Happy New Year

from the Scientists and Staff of STERLING Reference Laboratories

Fourth Quarter 2011

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Interpreting a THC Screening Result

Many of the calls received by our technical support staff have a common theme. The caller is often asking for assistance with interpreting a THC (marijuana metabolite) result in an attempt to quantify an individual's recent drug use or pattern of use. Randomly collected urine specimens can not provide the detailed information requested. This newsletter will address some of the most common questions.

Can you please help me interpret some THC results?
The first question a scientist might ask a caller seeking interpretive guidance is "Are you referring to a screening result or a confirmed result?" This is an important distinction, since confirmed results are more specific than screening results. Screening tests (typically immunoassay tests) are only intended to give positive or negative results. They are optimized to have maximum reliability at the cutoff point to enhance their ability to differentiate between specimens that contain the target drug and those that do not. They are not and never were intended to be used to produce accurate quantitative results. Second, a screening test may be reacting to multiple drug metabolites that all react differently with the immunoassay, causing wide variation in screening levels. Third, any attempt at quantifying a positive result will be affected by such factors as the time elapsed since the last use, the individual's metabolic patterns, and the individual's hydration status at the time of collection. Finally, in a small percentage of cases, the result could be a false positive due to factors other than illicit drug use.

How much marijuana was my client using?
This is a common question, whether it relates to the amount used, the time of last use, or if the results are appropriate for a medical marijuana permit. Unfortunately those questions are mostly unanswerable. Positive results in randomly collected urine specimens can only document that some drug use has been detected which occurred sometime within the window of detection for that drug class. There are too many variables involved in drug metabolism, even with accurate quantitative data, to get much more specific than that.

What about my marijuana metabolite screening quantities?
The only screening test for which we routinely offer any quantification is the marijuana metabolite (THC) screen. It is important to understand when attempting to interpret the THC screening results that they are intended to be used purely as a guideline to document that some drug use may have occurred. The immunoassay does not have sufficient linearity to provide anything more than a rough estimate up to about 200 ng/mL. They can provide some general information, but attempting to track a donor's continued use or abstinence with screening data is very difficult. For tracking abstinence or relapse, results from specimens collected 5 to 10 days apart that have been confirmed by GCMS are much more appropriate. Since THC levels are heavily influenced by fluid intake, a calculated value (ng THC/mg Creatinine) will appear on your reports. This value is the "normalized" THC, which has been adjusted to compensate for the variations in value due solely to fluid intake. This gives you a more useable number for comparing serial collections. Because THC levels change more slowly than other drugs over time, it is possible to make some assumptions about program compliance based on confirmed normalized THC levels. The elimination half-life for THC is about 24 to 72 hours for most individuals, with median half-life being roughly 30 to 36 hours. This means that drug levels will decrease by at least one half in that time period. There is a small percentage of the population that can have half-lives less than 24 hours or as much as 10 to 12 days. A conservative rule of thumb is to expect a person who is abstaining to have levels decreasing by at least 50% every 7 to 10 days. If the levels fail to drop at that rate, reuse or continued use is a strong possibility. Conversely, if the level increases by more 50% between collections you have proof of relapse or continued use.

What else should I be concerned about?
Avoid the temptation to over read positive drug test results. As always, STERLING's scientists are available @ (800)442-0438, (253) 552-1551 or via e-mail at certifying@regtox.com to help with your questions on interpretation.

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Expanded Synthetic Cannabinoids Test

STERLING is in the process of adding new compounds to our Synthetic Cannabinoid Test. The test, as currently configured, includes screening test for the metabolites of JWH-018 and JWH-073. The assay is currently being validated to add metabolites of JWH-019, JWH-250 and AM-2201. These three compounds are appearing in the new "SPICE" products that are available in the marketplace. The new compounds JWH-019, JWH-250 and AM-2201 are currently legal in the State of Washington, and have not been placed on any Schedule by the DEA; that, however, may change at any time. The expanded test will be available sometime early in January. The expanded test will be performed on an LC/MS/MS instrument and results will be qualitative. New synthetic cannabinoids are continuously being evaluated for inclusion, into our testing menu.

Expanded Synthetic Cathinones (Bath Salts) Test

Since STERLING began offering the Synthetic Cathinones (Bath Salt) Test, a number of new developments have occurred. The initial test detected the presence of methylenedioxypyrovalerone (MDPV) and mephedrone. In April of 2011, the Washington State Board of Pharmacy placed five synthetic cathinones on the list of banned drugs. These five banned drugs include MDPV, mephedrone, methylone, butylone, and flephedrone (4-fluoromethcathinone). In September of this year, the DEA announced in the Federal Register, their intent to temporarily place MDPV, mephedrone and methylone on Schedule 1, of the Controlled Substances Act. Accordingly, STERLING has expanded the Synthetic Cathinone test to include, in addition to MDPV and mephedrone, methylone, butylone, and flephedrone. The expanded test has been available since October. The test is performed on a LC/MS/MS instrument and quantitative results are reported. Although the most commonly detected bath salt is still MDPV, we have detected mephedrone, methylone, and flephedrone, in a small number of specimens. As our knowledge of "Bath Salts" and other CNS stimulants expands, STERLING will continue to add new compounds to our test offerings.

Dilute Urine specimens, or "Shy Bladder" claims?

Try Oral Fluid Drug Screening!

- ✓Fast and Simple, Gender Neutral Collection
- ✓Recent Drug Use Detected
- ✓Substitution or Adulteration Difficult
- ✓Lack of Required Urine Specimen Production
- ✓Saliva Drug Levels Correlate with Blood Drug Levels
- ✓Negative & Positive Screen results within 24 hrs from receipt at lab!

Call our Sales Department for details today!

ONSITE, INSTANT ALCOHOL SCREENS AVAILABLE

QED A150 SALIVA SWAB - DOT Approved, CLIA Waived Saliva Alcohol Screen detects Blood Alcohol Level of an individual up to 0.15%.

ALCO SCREEN 02 SALIVA STRIPS - DOT Approved 4-minute saliva screen indicates current Blood Alcohol Level greater than 0.02% by presence of a line.

ALCO SCREEN SALIVA STRIPS - Non-DOT 2-minute saliva screen approximated indication of current Blood (and other fluids) Alcohol Level to 0.30% by comparing the color of the reagent pad to a color chart.

URINE DIPS - For Forensic Use Only. One step urine-based dip provides indication of Ethanol (Alcohol) Level to 0.20% by comparing the color of the reagent pad to a color chart.

BREATH TUBES - Squeeze to break inner-capsule, blow into tube, per included instructions. Crystals react to Alcohol, and will change in color if the current, breath alcohol level has reached or surpassed the specified level, choose 0.02%, 0.04%, 0.05%, or 0.08%.

Upcoming Events – STERLING will be there! January: TIPSS Leadership Summit-Austin TX. **February:** Utah Valley University Substance Abuse Conference. **April:** 2012 Governor's Conference on Substance Abuse-Des Moines, IA, The 5th Annual Mississippi School for Addiction Professionals-Hattiesburg MS, and The Washington Association of Alcoholism & Addiction Program (AAP)-Fifth Annual Providers Conference-Lynnwood WA.

STERLING Reference Laboratories is full-service, nationally renowned toxicology laboratory, testing for drugs of abuse, which has been serving its clients with superior service and unsurpassed quality since 1987. SRL is certified by Health and Human Services (SAMHSA) and the College of American Pathologists Laboratory Accreditation Program (CAP) – rigorous laboratory standards designed to ensure quality testing.

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