The PtProtect (Patient Protect) program offers pain medication management panels and their component tests designed to improve monitoring of prescribed controlled medications. These panels (refer to Pain Management Panels insert) help determine whether your patient is:

- Taking or potentially diverting pain medications currently prescribed
- Taking pain medications that are not prescribed
- Using illicit drugs

*Each drug component may also be ordered individually.

**PATIENT SAFETY**

The use and misuse of prescription pain medications is a growing problem. A 2014 CDC report\(^1\) states 22,810 people in the U.S. died from pharmaceutical overdose in 2011. Of these deaths, 16,917 (74%) involved opioid prescription painkillers and, 872 (30%) involved benzodiazepines. The report also states that 1.4 million emergency room visits involved the non-medical use of pharmaceuticals, with 420,040 of those visits related to opioid prescription painkillers.

The possibility of adverse drug interactions makes this a significant patient and community safety issue, particularly if the patient:

- Combines prescriptions from multiple prescribers or other sources
- Uses controlled substances recreationally
- Diverts prescribed medications for financial gain

**COST OF PRESCRIPTION DRUG ABUSE**

The overall costs associated with prescription drug abuse are estimated to be more than $70 billion per year. An addicted patient who receives prescriptions from multiple doctors can cost insurers $10,000 - $15,000 a year.\(^8\) PtProtect directly addresses the safety and financial concerns of prescription pain medication abuse by using the most sensitive and definitive assays to detect medication and illicit drugs.

*continued on next page*
Direct annual health care costs from hospitalization, outpatient visits and prescription drugs are approximately nine times higher for opioid abusers than non-opioid abusers as shown in the table below. Early monitoring of drug adherence using laboratory urine tests by mass spectrometry may provide substantial cost savings.\textsuperscript{9,10,11}

### Mean Annual Costs Per Patient (U.S. Dollars)

<table>
<thead>
<tr>
<th>Medical Service</th>
<th>Opioid Abuser</th>
<th>Non-Opioid Abuser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total direct health care</td>
<td>$15,884</td>
<td>$1,830</td>
</tr>
<tr>
<td>Hospital inpatient</td>
<td>$7,659</td>
<td>$318</td>
</tr>
<tr>
<td>Physician outpatient</td>
<td>$5,398</td>
<td>$928</td>
</tr>
<tr>
<td>Drug therapy</td>
<td>$2,034</td>
<td>$386</td>
</tr>
<tr>
<td>Other health care costs</td>
<td>$793</td>
<td>$198</td>
</tr>
</tbody>
</table>

### WHY CHOOSE PtPROTECT FOR YOUR PAIN MANAGEMENT TESTING?

PtProtect has a U.S. patented testing algorithm\textsuperscript{*} with a decade of study behind it. PtProtect provides the confidence and reliability you need to ensure successful pain medication monitoring. This complete suite of test panels and their component tests offers important features unique to PeaceHealth Laboratories:

1. **Detects the lowest drug concentration available**

   Results that show the presence and absence of targeted opiate and opioid medications are crucial to an accurate assessment. Detection thresholds as low as 2 and 5 ng/mL increase the ability to identify recent medication use. These low-threshold sensitivities can reveal an absence of expected medications which may indicate diversion, reduced dosages or non-adherence with the patient’s prescribed medication (refer to Drug Detection insert).

2. **Uses tandem mass spectrometry – the gold standard for detection**

   Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) is the most accurate and sensitive testing method to detect medications. Our anecdotal laboratory data shows that testing based on other methodologies can miss up to 30\% of opiates/opioids present. LC/MS/MS is used to test opiates and opioids without relying on an initial positive screen test with less sensitivity and poor specificity. This reduces turnaround time for test reporting and provides confirmatory sensitivity and specificity for all opiates/opioids included in the panels (refer to Interpretive Report Examples and Understanding Test Results inserts).

3. **Produces reports with easy-to-read interpretive comments that speed patient care**

   The PtProtect report provides an “Interpretive Comments” section to quickly and accurately determine whether the test results are consistent or discrepant with your patient’s prescriptions.

### IMPORTANCE OF LOW DETECTION LIMITS

The lowest level of drug detection, known as the threshold/cutoff level, is critical to accurately monitor the presence or absence of drugs in the urine (refer to Comparison of Tests insert).

In a retrospective study of 77,881 urine specimens shown to be positive for opioids using a threshold/cutoff of 50 ng/mL, over half (59\%) were below the threshold/cutoff level of...
2,000 ng/mL typically used in point of care (POC) tests. These specimens would have been erroneously labeled opioid-negative with a less sensitive testing method.

Moreover, 23% of the specimens fell below the 300 ng/mL cutoff level used by clinical, hospital and reference laboratories. It is recommended that laboratory urine tests using mass spectrometry be used as a follow-up to POC tests due to the possibility of false-negative results.

**HOW OFTEN TO TEST**

<table>
<thead>
<tr>
<th><strong>Recommended Frequency of Urine Drug Testing</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk by Opioid Risk Tool assessment</td>
</tr>
<tr>
<td>Moderate risk by Opioid Risk Tool assessment</td>
</tr>
<tr>
<td>High risk by Opioid Risk Tool or opioid doses &gt;120 mg MED/d</td>
</tr>
<tr>
<td>Aberrant behavior</td>
</tr>
</tbody>
</table>

*Washington State Agency Medical Directors’ Group recommendation*

**METABOLIC CONSIDERATIONS**

Caution must be used when interpreting opiate and opioid results since commonly prescribed opiates (codeine) and opioids (hydrocodone and oxycodone) metabolize to active opiate and opioid drugs (codeine → morphine, hydrocodone → hydromorphone, and oxycodone → oxymorphone). These metabolites are also available as prescription medications.

In addition to the expected metabolism that occurs with standard doses of opiate and opioids, high doses of codeine or morphine administered to tolerant patients creates “minor” metabolites: codeine → hydrocodone, and morphine → hydromorphone.

**QUESTIONS?**

Board-certified clinical toxicologists are available to answer your questions and consult with you when interpreting test results.

**Grant Beardsley, MS, MT (ASCP), NRCC/TC**
Manager, Drug Testing Services
Clinical Toxicologist
📞 541-687-2134 ext. 8137
📞 800-826-3616 ext. 8137
✉️ gbeardsley@peacehealthlabs.org

**Stephen Erfurth, PhD, DABCC/TC**
Director, Science & Technology
📞 541-341-8092
📞 800-826-3616 ext. 8092
✉️ serfurth@peacehealthlabs.org

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**Major and Minor Metabolic Pathways for Opiates and Opioids**

![Diagram of metabolic pathways]
ORDERING INFORMATION

36286 Pain Management Panel

Components:
Amphetamines (300) / Barbiturates / Benzodiazepines / Cocaine / Ethyl Alcohol / Marijuana Metabolite (THC)(20) / Methadone / Phencyclidine (PCP) / Propoxyphene / Opioid Panel (unconjugated): Codeine / Fentanyl / Norfentanyl / Hydrocodone / Hydromorphone / Meperidine / Morphine / Oxycodone / Oxymorphone / 6-monacetylmorphine (6-MAM)

Methodology:
Enzyme Immunoassay (EIA) / Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) / Gas Chromatography/Mass Spectrometry (GC/MS)

Performed: Daily
Released: Within 72 hours
CPT Codes: 80101 x9 / 83925 x10

This test may require insurance company preauthorization. Before ordering please check the Insurance Preauthorization List for Testing.

REFERENCES

4. R.C. Baselt, in Disposition of Toxic Drugs and Chemicals in Man, Biomedical Publications, Foster City, California (2011).
8. CNNMoney February 24, 2012
Pain Management Panels

With a decade of study behind it, the PtProtect (Patient Protect) program:

- Monitors analgesic medication adherence
- Uses lowest detection threshold for the most sensitive, comprehensive detection of opiates and opioids
- Offers highest testing specificity available
- Tests for more opiates/opioids than other laboratories, without the expense or delay of an initial screen
- Includes heroin metabolite (6-monoacetylmorphine) testing on all panels
- Detects non-prescribed analgesic medication and drugs of abuse to aid in reducing the possibility of adverse drug interactions
- Simplifies patient management with easy-to-understand reports
- Increases testing flexibility with multiple panel configurations

To determine the best panel choices or individual test options for your practice, please contact your account representative.

### PANEL OPTIONS

<table>
<thead>
<tr>
<th>Drug</th>
<th>Unit Code 36286</th>
<th>Unit Code 36302</th>
<th>Unit Code 36299</th>
<th>Unit Code 36308</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opiates/Opioids by LC/MS/MS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-monoacetylmorphine</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Codeine</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Meperidine</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Morphine</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Norfentanyl</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Oxymorphone</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Drug Screen by EIA and GC/MS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amphetamines</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Barbiturates</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Cocaine</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Ethyl Alcohol</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Marijuana</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Methadone</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Phencyclidine</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Propoxyphene</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Misc by LC/MS/MS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carisoprodol and metabolite (meprobamate)</td>
<td>Add-on</td>
<td>✗</td>
<td>Add-on</td>
<td>✗</td>
</tr>
<tr>
<td>Tramadol and metabolite</td>
<td>Add-on</td>
<td>✗</td>
<td>Add-on</td>
<td>✗</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>Add-on</td>
<td>Add-on</td>
<td>Add-on</td>
<td>Add-on</td>
</tr>
<tr>
<td>Ethyl Glucuronide (EtG) and Ethyl Sulfate (EtS)</td>
<td>Add-on</td>
<td>Add-on</td>
<td>Add-on</td>
<td>Add-on</td>
</tr>
</tbody>
</table>

Frequently ordered tests can be added to your customized, preprinted requisitions or added to your electronic interface ordering system.

Each urine drug test component may also be ordered individually.
# Drug Detection Time and Thresholds

<table>
<thead>
<tr>
<th>Drug</th>
<th>Trade/Generic Name</th>
<th>Detection Time (after last dose)</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opiates/Opioids by LC/MS/MS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-monoacetylmorphine</td>
<td>Heroin metabolite</td>
<td>&lt;8 hours</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Codeine*</td>
<td>Tylenol-3</td>
<td>1–3 days</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>Duragesic, Actiq</td>
<td>1–2 days</td>
<td>2 ng/mL</td>
</tr>
<tr>
<td>Hydrocodone*</td>
<td>Vicodin and others</td>
<td>1–3 days</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Hydromorphone*</td>
<td>Dilaudid</td>
<td>2–4 days</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Meperidine</td>
<td>Demerol</td>
<td>1–2 days</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Morphine*</td>
<td>MS Contin, Roxanol</td>
<td>1–3 days</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Norfentanyl</td>
<td>Fentanyl metabolite</td>
<td>1–4 days</td>
<td>2 ng/mL</td>
</tr>
<tr>
<td>Oxycodone*</td>
<td>Oxycontin, Tylox, Percocet</td>
<td>1–3 days (SR 2–4 days)</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Oxymorphone*</td>
<td>Numorphan, Opana</td>
<td>1–3 days (SR 1–4 days)</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td><strong>Drug Screen by EIA and GC/MS Confirmation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td>Ethanol</td>
<td>2–14 hours</td>
<td>0.02/0.02 g/dL</td>
</tr>
<tr>
<td>Amphetamine/Methamphetamine</td>
<td>Amphetamine MDMA, MDA</td>
<td>1–4 days</td>
<td>300/150 ng/mL</td>
</tr>
<tr>
<td>Barbiturates</td>
<td>Amobarbital Aprobarbital Butabarbital Butalbital Pentobarbital Phenobarbital Secobarbital</td>
<td>1–7 days 1–7 days 1–7 days 1–48 hours 1–24 hours 1–3 weeks 1–24 hours</td>
<td>200/200 ng/mL</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>Alprazolam metabolite Chlordiazepoxide metabolite Clonazepam metabolite Clorazepate metabolite Diazepam metabolite Flunitrazepam metabolite Flurazepam metabolite Lorazepam Nordiazepam Oxazepam Temazepam</td>
<td>Therapeutic Dose: 1–3 days Extended Dosage: 4–6 weeks</td>
<td>200/50 ng/mL</td>
</tr>
<tr>
<td>Cocaine</td>
<td>Cocaine metabolite</td>
<td>1–5 days</td>
<td>150/100 ng/mL</td>
</tr>
<tr>
<td>Marijuana</td>
<td>THC metabolite</td>
<td>Heavy User: 4–6 weeks Moderate User: 2 weeks Light User: 0–4 days</td>
<td>20/15 ng/mL</td>
</tr>
<tr>
<td>Methadone</td>
<td>Methadone and EDDP (metabolite)</td>
<td>3–11 days</td>
<td>150/100 ng/mL</td>
</tr>
<tr>
<td>Phencyclidine</td>
<td>Phencyclidine</td>
<td>&lt;8 days</td>
<td>25/25 ng/mL</td>
</tr>
<tr>
<td>Propoxyphene</td>
<td>Propoxyphene metabolite</td>
<td>1–5 days</td>
<td>300/300 ng/mL</td>
</tr>
</tbody>
</table>

*Denotes detection of free, non-conjugated drug.

continued on next page
Drug Detection Time and Thresholds (continued)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Trade/Generic Name</th>
<th>Detection Time (after last dose)</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carisoprodol &amp; metabolite (meprobamate)</td>
<td>Soma</td>
<td>4 days</td>
<td>0.2 µg/mL</td>
</tr>
<tr>
<td>Buprenorphine &amp; metabolite</td>
<td>Buprenex, Subutex, Suboxone</td>
<td>4 days</td>
<td>2 ng/mL</td>
</tr>
<tr>
<td>Ethyl Glucuronide Ethyl Sulfate</td>
<td>Ethanol metabolites (EtG, EtS)</td>
<td>Up to 80 hours after moderate-excessive ethanol use</td>
<td>500 ng/mL, 200 ng/mL</td>
</tr>
<tr>
<td>Tramadol &amp; metabolite</td>
<td>Ultram, Ultrace, Ryzolt</td>
<td>3 days</td>
<td>50 ng/mL</td>
</tr>
</tbody>
</table>

**Note:**
The Drug Detection Time and Thresholds chart indicates time estimate for drug/metabolite detection in urine following cessation of drug use. Other considerations include patient’s age, fluid intake, amount and frequency of drug used, and metabolic variables influenced by genetics or interactions with other medications. This table is a general guideline.
Comparison of Tests

Example:
Patient is taking prescription morphine at a rate of 20 mg, x3/day. The last dose was taken 36 hours prior to urine specimen collection for testing. Testing is performed using an instant point-of-care (POC) test and simultaneously sent to two laboratories for testing. A comparison of the test results is listed below.

<table>
<thead>
<tr>
<th>Medication/Drug</th>
<th>Instant Point-of-Care Test</th>
<th>Immunoassay Screen National Laboratory</th>
<th>PtProtect Test from PeaceHealth Laboratories</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Test Result</td>
<td>Test Result</td>
<td>Test Result</td>
</tr>
<tr>
<td>Amphetamines</td>
<td>negative</td>
<td>negative</td>
<td>negative</td>
</tr>
<tr>
<td>Barbiturates</td>
<td>negative</td>
<td>negative</td>
<td>negative</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>negative</td>
<td>negative</td>
<td>negative</td>
</tr>
<tr>
<td>Cocaine</td>
<td>negative</td>
<td>negative</td>
<td>negative</td>
</tr>
<tr>
<td>Methadone</td>
<td>negative</td>
<td>negative</td>
<td>negative</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>NEGATIVE</td>
<td>NEGATIVE</td>
<td>POSITIVE</td>
</tr>
<tr>
<td>Phencyclidine</td>
<td>negative</td>
<td>negative</td>
<td>negative</td>
</tr>
<tr>
<td>Opiates</td>
<td>NEGATIVE</td>
<td>NEGATIVE</td>
<td>n/a*</td>
</tr>
<tr>
<td>Propoxyphene</td>
<td>negative</td>
<td>negative</td>
<td>negative</td>
</tr>
<tr>
<td>6-MAM</td>
<td>not tested</td>
<td>not tested</td>
<td>negative</td>
</tr>
<tr>
<td>Alcohol</td>
<td>not tested</td>
<td>not tested</td>
<td>negative</td>
</tr>
<tr>
<td>Marijuana</td>
<td>negative</td>
<td>negative</td>
<td>negative</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>not tested</td>
<td>negative</td>
<td>negative</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>not tested</td>
<td>not tested</td>
<td>negative</td>
</tr>
<tr>
<td>Norfentanyl</td>
<td>not tested</td>
<td>not tested</td>
<td>negative</td>
</tr>
<tr>
<td>Oxymorphone</td>
<td>not tested</td>
<td>NEGATIVE</td>
<td>POSITIVE</td>
</tr>
<tr>
<td>Codeine</td>
<td>n/a*</td>
<td>n/a*</td>
<td>negative</td>
</tr>
<tr>
<td>Morphine</td>
<td>n/a*</td>
<td>n/a*</td>
<td>POSITIVE</td>
</tr>
<tr>
<td>Meperidine</td>
<td>not tested</td>
<td>not tested</td>
<td>negative</td>
</tr>
</tbody>
</table>

Results:
The instant test and national laboratory produced a false negative result for the prescribed morphine. The detection threshold for the POC instant test for opiates (morphine) is 2,000 ng/mL. The screening detection threshold for the national laboratory is 300 ng/mL. PtProtect is able to detect morphine at 5 ng/mL.

The patient was also taking oxycodone, an additional medication that was not prescribed. The POC instant test cup and national laboratory would not have detected oxycodone. The detection threshold for the POC instant test and the national laboratory is 100 ng/mL. PtProtect detects oxycodone at 5 ng/mL. Oxymorphone is a metabolite of oxycodone and is also detected only by PtProtect.

*The POC test and national laboratory perform an initial screen for opiates (codeine and morphine). PtProtect directly tests for codeine and morphine plus oxycodone, oxymorphone, hydrocodone, hydromorphone, 6-monoacetylmorphine, meperidine, fentanyl and norfentanyl using LC/MS/MS on every specimen, every time.
Interpretive Report Examples

Example 1
Hydrocodone is prescribed and both hydrocodone and hydromorphone (metabolite of hydrocodone) are detected in the urine. The ratio of hydromorphone to hydrocodone is consistent with hydrocodone use. The source of hydromorphone is the hepatic metabolism of hydrocodone. The interpretive comment would read:

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Result</th>
<th>Interpretive Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocodone</td>
<td>864 ng/mL</td>
<td>Consistent with hydrocodone prescription</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>115 ng/mL</td>
<td>Hydromorphone source from hydrocodone metabolism</td>
</tr>
</tbody>
</table>

Example 2
When an opiate/opioid that is not prescribed is detected in the urine, for example oxycodone (Oxycontin), and the oxymorphone to oxycodone ratio indicates that oxymorphone (Opana) is also being used (also not prescribed), the interpretive comment would read:

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Result</th>
<th>Interpretive Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxycodone</td>
<td>544 ng/mL</td>
<td>Discrepant result; oxycodone should be negative</td>
</tr>
<tr>
<td>Oxymorphone</td>
<td>317 ng/mL</td>
<td>Oxymorphone source from oxycodone metabolism and oxymorphone use</td>
</tr>
</tbody>
</table>

Example 3
An interpretive comment will also be provided when the requisition indicates that prescription use is “unknown” or not provided. In the example, codeine and morphine are positive in the urine but no prescription information was provided to the laboratory. The morphine to codeine ratio indicates that morphine came from codeine metabolism. The interpretive comment would read as shown below. Recent heroin use is likely excluded as the source of morphine since the 6-monoacetylmorphine test is negative. In addition, concentrations of codeine and morphine rule out poppy seed ingestion as the source of morphine.

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Result</th>
<th>Interpretive Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codeine</td>
<td>327 ng/mL</td>
<td>Consistent with codeine use</td>
</tr>
<tr>
<td>Morphine</td>
<td>104 ng/mL</td>
<td>Morphine source from codeine metabolism</td>
</tr>
</tbody>
</table>
Understanding Test Results

Determining if a detected medication is from legitimate or illicit use can be difficult and requires clinical correlation.

1. Why would a prescribed drug not be detected?
   - Non-adherence
   - Diversion
   - Rapid or ultra-rapid metabolizer
   - Drug-induced metabolism (e.g., rifampin)
   - Poor drug absorption (e.g., celiac disease)
   - Diluted urine

2. Why would a drug that was not prescribed be detected?
   - Normal opiate and opioid metabolite from a legitimate prescription
   - Opiate and opioid metabolite found when high doses of codeine or morphine are used
   - High-dose codeine can metabolize to hydrocodone
   - High-dose morphine can metabolize to hydromorphone
   - Prescription from another physician
   - Medication obtained from spouse or friend
   - Illicit use of drug obtained without prescription

3. What is included in a report’s interpretive comments?
PtProtect reports provide interpretive comments based on prescribed medications and analytical urine test results. The report lists medications prescribed, medications detected and the relationship between the medications and the results to facilitate the interpretation.

An interpretive comment is included even when the patient’s prescription medication use is:
   - Undisclosed on your requisition or order
   - Unknown to you
   - Not currently part of the patient’s care plan
   - under your supervision

4. Can I tell whether my patient has taken more (or less) than the dose of medication I prescribed?
It is scientifically unreliable to correlate urine drug concentration to a patient’s dosage. Using urine concentrations to monitor therapeutic levels is unreliable.1,2 Urine drug and drug metabolite concentrations cannot determine:
   - Amount of drug used
   - Exactly when the last dose was taken

5. What can I do if my patient’s results are discrepant?
When a clinician receives results inconsistent with prescription history, there are several options to consider:
   - Counsel the patient
   - Modify the patient’s treatment plan
   - Refer the patient to a substance abuse program
   - Eliminate the patient from your practice

continued on next page
Understanding Test Results (continued)

6. Why would an instant point-of-care (POC) test cup produce a negative result while the PeaceHealth Laboratories’ test is positive?

Initial screen tests are limited in their specificity and sensitivity. Screens offer a limited view of the existence of drugs that may be present. These limitations are particularly true when using instant cup drug screens, whether the indicators are on a dipstick or included as part of a cup design. All instant test cup specimens should be returned to our laboratory for more definitive testing.

For the highest accuracy and sensitivity, mass spectrometry testing is recommended to verify all screen findings, whether positive or negative. See comparison of testing method detection sensitivities in the figure shown below.

7. What is a discrepancy report and how can it be useful to manage my clinic’s chronic pain population?

A clinic-specific discrepancy report is a useful tool that provides an overall snapshot detailing the compliance of your patients to their prescription regimen over a specific time period. A discrepant result occurs when a pain medication is detected, but not prescribed; or when a pain medication is prescribed, but not detected. The discrepancy rate is the percent of the total specimens tested where one or more discrepancies are identified in your patient’s test results (when prescription regimen is provided). Your clinic’s discrepancy rate is compared with PeaceHealth Laboratories’ average rate of patient medication compliance. This useful report can assist you to assess which specific controlled substances are highly discrepant in your pain patient population.

REFERENCES