

Oral Fluid (Saliva) Analysis for Drugs of Abuse (part 2)

Part 1 of this article appeared in the April issue of *Toxicology Times*

Because the oral fluid sample collection process is usually under direct observation, the chance that the donor can adulterate the specimen is all but eliminated. Often times the urine collection process is not observed and takes place behind closed doors, providing an opportunity for the urine sample to be diluted, spiked or substituted. This is not a concern with observed oral fluid collections. And unlike a urine sample, the integrity of a saliva sample is not affected by patient over-hydration. Further, collecting a saliva sample can take place virtually anywhere, observed by any staff member and a bathroom is not required.

Despite the unlikelihood that a saliva sample would be adulterated, there are suggested procedures a program should follow to ensure the best possible sample is collected. The patient should not consume any food or liquids five minutes prior to collection. If there is any doubt that there might be a foreign substance in the patient's mouth (for example, mouthwash), the patient should (under observation) rinse their

mouth with water and wait 5-10 minutes before the collection process begins. Within this time the body resumes regular saliva production and the saliva returns to the concentration of drugs that are currently in the body.

While Methadone is tested for in saliva, Methadone Metabolite is not typically found in an oral fluid sample. The presence of Methadone in saliva may only be detected due to very recent consumption or its presence in the patient's mouth. But it is entirely possible the patient skipped a Methadone dose within the previous 24-hours, which would be verified by a negative Methadone Metabolite result. Testing for both Methadone and Methadone Metabolite – which can be done in urine – is the best way to fully monitor a patient and ensure that a dose has not been skipped. For further explanation on the relationship between Methadone and Methadone Metabolite testing in urine and oral fluid samples, refer to the October and November 2011 issues of *Toxicology Times*.

Some patients may have a difficult time producing enough saliva (or any at all) for

testing. Generally speaking, patients in treatment programs are not well-hydrated. Some get dry mouth syndrome which can in part be caused by the anxiety of the collection process. In these instances, certain trigger words (pickles, sour candy, etc.) can be used to encourage saliva production. SDRL requires a minimum of 1.5 mL of saliva per sample so that enough of the specimen exists in the event that additional testing is required.

Cost is a major factor for some programs when considering whether to institute oral fluid or urine drug testing. While there are advantages to oral fluid testing – collection convenience, real time values and elimination of adulteration – it is generally a much more expensive test. Beyond the laboratory testing, there is also usually an additional charge for the saliva collection device. Furthermore, testing results from saliva screens must be confirmed by either the GC/MS or LC/MS methodologies which are typically more expensive. Unlike for certain drugs in urine samples, the TLC confirmation methodology (typically less expensive than GC/MS or LC/MS) cannot be used on saliva samples.

???

Question of the Month

According to a new report by SAMHSA, hospital emergency department visits linked to Buprenorphine increased substantially—from 3,161 visits in 2005 to 30,135 visits in 2010 with 52% (15,778) in 2010 involving non-medical use. Of the Buprenorphine-related, non-medical use related visits in 2010, 41% involved just the use of Buprenorphine. The remaining 59% of these non-medical visits involved the use of other substances such as pharmaceuticals including Benzodiazepine (27%), narcotic pain relievers (12%), and illicit drugs like marijuana (11%), heroin (9%) and cocaine (8%). In 2010, most Buprenorphine-related emergency department visits for non-medical use involved males (66%). Patients aged 26 to 34 old represented the largest proportion of visits for non-medical use of the medication. (Source: www.samhsa.gov)

Toxicology Times © 2013 San Diego Reference Laboratory.

Question: *Is it possible to have a positive test for Morphine by eating food with poppy seeds in it?*

Answer: In short, yes. Consumption of a poppy food item does not guarantee a positive Morphine test, but the possibility exists. Poppy (*Papaver somniferum*) was grown for Opium and is used in the production of Morphine. If a patient is consuming foods with poppy seeds in them, it is possible to have the patient have a positive test for the Opiates, and a further positive result for Morphine by GC/MS. However, when poppy seeds are consumed, Thebaine should also be present in the sample. The dominant metabolic path of poppy products is Thebaine ultimately to Morphine. If a patient claims poppy food consumption, and a Positive Morphine result has already been attained, SDRL has the ability to perform a test for Thebaine. If the patient consumed poppy products, it is expected that the Thebaine test will be positive. If the Thebaine test is negative, it is likely the Morphine came from a different source. Due to the variety in which food products are made and each person's metabolism, it is not possible to define the exact amount of poppy products required to trigger a positive result for Morphine.