



Drug Testing: What Judges Need to Know

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2/5/24

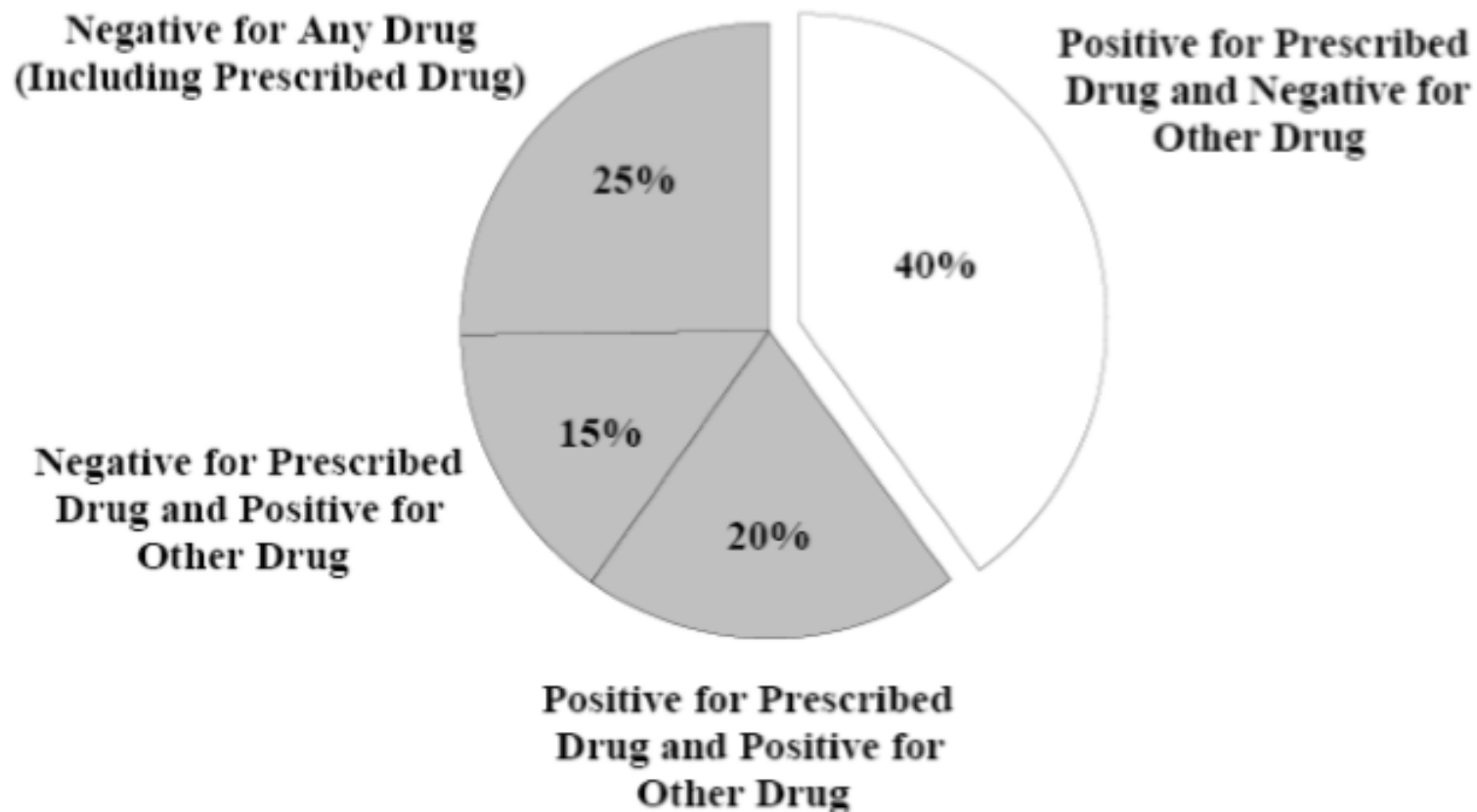
Objectives

- Discuss various type of drug testing modalities
- Review pros and cons of presumptive vs. confirmatory tests
- Discuss how drug testing is utilized to guide clinical decision making
- Review cases of commonly screened for substances

“Drug testing serves as a primary prevention, diagnostic, and monitoring tool to identify the presence or absence of drugs of abuse or therapeutic agents related to addiction management in multiple settings.”

Why Drug Test Part 1?

Figure 4. Percentage of Patients Referred to Quest Diagnostics Laboratories for Drug Testing by Their Physicians Testing Positive and Negative for Drugs Prescribed for Them, 2012.¹⁰²



Why Drug Test Part 2?

Top 15 substances involved in overdoses

106	fentanyl	26	p-fluorofentanyl	17	N-phenylpropanamide
103	4-ANPP	25	methamphetamine	16	despropionyl p-fluorofentanyl
50	xylazine	20	cocaine	15	1,3-Diacetin
43	phenethyl 4-ANPP	18	dimethyl sulfone (methylsulfonylmeth...)	14	caffeine
27	heroin	17	ethyl-4-ANPP	14	diphenhydramine

[View all substances involved in overdoses](https://ncdrugchecking.streamlit.app/)

<https://ncdrugchecking.streamlit.app/>



What does a drug test tell you?

- Drug tests measure if a **particular drug** is in the patient's **sample** (urine, blood, saliva, etc.) at a specific **point in time**.

Drug tests **CANNOT**:

- Prove that a substance *hasn't* been taken
- Identify every substance that may have been taken
- Detect if the patient is intoxicated/impaired
- Rule out or diagnosis a Substance Use Disorder



Case #1

- Client asks if poppy seeds can lead to a positive urine drug screen for opiates?

Answer: **True** (roll vs. raw poppy seed resulted in urinary morphine concentrations below 2,000 ng/mL)



Drug testing in different contexts

Context

Question



Is the individual violating their parole?
Did the individual drive while intoxicated?

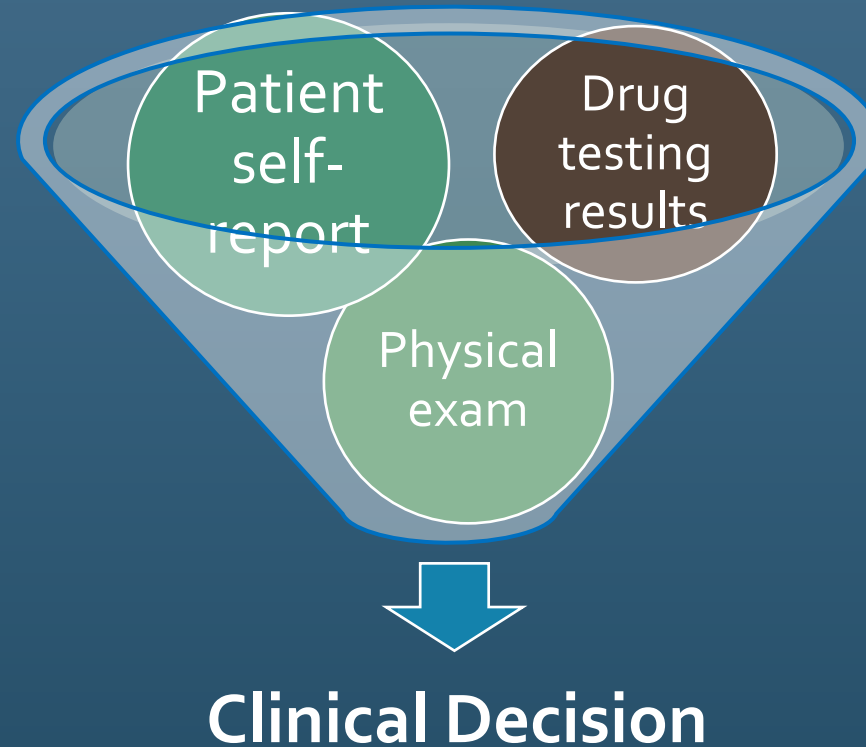


Was the employee intoxicated?
Is the employer financially responsible for the worker's injury?



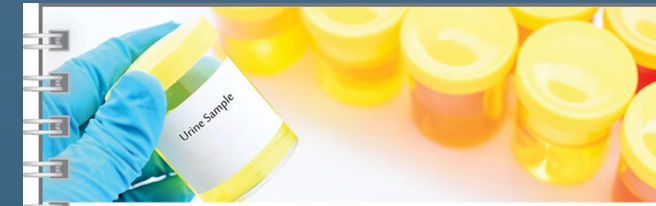
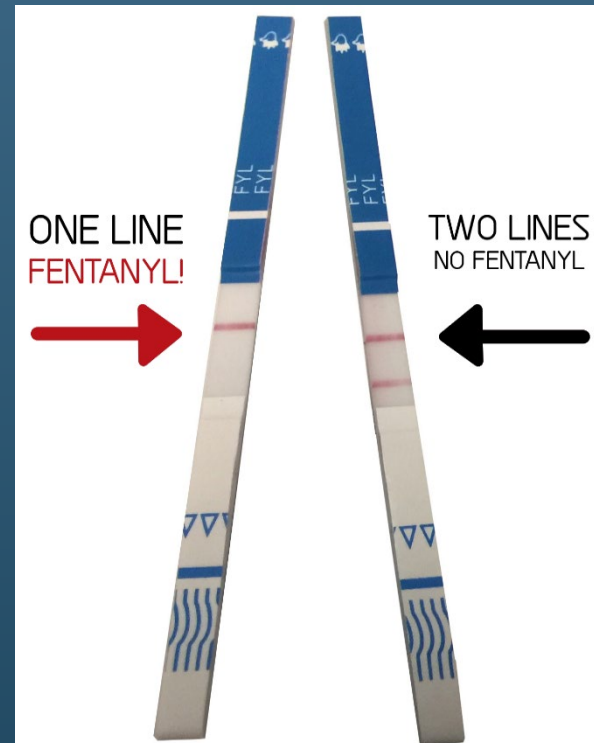
Has the patient recently used these *specific* substances (drugs or medications)?
Which clinical approach is most likely to help the patient?

Drug Testing Results Are Just One Component Used in Clinical Decision Making



Drug Testing in Addiction Treatment

- Screening and diagnostic evaluation
- Long-term monitoring after initial treatment
- Harm Reduction (identify fentanyl)
- *PHPs (Physician Health Programs)



THE ASAM APPROPRIATE USE OF DRUG TESTING IN CLINICAL ADDICTION MEDICINE

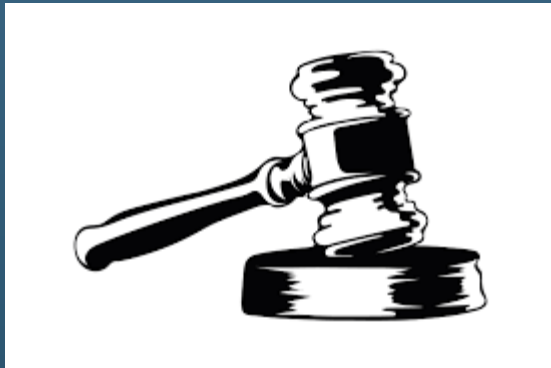
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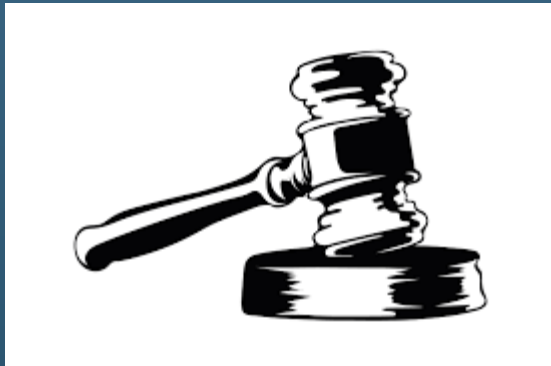
American Society of Addiction Medicine
TREAT ADDICTION • SAVE LIVES
<http://www.ASAM.org>

How do you read Urine Drug Screens?



Ref Range & Units	(1/9/23)
<input checked="" type="checkbox"/> Amphetamines, Urine POCT <500 ng/mL	NEGATIVE
<input checked="" type="checkbox"/> Barbiturates, Urine POCT <200 ng/mL	NEGATIVE
<input checked="" type="checkbox"/> Benzodiazepines, Urine POCT <150 ng/mL	NEGATIVE
<input checked="" type="checkbox"/> Buprenorphine, Urine POCT <10 ng/mL	PRESUMPTIVE POSITIVE !
<input checked="" type="checkbox"/> Cannabinoids, Urine POCT <50 ng/mL	NEGATIVE
<input checked="" type="checkbox"/> Cocaine, Urine POCT <150 ng/mL	NEGATIVE
<input checked="" type="checkbox"/> Methadone, Urine POCT <200 ng/mL	NEGATIVE
<input checked="" type="checkbox"/> Methamphetamine, Urine POCT <500 ng/mL	NEGATIVE
<input checked="" type="checkbox"/> Opiates, Urine POCT <100 ng/mL	NEGATIVE
<input checked="" type="checkbox"/> Oxycodone, Urine POCT <100 ng/mL	NEGATIVE

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Component	11/21/23 0925
Ref Range & Units	
<input checked="" type="checkbox"/> Amphetamine Confirm Cutoff: 25 ng/mL	Negative
<input checked="" type="checkbox"/> Phentermine Cutoff: 25 ng/mL	Negative
<input checked="" type="checkbox"/> Methamphetamine Confirm, Ur Cutoff: 25 ng/mL	Negative
<input checked="" type="checkbox"/> Pseudoephedrine Cutoff: 25 ng/mL	Negative
<input checked="" type="checkbox"/> MDA Cutoff: 25 ng/mL	Negative
<input checked="" type="checkbox"/> MDMA Confirm Cutoff: 25 ng/mL	Negative
<input checked="" type="checkbox"/> Amphet Interp, Urine Comment:	Negative.

Two General Categories of Drug Testing

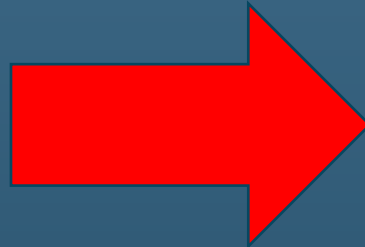
	"Point of Care" or "Presumptive" testing	"Confirmatory" or "Definitive" testing
Timing of collection	Performed in clinic at time of visit	Performed by outside lab after patient visit
Timing of results	Results available at time of patient visit	Results available 2-10 days after patient visit
Specimen	Sample collected in clinic	Sample may be collected in clinic or at lab site
Results	Positive or negative results, no quantities	Results can be reported as quantities
Accuracy	Some substance or drugs can cross-react leading to "false pos" and "false neg"	Very rare false positives or false negatives
Cost	\$	\$\$\$

Screening (Presumptive) Test Interpretation

- Substances can trigger a **positive result** for Methamphetamines or Amphetamines
 - Over the counter cold/allergy or heartburn meds
 - Some antidepressants (Prozac, Wellbutrin)
- Some benzodiazepines may not be detected unless they are at high levels
 - Clonazepam (Klonopin), Lorazepam (Ativan)
- Some opioids will not be detected with a general opioid screen, requiring specific tests
 - Buprenorphine, Methadone, Oxycodone, Fentanyl

Routine testing for other substances?

Component	11/18/20
Ref Range & Units	1605
<input checked="" type="checkbox"/> Amphetamines Screen, Ur	<500 ng/mL
Not Applicable	
<input checked="" type="checkbox"/> Barbiturates Screen, Ur	<200 ng/mL
Not Applicable	
<input checked="" type="checkbox"/> Benzodiazepines Screen, Urine	<200 ng/mL
Not Applicable	
<input checked="" type="checkbox"/> Cannabinoids Screen, Ur	<20 ng/mL
Not Applicable	
<input checked="" type="checkbox"/> Methadone Screen, Urine	<300 ng/mL
Not Applicable	
<input checked="" type="checkbox"/> Cocaine(Metab.)Screen, Urine	<150 ng/mL
Not Applicable	
<input checked="" type="checkbox"/> Opiates Screen, Ur	<300 ng/mL
Not Applicable	
Resulting Agency	UNCH



Component	12/27/23 1111
Ref Range & Units	
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<500 ng/mL	
<input checked="" type="checkbox"/> Barbiturates Screen, Ur	Negative
<200 ng/mL	
<input checked="" type="checkbox"/> Benzodiazepines Screen, Urine	Negative
<200 ng/mL	
<input checked="" type="checkbox"/> Cannabinoids Screen, Ur	Positive !
<20 ng/mL	
<input checked="" type="checkbox"/> Methadone Screen, Urine	Negative
<300 ng/mL	
<input checked="" type="checkbox"/> Cocaine(Metab.)Screen, Urine	Positive !
<150 ng/mL	
<input checked="" type="checkbox"/> Opiates Screen, Ur	Negative
<300 ng/mL	
<input checked="" type="checkbox"/> Fentanyl Screen, Ur	Positive !
<1.0 ng/mL	
<input checked="" type="checkbox"/> Oxycodone Screen, Ur	Negative
<100 ng/mL	
<input checked="" type="checkbox"/> Buprenorphine, Urine	Negative
<5 ng/mL	

Types of Samples

- Urine
- Blood
- Sweat
- Oral fluid
- Hair

Exhibit 2-1. Window of Detection for Various Matrices

Matrix	Time*					
Breath	[Shaded]		[White]			
Blood	[Dark Shaded]		[White]			
Oral Fluid	[Light Shaded]			[White]		
Urine	[White]	[Dark Shaded]				[White]
Sweat†	[White]	[Dark Shaded]		[White]		
Hair‡	[White]	[White]	[Dark Shaded]			
Meconium	[White]	[White]	[White]	[Light Shaded]		[White]
	Minutes	Hours	Days	Weeks	Months	Years

*Very broad estimates that also depend on the substance, the amount and frequency of the substance taken, and other factors previously listed.
 †As long as the patch is worn, usually 7 days.
 ‡7–10 days after use to the time passed to grow the length of hair, but may be limited to 6 months hair growth. However, most laboratories analyze the amount of hair equivalent to 3 months of growth.

Sources: Adapted from Cone (1997); Dasgupta (2008).

Each sample type has its own limitations and benefits; consult with a clinical pathologist or toxicologist to determine the best testing for your needs

Urine

- **Easy to collect, but requires a bathroom**
- **May be observed or unobserved**
 - Observed does not necessarily prevent tampering
 - Observed urine collection may be distressing for some patients with a history of trauma (sexual trauma)
 - If using an observer, ask the patient their preferences
- **Prone to tampering**
 - Dilution
 - Addition of interfering substance
 - Substitution with another person's urine
- **Options for testing for sample integrity**
 - Temperature
 - pH
 - Specific gravity
- **Standardized collection protocol**



Window of Detection

- Depends on drug, type of specimen (urine, blood, hair, etc.)
- Urine:

Substance	Days	
Heroin	1-2	
Cocaine	2-4 (low use)	10-22 (heavy use)
Marijuana	1-3 (low use)	up to 30 (heavy use)
Benzodiazepines	1-3 (short acting)	up to 6 weeks (long acting)
Methamphetamines	1-2	

Exhibit 2.12. Urine Drug Testing Window of Detection^{63,64}

Drug	Positive Test	Window of Detection*	Comments
Amphetamine; methamphetamine; 3,4- methylenedioxymeth- amphetamine	Amphetamine	1–2 days	False positives w/ bupropion, chlorpromazine, desipramine, fluoxetine, labetalol, promethazine, ranitidine, pseudoephedrine, trazadone, and other common medications. Confirm unexpected positive results with the lab.
Barbiturates	Barbiturates	Up to 6 weeks	N/A
Benzodiazepines	Benzodiazepines	1–3 days; up to 6 weeks w/ heavy use of long-acting benzodiazepines	Immunoassays may not be sensitive to therapeutic doses, and most immunoassays have low sensitivity to clonazepam and lorazepam. Check with your laboratory regarding sensitivity and cutoffs. False positives with sertraline or oxaprozin.
Buprenorphine	Buprenorphine	3–4 days	Will screen negative on opiate screen. Tramadol can cause false positives. Can be tested for specifically.
Cocaine	Cocaine, benzoylecgonine	2–4 days; 10–22 days w/ heavy use	N/A
Codeine	Morphine, codeine, high- dose hydrocodone	1–2 days	Will screen positive on opiate immunoassay.

Exhibit 2.12. Urine Drug Testing Window of Detection^{63,64}

Drug	Positive Test	Window of Detection*	Comments
Fentanyl	Fentanyl	1–2 days	Will screen negative on opiate screen. Can be tested for specifically. May not detect all fentanyl-like substances. ⁶⁵
Heroin	Morphine, codeine	1–2 days	Will screen positive on opiate immunoassay. 6-monoacetylmorphine, a unique metabolite of heroin, is present in urine for about 6 hours. Can be tested for specifically to distinguish morphine from heroin, but this is rarely clinically useful.
Hydrocodone	Hydrocodone, hydromorphone	2 days	May screen negative on opiate immunoassay. Can be tested for specifically.
Hydromorphone	May not be detected	1–2 days	May screen negative on opiate immunoassay. Can be tested for specifically.
Marijuana	Tetrahydrocannabinol	Infrequent use of 1–3 days; chronic use of up to 30 days	False positives possible with efavirenz, ibuprofen, and pantoprazole.
Methadone	Methadone	2–11 days	Will screen negative on opiate screen. Can be tested for specifically.
Morphine	Morphine, Hydromorphone	1–2 days	Will screen positive on opiate immunoassay. Ingestion of poppy plant/seed may screen positive.
Oxycodone	Oxymorphone	1–1.5 days	Typically screens negative on opiate immunoassay. Can be tested for specifically.

*Detection time may vary depending on the cutoff.

Alcohol

- Breath testing – ease of testing
- Blood testing – blood alcohol concentration (BAC) ~6 hrs
- Urine testing – ethyl glucuronide (EtG) and ethyl sulfate (EtS)
 - Detect alcohol ~ 72 hrs, false (+)
 - DO NOT determine level of drinking or severity of disease
 - DO detect recent use in settings where use is prohibited

Approximate Blood Alcohol Content (BAC) In One Hour
 Source: National Highway Traffic Safety Administration

Drinks	Body Weight In Pounds								Influenced
	100	120	140	160	180	200	220	240	
1	.04	.03	.03	.02	.02	.02	.02	.02	Possibly
2	.08	.06	.05	.05	.04	.04	.03	.03	
3	.11	.09	.08	.07	.06	.06	.05	.05	Impaired
4	.15	.12	.11	.09	.08	.08	.07	.06	
5	.19	.16	.13	.12	.11	.09	.09	.08	Legally Intoxicated
6	.23	.19	.16	.14	.13	.11	.10	.09	
7	.26	.22	.19	.16	.15	.13	.12	.11	
8	.30	.25	.21	.19	.17	.15	.14	.13	
9	.34	.28	.24	.21	.19	.17	.15	.14	
10	.38	.31	.27	.23	.21	.19	.17	.16	

Subtract .015 for each hour after drinking.

One drink equals 1.5 oz. of 80 proof liquor (40%), 12 oz. beer (4.5%), or 5 oz. wine (12%).
 Note: The figures are averages and may vary based on the amount of food in your stomach.

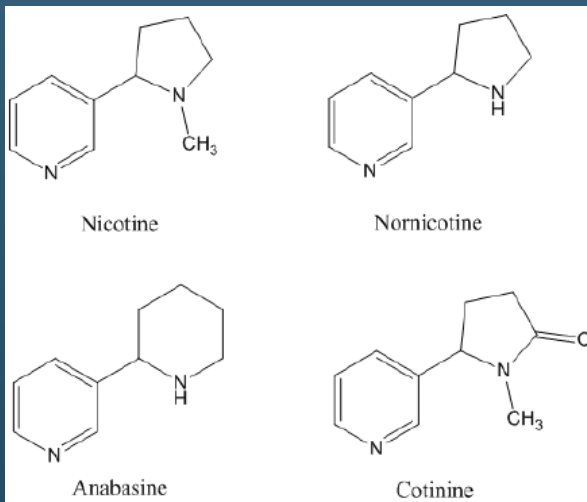


Table 4. Alcohol content (%) of some commercial items

ITEM	USE	ALCOHOL (%)
Listerine Antiseptic Mouthwash	Mouthwash	26.9
Soft Soap Hand Sanitizer – Gel		60 – 65
Dilaudid Cough Syrup	Cough suppressant, Analgesic	5
Colgate Mouthwash	Mouthwash/gargle	15.3
Vicks Nyquil	Decongestant, cough	25
Vicks Formula 44M	Cough suppressant,	20
Tylenol Adult Liquid Pain Reliever	Analgesic	7
Phenergan Syrup – Plain	Antihistamine	7

Tobacco/Nicotine

- Urine, hair, and oral fluid
- Breath testing (Carbon Monoxide)
 - E-cigarettes and nicotine replacement are NOT (+)
 - (+) for Marijuana
 - Quick and easy to administer
- Nicotine -> Cotinine (present in nicotine replacement products)
- Useful in various clinical scenarios



Component	8/8/23 1344
Ref Range & Units	
<input checked="" type="checkbox"/> Nicotine, Urine	<5.0
<5.0 ng/mL	
<input checked="" type="checkbox"/> Cotinine, Urine	<5.0
<5.0 ng/mL	
<input checked="" type="checkbox"/> Normicotine, Urine	<2.0
<2.0 ng/mL	
<input checked="" type="checkbox"/> Anabasine, Urine	<2.0
<2.0 ng/mL	
Comment:	

Case #2

- A patient's UDS tests + THC. They report only using CBD (cannabidiol) oil. What is going on?

“Legal” and “accurately” labeled products will not cause a positive screen.



Δ -9



Δ -8



CBD



Clinical Practice Using Drug Testing

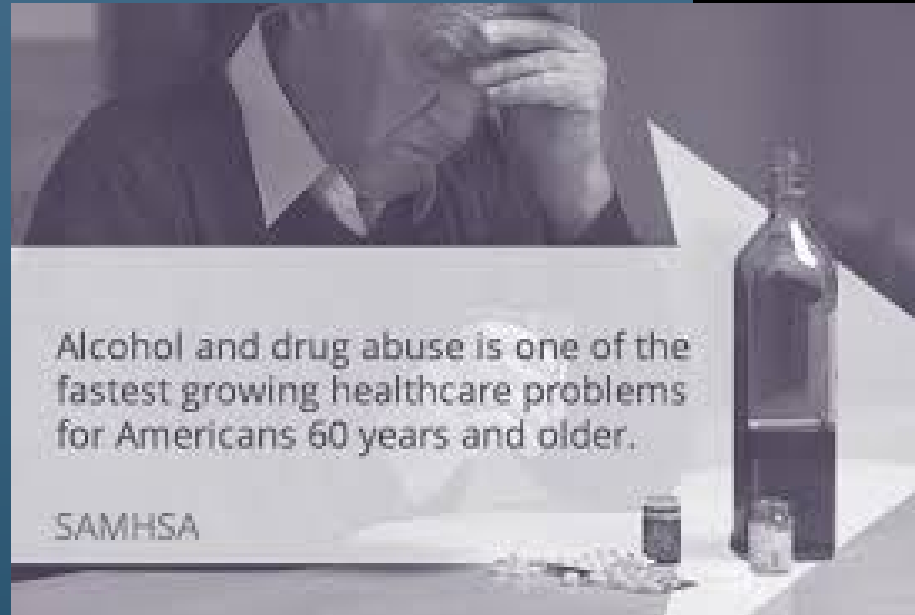
- Scheduled vs Random
- Testing High Risk Populations (SUD, PHPs, chronic opioids)
- Drug testing is NOT a panacea (does NOT diagnose addiction)
- Responding to Unexpected Positive Results
 - PHPs/criminal justice – swift, certain and meaningful responses
 - Healthcare – intensify treatment
- Need for confirmatory testing
- Cost

Urine Drug Testing by Law Enforcement

- Mostly urine
- Can be dipstick (POC) or confirmation testing sent out
- Clients CAN challenge the urine drug screen result
- Law enforcement will ask what prescription medications they are taking
 - Can document “Rx involved” UDS
 - Have a list with medications that cause false positives

Special Populations

- Pregnancy
- Geriatrics
- Adolescents



Inequities/Harms of Urine Drug Testing

March 8, 2023

Incidence of Newborn Drug Testing and Variations by Birthing Parent Race and Ethnicity Before and After Recreational Cannabis Legalization

Conclusions and Relevance In this study, clinicians ordered NDTs more frequently for Black newborns when no drug testing was done during pregnancy. These findings call for further exploration of how structural and institutional racism contribute to disproportionate testing and subsequent Child Protective Services investigation, surveillance, and criminalization of Black parents.

Urine Drug Screening for Isolated Marijuana Use in Labor and Delivery Units

In their Research Letter in the October 2022 issue, Rubin et al¹ explore the utility of urine drug testing for cannabinoids during the birthing hospitalization. Their data demonstrate that drug testing provides no clinically meaningful information and is used instead as a means of policing Black parenting. These findings contribute to a growing and critical literature that problematizes the reflex health professional behavior of “test” but, unfortunately, also perpetuates misinformation about “report.”²

A drug test result alone is not an indication for a child welfare report in either federal (Child Abuse Prevention and Treatment Act) or Missouri state law. Guidelines for mandated reporters in Missouri are clear: a safety concern in addition to the drug test result is required for a report.³ The author’s repeated statements that positive test results were “mandatorily reported to the state child abuse hotline” reflects overreporting (child welfare reports above and beyond legal requirements), a practice that typifies health professional complicity in the criminalization of pregnant and parenting individuals.⁴

Health professionals are the largest and fastest growing source of child welfare reports for infants in the first year of life and report more than 43,000 infants annually for perinatal substance exposure alone.⁵ These overreports lead to family separation and contribute to a “trauma-to-prison pipeline.”⁶

https://journals.lww.com/greenjournal/Citation/2023/03000/Urine_Drug_Screening_for_Isolated_Marijuana_Use_in.23.aspx

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2802124>

Can Urine Drug Testing Determine if a Person was Impaired?

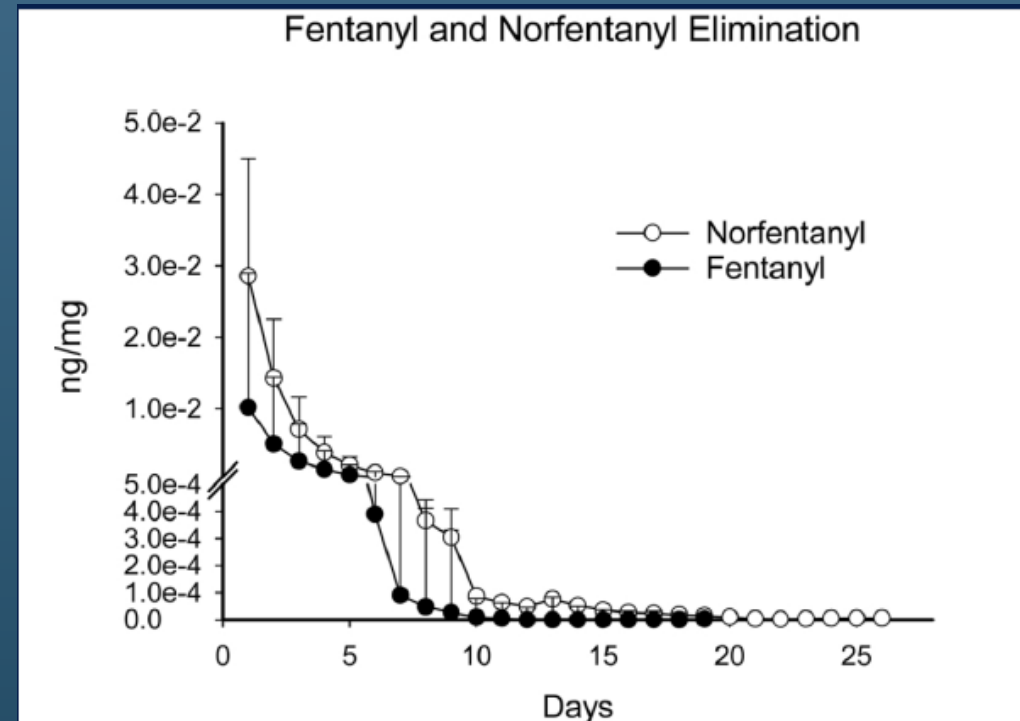
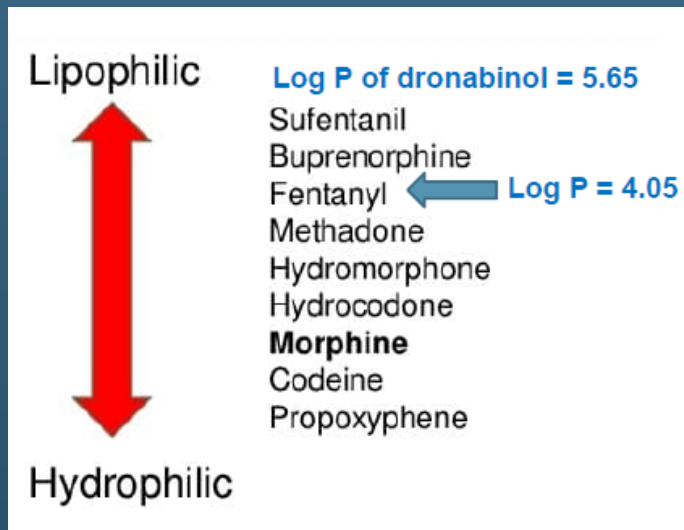
No

Impairment is affected by several factors that are unknown, including:

- How much of the substance was used
- When was it used
- What is the person's tolerance
 - How long have they used it
 - Regular use?
- Combined effects with other drugs
 - There may be drug present that the lab cannot detect
- Daily/hourly variations in the person's health

Case #3

- A patient tests + for fentanyl 14 days after their reported last use. What is going on?



Take Home-Points about Testing

- Whom to test, what drugs to test for, what matrix to use, and what to do with results
- Ask about any prescribed or over-the-counter medications as well as vitamins and herbal supplements
- Point-of-care (presumptive) tests and Confirmatory (definitive) tests each have pros and cons
- Testing results are just one set of information needed to guide clinical decision making

“Drug testing is done for the patient, not to the patient.”

References

- <https://store.samhsa.gov/system/files/sma12-4668.pdf>
- <https://www.asam.org/docs/default-source/public-policy-statements/drug-testing-a-white-paper-by-asam.pdf>
- https://www.samhsa.gov/sites/default/files/workplace/mro-guidance-manual-oct2017_2.pdf
- https://www.samhsa.gov/sites/default/files/workplace/mro-guidance-manual-oct2017_2.pdf

Thank you! Questions?



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