Overview

Useful For
Confirming drug exposure involving amphetamines such as amphetamine and methamphetamine, phentermine, methylenedioxyamphetamine (MDA), methylenedioxymethamphetamine (MDMA), and methylenediaxyethy lamphetamine (MDEA)

Method Name
Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)

NY State Available
Yes

Specimen

Specimen Type
Urine

Advisory Information
1. For situations where chain of custody is required, a Chain-of-Custody Kit (T282) is available. For chain-of-custody testing, order AMPHX / Amphetamines Confirmation, Chain of Custody, Random, Urine.

2. Additional drug panels and specific requests are available. Call 800-533-1710 or 507-266-5700.

3. If urine creatinine is required or adulteration of the sample is suspected, order ADULT / Adulterants Survey, Random, Urine.

Specimen Required

Supplies: Aliquot Tube, 5 mL (T465)

Collection Container/Tube: Plastic urine container

Submission Container/Tube: Plastic, 5-mL tube

Specimen Volume: 5 mL

Collection Instructions:
1. Collect a random urine specimen.

2. No preservative.

Additional Information:
1. No specimen substitutions.

2. STATS are not accepted for this test.

Forms
If not ordering electronically, complete, print, and send a Therapeutics Test Request (T831) with the specimen.

**Specimen Minimum Volume**

2.5 mL

**Reject Due To**

<table>
<thead>
<tr>
<th>Gross hemolysis</th>
<th>OK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross icterus</td>
<td>OK</td>
</tr>
</tbody>
</table>

**Specimen Stability Information**

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urine</td>
<td>Refrigerated (preferred)</td>
<td>28 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ambient</td>
<td>28 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>28 days</td>
<td></td>
</tr>
</tbody>
</table>

**Clinical and Interpretive**

**Clinical Information**

Amphetamines are sympathomimetic amines that stimulate the central nervous system activity and, in part, suppress the appetite. Phentermine, amphetamine, and methamphetamine are prescription drugs for weight loss. All of the other amphetamines are Class I (distribution prohibited) compounds. In addition to their medical use as anorectic drugs, they are used in the treatment of narcolepsy, attention-deficit disorder/attention-deficit hyperactivity disorder and minimal brain dysfunction.

Because of their stimulant effects, the drugs are commonly sold illicitly and abused. Physiological symptoms associated with very high amounts of ingested amphetamine or methamphetamine include elevated blood pressure, dilated pupils, hyperthermia, convulsions, and acute amphetamine psychosis.

**Reference Values**

Negative

Cutoff concentrations:

AMPHETAMINE BY LC-MS/MS

<25 ng/mL

METHAMPHETAMINE BY LC-MS/MS

<25 ng/mL

PHENTERMINE BY LC-MS/MS

<25 ng/mL
Test Definition: AMPHU
Amphetamines Confirmation, U

METHYLENEDIOXYAMPHETAMINE BY LC-MS/MS
<25 ng/mL

METHYLENEDIOXYMETHAMPHETAMINE BY LC-MS/MS
<25 ng/mL

PSEUDOEPHEDRINE/EPHEDRINE BY LC-MS/MS
<25 ng/mL reported as negative

**Interpretation**

The presence of amphetamines in urine at concentrations greater than 500 ng/mL is a strong indicator that the patient has used one of these drugs within the past 3 days.

Methamphetamine has a half-life of 9 to 24 hours and is metabolized by hepatic demethylation to amphetamine. Consequently, a sample containing methamphetamine usually also contains amphetamine. Amphetamine has a half-life of 4 to 24 hours.

Amphetamine is not metabolized to methamphetamine; absence of methamphetamine in the presence of amphetamine indicates the primary drug of abuse is amphetamine.

3,4-Methylenedioxymethamphetamine (Ecstasy, MDMA) is metabolized to 3,4-methylenedioxyamphetamine (MDA).

The detection interval in urine for amphetamine type stimulants is typically to 3 to 5 days after last ingestion.

This test will produce true-positive results for urine specimens collected from patients who are administered Adderall and Benzedrine (contain amphetamine); Desoxyxyn and Vicks Inhaler (contain methamphetamine); Selegeline, and famprofazone (metabolized to methamphetamine and amphetamine); and clobenzorex, fenproporex, and mefenorex, which are metabolized to amphetamine.

**Cautions**

Over-the-counter sympathomimetics such as ephedrine and phenylpropanolamine are occasionally detected in the screening immunoassay.

**Clinical Reference**


**Performance**

**Method Description**

The urine sample is diluted and then analyzed by liquid chromatography-tandem mass spectrometry for the presence of amphetamines. (Unpublished Mayo method)

**PDF Report**

No
Test Definition: AMPHU
Amphetamines Confirmation, U

Day(s) and Time(s) Test Performed
Sunday, Tuesday, Thursday

Analytic Time
2 days

Maximum Laboratory Time
5 days

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

Fees and Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact Customer Service.

Test Classification
This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

CPT Code Information
80324
80359
G0480 (if appropriate)

LOINC® Information

<table>
<thead>
<tr>
<th>Test ID</th>
<th>Test Order Name</th>
<th>Order LOINC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMPHU</td>
<td>Amphetamines Confirmation, U</td>
<td>In Process</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Result ID</th>
<th>Test Result Name</th>
<th>Result LOINC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2934</td>
<td>Amphetamine-by LC-MS/MS</td>
<td>20410-7</td>
</tr>
<tr>
<td>29278</td>
<td>Phentermine-by LC-MS/MS</td>
<td>20557-5</td>
</tr>
<tr>
<td>2550</td>
<td>Methamphetamine-by LC-MS/MS</td>
<td>16235-4</td>
</tr>
<tr>
<td>29279</td>
<td>Pseudoephedrine/Ephedrine-by LC-MS/MS</td>
<td>58707-1</td>
</tr>
<tr>
<td>29280</td>
<td>MDA (Ecstasy metabolite)-by LC-MS/MS</td>
<td>20545-0</td>
</tr>
</tbody>
</table>
## Test Definition: AMPHU

Amphetamines Confirmation, U

<table>
<thead>
<tr>
<th>Result ID</th>
<th>Test Result Name</th>
<th>Result LOINC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>29281</td>
<td>MDMA (Ecstasy)-by LC-MS/MS</td>
<td>18358-2</td>
</tr>
<tr>
<td>21197</td>
<td>Amphetamines Interpretation</td>
<td>69050-3</td>
</tr>
</tbody>
</table>