

## Interpreting UDT Results

### What if result is positive for a non-prescribed drug?

Possibilities are:

1. False positive (on screen) -- order confirmatory test
2. Substance detected is a metabolite of a prescribed drug (see metabolic pathways)
3. Patient ingested the drug, or drug that metabolizes to it (see Opioid Metabolic Pathways)
4. Lab error or contamination

\*Consider all the possibilities before acting on UDT results

### What if result is negative for the prescribed drug?

Possibilities are:

1. Urine drug screen won't reliably detect the prescribed drug (see Table) -- order confirmatory test
2. Drug present but concentration is below the cutoff for a positive result (on screen) -- order confirmatory test
3. Urine is diluted (physiologic or tampering)
4. Patient is a fast-metabolizer
5. Patient has not taken drug recently
6. Patient is diverting medication
7. Urine is adulterated or substituted

\*Consider all the possibilities before acting on UDT results

### Is the specimen valid?

A valid urine sample has the following:

- Temperature 90-100 F (within 4 minutes of voiding)
- pH 4.5 to 8.5
- Creatinine >20mg/dl
  - <20mg/dl is dilute
  - <5 is not consistent with human urine

## Discussing UDT

### Before requesting urine, always ask:

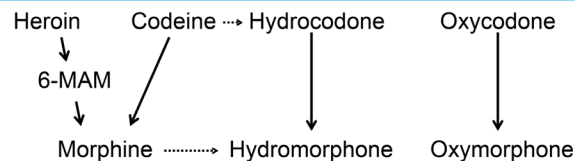
- When did you take your last dose? How much?
- In the past week, have you taken any other pain medicine?
- In the past week, have you used any drugs?

\*Documentation of this is crucial for interpreting UDT results

### Language for introducing drug testing

- "As part of treating [pain] with medications like [X], I order urine tests to get more information about how safe they are for patients."
- "The test measures a number of medications and drugs that could interfere with your treatment."
- "This is something I do with ALL patients on these medications."
- "If I find something unexpected, we'll talk about it and work together to address it."

## Opioid Metabolic Pathways



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# URINE DRUG TESTING

## A Reference Guide for Clinicians



### In this guide:

When to order UDT

Two types of tests

Interpreting UDT results

Discussing UDT with patients



# Ordering Urine Drug Tests

## When should I order urine drug tests?

1. Before prescribing controlled substances
2. Regularly throughout treatment
  - For all patients, at least every 6 months
  - More frequently for higher risk patients


Risk factors include: personal or family history of substance abuse, tobacco dependence, mental health disorders, young age (<45), caucasian race, and previous red flag behaviors like requesting early refills, losing prescriptions, obtaining opioids from other sources, or unexpected UDT results

## Which type of test should I order?

-or-

### SCREENING TEST

Method:  
Enzyme-based immunoassay (EIA)


Logistics:  
Inexpensive   
Fast  
Widely available

Results:  
Susceptible to false positive & false negative results (see table)  
Opiate screen not sensitive for semi-synthetic (e.g., oxycodone) or synthetic opioids (e.g., fentanyl)

### CONFIRMATORY TEST

Method:  
Gas chromatography/mass spectrometry (GC/MS) or Liquid chromatography & tandem MS

Logistics:  
More expensive  
Takes longer  
Often sent-out

Results:   
Highly sensitive  
Highly specific  
Specifies drugs within class  
Reports concentration even if low (no cut-off)

# Table: Quick Guide to Urine Drug Testing

## RESULTS

DRUGS TAKEN	Screening Test Results (EIA)											Confirmatory Test Results (GCMS)											Common Detection Time
	Amphetamines	Barbiturates	Benzodiazepines	Buprenorphine	Cocaine	Methadone	Opiates	Oxycodone	PCP	Cannabis	Buprenorphine, norbup.	Codeine, norcodeine	Fentanyl	Hydrocodone	Hydromorphone	Meperidine, normep.	Methadone	Morphine	Oxycodone	Oxymorphone	Heroin (6-MAM)		
Prescription Opioids	Buprenorphine			⊕							⊕											1-6 days	
	Codeine						⊕				⊕		+					+				1-3 days	
	Fentanyl											⊕										24 hours	
	Hydrocodone						⊕						⊕	+								1-3 days	
	Hydromorphone						+							⊕	+							1-3 days	
	Meperidine															⊕						2-3 days	
	Methadone						⊕										⊕					1-3 days <sup>2</sup>	
	Morphine						⊕											⊕				1-3 days <sup>2</sup>	
	Oxycodone						+	⊕											⊕	+		24 hours	
Oxymorphone							⊕												⊕		24 hours <sup>2</sup>		
Illicit Drugs	Amphetamines	⊕																				1-3 days	
	Barbiturates		⊕																			24 hours <sup>2</sup>	
	Benzodiazepines			+																		3 days <sup>2</sup>	
	Cocaine					⊕																1-4 days <sup>2</sup>	
	Heroin						⊕					+						⊕			+	1-3 days <sup>2</sup>	
	PCP																					1-3 days <sup>2</sup>	
Cannabis																					1-3 days <sup>2</sup>		
Other	Poppy seeds <sup>4</sup>						F	F	F	F								F					
	Other medications <sup>5</sup>	F	F	F	F	F	F	F	F	F													

1. Sensitivity of opiate screen to semi-synthetic opioids varies by lab. Generally, hydrocodone > hydromorphone > oxycodone. Higher dose is more likely to yield a + opiate screen. Consider confirmatory test, especially to confirm negative for rx'd drug.
2. Chronic use may result in longer detection times. 6-MAM is pathognomonic for heroin use, detection time is 12-24 hours.
3. Benzodiazepine screen likely positive if alprazolam or diazepam taken, likely negative if clonazepam, lorazepam. Varies by lab.
4. Heavy poppy seed ingestion (3+ bagels) may test positive for opiates-- repeat off poppy seeds.
5. Some commonly used medications reported to cause false + results on screening assays are below-- order confirmatory test.
  - Amphetamine: bupropion, SSRIs, chlorpromazine, mexilitene, pseudoephedrine, decongestants, ranitidine, trazodone, labetalol
  - Barbiturate: ibuprofen, naproxyn, phenytoin. Benzodiazepine: sertraline, oxaprozin.
  - Buprenorphine: tramadol, other opioids. Cocaine: none confirmed. Coca leaves or dental use cause rare true +.
  - Methadone: diphenhydramine, doxylamine, clomipramine, chlorpromazine, quetiapine, thioridazine, tramadol, verapamil.
  - Opiate: dextromethorphan, diphenhydramine, fluoroquinolones, quinine, rifampin.
  - Oxycodone: naloxone, see list for "opiates." PCP: dextromethorphan, diphenhydramine, ibuprofen, tramadol, venlafaxine.
  - Cannabis: dronabinol, PPIs. Note that ibuprofen does NOT cause false + using modern tests (previously did).