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**Lab Dept:** Chemistry

**Test Name:** HEAVY METALS SCREEN, BLOOD

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***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)

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***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: HMDB)

**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.](#)

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***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:** Full tube if possible 6 mL (Minimum: 0.3 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. Mayo Supply T183/BD #368381.

**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; grossly icteric

**Interpretive**

**Reference Range:**

Lead	
All ages:	0 – 4.9 mcg/dL

<b>Arsenic</b>	
All ages:	0 – 12 ng/mL
<b>Cadmium</b>	
All ages:	0.0 – 4.9 ng/mL
<b>Mercury</b>	
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](#) December 2017

**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.