Interpreting Urine Drug Tests (UDT)

Why a UDT is Important

- In an emergent situation, the immediate value of a UDT may be limited. However, some medications and illicit drugs are only present in urine for a brief time. Early collection (with child/youth consent) can be helpful for ongoing treatment planning and interventions post-acute stabilization including withdrawal management.
- UDT results can support harm reduction education with a child/youth by providing feedback about their substance use and potentially toxic substance supply. Youth may be surprised to learn that the substance they thought they were ingesting was something else.

Considerations for Interpreting UDT

- It is important to understand timelines for detection, what other medication(s) have been prescribed (e.g., psychostimulants, benzodiazepines), and risks of false positive or false negative results.
- Initial UDTs use immunoassay that are quick but less accurate. Immunoassays may not distinguish between or detect all members within a single class of medications and may not detect synthetic/semi-synthetic substances.
- Urine collected can be used for confirmatory testing by liquid chromatography or gas chromatography–mass spectrometry (GCMS). This testing is highly sensitive and specific, but takes longer, and may need to be sent away.

Timelines for detection of substances in UDT [1]

	Substance	Length of time substance detected in urine after ingestion
Depressants (Downers)	Alcohol	6-8 hours
	Opioids	
	Buprenorphine	up to 7 days
	Codeine	2-5 days
	Fentanyl – short term use	2-3 days
	Fentanyl – chronic use [2]	Up to 4 weeks
	Heroin metabolite (6-MAM)	< 1 day
	Hydromorphone	Up to 3 days
	Methadone	≤ 6 days
	Morphine	2-5 days
	Oxycodone	2-4 days
	Benzodiazepines	
	Short acting (e.g., lorazepam)	1-2 days
	Long acting (e.g., diazepam)	Up to 30 days (regular use)
	Sedative Hypnotics	
	Gamma hydroxybutyrate / GHB	12 hours
	Zolpidem	1-2 days
Stimulants (Uppers)	Amphetamines	2-5 days
	Cocaine	2-3 days
	Methamphetamine	2-5 days
Psychedelics	Ketamine	Up to 14 days
	LSD metabolites	Up to 4 days
	Phencyclidine (PCP)	5-6 days
Cannabinoids	Cannabis	Single use: 1-3 days Chronic use ≤ 30 days

[1] Included tables adapted with permission from: *British Columbia Centre on Substance Use, BC Ministry of Health, and Ministry of Mental Health and Addictions. Urine Drug Testing in Patients Prescribed Opioid Agonist Treatment— Breakout Resource. Published July 28, 2021. Available at: https://www.bccsu.ca/wp-content/uploads/2021/07/Urine-Drug-Testing-Breakout-Resource.pdf*

[2] Fentanyl persists in urine for up to 4 weeks due to lipophilic properties, not due to duration of action (i.e., fentanyl is not a long acting opioid)

Possible causes of false positive and false negative results in urine drug testing

Clinicians should not automatically assume a false-positive or false-negative result if the patient is prescribed one of the medications listed below. This cross-reactivity table does not provide definitive answers as to the reason for a positive or negative UDT result. Clinicians are advised to request confirmatory testing if there is an unexpected result.

Opioids	**False-negative results**	False-negative results can occur when immunoassays do not reliably detect the following semi-synthetic or synthetic opioids:		
		Oxycodone Hydromorphone	Buprenorphine Fentanyl	Methadone Meperidine
	False-positive results	Cross-reactivity and false-positive results can occur with compounds that have a similar chemical and physical structure.		
		Substances		**Cross reacts with:**
		Fluoroquinolones Poppy seeds Dextromethorphan Diphenhydramine Quinine Rifampin		Morphine Codeine Heroin metabolite
		Trazodone Risperidone Paliperidone		Fentanyl
		Quetiapine Verapamil		Methadone metabolite
Benzodiazepines	**False-negative results**	Some benzodiazepines have distinct metabolic pathways and may not adequately cross-react on immunoassays (resulting in false negative). “Z-drugs” are not detected in benzodiazepine immunoassay panels.		
		Lorazepam Clonazepam	Alprazolam Zopiclone	Zolpidem
	False-positive results	Cross-reactivity and false-positive results can occur with compounds that have a similar chemical and physical structure.		
		Sertraline	Oxaprozin	
Amphetamines	**False-negative results**	Not applicable		
	False-positive results	Amphetamines have the highest degree of cross-reactivity of any substance and thus the highest rate of false-positive results		
		Substances		
		Amantadine Aripiprazole Bupropion Chlorpromazine Clobenzorex Desipramine Ephedrine	Fenproporex Fluoxetine L-Methamphetamine Labetalol Methylphenidate Phentermine Phenylephrine	Phenylpropanolamine Promethazine Pseudoephedrine Ranitidine Thioridazine Trazodone Venlafaxine
		Lactate dehydrogenase and lactate, in patients with lactic acidosis		
Cannabinoids	**False-negative results**	Synthetic cannabinoids very unlikely to cross-react. Typically present at very low concentrations.		
		Nabilone		
	False-positive results	Cross-reactivity and false-positive results can occur with compounds that contain THC or cannabidiol, or compounds that have similar chemical/physical structure.		
		Sativex Dronabinol	Efavirenz NSAIDs	Proton pump inhibitors Topical use of baby soap or shampoo