SDRL Laboratory

TOXICOLOGY TIMES

SDRL Laboratory

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Volume 3, Issue 4 *A FREE Monthly Newsletter for Substance Abuse and Opioid Treatment Programs from San Diego Reference Laboratory* **April, 2013**

Oral Fluid (Saliva) Analysis for Drugs of Abuse (part 1)

In instances where a patient cannot – or will not – produce a urine sample for their intake or routine drug screen, or when an observed collection is the preferred specimen collection methodology, treatment programs have an alternative: oral fluid (saliva) testing. Oral fluid testing has become much more popular and widely accepted in the last decade. There are specific advantages and disadvantages in using oral fluid testing versus traditional urine testing, and they will be explored in this two-part article.

Similar to a urine screen, an oral fluid screen looks for the drugs and drug metabolites that are present in a specimen. If the amount of a drug detected on the panel is equal to or higher than the cutoff level used, a Positive result is reported for that drug; otherwise, a Negative result is reported. However, the concentration levels of drugs are much lower in saliva than in urine so lower cutoff levels must be used for oral fluid testing. Saliva is constantly being absorbed by the body and/or eliminated by swallowing, eating and spitting; thus, the amounts of drugs present in a saliva sample are small and only detected by lower cutoffs. Urine, on the other hand, is stored in the bladder until a person voids so the accumulation and concentration of the drugs in a urine sample is much higher. To put this into perspective, a commonly used cutoff level for Methadone in saliva is 50 ng/mL while in urine a commonly used cutoff level is 300 ng/mL.

Oral fluid testing provides a good indication of recent drug use. Most drugs are present in saliva for 1-2 days after consumption. Many drugs such as Alcohol, Amphetamines, Barbiturates, Cocaine, Opiates, PCP and THC can be detected in a saliva sample within hours or even minutes after use. While the detection of recent drug activity is beneficial, saliva testing may not capture patient drug consumption after a 48-hour window from use. The window of detection for most drugs in urine is longer – usually 2-4 days after consumption. (Because THC and PCP are fat soluble, these drugs remain in the body longer and can be detected in urine for weeks after use, a clear advantage for urine testing over saliva testing for these drugs specifically.) Therefore, a patient who has consumed a drug or drugs may test negative depending upon when the consumption occurred and the type of drug test administered. Furthermore, an oral fluid sample and a urine sample collected from the same patient on the same day can have two different results; the drug(s) could potentially be present in both sample types or only in one.

Perhaps the biggest advantage that oral fluid testing provides is its ease of collection. Collecting a saliva sample is a non-invasive, gender-neutral means of acquiring a suitable specimen for analysis for drugs of abuse. As opposed to the observed urine sample collection process, collecting an oral fluid sample is not embarrassing for the patient or collector and therefore encourages donor cooperation. In a matter of minutes, the sample is produced and secured in a container that can be labeled with chain of custody precautions applied (if required). Additionally, sample collection from multiple patients can be monitored simultaneously by a single person.

Part 2 of this article will appear in the May issue of *Toxicology Times*

??? Did You Know ???

Substance abuse treatment admissions for addiction involving combined use of Benzodiazepine and narcotic pain relievers rose a total of 570%, to 33,701, from 2000 to 2010, according to a SAMHSA report. The report showed that 38.7% of those with this combined addiction began use of both drugs in the same year; 34.1% first used narcotic pain relievers; and the remaining 27.1% started with benzodiazepines. Almost half of patients admitted for combined use also had a co-occurring psychiatric disorder, were largely self-referred, and were less likely to receive regular outpatient treatment than other admissions. Non-Hispanic whites account for 91.4% of combination admissions versus only 55.8% of other admissions. **(Source: www.samhsa.gov)**

Question of the Month

Question: *"I have a pregnant patient who doses daily in the clinic, but is negative for Methadone Metabolite…how is this possible?"*

Answer: For patients who receive Methadone doses greater than 20-30 mg/day, it is expected that both Methadone and Methadone Metabolite will test positive utilizing a cutoff of 300 ng/mL. If a patient tests positive for Methadone and negative for Methadone Metabolite, it is considered an abnormal result. The only exception to this is a pregnant female. Regardless of the dose, as the female progresses through pregnancy her body and the fetus consume most of the parent medication (Methadone). Therefore, the body doesn't convert and excrete the Methadone Metabolite. As the patient advances in her pregnancy, it is possible, even at high doses, for the patient to be negative for both Methadone and Methadone Metabolite.