Overview

Useful For
Determining bismuth toxicity

Special Instructions
- Trace Metals Analysis Specimen Collection and Transport

Method Name
Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

NY State Available
Yes

Specimen

Specimen Type
Whole blood

Specimen Required

Patient Preparation: High concentrations of gadolinium and iodine are known to interfere with most metals tests. If either gadolinium- or iodine-containing contrast media has been administered, a specimen should not be collected for 96 hours.

Supplies: Metal Free B-D Tube (EDTA), 6 mL (T183)

Collection Container/Tube:

Preferred: Royal blue-top (EDTA) plastic trace element blood collection tube

Specimen Volume: 0.8 mL

Collection Instructions:
1. See Trace Metals Analysis Specimen Collection and Transport in Special Instructions for complete instructions.

2. Send specimen in original tube. Do not aliquot.

Specimen Minimum Volume
0.25 mL

Reject Due To

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<tr>
<td>Gross lipemia</td>
<td>OK</td>
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<td>Gross icterus</td>
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Specimen Stability Information
Clinical and Interpretive

Clinical Information

Bismuth is used in the production of alloys, pigments, and chemical additives. Various compounds have also been used as therapeutic agents, astringents, antacids.(1) Bismuth subsalicylate (Pepto-Bismol) is one example commonly used for indigestion and diarrhea.

In unexposed individuals, bismuth blood concentrations were typically less than 0.02 mcg/L compared to peptic ulcer patients taking bismuth medications where the concentrations ranged from 4 to 30 mcg/L.(2-4) Elimination from the body takes place primarily by the urinary and fecal routes, but the exact proportion contributed by each route is still unknown. Elimination from blood displays multicompartment pharmacokinetics with half-lives of 8 to 16 hours (early) and 5 to 11 days (late).(1)

A number of toxic effects have been attributed to bismuth compounds in humans including: nephropathy, encephalopathy, osteoarthropathy, gingivitis, stomatitis, and colitis. Common early symptoms include salivation, mucosal swelling, discoloration of the tongue, gums, abdominal pain, and nausea.(1)

Reference Values

<1 ng/mL (unexposed)

4-30 ng/mL (therapeutic)

Interpretation

Normal blood concentrations for unexposed individuals are less than 1 ng/mL and the therapeutic range is 4 to 30 ng/mL.(2-4)

Cautions

No significant cautionary statements.

Clinical Reference


Test Definition: BIWB
Bismuth, B

Performance

Method Description
Bismuth (B) in whole blood is analyzed by inductively coupled plasma-mass spectrometry (ICP-MS) in standard mode using thallium (Tl) as an internal standard and using a salt matrix calibration. (Unpublished Mayo method)

PDF Report
No

Day(s) and Time(s) Test Performed
Wednesday; 8 a.m.

Analytic Time
1 day

Maximum Laboratory Time
7 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
83018

LOINC® Information

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