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Drug abuse urine tests: false-positive results

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Drug Abuse Urine Tests: False-positive Results

Lead author: Joseph A. Woelfel, Ph.D., FASCP, R.Ph., Assistant Editor

Health care professionals are frequently asked questions about false-positive drug testing results. Testing is a common practice in work settings, rehabilitation programs, the military, and legal and judicial venues. Home testing is popular with the availability of test kits to alleviate parental or job-seeker concerns. Federally regulated workplace drug testing and most private sector workplace programs specify urine testing as their initial standard test. Other expanded tests may be required in some settings. Confirmatory tests are sometimes performed using urine or other specimen sources such as blood, saliva, or hair and usually involve chromatography and mass spectrometry. The federal standard urine test checks for five categories of drugs: amphetamines, cannabinoids, cocaine, opiates, and phencyclidine. These urine screening tests use immunoassay techniques that are reliable, easy-to-use, and relatively inexpensive. The immunoassays contain drug-specific antibodies which bind with subject drugs in the urine. They eliminate the majority of false-negative results but may be associated with some false-positives due to crossreactivity with chemically similar drugs. Knowing which substances cross-react and at what levels is often helpful in alleviating concerns and identifying follow-up testing. (See detail document 190212 (The Tricks and Traps of Drug Testing) for information on circumventing drug tests).

<table>
<thead>
<tr>
<th>Substance Abuse Category</th>
<th>Urine Detection Cut-off Level (ng/mL)&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Detection Period after Last Dose (approximate days)&lt;sup&gt;2,3&lt;/sup&gt;</th>
<th>Examples of Substances Associated with False-positive Results&lt;sup&gt;4-7,9&lt;/sup&gt;</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphetamines</td>
<td>1000</td>
<td>2 – amphetamine 3 to 4 - methamphetamine</td>
<td>amantadine amphetamine benzphetamine bupropion chlorbenzorex (Mexico) chlorpromazine desipramine dextroamphetamine ephedrine fenproferex (Mexico) labeltol methamphetamine</td>
<td>No studies have shown false-positive tests associated with passive inhalation of methamphetamine.&lt;sup&gt;10&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

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<th>Substance Abuse Category</th>
<th>Urine Detection Cut-off Level (ng/mL)</th>
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<th>Examples of Substances Associated with False-positive Results</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabinoids</td>
<td>50</td>
<td>2 to 8 – single use(^{11}) 20 to 30 – chronic use</td>
<td>dronabinol, efavirenz, hemp-containing foods: <em>Seedy Sweeties</em>, <em>Cranberry Coconut Hemp Bar</em> ibuprofen, ketoprofen, naproxen, piroxicam, proton pump inhibitors, tolmetin</td>
<td>Studies have demonstrated that levels of passively-inhaled marijuana are insufficient to test positive with the screening cut-off of 50 ng/mL.(^{10})</td>
</tr>
<tr>
<td>Cocaine</td>
<td>300</td>
<td>2 to 3 – single use(^{1}) 4 to 8 – chronic use</td>
<td>coca leaf teas, topical anesthetics containing cocaine</td>
<td>Positive urine drug screens are highly unlikely for passively-inhaled cocaine due to the cut-off.(^{10})</td>
</tr>
<tr>
<td>Opiates</td>
<td>2000</td>
<td>1 to 2 – opium 1 to 4 – heroin 3 to 4 – morphine 1 - meperidine</td>
<td>dextromethorphan, heroin, poppy seeds and oil opioid prescription medications: codeine, hydromorphone</td>
<td>In 2000 detection cut-off limits were raised from 300 ng/mL to 2000 ng/mL to reduce the frequency of false-positive results from poppy seed exposure.(^{7}) Ingestion of poppy seed</td>
</tr>
</tbody>
</table>
### Substance Abuse Category

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<tbody>
<tr>
<td>Phencyclidine (PCP)</td>
<td>25</td>
<td>3 to 7 – single use 14 to 30 – chronic use</td>
<td>chlorpromazine dextromethorphan diphenhydramine ketamine methadone thioridazine</td>
<td>Detection periods increase with increasing body fat</td>
</tr>
</tbody>
</table>

### FDA-Cleared OTC Home Urine Drug Abuse Tests

(This chart represents some of the available test kits).

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Availability/Information*</th>
<th>Cost**</th>
<th>Time to Results</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>“QuickScreen” At Home Drug Test</td>
<td>Phamatech, Inc. 10151 Barnes Canyon Rd. San Diego, CA 92121 888-635-5840 <a href="http://www.phamatech.com">http://www.phamatech.com</a></td>
<td>$29.95 plus shipping and handling</td>
<td>10 minutes</td>
<td>The At Home Drug Test detects amphetamine, methamphetamine, opiates, marijuana and cocaine. The kit includes collection container, instructions, a handbook with frequently asked questions and materials needed to ship the sample to the laboratory if the screening device indicates the presence of drugs.</td>
</tr>
<tr>
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<td>--------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
<td>-----------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Peace of Mind 5 Panel Home Drug Test             | Advanced Diagnostics Laboratories  
850 E Franklin Rd. Ste. 407  
Meridian, ID 83642-8916  
http://www.adldrugtest.com | $31.00 plus shipping and handling          | 3 minutes       | Tests for amphetamine, methamphetamine, opiates, marijuana, phencyclidine, and cocaine. Laboratory confirmation included at no extra charge. |
| Accu-Stat Drugs of Abuse Home Test Cup           | Accu-Stat Diagnostics  
11 Orchard Road Suite 108  
Lake Forest, CA 92630  
949-916-7560  
http://www.accu-stat.com | $27.99 plus shipping and handling          | 4 minutes       | Test for the use of marijuana, cocaine, opiates, methamphetamine and phencyclidine. The kit includes collection container, instructions, a handbook with frequently asked questions and materials needed to ship the sample to the laboratory if the screening device indicates the presence of drugs in the sample. |
| ADC Advantage Marijuana and Cocaine Home Test    | Inverness Medical Innovations – Advantage Diagnostics (ADC)  
764 San Aleso Ave  
Sunnyvale, CA 94085  
800.784.4414 | $18.50, includes shipping | Less than 10 minutes | Tests for marijuana and cocaine. The kit includes collection container, instructions, a handbook with frequently asked questions and materials needed to ship the sample to the laboratory if the screening device indicates the presence of drugs in the sample. Currently their 5 drug test kits are not available to consumers. |

* Available at select retail stores or internet suppliers, unless otherwise noted.  
** Cost information is approximate as of the time this chart was prepared. It is the manufacturer internet price listed as of January 10, 2005.
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References

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