



Laboratory *News*

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Laboratory Guide to Pain Management

Joyce L. Flanagan, PhD

Since the implementation of the system-wide opioid policy, effective 12/7/2009, providers sometimes have questions on how to order urine drug tests. This article gives a brief introduction to how urine drug testing is performed and summarizes the available urine drug testing options offered by the Marshfield Clinic Toxicology Laboratory.

Methodology

Urine is first screened by instrument-based antibody-antigen immunoassays. These immunoassays detect immuno-reactivity for a *class* of drugs; they are not specific for a particular drug. The test cross-reacts with structurally similar compounds, which is both a strength and disadvantage. Immunoassay is useful in detecting a class of a drug that is not present; a positive result does not confirm the presence or identity of a specific drug. Therefore, immunoassay test results are intended to be used by a physician or trained provider and interpreted in the context of the patient's symptoms and history. Positive immunoassay results are not definitive; they are considered to be presumptive. Any presumptive positive result that may cause a negative impact to the patient should be confirmed before any action is taken.

A drug is confirmed and quantified by the Gas Chromatography and Mass Spectrometry (GC/MS) method, which is very reliable. All of the tests offered include GC/MS confirmation, with the exception of the PCS10WO (option #2 below).

Pain Management Testing

The recommended tests for pain management are listed below. Please note that the tests have slightly different names or codes depending on the system used to order. For each test, all the variable names/codes are listed. The turn around time (TAT) for option 2 is the fastest, within 24 hours after receiving the specimen. For other options, the TAT is typically 2 to 4 days and depends on how many confirmation tests are needed for an individual specimen.



QUESTIONS REGARDING LAB TESTING FOR PAIN MANAGEMENT:

Please call -

Joyce Flanagan, Ph.D. at
1-6300

or

Jenn Sweningson at 9-3733.

1. Pain Clinic Survey with Confirmation

Lab Test Code: PCS10

Clinic (Clinic Order Manager): Pain Clinic Survey w/Confirm

Hospital (Centricity): Pain Clinic Survey w/Confirm, Urine

This test panel detects a broad spectrum of drugs. It is recommended for establishing a baseline for new patients, routine random monitoring of existing patients, and detecting abuse and/or diversion. This panel uses immunoassay to screen for: ethanol; amphetamines, including phentermine, amphetamine, methamphetamine, ephedrine, phenylpropanolamine, pseudoephedrine, MDA, and MDMA (Ecstasy); barbiturates, including butalbital, amobarbital, secobarbital, pentobarbital, and phenobarbital; benzodiazepines, including desalkylflurazepam (flurazepam metabolite), nordiazepam, oxazepam, diazepam, temazepam, lorazepam, and alpha-hydroxyalprazolam (alprazolam metabolite), cannabinoids, cocaine, methadone including EDDP (methadone metabolite); opiates, including morphine, codeine, hydrocodone, hydromorphone; oxycodone and oxymorphone; pcp; and propoxyphen. Every specimen is also screened for validity by testing creatinine, pH and oxidants to check for adulteration, either by dilution or substitution. Detected drugs are confirmed and quantified by the GC/MS method.

2. Pain Clinic Survey Without Confirmation

Lab Test Code: PCS10WO

Clinic (Clinic Order Manager): Pain Clinic Survey w/o Confirm

Hospital (Centricity): Pain Clinic Survey w/o Confirm

This test code is similar to option #1, PCS10. The main difference is that this is a screen only test. Results are reported as presumptive positive and are not confirmed. Specimens under this test code are kept for 6 business days from the screening date. If confirmation is needed, the follow-up GC/MS confirmation test can be ordered within this timeframe with additional charge. Contact the Toxicology Lab (9-3734) with specific questions before ordering. The advantages of this test are its lower cost and fast turn around time. Additional confirmation will be billed separately.

3. Pain Clinic Survey with Confirmation - Mini, Urine

Lab Test Code: PCSMIN

Clinic (Clinical Order Manager): Pain Clinic Survey w/Conf-Mini

Hospital (Centricity): Pain Clinic Survey w/Conf-Mini

This test is similar to PCS10 (option #1) but covers fewer drug classes. It detects cannabinoids, cocaine, morphine, codeine, hydrocodone, hydromorphone, oxycodone, oxymorphone, methadone and EDDP (methadone metabolite). Amphetamines, barbiturates, and benzodiazepines are not included in this panel.

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4. Opiate Survey, Urine

Lab Test Code: OPI

Clinic (Clinical Order Manager): Opiates, Urine

Hospital (Centricity): Opiate, DAU-Urine

This test targets the most prescribed drugs in the opioid class including morphine, codeine, hydrocodone, hydromorphone, oxycodone, and oxymorphone. It screens and confirms the presence of these drugs only.

5. The following group of drugs has no immuno-screening assay available, but there is a GC/MS confirmation test that can be ordered individually.

Fentanyl, Urine

Lab Test Code: FENT

Clinic (Clinical Order Manager): Fentanyl, Urine

Hospital (Centricity): Fentanyl, Urine

Ketamine, Urine

Lab Test Code: KET

Clinic (Clinical Order Manager): Ketamine, Urine

Hospital (Centricity): Ketamine, Urine

Meperidine, Urine

Lab Test Code: MEPER

Clinic (Clinical Order Manager): Meperidine, Urine

Hospital (Centricity): Meperidine, Urine

Tramadol Quantitation, Urine

Lab Test Code: TRAM

Clinic (Clinical Order Manager): Tramadol, Urine

Hospital (Centricity): Tramadol, Urine

6. Drug Screen, Comprehensive, Urine


Lab Test Code: Tox

Clinic (Clinical Order Manager): Drug Scn, Comprehensive-Urine

Hospital (Centricity): Drug Scn, Comprehensive Random Urine

This panel includes all the elements of PCS10; in addition it includes a color test for salicylate and a comprehensive GC/MS full scan method to detect and identify hundreds of prescription and non-prescription drugs in our database. The sensitivity of this GC/MS full scan is less than that of the GC/MS confirmation tests targeted for known drugs. Therefore, the therapeutic concentrations of many drugs are below the detection limits of this test and cannot be detected.

The intent of the TOX screen is to find unknowns including prescription and over-the-counter drugs for physicians managing an apparent overdose or an intoxicated patient, or to determine if a specific set of symptoms might be due to the presence of drugs. The test is not designed for the management of patients seeking pain relief under the pain contract or to screen patients for intermittent or illicit use of drugs.

Not all tests available are addressed in this article. For a full test menu, please click on the "Lab Test Manual" link available on the home page of the Clinic intranet. From there, search by "Toxicology" under laboratory section to see the entire menu. 

Changes to Maternal Serum Screen Requisitions

Pamela S. Steele, PhD

Marshfield Labs is pleased to announce a newly enhanced format for ordering Maternal Serum Screens (MSS). These revisions will be consistent whether you now order MSS using paper requisitions or through the interface/portal system.

Currently, our test menu includes the following:

AFP-1 alpha fetoprotein (AFP)

AFP-3 AFP, human chorionic gonadotropin (hCG), unconjugated estriol (uE3)

AFP-4 AFP, hCG, uE3 and Dimeric Inhibin-A (DIA)

While the AFP-3 and AFP-4 tests have essentially the same utility, the addition of DIA to the latter is associated with a lower false positive rate and higher detection rate for risks associated with Down Syndrome. The laboratory will continue to offer AFP-1 to assess risk of open neural tube defects. However, due to the increased specificity and sensitivity with DIA, we suggest AFP-4 for open neural tube defects, Down Syndrome, and Trisomy 18 as the superior second trimester screen. Tests can be performed between 15 weeks, 0 days, and 21 weeks, 6 days of gestation, with optimal testing between 16-18 weeks.

Required clinical information, including both current pregnancy information as well as previous pregnancy history, has been streamlined for ease of use. The following bulleted items summarize the information that will be requested.

- Gestational age is now required to be submitted as the Expected Delivery Date (EDD) based upon the last menstrual period (LMP) or ultrasound (US) data.
- If your patient has had in vitro fertilization, the donor's date of birth (if not the mother) is required.
- Previously, maternal ethnicity had included the following categories: Caucasian/White, Hispanic, Native American, African American, Asian or Other. Statistical utilization of this category, however, requires an extensive patient database with adequate representation of each race. Due to the population demographics in Central Wisconsin, our database is sufficient to encompass Caucasians and African Americans. Alternate ethnicities should be marked as "other," and will receive the same weight-corrected risk calculations as Caucasians.
- Maternal weight and diabetic status of the mother remain required information.
- The multiple gestation response is critical for the proper risk calculation; however, if unanswered, a singleton pregnancy will be assumed.
- The question, "Previous child with Down Syndrome?" has now been changed to "Previous child, or parent of fetus has Down Syndrome?" This change was instituted since either an affected parent or a previous child with Down Syndrome constitute equally weighted risk factors. This remains a required response.
- The format of "Family history of neural tube defect?" has not changed and remains required information.

For questions regarding Maternal Serum Screens please call Pamela Steele, PhD at 1-6300. 