Overview

Useful For
Monitoring of mephobarbital and phenobarbital therapy

Profile Information

<table>
<thead>
<tr>
<th>Test Id</th>
<th>Reporting Name</th>
<th>Available Separately</th>
<th>Always Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBARS</td>
<td>Mephobarbital, S</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>PHBRS</td>
<td>Phenobarbital, S</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Method Name
Gas Chromatography-Mass Spectrometry (GC-MS)

NY State Available
Yes

Specimen

Specimen Type
Serum Red

Specimen Required
Collection Container/Tube: Red top (Serum gel/SST are not acceptable)
Submission Container/Tube: Plastic vial
Specimen Volume: 1.2 mL
Collection Instructions:
1. Draw blood immediately before next scheduled dose.
2. Centrifuge and aliquot serum in plastic vial within 2 hours of collection.

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

Specimen Minimum Volume
0.7 mL

Reject Due To

<table>
<thead>
<tr>
<th>Gross hemolysis</th>
<th>Reject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross lipemia</td>
<td>OK</td>
</tr>
<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>Serum Red</td>
<td>Refrigerated (preferred)</td>
<td>14 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ambient</td>
<td>14 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>14 days</td>
<td></td>
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Clinical & Interpretive

Clinical Information
Mephobarbital is an orally administered, methylated barbiturate used for the treatment of epilepsy (1,2). It is demethylated by hepatic microsomal enzymes to generate its major metabolite, phenobarbital. During long-term use, most of the mephobarbital activity can be attributed to the accumulation of phenobarbital. Consequently, the pharmacological properties, toxicity, and clinical uses of mephobarbital are the same as phenobarbital. (1,2) The use of mephobarbital is uncommon as it offers no significant advantage over phenobarbital alone. (1,2)

Reference Values
METHOBARBITAL
Therapeutic range: 1.0-7.0 mcg/mL
Toxic concentration: &gt; or =15.0 mcg/mL

PHENOBARBITAL
Therapeutic range
Children: 15.0-30.0 mcg/mL
Adults: 20.0-40.0 mcg/mL
Toxic concentration: &gt; or =60.0 mcg/mL

Interpretation
Mephobarbital concentrations above 15 mcg/mL have been associated with toxicity.

Phenobarbital concentrations between 35 and 80 mcg/mL have been associated with slowness, ataxia, and nystagmus, while concentrations above 100 mcg/mL have been associated with coma without reflexes.

Cautions
Concentration at which toxicity occurs varies and results should be interpreted in light of the clinical situation.

Specimens collected in serum gel tubes are not acceptable because the drug can absorb on the gel and lead to falsely decreased concentrations.

Clinical Reference

**Performance**

**Method Description**

Barbiturates are extracted from serum using solid-phase extraction techniques. The serum is buffered and eluted with organic solvent. The organic phase is dried, reconstituted, and analysis performed by gas chromatography-mass spectrometry, using selected ion monitoring. The assay utilizes deuterated barbiturates as internal standards. (Unpublished Mayo method)

**PDF Report**

No

**Day(s) Performed**

Wednesday

**Report Available**

3 to 9 days

**Specimen Retention Time**

2 weeks

**Performing Laboratory Location**

Rochester

**Fees & 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 US Food and Drug Administration.

**CPT Code Information**

80345
G0480 (if appropriate)
Test Definition: MEPHS  
Mephobarbital and Phenobarbital, Serum

<table>
<thead>
<tr>
<th>Test ID</th>
<th>Test Order Name</th>
<th>Order LOINC® Value</th>
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<tbody>
<tr>
<td>MEPHS</td>
<td>Mephobarbital and Phenobarbital, S</td>
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<table>
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<th>Test Result Name</th>
<th>Result LOINC® Value</th>
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<tbody>
<tr>
<td>89706</td>
<td>Mephobarbital, S</td>
<td>3750-7</td>
</tr>
<tr>
<td>84582</td>
<td>Phenobarbital, S</td>
<td>3948-7</td>
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