Understanding and Interpreting Unexpected Urine Drug Screens

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East Tennessee State University, Common Misconceptions in Prescribing for Chronic Pain
Friday the 13th (November)

Adjunct Affiliations;
UCONN School of Pharmacy, Albany College of Pharmacy & Health Sciences,
SUNY/University at Buffalo, Western New England University
Disclosure Statement

• Astra Zeneca (Speakers Bureau, Advisory Board)
• DepoMed (Advisory Board)
• Endo (Consultant)
• Kaléo (Speakers Bureau, Advisory Board)
• KemPharm (Consultant)
• Millennium Health, LLC (Speakers Bureau, Advisory Board, Expert Witness)
• Practical Pain Management Development of Online Opioid Conversion Calculator
• Remitigate, LLC (Founder, Owner)
• Scilex Pharmaceuticals (Consultant)
• Zogenix (Consultant)
• Faculty (PainWeek; PainWeekEnds)
Learning Objectives

1) Differentiate between In-Office Qualitative Testing & Laboratory Quantitative Testing
2) Interpret unexpected UDT results
3) Integrate UDT results into ongoing clinical assessment and decision making
4) Communicate with patients about unexpected results in a positive, therapeutic manner
Street Value Perspective

120 Percocet 5/325 (brand name)
   $600.00
120 Lortab 10/500 (any brand)
   $600.00
60 Oxycontin 80mg
   $1500.00
120 Actiq Lollipop 200mcg
   $3240.00
Knowing when your patient is diverting drug...
   PRICELESS!

http://streetrx.com/
The Clean Whiz Kit
In keeping with the theme...

- **Common Misconceptions in Prescribing Opioids for Chronic Pain**
  - There is an agreed upon morphine daily equivalent
  - An opioid is an opioid is an opioid
  - Dialysis & Cancer patients earned a free pass
  - Anuric patients can’t (or shouldn’t be) monitored
  - Results of all urine drug tests are gospel
    - Results of certain UDT ARE gospel
(±/-) % Variation (Compared to Manual Calculation)¹

RISKS:
- Overdose & Death

Variability in Opioid Equivalence Survey²

• Sept 13 thru Dec 31, 2013, 411 Respondents
• RPhs, MD/DOs, NPs, PAs
• Convert to Daily MEQ:
  – Hydrocodone 80mg; Fentanyl 75mcg/hr;
    Methadone 40mg; Oxycodone 120mg;
    Hydromorphone 48mg

What do you think were the most outrageous conversions?

Morphine equivalent doses (mg) for each opioid medication by specialty:

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Fentanyl</th>
<th>Hydrocodone</th>
<th>Hydromorphone</th>
<th>Methadone</th>
<th>Oxycodone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Management (n = 39)</td>
<td>166 ± 11.5 (150)</td>
<td>85 ± 43 (80)</td>
<td>191 ± 68 (192)</td>
<td>162 ± 11.1 (120)</td>
<td>167 ± 4.5 (180)</td>
</tr>
<tr>
<td>Palliative Care (n = 35)</td>
<td>168 ± 57 (150)</td>
<td>84 ± 17 (80)</td>
<td>188 ± 67 (192)</td>
<td>251 ± 166 (240)</td>
<td>154 ± 8.8 (180)</td>
</tr>
<tr>
<td>None of the Above (n = 247)</td>
<td>177 ± 12.1 (150)</td>
<td>88 ± 43 (80)</td>
<td>191 ± 50 (192)</td>
<td>169 ± 11.5 (160)</td>
<td>177 ± 3.7 (180)</td>
</tr>
</tbody>
</table>

Urine Drug Testing (UDT) Rationale

- Guidelines recommend UDT as standard of care when prescribing chronic opioid therapy, especially for CNCP\textsuperscript{3-7}
- Helps to ensure compliance and mitigate risk\textsuperscript{3-7}
  - Detects presence of illicit substances
  - Detects absence of prescribed medication
- Helps to justify continual prescriptions
- Supports clinician decision to discontinue controlled substance medication
Urine Drug Testing (UDT) Rationale

• Supports justification for closer monitoring
  (more frequent visits / lab monitoring)
• Supports behavior modification and referral to psychologist

Potential Pitfalls\textsuperscript{8-11}

• Patient reliability to report compliance, use and misuse is dubious and often poor
• Behavior alone is unreliable for identifying patients at risk non-compliance, abuse, misuse, and diversion
# Types of Urine Drug Testing

<table>
<thead>
<tr>
<th>Immune Assay (IA)</th>
<th>Chromatography</th>
</tr>
</thead>
<tbody>
<tr>
<td>• In office or send out</td>
<td>• Usually send-out</td>
</tr>
<tr>
<td>• Inexpensive</td>
<td>• More expensive</td>
</tr>
<tr>
<td>• Results are quick (minutes)</td>
<td>• 24 hours to 1 week (per lab)</td>
</tr>
<tr>
<td>• Helps for initial detection</td>
<td>• Final result</td>
</tr>
<tr>
<td>• False negatives/positives</td>
<td>• Definitive testing</td>
</tr>
<tr>
<td>• False patient accusations</td>
<td>• Justifies RX decisions</td>
</tr>
<tr>
<td>• Easier for pts to manipulate low sensitivity, esp w/ synthetics</td>
<td>• 99.999 percent reliability high sensitivity</td>
</tr>
<tr>
<td>• Presence/absence of RX class only</td>
<td>• Presence/absence of RX metabolites</td>
</tr>
<tr>
<td>• No option for synthetics, designer drugs, and unique natural products</td>
<td>• Custom option for synthetics, designer drugs, and unique natural products</td>
</tr>
</tbody>
</table>
### Opioid Chemistry and Cross-sensitivity

<table>
<thead>
<tr>
<th>PHENANTHRENES</th>
<th>BENZOMORPHANS</th>
<th>PHENYLPIPERIDINES</th>
<th>DIPHENYLHEPTANES</th>
<th>PHENYLPROPYL AMINES</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Morphine" /></td>
<td><img src="image" alt="Pentazocine" /></td>
<td><img src="image" alt="Meperidine" /></td>
<td><img src="image" alt="Methadone" /></td>
<td><img src="image" alt="Tramadol" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MORPHINE</th>
<th>PENTAZOCINE</th>
<th>MEPERIDINE</th>
<th>METHADONE</th>
<th>TRAMADOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buprenorphine*</td>
<td>Diphenoxylate</td>
<td>Alfentanil</td>
<td>Methadone</td>
<td>Tapentadol</td>
</tr>
<tr>
<td>Butorphanol*</td>
<td>Loperamide</td>
<td>Fentanyl</td>
<td>Propoxyphene</td>
<td>Tramadol</td>
</tr>
<tr>
<td>Codiene</td>
<td>Pentazocine</td>
<td>Meperidine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heroin (diacetyl-morphine)</td>
<td></td>
<td>Remifentanil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocodone*</td>
<td></td>
<td>Sufentanil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydromorphone*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Levorphanol*</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>Nalluphine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naloxone*</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>
</tbody>
</table>

**CROSS-SENSITIVITY RISK**

<table>
<thead>
<tr>
<th>PROBABLE</th>
<th>POSSIBLE</th>
<th>LOW RISK</th>
<th>LOW RISK</th>
<th>LOW RISK</th>
</tr>
</thead>
</table>

*Agents lacking the 6-OH group of morphine, possibly decreases cross-sensitivity within the phenanthrene group.*

Phenyl-Propylamines

Tapentadol is a 3-[(1R,2R)-3-(dimethylamino)-1-ethyl-2-methylpropyl]phenol monohydrochloride.

Tramadol is a (±)cis-2-[(dimethylamino)methyl]-1-(3-methoxyphenyl cyclohexanol) hydrochloride.
Benzodiazepines

Table 5. SAMHSA Criteria for Validity Testing of a Urine Specimen

<table>
<thead>
<tr>
<th>Urine specimen is reported as:</th>
<th>When:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dilute</td>
<td>Creatinine concentration ≥ 2 mg/dL, but &lt; 20 mg/dL, &amp; specific gravity* &gt; 1.001, but &lt; 1.003</td>
</tr>
<tr>
<td>Substituted</td>
<td>Creatinine concentration &lt; 2 mg/dL &amp; specific gravity* ≤ 1.001 or &gt; 1.020</td>
</tr>
<tr>
<td>Adulterated</td>
<td>pH &lt; 3 or ≥ 11, nitrite concentration ≥ 500 μg/mL; chromium (VI) concentration ≥ 50 μg/mL; presence of a halogen (e.g., from bleach, iodine, fluoride), glutaraldehyde, pyridine, surfactant</td>
</tr>
</tbody>
</table>

*Using refractometry, † using a pH meter

2. Clinical Drug Testing in Primary Care, Technical Assistance Publication Series TAP 32. SAMHSA

http://www.remitigate.com/resources/
Opioids

Buprenorphine
- Norbuprenorphine
Codeine
- Morphine
- Norcodeine
- Normorphine
- Hydrocodone
- Codeine 6-glucuronide
Fentanyl (Transdermal, Transbuccal, Transmucosal, Sublingual)
- Norfentanyl
- 4-N-(N-propionylanilino) piperidine
- 4-N-(Nhydroxypropionylanilino) piperidine
- 1-(2-phenethyl)-4-N-(Nhydroxypropionylanilino) piperidine
Hydrocodone
- Hydromorphone
- Norcodeine
- 6-beta-hydrocodol
- 6-alpha-hydrocodol
- 6-beta-hydromorphone
- 6-alpha-hydromorphol
- norhydrocodone

<table>
<thead>
<tr>
<th>Heroin</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-acetylmorphine</td>
</tr>
<tr>
<td>Morphine</td>
</tr>
<tr>
<td>Morphine-3-glucuronide</td>
</tr>
<tr>
<td>Normorphine</td>
</tr>
<tr>
<td>6-acetylmorphine 3-glucuronide</td>
</tr>
<tr>
<td>Normorphine glucuronide</td>
</tr>
<tr>
<td>Hydromorphone</td>
</tr>
<tr>
<td>Hydromorphone-3-glucuronide</td>
</tr>
<tr>
<td>Hydromorphone-3-glucoside</td>
</tr>
<tr>
<td>Dihydroisomorphine-6-glucuronide</td>
</tr>
<tr>
<td>Dihydroisomorphine-6-glucoside</td>
</tr>
<tr>
<td>Dihydroisomorphine</td>
</tr>
<tr>
<td>Dihydromorphone</td>
</tr>
<tr>
<td>Levophanol</td>
</tr>
<tr>
<td>3-glucuronide</td>
</tr>
<tr>
<td>Meperidine</td>
</tr>
<tr>
<td>Normeperidine</td>
</tr>
<tr>
<td>meperidinic acid</td>
</tr>
<tr>
<td>normeperidinic acid</td>
</tr>
</tbody>
</table>

Methadone
- EDDP (2-ethyl-1,5-dimethyl-3,3-diphenylpyrrolinium)
- EMDP (2-ethyl-5-methyl-3,3-diphenylpyraline)

Morphine
- Morphine-3-glucuronide
- Morphine-6-glucuronide
- Normorphine
- 7,8-dihydromorphinone
- codeine (minor)
- hydromorphone (minor)

Morphine/Naltrexone (Embeda)
- Morphine-3-glucuronide
- Morphine-6-glucuronide
- Normorphine
- 7,8-dihydromorphinone
- codeine (minor)
- 6-beta-naltrexol
- hydromorphone (minor)

Oxycodone
- Noroxycodone
- Oxymorphone
- Oxycodyl
- Oxymorphol
- Noroxycodyl
- Oxymorphine
- Oxycodone-3-glucuronide
- 6-OH-oxymorphone
- Tapentadol
- Tapentadol-O-glucuronide

http://www.remitigate.com/resources/
Addressing Unexpected Results\textsuperscript{13}

- False or Unexpected Positive
  - Discuss findings with patient
    - Confirm false positive (as a true negative) to support and document patient’s integrity and compliance
  - Confirm unexpected positive to justify
    - ADT products, and or other RX adjustments
    - substance abuse counseling
    - Alternative and other behavior health intervention
- False Negative
  - Confirm false negative (as a true positive) to support and document patient’s integrity and compliance
Select Opioid Analgesic Choices

- **Extended Release Products:**
  - Buprenorphine Transdermal Patch
  - Transdermal Fentanyl Patch
  - Hydromorphone-ER
  - Morphine-ER (several products available)
  - Oxycodone-ER
  - Oxymorphone-ER
  - Zohydro-ER (Pernix Pharma)
  - Hysingla ER (Purdue Pharma)

- **Synthetic Atypical:**
  - Long Biological $T_{1/2}$ & intermediate analgesic $T_{1/2}$
    - Levorphanol
    - Methadone
Case Study 1 | Face Pain

- 43 year old Caucasian male
- TMJ and trigeminal neuralgia
- Failed NSAIDs, cartilage implants, nerve blocks, iontophoresis
- Past Medical History (PMH):
  + Hep C, but otherwise inconsequential
- **Current pharmacologic regimen includes:**
  - Gabapentin (Neurontin®) 1200mg PO TID
  - Hydrocodone ER (Hysingla®) 20mg PO QAM
  - Oxycodone tabs 5mg, 1 PO TID PRN
Case Study 1 | Face Pain

What do these results mean?

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opiate</td>
<td>Negative</td>
</tr>
</tbody>
</table>

Gabapentin (Neurontin®) 1200mg PO TID
Hydrocodone ER (Hysingla®) 20mg PO QAM
Oxycodone tabs 5mg, 1 PO TID PRN

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxycodone</td>
<td>Negative</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>Negative</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>Positive</td>
</tr>
</tbody>
</table>
Case Study 1 | Unexpected Results

Negative for Prescribed Medications

- Lack of oxycodone PRN use
- Pharmacokinetics (when was urine collected?)
- Noncompliance
- Test is not specific for the drug tested (opiate vs. synthetic)
- Drug-drug, drug-disease, drug-food/supplement interactions
- Genetic polymorphism
Case Study 1 | Face Pain

- Speak with patient
- Give patient an opportunity to explain
- Assessment: Document justification for plan
- Devise actionable medical plan based on lab findings
  - Change in drug therapy (Patch, ADF, no opioid)
  - Justification for f/u lab testing
  - Justification for alternative therapies
  - Justification for behavioral health
Case Study 2 | Chronic Back Pain

- 50 year old Caucasian female
- History of chronic low back pain with justifiable pathology
- Back surgery x 3 (failed back)
- PMH: chronic pain, depression, hypothyroidism
- **Current pharmacologic regimen includes:**
  - Duloxetine (Cymbalta®) 60mg PO QAM
  - Fentanyl (Duragesic®) 50mcg/hr changed Q72 hours
  - Hydrocodone + APAP (Lortab®) 5/325, 1 PO Q4H PRN
### Case Study 2 | Chronic Back Pain

#### What do these results mean?

<table>
<thead>
<tr>
<th>IA In-Office Results</th>
<th>Chromatography [send out] Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test</strong></td>
<td><strong>Result</strong></td>
</tr>
<tr>
<td>Opiate</td>
<td>Negative</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>Positive</td>
</tr>
<tr>
<td>Benzoylecgonine</td>
<td>Positive</td>
</tr>
<tr>
<td>(cocaine metabolite)</td>
<td></td>
</tr>
<tr>
<td><strong>Test</strong></td>
<td><strong>Result</strong></td>
</tr>
<tr>
<td>Fentanyl</td>
<td>Positive</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>Negative</td>
</tr>
<tr>
<td>Alpha-hydroxyalprazolam</td>
<td>Positive</td>
</tr>
<tr>
<td>Benzoylecgonine</td>
<td>Positive</td>
</tr>
</tbody>
</table>

Duloxetine (Cymbalta®) 60mg PO QAM  
Fentanyl (Duragesic®) 50mcg/hr changed Q72 hours  
Hydrocodone + APAP (Lortab®) 5/325, 1 PO Q4H PRN
Case Study 2 | Unexpected Results

Negative for Prescribed Medications  
Positive for unprescribed and illicits

- Lack of hydrocodone PRN use
- Pharmacokinetics (when was urine collected?)
- Noncompliance (illegally obtained drugs)
- Test is not specific for the drug tested (opiate vs. synthetic, in this case fentanyl)
- Drug-drug, drug-disease, drug-food/supplement interactions
- Genetic polymorphism
Case Study 3 | Lower Chest & Abdominal Pain

Negative for Prescribed Medications
False Positive for Unprescribed and Illicits

- 33 year old American Indian male
- Lung cancer, now free of disease
- Chronic upper abdominal & chest pain following his original tumor resection and radiation
- PMH: depression
- Current pharmacologic regimen includes:
  - Morphine (Avinza®) 90mg PO QAM
  - Venlafaxine (Effexor®) ER 225mg PO QAM
### Case Study 3 | Unexpected Results

**What do these results mean?**

<table>
<thead>
<tr>
<th>In-Office Test Results</th>
<th>LC-MS/MS Laboratory Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test</strong></td>
<td><strong>Test</strong></td>
</tr>
<tr>
<td>Opiate</td>
<td>Morphine</td>
</tr>
<tr>
<td>Phencyclidine (PCP)</td>
<td>Hydromorphone</td>
</tr>
<tr>
<td></td>
<td>Phencyclidine (PCP)</td>
</tr>
<tr>
<td></td>
<td>Venlafaxine</td>
</tr>
</tbody>
</table>

Morphine (Avinza®) 90mg PO QAM
Venlafaxine (Effexor®) ER 225mg PO QAM
Knowledge of P-Kinetics is Essential

- Morphine Metabolism
  - Phase II Glucuronidation by UGT2B7
    - M3G (morphine-3-glucuronide)
    - M6G (morphine-6-glucuronide)
      - Less than 5% → hydromorphone

Knowledge of P-Kinetics is Essential
Case Study 3 | Unexpected Results

- Patient was compliant with
  - Morphine
  - Venlafaxine
- PCP was false positive because of venlafaxine
- Hydromorphone confirmation unexpected?
  - It is a rare metabolite of morphine
- Educate patient and clearly document in the chart
Drugs:

- Butrans 15mg TD Patch, changed Qweek
- Quetiapine 50mg PO QHS
- Alprazolam 0.5mg PO TID
- Ibuprofen 600mg PO TID PRN
## Case Study 4 | Unexpected Results

### What do these results mean?

<table>
<thead>
<tr>
<th>In-Office Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test</strong></td>
</tr>
<tr>
<td>Opiate</td>
</tr>
<tr>
<td>Buprenorphine</td>
</tr>
<tr>
<td>Benzodiazepine</td>
</tr>
<tr>
<td>Cannabinoid</td>
</tr>
<tr>
<td>Methadone</td>
</tr>
</tbody>
</table>

Butrans 15mg TD Patch, changed Q week
Quetiapine 50mg PO QHS
Alprazolam 0.5mg PO TID
Ibuprofen 600mg PO TID PRN

### LC-MS/MS Laboratory Test Results

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buprenophine, norbuprenorphine, buprenorphine-glucuronide, and norbuprenorphine-glucuronide</td>
<td>Positive</td>
</tr>
<tr>
<td>Alpha-hydroxyalprazolam</td>
<td>Positive</td>
</tr>
<tr>
<td>Cannabinoid</td>
<td>Negative</td>
</tr>
<tr>
<td>Methadone</td>
<td>Negative</td>
</tr>
</tbody>
</table>
Buprenorphine is a POTENT synthetic opioid and will not test positive for IA opiate screen at most buprenorphine TD doses.

Positive “opiate” screen would indicate that the patient was using another unprescribed drug.

Alprazolam generally will not test positive on an IA test.

Alprazolam and buprenorphine were confirmed by definitive test results.

Quetiapine may cause false positive methadone.

Ibuprofen may cause false positive cannabinoid.
SOFTWARE HELP TO INTERPRET UDT
What medications are prescribed to the patient?

For combination products, select each relevant medication separately.
Select result from urine screens ordered:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opiates (Cut-off ≤300ng/mL)</td>
<td>Negative</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>Negative</td>
</tr>
<tr>
<td>Amphetamines</td>
<td>Positive</td>
</tr>
<tr>
<td>Barbiturates</td>
<td>Negative</td>
</tr>
<tr>
<td>Cannabinoids</td>
<td>Positive</td>
</tr>
<tr>
<td>Cocaine</td>
<td>Negative</td>
</tr>
<tr>
<td>PCP (Phencyclidine)</td>
<td>Positive</td>
</tr>
</tbody>
</table>
Regarding oxycodone (20 mg/day): is the patient taking it "as needed" or "around-the-clock"?

- [ ] Patient is taking around the clock

- [ ] Patient is taking as needed
Recommendations:

Opiates Test:
Negative result not unexpected because total dose of synthetic opioids may be too low for detection. Urintel™ recommends discussing finding with patient, using clinical judgement, and if indicated, definitive testing by quantitative confirmation.

Cannabinoids Test:
Positive result not unexpected because false positive, naproxen, detected. Click here for a full list of false positives. Urintel™ recommends discussing finding with patient, using clinical judgement, and if indicated, definitive testing by quantitative confirmation.

Urintel considers patients using medications chronically. Click here for typical windows of detection.
Amphetamines Test:
Amphetamines positive result not expected since amphetamines are not prescribed. Recommend discussing with patient. Click here for a list of potential false positives. Urintel™ recommends discussing finding with patient, using clinical judgement, and if indicated, definitive testing by quantitative confirmation.

Amphetamines False Positives:
- β-blockers (including propranolol, atenolol, timolol ophthalmic)
- β-agonists
- Dopamine congeners (ex. levadopa, carbidopa, bupropion)
- α-agonists catecholamines [including chronic use of eye drops (Visine®), nasal decongestants (Afrin®)]
- Pseudoephedrine, phenylephrine, ephedra
- Adrenergic ophthalmic (ex. dipivefrin, timolol levobunolol)

Close
Back
Start Over
Recommendations:

Cocaine Test:
Negative result expected.

PCP Test:
Positive result not unexpected because false positive, venlafaxine, detected. Click here for a full list of false positives. Urintel™ recommends discussing finding with patient, using clinical judgement, and if indicated, definitive testing by quantitative confirmation.

Benzodiazepines Test:
Negative result is not unexpected because the prescribed benzodiazepine(s) can provide Urintel considers patients using medications chronically. Click here for typical windows of detection.
Recommendations:

In high risk patients, even with a negative urine screen, it is recommended to quantify results by chromatography for definitive testing including synthetic cathinones (Bath Salts) and synthetic cannabinoids (Spice). This is because synthetic cannabinoids generally are not revealed by immune assay in-office testing. Consider ordering other ‘designer’ or natural substances such as Kratom in high risk patients.

WARNING: RISK OF OPIOID TOXICITY INCLUDING RESPIRATORY DEPRESSION, OVERTDOSE, AND DEATH ARE ELEVATED WHEN COMBINING OPIOIDS WITH BENZODIazePINES OR BARBITUATES. IF CLINICALLY WARRANTED, CONSIDER TAPERING OPIOIDS OR THE SEDATIVE-HYPNOTIC.

Urintel considers patients using medications chronically. Click here for typical windows of detection.
How does this affect you?

**Accurately found taking ...**
- more drug than prescribed
- an old prescription drug
- someone else’s prescription
- an illicit drug

**Falsely accused of taking...**
- unprescribed drug
- not taking prescribed drug
- taking illicit drugs

Definitive Chromatography test may be warranted
References


