

Follow-up of Positive Urine Drugs of Abuse Screen

Testing for drugs of abuse is regulated by a variety of state and federal laws. The Bassett Healthcare Clinical Laboratory in Cooperstown, NY offers drug abuse screening for medical purposes only. The method used is a rapid multiple immunoassay system for qualitative detection of the major metabolites of seven different drug of abuse classes in urine. These include: Amphetamines, Barbiturates, Benzodiazepines, Cannabinoids, Cocaine, Opiates, Phencyclidine. Because this is a qualitative immunoassay screening test, it is subject to some limitations. Other substances may interfere with the test and cause false positive results. Adulterants (i.e. bleach or other strong oxidizing agents) added to the urine may produce erroneous results. A positive result indicates the presence of the drug or metabolite or other substance that cross reacts with the antibody in the immunoassay. A more specific analytical method is used to obtain a confirmed result.

Factors to consider that determine whether a test is positive or negative include: dose of the drug, frequency of use, time from drug use to urine collection, and the specificity and sensitivity of the urinalysis test used. All of these possibilities must be considered as part of the process of deciding the relevance of urine drug test results.

In interpreting the results of a drug screen in the general population, some questions that might be asked about the meaning of a drug screen follow.

If an analysis is *positive*, does it mean that:

- the subject is using the drug chronically?
- the subject is using the drug intermittently?
- the subject is addicted to the drug?
- the subject is taking the drug under a physician's order?
- the subject was under the influence of the drug when the urine was collected?
- the subject is taking another drug that interferes with the method?

If, on the other hand, the analysis was *negative*, does it mean that:

- the subject has never used the drug?
- the subject may use the drug intermittently but has not used the drug recently?
- the subject knew that the urine would be screened, and stopped taking the drug long enough for the urine specimen to be negative?
- the subject diluted the urine at the time of collection, or prior to collection, by drinking large amounts of fluids prior to sample collection and thereby rendered it negative?
- the subject adulterated the urine by adding water or another substance or switched it with urine from another individual during the confusion inevitable when large numbers of persons are involved in a process like urine collection?

In the Obstetrics/Neonatal Unit it is not uncommon to find discordant results between the mother and infant. This is primarily due to different metabolic clearance rates. Drug clearance in an infant, with lesser developed hepatic and renal function, will take much longer compared to the mother.

If the mother's urine is *positive* and infant's is *negative*, does it mean that:

- the mother was taking a drug postpartum?

If the infant's urine is *positive* and the mother's is *negative*, does it mean that:

- The mother was taking a drug that is rapidly cleared by her?
- The infant was exposed to a drug, but the mother was not?

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There are several traditional and alternative medications that could interfere with an immunoassay urine drug screen. Some common sources of interferences with urine drug of abuse screens are shown in the table below.

Common Sources of Interferences with Drug of Abuse Screens:

Endogenous Sources	Drug Interference
Over hydration	Urine drug screen
Poppy seed cakes, muffins or bagels	Opiates
Health Inca Tea	Cocaine
OTC Diet Pills (phenylpropanolamine)	Amphetamines
OTC Cold Medications (ephedrine, pseudoephedrine, norephedrine, etc)	Amphetamines
OTC Sleeping Pills	Amphetamines
Vicks Inhalers	Amphetamines
Khat (methcathinone)	Amphetamines
St. John's Wort	Barbituates
Valerian	Barbituates
Zantac	Amphetamines
Exogenous Sources	Drug Interference
Vinegar, Clorox or other household cleaners	Urine drug screens
Salt (NaCl)	Urine drug screens
Hydrogen peroxide	Urine drug screens

It is best to obtain an accurate clinical history, as well as, a detailed medication history from the patient to determine if an interferent may be present prior to proceeding confirmatory testing. However, positive screens are presumptive results and require re-testing by a confirmatory assay (send-out) prior to any legal action.