

**Urine drug testing in primary care settings:
Practical considerations for clinicians and educators**

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Interpretation of Urine drug testing and DDx for results:

	Expected	Unexpected
Positive	Prescribed medication Metabolite of medication	Use of non-prescribed medications Use of illicit drugs Use of previously prescribed medications (hoarding) Cross-reaction (food, OTC, false positive, herbal products)* Contamination Laboratory error
Negative	Not taking prescribed medication When testing before initiation of opioid prescribing	Diversion Didn't take within time frame to make test positive (ran out early, prn med, etc.) Fast metabolizer Laboratory processing error Extreme dilution of urine Malabsorption? Hoarding/Binging

* Should occur only on screen, and not on confirmatory test (with exception of poppy seeds)

Additional considerations in all instances:

- Is it really urine?
- Is it really their urine?

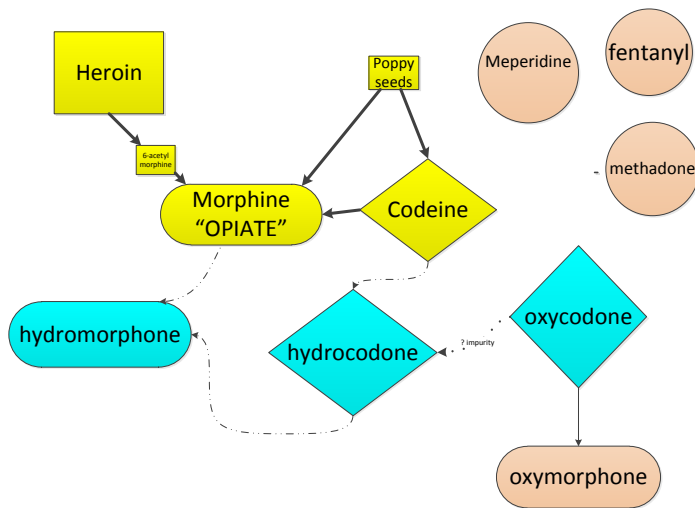
Improved reliability of testing:

- Random collection
- Temperature within 4 minutes of voiding should be 90-100F.
- Urine pH ranges between 4.5-8.5
- Creatinine concentration should be >20 mg/dL (<20 mg/dL is dilute, < 5mg/dL is not human specimen).
- Specific gravity should be > 1.001 and < 1.020

Typical Detection Time of Drugs of Abuse in Urine

Drug	Time
Alcohol	7-12 hours
Amphetamine	48 hours
Methamphetamine	48 hours
Barbiturate	
Short-acting (eg, pentobarbital)	24 hours
Long-acting (eg, phenobarbital)	3 weeks
Benzodiazepine	
Short-acting (eg, lorazepam)	3 days
Long-acting (eg, diazepam)	30 days
Cocaine metabolites	2-4 days
Marijuana	
Single use	3 days
Moderate use (4 times/week)	5-7 days
Daily use	10-15 days
Long-term	>30 days
Opioids	
Codeine	48 hours
Heroin (morphine)	48 hours
Morphine	48-72 hours
Hydromorphone	2-4 days
Methadone	3 days
Oxycodone	2-4 days
Propoxyphene	6-48 hours
Phencyclidine	8 days

Opioid metabolic pathways



Fentanyl, meperidine, and methadone do not metabolize to morphine or morphine derivatives, nor to oxycodone/oxymorphone.

Traces of hydrocodone have been detected in patients prescribed oxycodone with very high levels of urine oxycodone, ?? if this is a contaminant.

Expected results on urine opiate screen and GC/MS

<u>Prescribed opioid</u>	<u>Opiate immunoassay</u>	<u>GC/MS</u>
Morphine	Positive	Morphine
		Codeine
Codeine	Positive	Codeine
		Morphine
		Hydrocodone
Hydrocodone	Positive/negative*	Hydrocodone hydromorphone
Hydromorphone	Positive/negative*	Hydromorphone
Oxycodone	Positive/negative*	Oxycodone
		Oxymorphone
		??? hydrocodone
Oxymorphone	Negative	Oxymorphone
Methadone	Negative	Methadone
Fentanyl	Negative	Fentanyl

*depends on the cross-reactivity of the opiate assay with the prescribed drug; varies among assays

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Chronic Pain guidelines:

Chou R, Fanciullo GJ, Fine PG, et al. Clinical guidelines for the use of chronic opioid therapy in chronic noncancer pain. *J Pain*. Feb 2009;10(2):113-130.

Agency Medical Directors Group. Interagency guidelines on opioid dosing for chronic non-cancer pain. 2010; <http://www.agencymeddirectors.wa.gov/Files/OpioidGdline.pdf>.

Department of Veterans Affairs/Department of Defense. VA/DoD Clinical Practice Guideline for management of opioid therapy for chronic pain.
http://www.healthquality.va.gov/Chronic_Opioid_Therapy_COT.asp.

British Pain Society. Opioids for persistent pain: Good practice. 2010;
http://www.britishpainsociety.org/book_opioid_main.pdf

Canadian guidelines for safe and effective use of opioids for chronic non-cancer pain. 2010;
<http://nationalpaincentre.mcmaster.ca/opioid/>.

MEDICARE COVERAGE:

Medicare (Florida LCD coverage for qualitative drug screen)
<http://fapmmed.net/LCD/L30574QualitativeDrugScreening.pdf>

Includes the following ICD-9 codes for qualitative testing (screening):

304.90 drug dependence, unspecified
V15.81 personal history of non-compliance or high risk behavior
V58.69 long term use of high risk medication