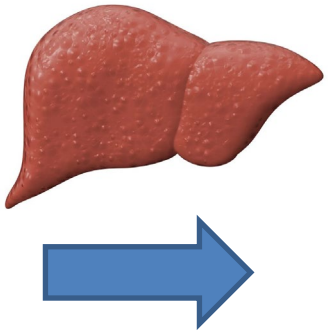
EXAMPLE:

Prescription: Morphine

UDS results: hydromorphone + morphine

Interpretation: a) Patient most likely taking morphine only; b) Patient could be taking morphine + hydromorphone

Buprenorphine

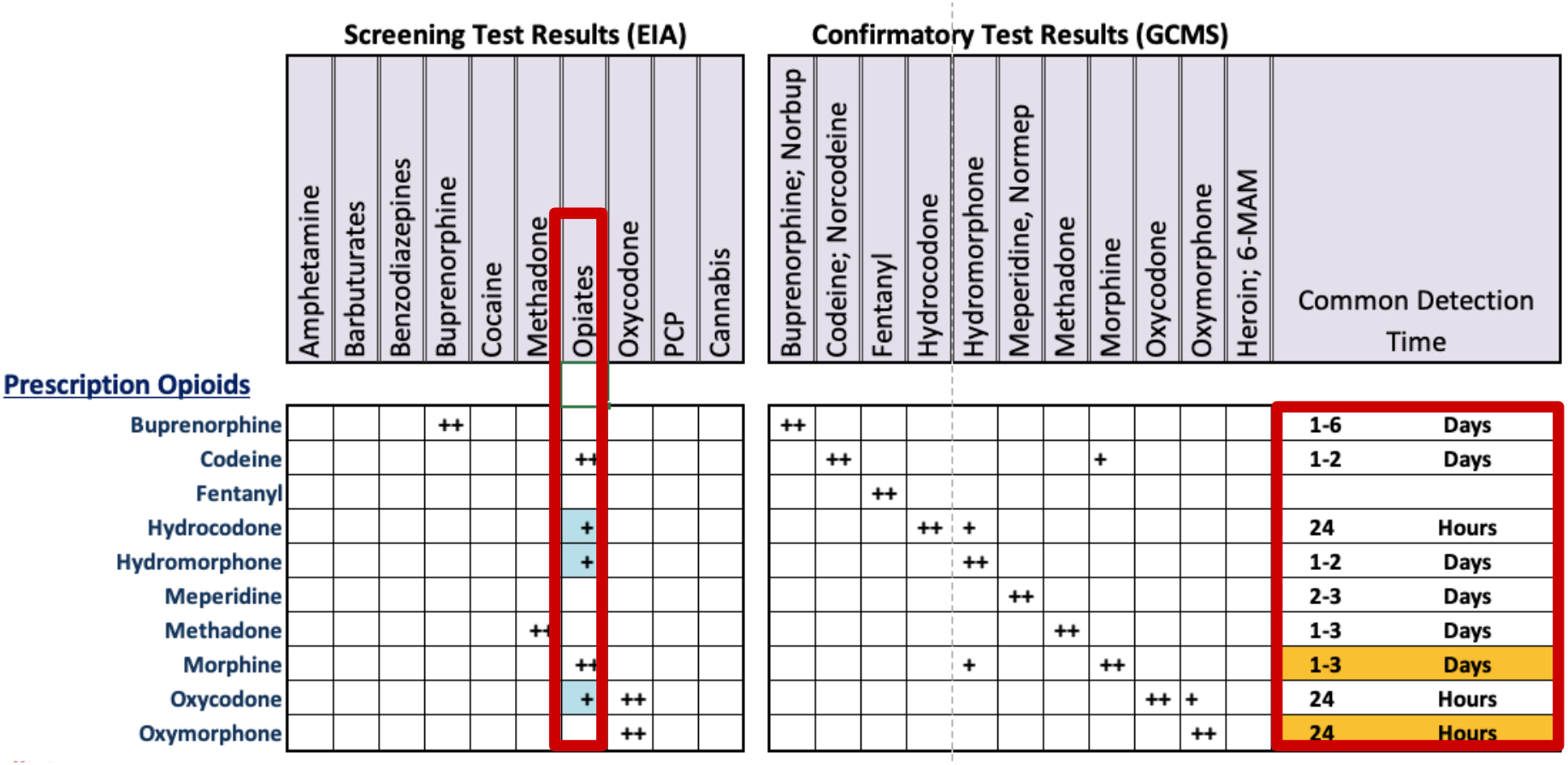


Norbuprenorphine

Opioid Metabolism

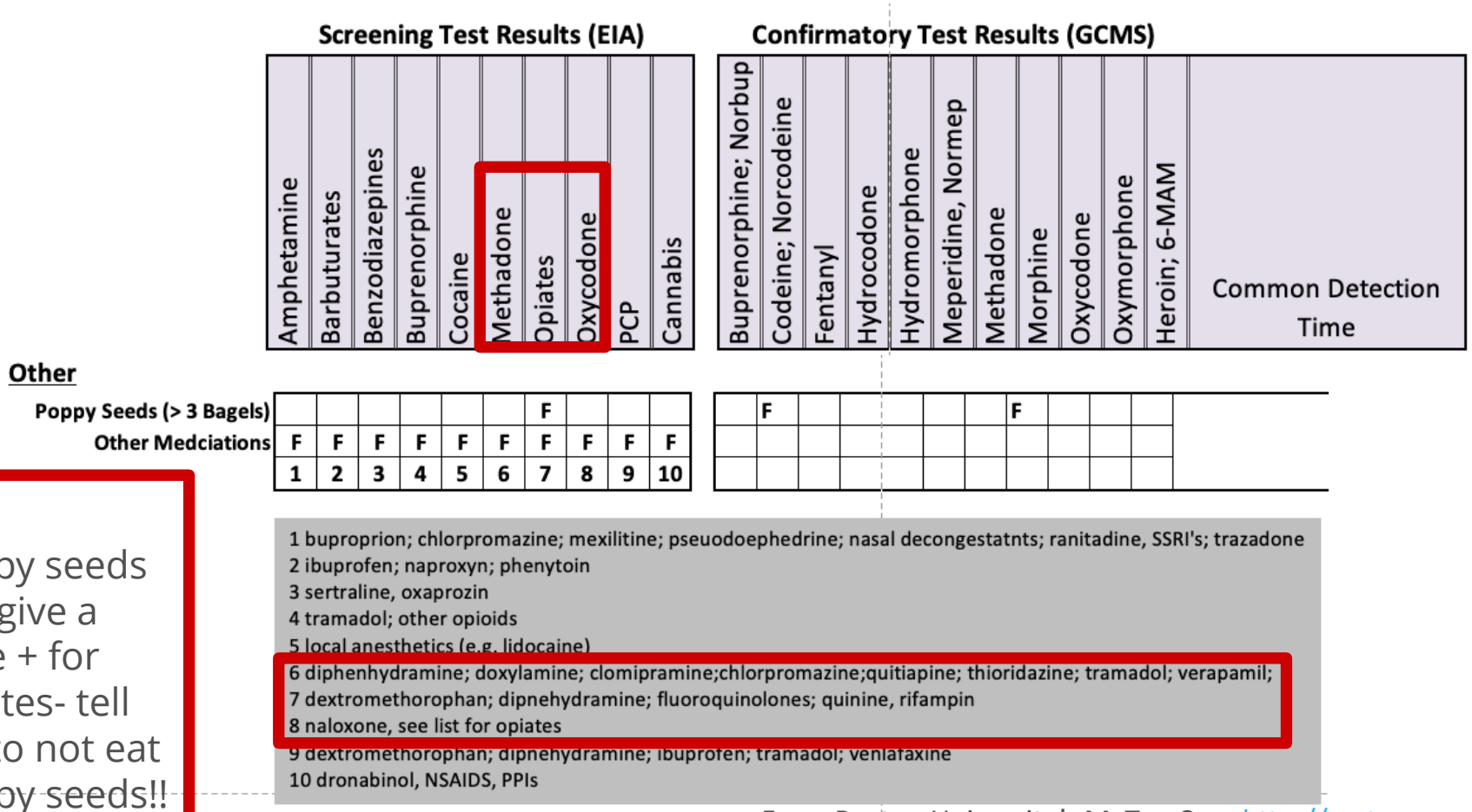
Substance	Possible Urinary Analytes
Morphine	Morphine Hydromorphone (minor metabolite)
Codeine	Codeine Morphine Hydrocodone (minor metabolite)
Hydrocodone	Hydrocodone Hydromorphone
Heroin	6- Monoacetylmorphine (6-MAM) Morphine
Oxycodone	Oxycodone Oxymorphone

Nagpal G, Heiman H, Haymond S. Interpretation of Urine Drug Screens. *Jama*. 2017;318(17):1704. doi:10.1001/jama.2017.10910



From Boston University's MyTop Care http://mytopcare.org/

UDS Confounders



Poppy seeds can give a false + for opiates- tell Pts to not eat poppy seeds!!

From Boston University's MyTop Care http://mytopcare.org/

TABLE 1. Federal Workplace Cutoff Values[a,7]

Initial test analyte	Initial drug test level (immunoassay) (ng/mL)	Confirmatory test analyte	Confirmatory drug test level (GC-MS) (ng/mL)
Marijuana metabolites	50	Delta-9-tetrahydrocannabinol-9-carboxylic acid	15
Cocaine metabolites	150	Benzoylecgonine	100
Opiate metabolites			
Codeine/morphine[b]	2000	Codeine/morphine	2000
6-Acetylmorphine	10	6-Acetylmorphine	10
Phencyclidine	25	Phencyclidine	25
Amphetamine/methamphetamine[c]	500	Amphetamine	250
		Methamphetamine[d]	250
MDMA	500	MDMA	250
		MDA	250
		MDEA	250

[a]MDA = methylenedioxyamphetamine; MDMA = methylenedioxymethamphetamine; MDEA = methylenedioxyethylamphetamine.
[b]Morphine is the target analyte for codeine/morphine testing.
[c]Methamphetamine is the target analyte for amphetamine/methamphetamine testing.
[d]Specimen must also contain amphetamine at a concentration greater than or equal to 100 ng/mL.

Moeller KE, Kissack JC, Atayee RS, Lee KC. Clinical Interpretation of Urine Drug Tests. *Mayo Clinic Proceedings*. 2017;92(5):774-796. doi:10.1016/j.mayocp.2016.12.007

If UDS results are hard to explain:

- Talk with the patient
- Contact the lab
- Consider mass spectrometry (GC/MS or LC-MS):
  - Lab-based
  - Quantitative
  - Fewer false positives/negatives
  - More expensive

If UDS results are negative, consider:

- Is the patient taking the medication?
- Is the patient taking a lower dose of the medication, or more infrequently?
- Are negative results due to duration of use, body mass, hydration, etc.?

*If long-term suspicion for diversion or SUD, engage with patient to create a plan (e.g. OUD treatment, tapering, referrals).

The benefits of GC-MS: Quantification of synthetic opioids

Patient 1: taking oxycodone

- GC-MS results;
  - Oxycodone 356 ng/ml
  - Oxymorphone 844 ng/ml
  - Noroxycodone 835 ng/ml
  - Hydroxymorphone 125 ng/ml
  - Hydrocodone 534 ng/ml
  - Hydromorphone 852 ng/ml

Patient 2: taking oxycodone

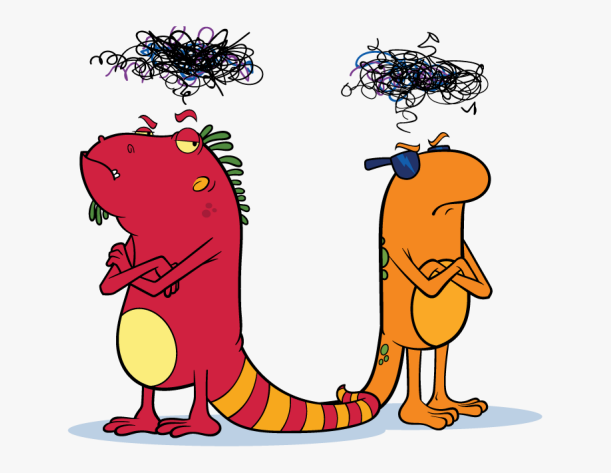
- GC-MS results;
  - Oxycodone 3202 ng/ml
  - Oxymorphone 3600 ng/ml
  - Noroxycodone 3156 ng/ml
  - Hydroxymorphone 156 ng/ml
  - Hydrocodone 29 ng/ml
  - Hydromorphone 44 ng/ml

Always discuss results with patient before drawing conclusions; avoid changing therapy based on one unexpected result.

- **You are doing UDS FOR the patient not TO the patient**

- You have to know what kind of question you are trying to answer and if the urine drug test will help you answer that question
  - E.g. is my patient actually taking the opioid the way it is prescribed? E.g. are any other substances present that could increase overdose risk?

- <u>UDS should be used to motivate change for provider AND patient</u>
  - Use UDS to start a dialogue not as grounds to justify treatment decisions



Fourth Poll

Principles for Urine Drug Screening during Treatment for OUD

- Clinicians should treat a return to use with compassion, as part of the typical course of a chronic relapsing and remitting disease.
- In no case should patients be dismissed from treatment due to return to use or positive drug screens
  - They should not be dismissed for other + screens for other substances (THC< methamphetamine either)
  - The most risky substances are those with overdose risk
- Buprenorphine is effective for OUD: stopping this Tx because the Pt has another use disorder is not appropriate
  - Returns to use or ongoing positive urine screens = option for higher level of care, OTP involvement

FDA Drug Safety Communication: FDA urges caution about withholding opioid addiction medications from patients taking benzodiazepines or CNS depressants: careful medication management can reduce risks

Safety Announcement

[9-20-2017] Based on our additional review, the U.S. Food and Drug Administration (FDA) is advising that the opioid addiction medications buprenorphine and methadone should not be withheld from patients taking benzodiazepines or other drugs that depress the central nervous system (CNS). The combined use of these drugs increases the risk of serious side effects; however, the harm caused by untreated opioid addiction can outweigh these risks. Careful medication management by health care professionals can reduce these risks. We are requiring this information to be added to the buprenorphine and methadone drug labels along with detailed recommendations for minimizing the use of medication-assisted treatment (MAT) drugs and benzodiazepines together.

Key Messages for UDS

- Use UDS as a therapeutic tool to support patient care
- Try sophisticated approaches to unexpected results
  - If in doubt about point-of care immunoassay results:
    - Talk to the patient
    - Talk to the lab
    - Order GCMS/LC-MS
- UDS should never be used to diagnose a substance use disorder or to discontinue someone's opioids

Mock Academic Detailing Visit

What to watch for...

Steps of a Visit

- Introduction
- Needs Assessment
- Key Messages
- Handling Objections
- Summary & Closing

Mock Academic Detailing Visit

References

- Substance Abuse and Mental Health Services Administration. Clinical Drug Testing in Primary Care. Technical Assistance Publication (TAP) 32. HHS Publication No. (SMA) 12-4668. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2012.

- Jefferson Health, "Discussing Urine Drug Screen Results For Clinicians" (2022). *Introduction to Harm Reduction in Healthcare Video Series.* Paper 1. https://jdc.jefferson.edu/harmreductionvideos/1

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Thank you!

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