

METABOLISM DATA FOR COMMON MEDICATIONS

Drugs or Drug Classes	Detection Time in Urine*	Urine Drug Screening to Order	Expected Results	Consideration
Opioids or "opiates" – Natural (from opium)				
Codeine (Tylenol #2/3/4)	1–3 days	Opiates Immunoassay + GC/MS or LC/MS/MS Opiates	Opiates Immunoassay – positive GC/MS or LC/MS/MS – codeine, possibly morphine and hydrocodone	Immunoassays for "opiates" are responsive for morphine and codeine but do not distinguish which is present. Confirmatory testing is required to reliably identify drug(s) present. Since codeine is metabolized to morphine and small quantities to hydrocodone, these drugs may be found in the urine. Also, morphine may metabolize to produce a small amount (<10%) of hydromorphone.
Morphine (Avinza, Embeda, MS Contin, Kadian)	1–3 days		Opiates Immunoassay – positive GC/MS or LC/MS/MS – morphine, possibly hydromorphone	
Opioids – Semisynthetic (derived from opium)				
Hydrocodone (Lorcet, Lortab, Norco, Vicodin)	1–3 days	Opiates Immunoassay + GC/MS or LC/MS/MS Opiates	Opiates Immunoassay – positive GC/MS or LC/MS/MS – hydrocodone, possibly hydromorphone	"Opiates" immunoassays may also detect semisynthetic opioids depending on their cross-reactivity pattern. However, a negative result does not exclude use of semisynthetic opioids. Confirmatory testing (GC/MS or LC/MS/MS) is required to verify compliance with the prescribed semisynthetic opioid(s). Since hydrocodone is metabolized in small amounts to hydromorphone, both may be found in the urine. Likewise, oxycodone is metabolized to oxymorphone, so these may both be present in the urine of oxycodone users. However, the reverse is not true. In other words, hydromorphone and oxymorphone use does not result in positive screens for hydrocodone and oxycodone, respectively.
Hydromorphone (Dilaudid, Exalgo)	1–3 days	Opiates Immunoassay + GC/MS or LC/MS/MS Opiates	Opiates Immunoassay – positive GC/MS or LC/MS/MS – hydromorphone	
Oxycodone (Roxicet, OxyContin)	1–3 days	Oxycodone Immunoassay + GC/MS or LC/MS/MS Opiates	Opiates Immunoassay – positive GC/MS or LC/MS/MS – oxycodone possibly oxymorphone	
Oxymorphone (Opana)	1–3 days	Opiates or Oxycodone Immunoassay + GC/MS or LC/MS/MS Opiates	Opiates or Oxycodone Immunoassay – positive GC/MS or LC/MS/MS – oxymorphone	

Drugs or Drug Classes	Detection Time in Urine*	Urine Drug Screening to Order	Expected Results	Consideration
Opioids – Synthetic (man-made)				
Fentanyl	1–3 days	GC/MS or LC/MS/MS Fentanyl	GC/MS or LC/MS/MS – fentanyl & norfentanyl	Current “opiates” immunoassays do not detect synthetic opioids. Thus confirmatory testing (GC/MS or LC/MS/MS) is needed to identify these drugs. If the purpose is to document compliance with treatment, the laboratory can be instructed to remove the cutoff concentration so that the presence of lower concentrations can be identified.
Meperidine (Demerol)	1–3 days	GC/MS or LC/MS/MS Meperidine	GC/MS or LC/MS/MS – normeperidine, possibly meperidine	
Methadone (Methadose)	3–7 days	Methadone Immunoassay + GC/MS or LC/MS/MS Methadone	Methadone Immunoassay – positive GC/MS or LC/MS/MS – methadone & EDDP	
Propoxyphene (Darvon, Darvocet)	1–3 days	Propoxyphene Immunoassay + GC/MS or LC/MS/MS Propoxyphene	Propoxyphene Immunoassay – positive GC/MS or LC/MS/ MS – propoxyphene & norpropoxyphene	
Others				
Alcohol	Up to 8 hours	Alcohol	Alcohol – see Consideration	Additional testing for alcohol metabolites, ethyl glucuronide (EtG) or ethyl sulfate.
Amphetamines	2–3 days	Amphetamines, Methamphetamines or MDMA Immunoassay + GC/MS or LC/MS/MS Amphetamines	Amphetamines, methamphetamines or MDMA Immunoassay – see Consideration GC/MS or LC/MS/ MS – amphetamine, methamphetamine or MDMA	Amphetamines immunoassays are highly cross-reactive so results should be interpreted cautiously, and may require consultation with the lab. They may detect other sympathomimetic amines, such as ephedrine, pseudoephedrine or selegiline. Confirmatory testing can identify which amphetamine is present.
Barbiturates	1–3 days w/short- acting; up to 30 days w/ long acting	Barbiturates Immunoassay	Barbiturates Immunoassay – see Consideration	The clearance half-life of intermediate-acting barbiturates averages 24 hours. It takes about 5 to 7 half-lives to clear 98% of a drug dose. Thus, the presence of anintermediated-acting barbiturate indicates exposure within 5–7 days.

Drugs or Drug Classes	Detection Time in Urine*	Urine Drug Screening to Order	Expected Results	Consideration
Benzodiazepines	1–3 days w/short-acting; up to 30 days w/ long acting	Benzodiazepines Immunoassay	Benzodiazepines Immunoassay – see Consideration GC/MS or LC/MS/MS – alprazolam, diazepam, clonazepam, lorazepam, etc.	Immunoassays for benzodiazepines have a 28% overall false negative rate and vary in cross-reactivity. Certain benzodiazepines (clonazepam and alprazolam) have limited detectability by most available immunoassays. Confirmatory testing is needed when use is expected or suspected.
Cocaine or benzoylecgonine	2–4 days	Cocaine Metabolites Immunoassay	Cocaine Metabolites Immunoassay – see Consideration	Cocaine immunoassays do not cross-react with other topical anesthetics that end in “caine” (e.g. lidocaine) and are highly specific for cocaine use.
Marijuana	2–4 days; up to 30 days w/chronic heavy use	Cannabinoids (THC) Immunoassay	Cannabinoids Immunoassay – see Consideration GC/MS or LC/MS/MS – THC	THC may be an indicator of the patient’s risk category. Prescribers should have an office policy, discuss with the patients reason for use and adjust monitoring plan accordingly.

*Agency Medical Directors Group, Interagency guideline on Opioid dosing for Chronic Non-cancer Pain, 2010.