Testing Methodology

Q. What testing methodology does LabCorp use to perform initial drug screening?

A. LabCorp performs initial drug screening using immunoassay. An immunoassay is a test that uses antibodies to detect the presence of drugs and other substances in urine. The initial screening process does not measure the specific amount of drug present in urine samples. It provides either a positive or negative result, indicating the presence or absence of detectable drug.

Q. What is GC/MS?

A. GC/MS is the abbreviation for gas chromatography/mass spectrometry, the testing methodology LabCorp uses to confirm presumptive positive drug screen specimens. GC/MS provides identification of the molecule(s) based on characteristic fragmentation patterns at specific retention times. GC/MS is a tandem technology, utilizing a gas chromatograph coupled to a mass spectrometer.

Q. Why are screening and confirmation cut-off levels different?

A. Simply stated, screening and confirmation testing are performed using different testing methodologies that precipitate different cut-off levels. The immunoassay tests used to perform initial drug screening are designed to detect a wide range of chemically similar compounds that react with the antibodies, which are at the core of the chemistry making up the tests. In contrast, GC/MS confirmatory testing detects specific metabolites that provide identification and quantification of a specific drug.

Q. To what does ng/mL refer?

A. Drug testing cut-off levels are usually expressed in the units of measure ng/mL (nanograms per milliliter). A quantitative positive GC/MS result is expressed in ng/mL.

Drug Detection Times

Q. What is the detection time for drugs in urine?

A. See the "Drugs of Abuse Reference Guide" for general guidelines of drug detectability in urine.

Amphetamine Testing

Q. What is methamphetamine d&l isomer testing?

A. Methamphetamine is available in two forms: "d" and "l". These compounds are stereoisomers (chemical mirror images). They have the same chemical formula and similar chemical properties. The "d" form is a prescription stimulant and appetite suppressant. The "l" form is available over-the-counter as the active ingredient of the Vick's inhaler and is a metabolite of certain prescription medications. Both "d" and "l" test positive by both immunoassay and most GC/MS assays. (Reference: Shults TF, Clair SS. The Medical Review Officer Handbook. The Handbook of the American Association of Medical Review Officers. 6th ed. Research Triangle Park, NC: Quadrangle Research, LLC; 1995.)

Q. What do the percentages mean in methamphetamine d&l isomer test results?

A. In order to help determine whether or not a methamphetamine positive may be due to an illicit source, it is helpful to determine the percentage of "d" isomer.

For example, following an individual's use of Vick's Vapor Inhaler the expected result would be 100% "l" methamphetamine. However, there is a possibility that trace amounts of "d" isomer may be present in the quantitative analysis. Laboratory guidelines have been established to allow for trace presence of the "d" isomer.

If the laboratory report indicates more than 80% "l" methamphetamine, the results are consistent with Vick's Vapor Inhaler use. If the laboratory reports more than 20% "d" methamphetamine present, the result indicates the use of "d" methamphetamine other than the inhaler. Illegally produced methamphetamine and amphetamine may contain mixtures of "d" and "l" isomers. LabCorp recommends use of a Medical Review Officer (MRO) to review all nonnegative test results. (Reference: Shults TF, Clair SS. The Medical Review Officer Handbook. The Handbook of the American Association of Medical Review Officers. 6th ed. Research Triangle Park, NC: Quadrangle Research, LLC; 1995.)

Q. What is the drug MDMA/Ecstasy?

A. Ecstasy is a commonly used street-name for MDMA (3,4-methylenedioxymethamphetamine). MDMA is an illegal drug with characteristics of both stimulants and hallucinogens. In the mid 1980s MDMA was being used at all night dance parties, now referred to as "raves." In 1985, the US Drug Enforcement Administration moved the drug to Schedule 1 status with no accepted medical use.

Q. Why isn't MDMA detected in my standard amphetamine screen?

A. MDMA is a synthetic amphetamine structure and does cross react with existing amphetamine assays. However, the cut-offs established for amphetamine by the government do not pick up concentrations of MDMA in urine that is typically there following exposure. To enable detection of MDMA following normal exposures, LabCorp uses reagents developed specifically for MDMA detection. (Reference: Dade Behring Inc. Emit II Plus Monoclonal Amphetamine/Methamphetamine Assay. Cupertina, Calif: Syva Company, Dade Behring Inc; 2002. (Dade Behring package insert 9Co22ul.6sl).

Opiate Testing

Q. What is 6-Acetylmorphine?

A. 6-Acetylemorphine (6-AM) is an intermediate metabolite between heroin and morphine. Generally, 6-AM is present for a short time after use of heroin.

Q. What tests does LabCorp offer to detect synthetic opiates?

A. LabCorp offers an opiate 4 test that is designed to detect codeine, morphine, hydrocodone, and hydromorphone. Additionally, LabCorp offers a screening and confirmation test specifically designed to detect oxycodone.

Q. What are OxyContin® and oxycodone?

A. OxyContin® tablets are a controlled-release oral formulation of oxycodone hydrochloride generally indicated for the management of moderate to severe pain when a continuous, around-the-clock analgesic is needed for an extended period. Oxycodone is a semi-synthetic narcotic analgesic classified by the U.S. Drug Enforcement Administration as a Schedule II controlled substance with an abuse liability similar to morphine.

Specimen Validity Testing (SVT)

Q. What is Specimen Validity Testing?

A. Specimen Validity Testing (SVT) is performed on a drug screen specimen to detect substitution, adulteration, or dilution. See the "Drugs of Abuse Reference Guide" for additional information on SVT.

Substitution - submission of a specimen that is not characteristic of human urine. Typically, this may be water or water with salt in it and is identified by extreme creatinine and specific gravity results.

Adulteration - adding a substance to a specimen after it has been collected. The product added is designed to mask the presence of, or chemically destroy the drug or drug metabolite that the specimen may contain. An adulterant product may be added with the intention of adversely effecting the testing reagents.

Dilution - result of ingestion of large amounts of water typically just before urine donation or as a result of physiological conditions. Specimens meeting dilute specifications typically are not considered questionable donations.

Q. Does the lab conduct SVT before screening for drugs?

A. No, specimen validity testing is performed simultaneously with the initial drug screens. Depending upon the drug screen and the specimen validity results the laboratory will release (1) both the drug screen and the specimen validity test results, (2) the specimen validity test results only, or (3) the drug screen results only.

Q. Is the nitrite test threshold based on body functions or does it allow for infection, food ingestion with high nitrates, and water consumption with high nitrites?

A. The nitrite threshold level established by the Federal Government is 500ug/mL. This is based on the level at which a drug screen may be impacted by this adulterant and by which no normal physiological level has been detected.

Q. How would a drug test be evaluated when nitrates are 490 ng/ml?

A. The nitrite result would be negative, as this level would not interfere with our testing process. The drug test(s) ordered would be conducted and reported following standard operating procedures.

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