



UW PACC

Psychiatry and Addictions Case Conference

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USING URINE DRUG SCREENS IN OUD TREATMENT

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5/16/2024



SPEAKER DISCLOSURES

✓ No conflicts of interest

PLANNER DISCLOSURES

The following series planners have no relevant conflicts of interest to disclose; other disclosures have been mitigated.

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OBJECTIVES

1. Understand the purpose of urine drug screens for opioid use disorder treatment.
2. Learn how urine drug screens work.
3. Review the metabolism of opioids.
4. Review the metabolism of fentanyl and buprenorphine.
5. Learn how to interpret urine drug screen findings and how to communicate with patients about unexpected findings.
6. Describe different settings urine drug tests are used.
7. Learn how drug screens are used in special populations like pregnant patients and adolescents.

PURPOSE OF A URINE DRUG TEST

- Urine drug testing can be used to monitor adherence to prescribed medications and detect the use of nonprescribed substances.
- Common panel of tests include THC, opiates, opioids, amphetamines, barbiturates, and cocaine.

PROS AND CONS OF URINE DRUG TESTING

- Pros: well-established and well supported for presumptive detection of substance use in a clinical setting
- Cons: of all the drug testing methods, most prone to sample tampering; prone to false positive and misinterpretation; may have substances left off on initial screening panel; can be intrusive during collection

COMPARISON OF COMMON DRUG TEST METHODS

	Urine	Blood	Hair
Primarily detects	Drug metabolite	Parent drug; blood alcohol concentration	Parent drug
General detection period	1-4 days	1-48 hours	7-100 days
Ease of collection	Requires restroom	Requires training in phlebotomy	Easily collected
Typical uses	Intermediate-term detection in ongoing addiction treatment	Determination of acute impairment or intoxication of alcohol	Long-term monitoring; 3-month drug use history

SCREENING VS. CONFIRMATORY TEST

- Common practice: first screen samples using an inexpensive presumptive test to rule out negative samples.
- Later confirm potential positive results using a highly specific definitive test.

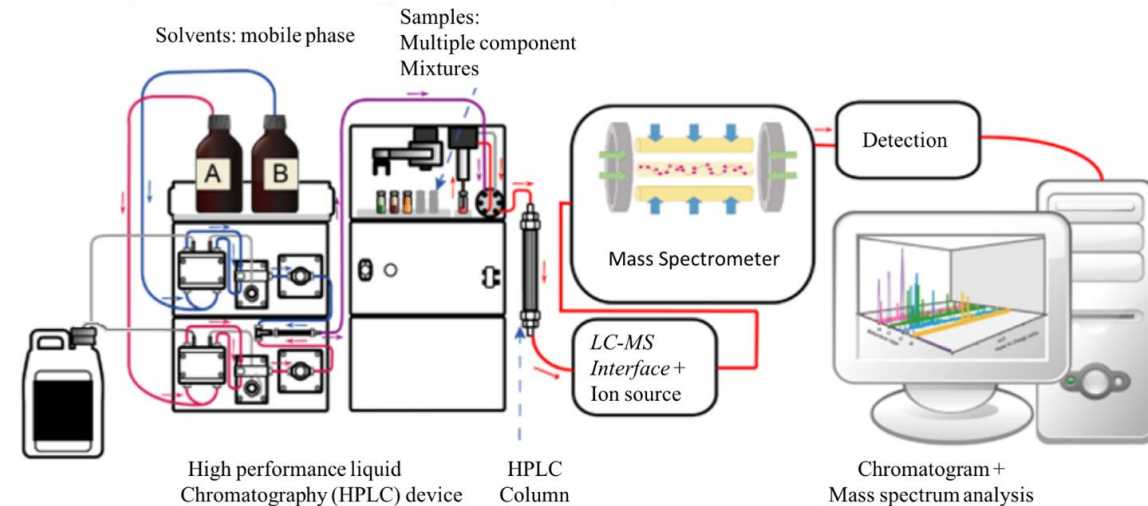
SCREENING TEST

- Typically consists of an immunoassay, a qualitative test.
- Usually a routine part of initial or ongoing patient assessment.
- Used when it is a priority to have more immediate (although less accurate) results.
- If a patient confirms that he or she used a substance detected by a presumptive test, it is not necessary to perform a confirmatory test.
- Pro: much faster turnaround time to receive results and thus more rapid therapeutic response.



CONFIRMATORY TESTING

- Often uses gas or liquid chromatography paired with mass spectroscopy.
- Typically used to quantify levels of the substance present, detect specific substances not identified by screening methods and refine the accuracy of the results.
- Usually ordered if there are impacts on patient care or if there are legal issues, such as child protective/safety concerns and other high-stake scenarios.
- Can also be used when a patient disputes the findings of a presumptive test.
- Can also be used when a patient exhibits signs of substance use but screening test results are negative.



URINE VALIDITY TESTING

- Recommended if a provider suggests that a patient has engaged in substance use but continues to produce negative urine tests.
- Recommended if a sample is suspected of having been tampered with.
- Samples that have been tampered can be considered presumptive positive tests.

1. Herron, A. J., & Brennan, T. (2020). *The ASAM Essentials of Addiction Medicine*. Wolters Kluwer Health/Lippincott Williams & Wilkins.
2. Ko M, Merritt P, Dawson E. Specimen Validity Testing. *Pract Pain Manag*. 2013;13(5).

COMPONENTS OF URINE SPECIMEN VALIDITY

- Creatinine: marker of renal health, very low if an individual is overhydrated or very high with adulterants, <20mg/dl indicates a dilute sample; recommend morning collects or decreased water intake prior to collection to avoid diluted sample.
- Specific gravity: normally between 1.003 and 1.030; specific gravity of < 1.003 suggests dilution.
- pH: measure of acid-base status, ranges 4.5-8.0 in urine; abnormal pH suggests dilution or adulteration or can also suggest UTI and extreme diets.
- Immunoglobulin: IgG <0.5µg/ml suggests substitution with synthetic or animal urine.
- Adulterants: examples include nitrites and pyridium chlorochromates; does not detect newer adulterants.
- Temperature: acceptable range usually between 90°F to 100°F (32°C to 38°C).

1. Herron, A. J., & Brennan, T. (2020). *The ASAM Essentials of Addiction Medicine*. Wolters Kluwer Health/Lippincott Williams & Wilkins.
2. Ko M, Merritt P, Dawson E. Specimen Validity Testing. *Pract Pain Manag*. 2013;13(5).

VALID OR INVALID?

Specimen Validity Testing	Value	Reference Range	
Creatinine (mg/dL)	11.0	5.0	400.0
Specific Gravity	1.0020	1.0030	1.0400
pH	7.2	4.5	8.9

EXAMPLE OF INVALID URINE SAMPLE

Table 1. Lab Report: Dilute Sample

Specimen Validity Testing	Value	Reference Range	
Creatinine (mg/dL)	11.0	5.0	400.0
Specific Gravity	1.0020	1.0030	1.0400
pH	7.2	4.5	8.9

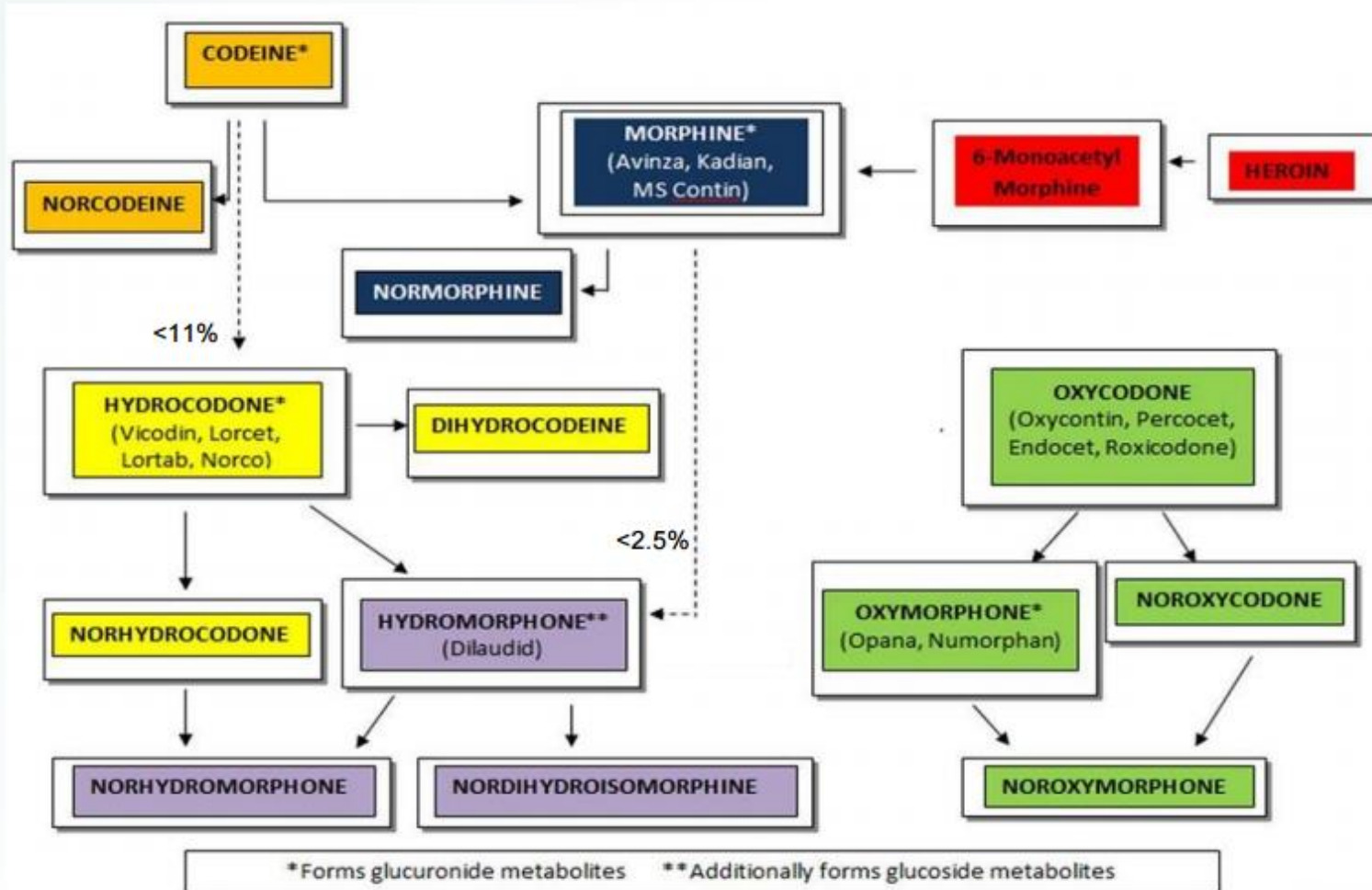
This specimen is dilute as defined by standard laboratory industry criteria: creatinine ≥ 2.0 and < 20.0 mg/dL and specific gravity < 1.0030 and > 1.0010 .

Creatinine < 20 mg/dl
Specific gravity < 1.003

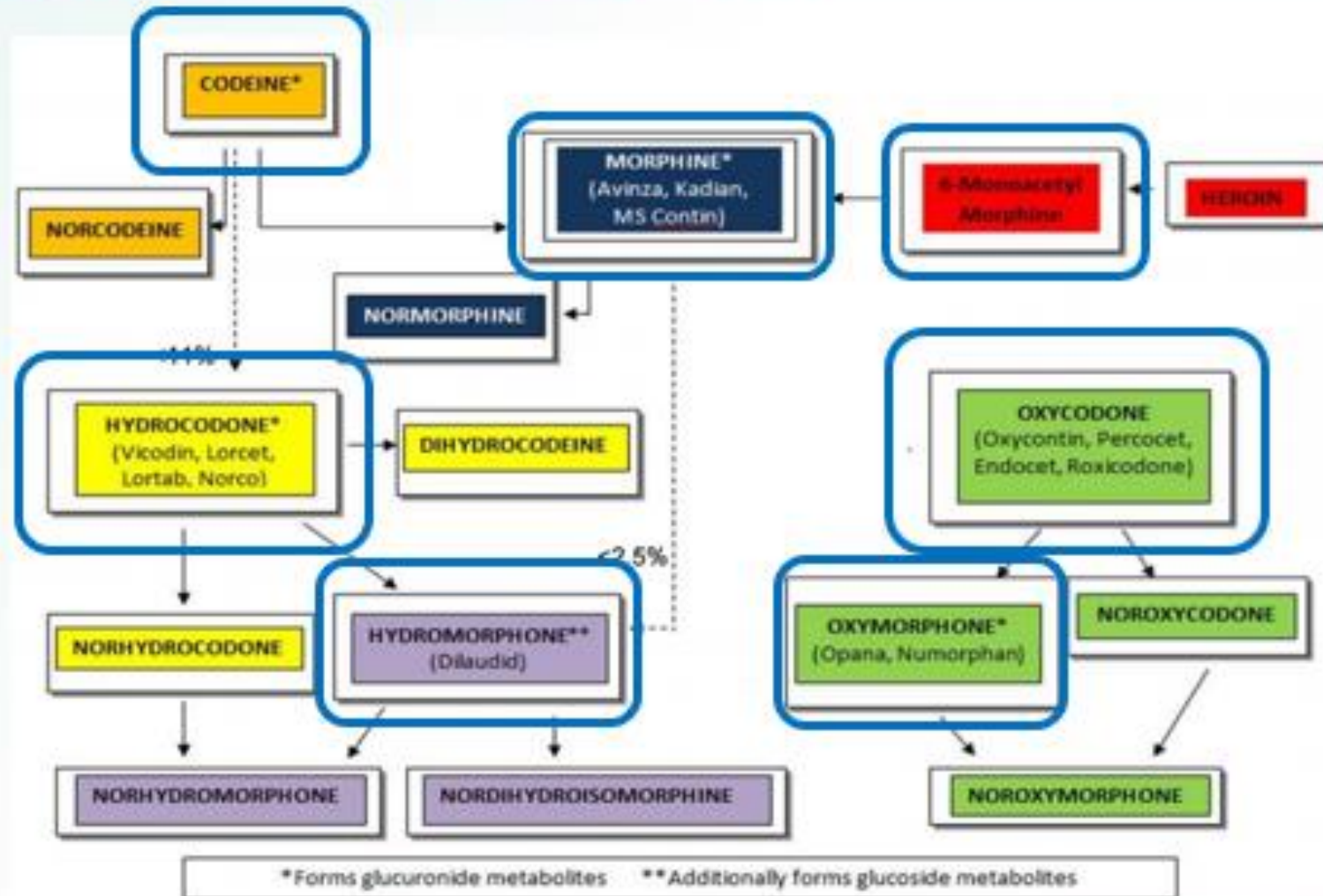
OPIOIDS AND URINE DRUG TESTS

- Opioids: synthetic and semi-synthetic (oxycodone, fentanyl, hydromorphone)
- Opiates: substances naturally derived from opium plant (codeine, morphine)
- Opioids are detectable for 1 to 4 days after use except prolonged daily use of fentanyl.
- Can be missed on routine screening, generating significant false negatives.
- Recommend testing more frequently during stabilization period of and less during maintenance when initiating medications.

Opiate Metabolism



Opiate Metabolism



CASE 1

Codeine	24,231	ng/mL
Morphine	4,866	ng/mL
Creatinine	124.8	mg/dL
Rx:	Codeine	

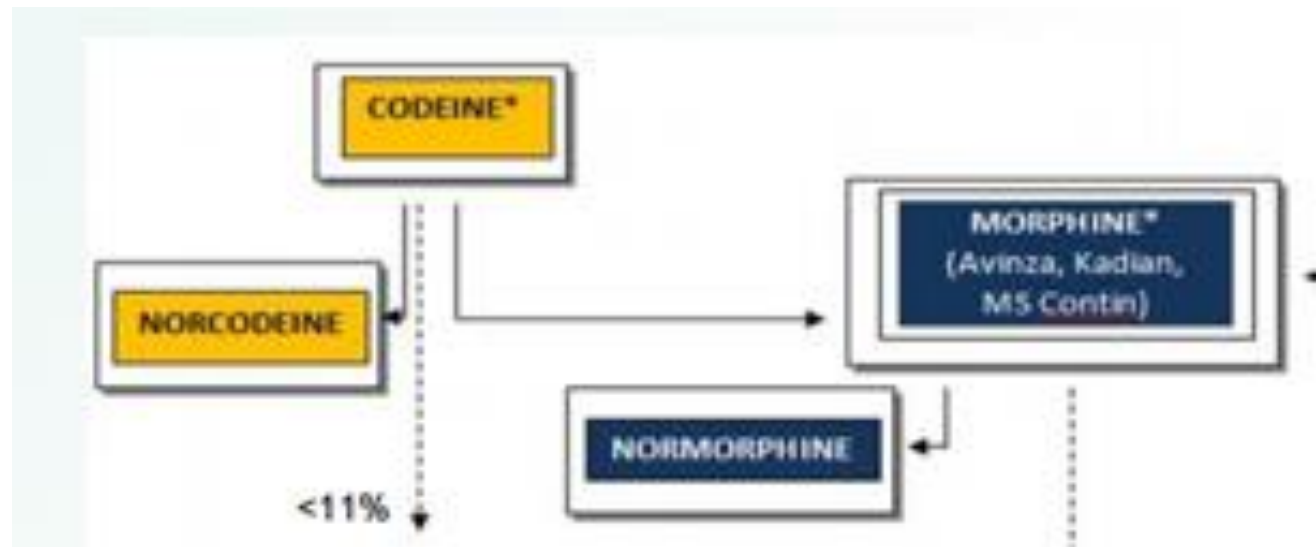
Consistent or Not Consistent?

CASE 1 ANSWER

Codeine	24,231	ng/mL
Morphine	4,866	ng/mL
Creatinine	124.8	mg/dL
Rx: Codeine		

Codeine is metabolized to morphine and thus you will see both in the urine drug test.

Consistent



CASE 2

Oxycodone	329	ng/mL
Oxymorphone	961	ng/mL
Creatinine	118.6	mg/dL

Rx: Oxymorphone

Consistent or not consistent?

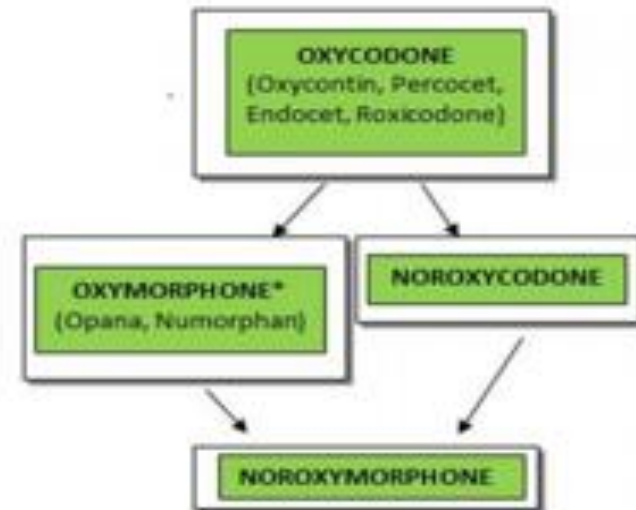
CASE 2 ANSWER

Oxycodone	329	ng/mL
Oxymorphone	961	ng/mL
Creatinine	118.6	mg/dL

Rx: Oxymorphone

Not consistent

Oxycodone is metabolized to oxymorphone but not the other way around. Patient is likely also taking external oxycodone.



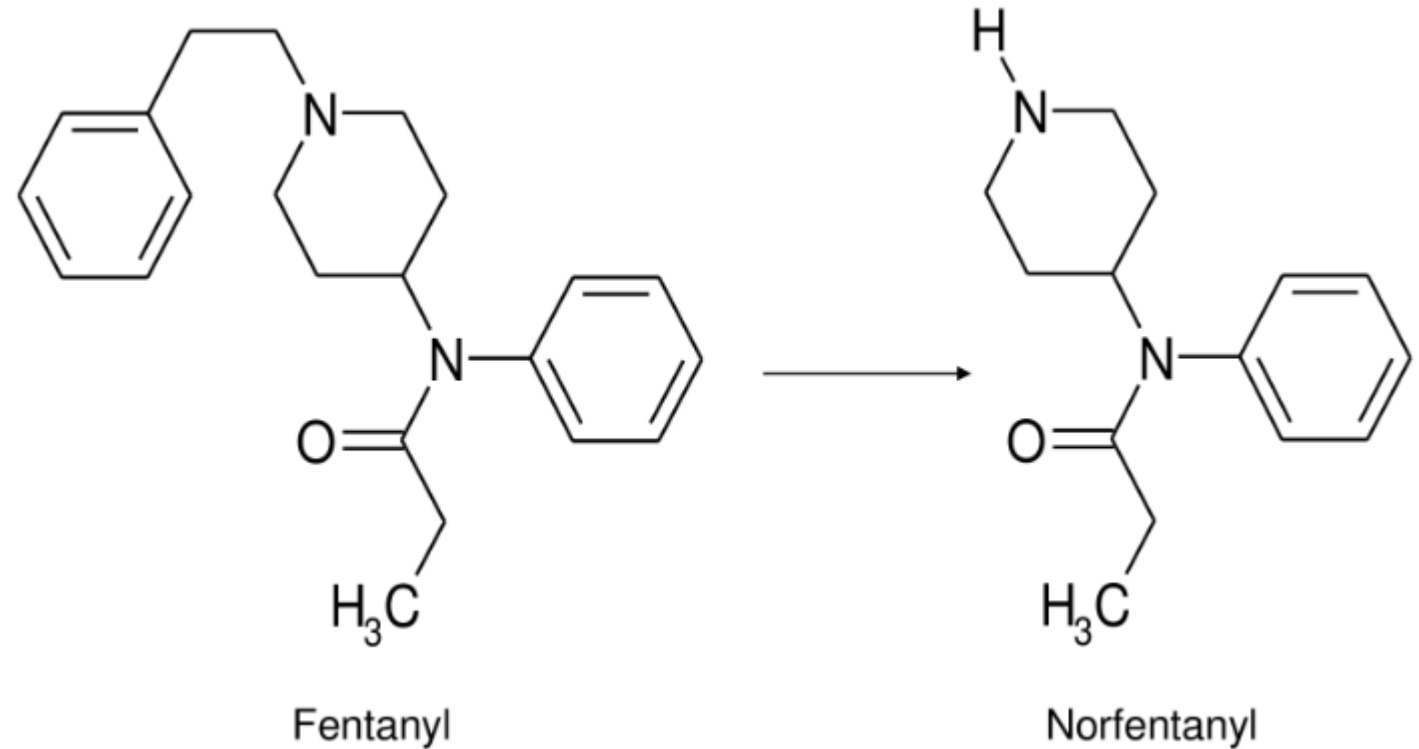
COMMON FALSE POSITIVES

- False positive opioids on screening UDT: poppy seeds, quinolone antimicrobials; dextromethorphan, quinine, rifampin, verapamil.
- False positive fentanyl on screening UDT: risperidone, trazodone, labetalol, ziprasidone.
- False positive oxycodone on screening UDT: naloxone and naltrexone.



FENTANYL METABOLISM

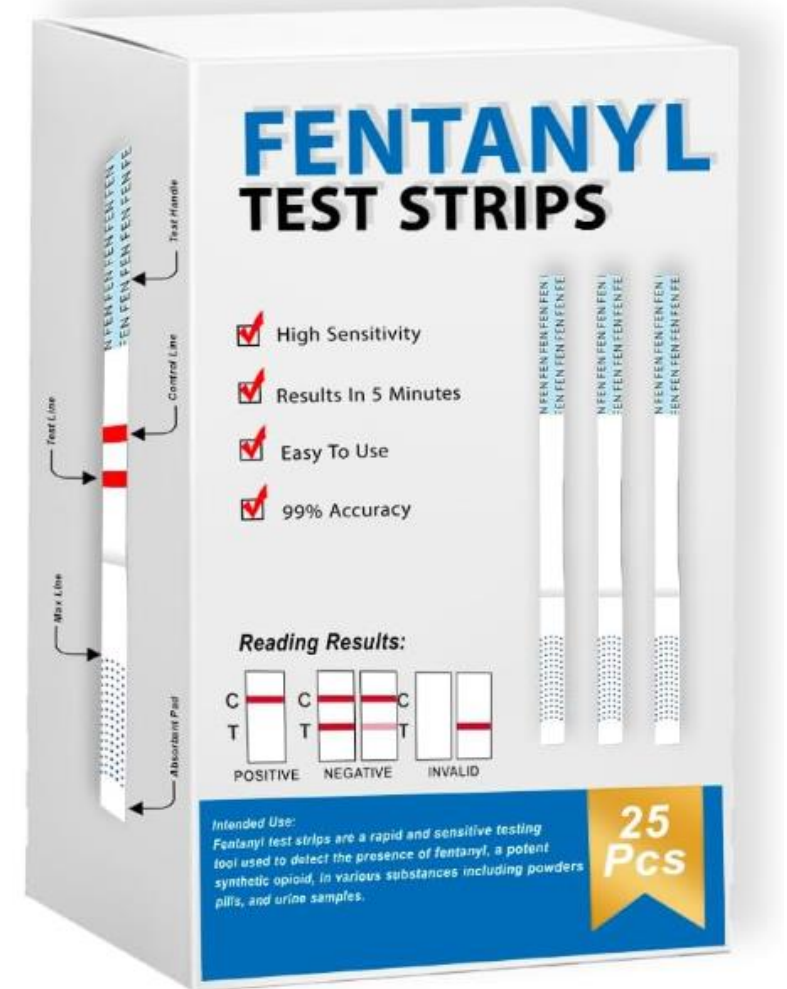
- Fentanyl is metabolized in the body to norfentanyl.
- Mean clearance of fentanyl is about two weeks, but might take four weeks or longer in individuals who use fentanyl regularly.



1. Bergh MS, Øiestad ÅML, Baumann MH, Bogen IL. Selectivity and sensitivity of urine fentanyl test strips to detect fentanyl analogues in illicit drugs. *Int J Drug Policy*. 2021 Apr;90:103065. doi: 10.1016/j.drugpo.2020.103065. Epub 2020 Dec 14. PMID: 33333419.
2. Uljon S. Advances in fentanyl testing. *Adv Clin Chem*. 2023;116:1-30. doi: 10.1016/bs.acc.2023.05.004. Epub 2023 Jun 14. PMID: 37852717.

FENTANYL AND URINE DRUG TESTS

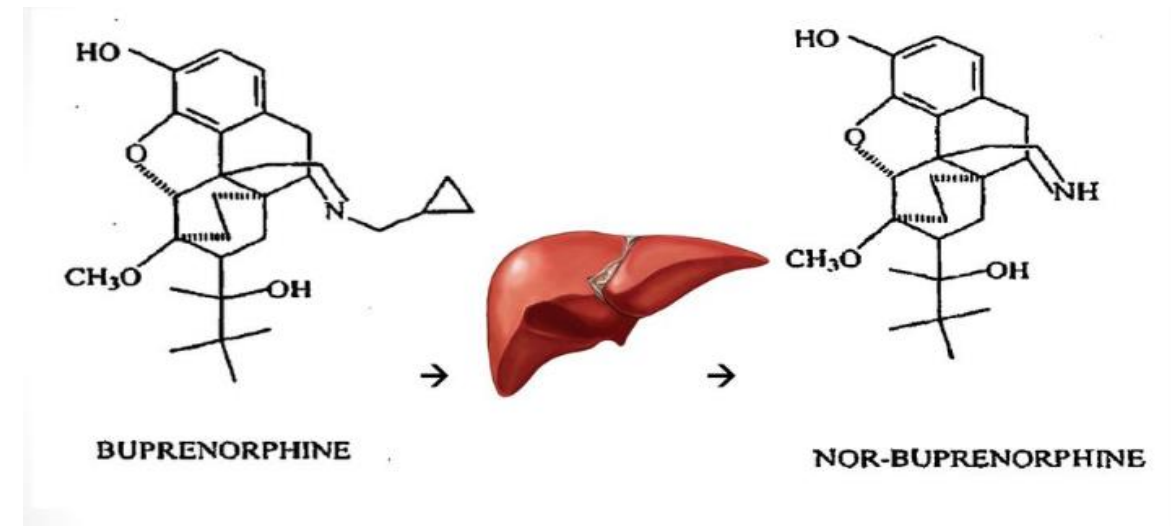
- Urine drug tests typically detect norfentanyl metabolites as well as fentanyl parent drugs.
- Fentanyl can be detected on average up to 7 days in the urine after last self-reported use, sometimes even up to 19 days.
- Norfentanyl can be detected on average up to 13 days in the urine after last self-reported use, sometimes even up to 26 days.
- In patients who are pregnant, urine norfentanyl detection can be detected in some cases up to 294 days after last self-reported use.



1. Huhn AS, Hobelmann JG, Oyler GA, Strain EC. Protracted renal clearance of fentanyl in persons with opioid use disorder. *Drug Alcohol Depend.* 2020 Sep 1;214:108147. doi: 10.1016/j.drugalcdep.2020.108147. Epub 2020 Jul 2. PMID: 32650192
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BUPRENORPHINE AND URINE DRUG TESTS

- Buprenorphine is metabolized to buprenorphine-3-glucuronide (bup-g) and norbuprenorphine-3-glucuronide (norbup-g).
- Patients taking buprenorphine will have higher levels of norbuprenorphine, the metabolite.
- If only buprenorphine is present, it suggests an individual may have tampered with UDT specimen.
- Norbuprenorphine:buprenorphine ratios can be used to detect possible buprenorphine “spiking.” Ratios < 0.02 are typically the threshold for urine spiking.



INTERPRETING URINE DRUG TEST RESULTS

- Expected drug test results (positive for prescribed medication and negative for unexpected substances) should be affirmed and in certain settings like OTPs given tangible contingencies such as higher take-home doses of methadone.
- High concentration of a parent drug in the absence of metabolites suggests sample tampering (post-collection addition of drug).
- Tests negative for prescribed medication should be explored with patient; can suggest different scenarios (unfulfilled prescription, underutilized medication, incorrect drug test).

CASE 3

Patient comes to clinic for follow-up of buprenorphine treatment of opioid use disorder. The patient provides a urine sample for buprenorphine confirmatory testing. Testing shows that total urinary buprenorphine levels were 2,000 ng/ml and norbuprenorphine levels were 40 ng/ml.

How do you interpret these results?

CASE 3 ANSWER

- Norbuprenorphine:buprenorphine ratio: 0.02 which is around the threshold for identifying urine spiking.
- The urine was most likely spiked with buprenorphine given high concentrations of buprenorphine but very little of its metabolite norbuprenorphine. However, the patient could have also very recently dosed with buprenorphine as there is a very low level of norbuprenorphine in the blood.

USES OF URINE DRUG TESTS IN OTPS

- Federally mandated minimum of 8 urine drug tests per year. Adjusted based on each individual patient.
- Responses to unexpected test results: discontinuation or reduction of take-home doses of methadone, more frequent or random schedule of drug testing and increased counseling and peer group sessions.
- 42 CFR Part 8 Final Rule in February 2024: no changes to number of minimum urine drug tests. However, the final rule eliminates a 1-year opioid addiction history requirement and removes the requirement for two documented instances of unsuccessful treatment for people under the age of 18. Also allows patient to receive take-home doses from the first week of treatment as well as initiation of methadone via audio-visual telehealth under certain conditions.

USES OF URINE DRUG TESTS IN OBOT PROGRAMS

- Per ASAM consensus guidelines, recommend testing monthly for patients receiving buprenorphine treatment but can spread out when patients are stable on treatment.
- Per ASAM consensus guidelines, recommend testing before initiating naltrexone treatment and then monthly thereafter.
- Otherwise, frequency of testing is individualized and at the discretion of the provider and patient.
- Depending on different clinics and their policies, urine drug testing may be required and be positive for opioids before starting medications for opioid use disorder. Frequency of urine drug testing also varies in different settings.

USES OF URINE DRUG TEST IN OTHER SETTINGS

- Intensive Outpatient/Partial Hospitalization: drug testing usually conducted randomly to monitor substance use while in treatment.
- Residential/Inpatient: regular drug testing to maintain a drug-free environment; testing is usually conducted when a patient leaves and returns to the facility.
- Employment: some employers require drug testing as part of onboarding process; some professions mandate routine random urine drug tests while under monitoring (i.e. pilots, doctors, etc.).

CASE 4

A patient on buprenorphine-naloxone presents to the clinic for a follow-up visit for her opioid use disorder. The patient provides a urine sample, but the urine sample is apparently negative for buprenorphine. The patient however tells you that she has been taking her buprenorphine-naloxone regularly and cannot understand why her urine sample would be negative.

How would you address this situation?

DIFFERENTIAL FOR NEGATIVE BUPRENORPHINE IN URINE DRUG TEST

- Invalid urine sample.
- False negative result.
- Rx of Buprenorphine was not fulfilled.
- Patient was not taking Buprenorphine.
- Patient just started taking Buprenorphine very recently, so the medication has not yet had time to metabolize and screen positive.
- Urine sample could be from another patient.

TIPS FOR DISCUSSING UNEXPECTED RESULTS

- Ask for permission.
 - “Is it okay to talk about the results of your urine drug test?”
- Clearly state the results of the urine test.
 - “Your urine drug test showed...”
- Lead with open-ended questions
 - “What are your thoughts about this result?”
- Use non accusatory language without assumptions and stating the facts.
- Assure that the provider is on the patient’s side and that there is no punishment for any unexpected urine drug test results.
- Work with the patient on creative solutions.
- Give the patient benefit of doubt unless there are repeated discrepant results.

GENERAL COMMUNICATION TIPS FOR URINE DRUG TESTING

- Tell a patient why and how urine drug tests will be used before ordering.
- Clinical drug screening is done for the patient, not to the patient.
- Never make drug testing punitive.
- Avoid stigmatizing language like "dirty" and "clean."

URINE DRUG TESTING FOR PATIENTS WHO ARE PREGNANT

- Comprehensive substance use assessment including drug testing is part of obstetrical best practices.
- The postpartum period is a time of increased vulnerability and assessment for return to use is recommended.
- ACOG recommends that providers should screen for substance use using a validated screening tool and not routine urine drug testing.
- Providers should be aware of the adverse legal and social consequences of detecting substance use among people who are pregnant and be familiar with state policies.
- Providers should perform urine drug testing only after informed consent discussing the potential ramifications of a positive results including any mandatory reporting requirements.
- Providers should keep drug test results and associated diagnoses confidential to the extent permitted by law.

WASHINGTON REPORTING POLICIES FOR SUBSTANCE-EXPOSED INFANTS

Conditions for reporting:

- Child protective/safety concerns are present with any newborn.
- Newborns test positive for illicit substances, non-prescribed medications, or misused prescribed medications.
- Newborns experience withdrawal from illegal, non-prescribed, or misused prescribed medications.
- Healthcare providers have evidence of ongoing substance use by the parent that creates safety concerns.
- A newborn is diagnosed with fetal alcohol syndrome (FASD), or the infant has known prenatal alcohol exposure when there are safety concerns for the infant.

UPDATE TO WASHINGTON REPORTING POLICIES FOR SUBSTANCE-EXPOSED INFANTS

- If there are no safety concerns, state policy allows substance-exposed infants to receive voluntary wrap-around services without being reported to the Department of Child, Youth and Families (DCYF)
- All hospitals should update policies to align with state policy and train staff no later than Jan. 1, 2025, to comply with federal requirements.

URINE DRUG TESTING FOR ADOLESCENTS

- Providers are recommended to consider drug testing for additional information because adolescents are presumed to be less likely to self-report accurately.
- Providers should not encourage the use of home testing for adolescents due to the limitations of home drug testing processes.
- Drug testing an adolescent without his or her consent is not appropriate except in emergency situations such as accidents or suicide attempts.
- If an adolescent declines to share test results, the provider should not share them with parents/guardians unless there is an acute risk of harm to patients or others.

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12. Uljon S. Advances in fentanyl testing. *Adv Clin Chem*. 2023;116:1-30. doi: 10.1016/bs.acc.2023.05.004. Epub 2023 Jun 14. PMID: 37852717.
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IMAGE REFERENCES

- Slide 8: [12 Panel Drug Test - Accutest ValuPak™ Drug Test Cup 12 Panel \(jantdx.com\)](https://jantdx.com)
- Slide 9: [LC-MS – What Is LC-MS, LC-MS Analysis and LC-MS/MS | Technology Networks](#)
- Slides 12/13: [Focus on Screens: Specimen Validity Testing \(medcentral.com\)](https://medcentral.com)
- Slides 15/16/18/20: [Urine Drug Screening \[North Carolina Medical Board\] | NC Multidisciplinary Collaboration on Opioid Use & Misuse](#)
- Slides 17/18/19/20: https://www.youtube.com/watch?v=o_9jU3tx-VM&t=1099s
- Slide 21: <https://www.taste.com.au/recipes/poppy-seed-bagels>
- Slide 22: [Analysis of Fentanyl and its Metabolite, Norfentanyl by CESI-MS | Semantic Scholar](#)
- Slide 23: [Amazon.com: Emnce Fentanyl Test Strips Home Drug Testing Kit - Accurate for Powder Substances, Liquids & Pills | Urine Test Kit for Synthetic Opioid Detection | for Forensic Use \[25 Pack\] : Health & Household](#)
- Slide 24: [University of Louisville CAPTASA ppt download \(slideplayer.com\)](https://slideplayer.com)
- Slide 42: <https://stock.adobe.com/search/images?k=q+and+a>
- Slide 50: <https://slidechef.net/templates/free-google-slides-thank-you-slide/>

ACKNOWLEDGMENTS

- Dr. Sarah Leyde
- Dr. David Sapienza
- Dr. Mark Duncan
- Dr. Jared Klein
- Dr. Joseph Merrill
- UW Addiction Medicine Fellowship



MISCELLANEOUS SLIDES FOR Q AND A

EFFICACY AND UTILITY OF URINE DRUG TESTS

- Kolla, Bhanu Prakash MD, MRCPsych; Callizo, Guillermo Leoz MD; Schneekloth, Terry D. MD. Utility of Urine Drug Testing in Outpatient Addiction Evaluations. *Journal of Addiction Medicine* 13(3):p 188-192, May/June 2019. | DOI: 10.1097/ADM.0000000000000477
- Key study findings:
 - Among 174 patients in the study completing urine drug testing during outpatient substance use disorder evaluation, positive screens alerted providers to undisclosed substance use and withdrawal in 8% of the cohort and resulted in a change of diagnoses and/or treatment in 1 patient.

EFFICACY AND UTILITY OF URINE DRUG TESTS

- Incze MA. Reassessing the Role of Routine Urine Drug Screening in Opioid Use Disorder Treatment. JAMA Intern Med. 2021 Oct 1;181(10):1282-1283. doi: 10.1001/jamainternmed.2021.4109. PMID: 34338713.
- Key Points:
 - Urine drug test characteristics vary widely. Immunoassay-based tests are notorious for false-positive results.
 - There is little specific guidance about how to respond to an unexpected test result.
 - Routine use of urine toxicology testing reinforces a power dynamic that places the patient in a subordinate position to the provider, much like what some patients experience in the criminal justice system.

INEQUITIES AND BIAS IN URINE DRUG TESTING

- Olaniyan A, Hawk M, Mendez DD, Albert SM, Jarlenski M, Chang JC. Racial Inequities in Drug Tests Ordered by Clinicians for Pregnant People Who Disclose Prenatal Substance Use. *Obstet Gynecol.* 2023 Nov 1;142(5):1169-1178. doi: 10.1097/AOG.0000000000005385. Epub 2023 Sep 28. PMID: 37769307.
- Key Study Findings:
 - Among 341 study participants, 70 participants (33 black and 37 white) disclosed drug use and 271(172 black and 99 white) participants did not disclose drug use during their first obstetric visit.
 - Of 70 patients who disclosed drug use, 50 black (56%) and 22 white (44%) patients had urine drug testing conducted.
 - Of 271 patients who did not disclose drug use, 38 black (47%) and 20 (53%) white participants had urine drug testing conducted.
 - When pregnant people disclosed drug use, clinicians were more likely to order urine testing for black pregnant people compared with their white counterparts, suggesting clinician racial bias.

Table 7. Windows of Detection Table

Drug Target Analyte	Detection Time in Urine [cutoff (ng/mL) initial; confirm]	Detection Time in Oral Fluid [cutoff (ng/mL) initial; confirm]	Detection Time in Blood [cutoff (ng/mL)]
Alcohol			
<i>EtOH</i>	10–12 hours [NS ¹]	24 hours [NS]	
<i>EtG</i>	1–2 days [500] (one drink)		
<i>EtS</i>	1–2 days [100] (one drink)		
<i>PEth</i>			1–2 weeks [NS] (heavy use)
Cocaine			
<i>Cocaine</i>	Up to 24 hours [50]	5–12 hours [1] (single use) 8–48 hours [1] (chronic use)	12 hours [10]
<i>BZE</i>	2–3 days [300; 150] (single use) 1–3 days [300; 150] (infrequent use) 4 days [300; 150] (prolonged use) 12 days [300; 150] (chronic use) 1–3 days [150; 300]	12–24 hours [1] (single use) 1.5–3 days [1] (chronic use) 1–2 days [5]	2 days [10]
Amphetamines			
<i>Amphetamine</i>	1–2 days [100] (single/infrequent use) 7–10 days [100] (prolonged use) 2–4 days [NS] (frequent use) 2–4 days [1000; 500] 2–4 days [500; 250]	1–2 days [100] 20–50 hours [10]	2 days [4]

Table 7. Windows of Detection Table (cont'd)

Drug Target Analyte	Detection Time in Urine [cutoff (ng/mL) initial; confirm]	Detection Time in Oral Fluid [cutoff (ng/mL) initial; confirm]	Detection Time in Blood [cutoff (ng/mL)]
Methamphetamine			
<i>Analyte Not Specified</i>	1–2 days [100] (single/infrequent use) 7–10 days [100] (prolonged use) 2–4 days [NS] (frequent use) 2–5 days [500; 250]	6–76 hours [2.5] (single use) 1–2 days [40]	
<i>Amphetamine</i>	2–4 days [1000; 200]	24 hours [50; 2.5]	
<i>Methamphetamine</i>	2–4 days [1000; 500] 1.5–6 days [2.5]	24 hours [2.5]	2 days [3]
MDMA (Ecstasy)			
<i>Analyte Not Specified</i>	2 days [25] 1–3 days [NS]		
<i>MDMA</i>	2 days [20]	24 hours [125]	24 hours [20]
Opiates			
Morphine			
<i>Analyte Not Specified</i>	2–5 days [300] 3 days [25] 1–3 days [NS]	12–24 hours [1] 24 hours [0.6] 1–36 hours [NS]	
Codeine			
<i>Analyte Not Specified</i>	1–3 days [300; 300] 1–2 days [300; 300] 3 days [25] 2–4 days [300]	7 hours [40] 7–21 hours [2.5] 1–36 hours [NS]	
<i>Morphine</i>	1–3 days [300; 300]		
Oxymorphone			
Formulation Not Specified <i>Analyte Not Specified</i>	3 days [25]		
Immediate-release <i>Analyte Not Specified</i>	36–60 hours [100]		

Table 7. Windows of Detection Table (cont'd)

Drug Target Analyte	Detection Time in Urine [cutoff (ng/mL) initial; confirm]	Detection Time in Oral Fluid [cutoff (ng/mL) initial; confirm]	Detection Time in Blood [cutoff (ng/mL)]
Extended-release <i>Analyte Not Specified</i>	1–4 days [100]		
Oxycodone			
Formulation Not Specified <i>Analyte Not Specified</i>	3 days [25] 1–3 days [100] 2–4 days [NS]		
Immediate-release <i>Analyte Not Specified</i>	1–1.5 days [100]		
Extended-release <i>Analyte Not Specified</i>	1.5–3 days [100]		
Hydromorphone			
<i>Analyte Not Specified</i>	1–2 days [300] 3 days [25] 2–4 days [NS]	6 hours [1] (single use)	
Hydrocodone			
<i>Analyte Not Specified</i>	1–2 days [100] 3 days [25]		
Fentanyl			
<i>Analyte Not Specified</i>	1–2 days [5] 3 days [0.2]		
Heroin			
<i>6-MAM (Indicates heroin use)</i>	2–8 hours (single use) ² [10] Up to 24 hours (chronic use) ² [10]	0.5–8 hours [1] [74] [79]	
<i>Morphine</i>	1–3 days [300; 300] 1–2 days [2000]	12–24 hours [1] 2–12 hours [1]	20 hours [1]

Table 7. Windows of Detection Table (cont'd)

Drug Target Analyte	Detection Time in Urine [cutoff (ng/mL) initial; confirm]	Detection Time in Oral Fluid [cutoff (ng/mL) initial; confirm]	Detection Time in Blood [cutoff (ng/mL)]
Methadone			
<i>Analyte Not Specified</i>	3–11 days [300] (maintenance dose)	1–3 days [5] (occasional use) 3–5 days [5] (chronic use)	
<i>Methadone</i>	2–4 days [300; 300] 7 days [100]	24 hours [20]	
<i>EDDP</i>	7 days [100]		
Buprenorphine			
<i>Analyte Not Specified</i>	4 days [0.5]		
<i>Buprenorphine</i>	7 days [0.5]	5 days [1]	
<i>Norbuprenorphine</i>	7 days [0.5]		
Benzodiazepines			
Short Acting <i>Analyte Not Specified</i>	24 hours [300] 2 days [100]		
Intermediate Acting <i>Analyte Not Specified</i>	1–12.5 days [300] 5 days [100]		
Long Acting <i>Analyte Not Specified</i>	30 days [200; 200]		
Diazepam			
<i>Analyte Not Specified</i>	2–7 days [500] 5–8 days [300] 10 days [100] 7–21 days [NS]	1–3 days [NS] 5–50 hours [NS]	
<i>Nordiazepam</i>	6–24 days [300] 10 days [100]		

Table 7. Windows of Detection Table (cont'd)

Drug Target Analyte	Detection Time in Urine [cutoff (ng/mL) initial; confirm]	Detection Time in Oral Fluid [cutoff (ng/mL) initial; confirm]	Detection Time in Blood [cutoff (ng/mL)]
Barbiturates			
Formulation Not Specified <i>Analyte Not Specified</i>		1–2 days [20]	
Short Acting <i>Analyte Not Specified</i>	2–4 days [200; 200] 4–6 days [300] 24 hours [NS]		
Pentobarbital, Secobarbital			
<i>Analyte Not Specified</i>	3 days [100]		
Intermediate Acting <i>Analyte Not Specified</i>	3–8 days [300]		
Amobarbital <i>Analyte Not Specified</i>	3 days [100]		
Butalbital			
<i>Analyte Not Specified</i>	7 days [100]		
Long Acting <i>Analyte Not Specified</i>	30 days [200; 200] 10–30 days [300]		
Phenobarbital <i>Analyte Not Specified</i>	15 days [100]		

Table 7. Windows of Detection Table (cont'd)

Drug Target Analyte	Detection Time in Urine [cutoff (ng/mL) initial; confirm]	Detection Time in Oral Fluid [cutoff (ng/mL) initial; confirm]	Detection Time in Blood [cutoff (ng/mL)]
Cannabis			
<i>THC</i>	1–3 days [100, 50, 20; 15] (casual use) 3 days [NS] (single use) 30 days [100, 50, 20; 15] (chronic use) 36 days [NS] (chronic heavy use)	2–24 hours [1] (single use) 4–14 hours [NS] (single use) 22.5 hours [0.5] (occasional use) 30+ hours [0.5] (frequent use) 4–30 hours [NS] (chronic heavy use) 34 hours 1–2 [1] days	5 hours [10]
<i>THCCOOH</i>	3–4 days [50] (single use) 7 days [20] (single use) 1–5 days [50] (infrequent use) 10 days [50] (heavy use) 21 days [20] (heavy use) 36 hours [15] (single use 1.75% THC) 3.5 days [15] (single use 3.55% THC) 1–5 days [20] (regular use 1.75% THC) 3–6 days [20] (regular use 3.55% THC) 3 days [NS] (single use) 4–7 days [NS] (moderate use) 10–15 days [NS] (heavy use) 30–60 days [NS] (chronic heavy use)	8 hours [15] (occasional use) 30+ hours [15] (frequent use)	36 hours [10]

Table 7. Windows of Detection Table (cont'd)

Drug Target Analyte	Detection Time in Urine [cutoff (ng/mL) initial; confirm]	Detection Time in Oral Fluid [cutoff (ng/mL) initial; confirm]	Detection Time in Blood [cutoff (ng/mL)]
Phencyclidine			
<i>Analyte Not Specified</i>	2–7 days [25; 25] (casual use) 7–8 days [25] (single use) 2–4 weeks [25] (prolonged use) 30 days [25; 25] (chronic use) 5–6 days [25; 25] 1.5–10 days [NS] (casual use) Several weeks [NS] (chronic use)	1–2 days [1]	
LSD			
<i>Analyte Not Specified</i>	36 hours [0.2]		
LSD	24 hours [0.5]		
O-H-LSD	5 days [5]		
GHB			
<i>Analyte Not Specified</i>	12 hours [10,000]	5 hours [4,000]	5 hours [4,000]

¹ Not stated

² Cone EJ, et al. Forensic Drug testing for opiates: 1. Detection of 6-acetylmorphine in urine as an indicator of recent heroin exposure; drug and assay considerations and detection times. *J Analytical Toxicology*. 1991 Jan-Feb 15(1): 1-7.



Thank You