
Lab Dept: Chemistry

Test Name: HEAVY METALS SCREEN, BLOOD

General Information

Lab Order Codes: HMSB

Synonyms: Arsenic, blood; Cadmium, blood; Lead, blood; Mercury, blood; Metals Screen, blood

CPT Codes: 82175 – Arsenic
82300 – Cadmium
83655 –Lead
83825 - Mercury

Test Includes: Arsenic (ng/mL), cadmium (ng/mL), lead (mcg/dL), and mercury (ng/mL)

Logistics

Test Indications: Mayo Medical Laboratories offers both an essential elements screen and a heavy metals screen. In the case when a metals screen is ordered, we will assume this to be a heavy metals screen request, the specimen will be retained for 2 weeks following testing during which time you may call and request other testing. Contact Children's laboratory for additional test requests.

Lab Testing Sections: Chemistry - Sendouts

Referred to: Mayo Medical Laboratories (MML Test:15080/HMSBR)

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 1 - 3 days, test set up Monday - Saturday

Special Instructions: Obtain special collection tube from the laboratory. [See Container.](#) [See Collection.](#)

Specimen

Specimen Type: Whole blood

Container: **Obtain this collection device from the lab:**
Dark Blue top with Lavender Stripe (EDTA, metal free) tube

Draw Volume: 2.5 mL (Minimum: 1 mL) blood

Processed Volume: Same as Draw Volume

Collection: **Preferred collection – Dark Blue top with Lavender Stripe, trace element tube:** Draw blood into a dark blue top with lavender stripe trace element blood collection tube, containing EDTA as an anticoagulant. Blood must be drawn directly into the tube with the use of a butterfly needle or other stainless steel needle by vacutainer technique. The royal blue tube **must be** the first tube collected to prevent contamination. Mix gently.

EDTA BD microtainer: Perform a fingerstick for this testing. Heavy Metals and Zinc can be collected via fingerstick by collecting 0.5 mL. If drawing other tubes, please collect this one first. The metals tube cannot be shared with other EDTA related testing (ie, CBC) and will only be used for the metals testing. Mix gently.

Special Processing: Lab Staff: **Do Not** Centrifuge. Send specimen in original collection container. Store and ship at refrigerated temperatures. Make sure to result demographic information prior to sending specimen. Forward promptly.

Patient Preparation: None

Sample Rejection: Green top (heparin) tube is not acceptable, anticoagulants other than EDTA, specimens other than blood, mislabeled or unlabeled specimens

Interpretive

Reference Range:

| Lead | |
|-----------|----------------|
| All ages: | 0 – 4.9 mcg/dL |

| Arsenic | |
|-------------------|-----------------|
| All ages: | 0 – 12 ng/mL |
| Cadmium | |
| All ages: | 0.0 – 4.9 ng/mL |
| Mercury | |
| Mercury: All ages | <10 ng/mL |

Critical Values:

Lead: ≤15 years: ≥20.0 mcg/dL

Lead: Adult (≥16 yrs) ≥70.0 mcg/dL

Limitations:

Gadolinium and iodine are known to interfere with most metals tests. If gadolinium or iodine-containing contrast media has been administered, a specimen cannot be collected for 96 hours.

Methodology:

Inductively Coupled Plasma/Mass Spectrometry (ICP-MS)

Contraindications:

Specimens collected in containers other than those recommended are subject to contamination which may result in falsely elevated values.

References:

[Mayo Medical Laboratories Web Page](#) July 2015

Updates:

3/24/2008: Metal-free syringes are not available for collection. Use vacutainer or finger stick option into a microtainer.
8/18/2009: Units for Lead changed from ug/dL to mcg/dL. Units for Arsenic changed from ug/mL to mcg/mL.
11/17/2010: Arsenic units changed from mcg/mL to ng/mL. Toxic level for Mercury removed. All reference ranges updated.
7/27/2015: Updated lead reference ranges.
3/30/2016: Update Lead reference range by MML.
2/14/2017: Updated tube type.