

## Overview

### Useful For

Detecting mercury toxicity, a toxic heavy metal, using random urine specimens

### Profile Information

Test ID	Reporting Name	Available Separately	Always Performed
HGCU	Mercury/Creatinine Ratio, U	No	Yes
CRETR	Creatinine, Random, U	No	Yes

### Special Instructions

- [Trace Metals Analysis Specimen Collection and Transport](#)

### Method Name

HGCU: Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

CRETR: Enzymatic Colorimetric Assay

### NY State Available

Yes

## Specimen

### Specimen Type

Urine

### 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:** Urine Tubes, 10 mL (T068)

**Collection Container/Tube:** Clean, plastic urine container with no metal cap or glued insert

**Submission Container/Tube:** Plastic, 10-mL urine tube or clean, plastic aliquot container with no metal cap or glued insert

**Specimen Volume:** 3 mL

### Collection Instructions:

1. Collect urine a random urine specimen.
2. See [Trace Metals Analysis Specimen Collection and Transport](#) in Special Instructions for complete instructions.

**Specimen Minimum Volume**

1.5 mL

**Reject Due To**

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

**Specimen Stability Information**

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	7 days	
	Frozen	7 days	

**Clinical and Interpretive****Clinical Information**

The correlation between the levels of mercury (Hg) excretion in the urine and the clinical symptoms is considered poor.

It had always been thought that urine was a more appropriate marker of inorganic mercury, because organic mercury represented only a small fraction of urinary mercury. Based on possible demethylation of methylmercury within the body, urine may represent a mixture of dietary methylmercury and inorganic mercury. Seafood consumption can contribute to urinary mercury levels (up to 30%),<sup>(1)</sup> which is consistent with the suggestion that due to demethylation processes in the human body, a certain proportion of urinary mercury can originate from dietary consumption of fish/seafood.<sup>(2)</sup>

For additional information, see HG / Mercury, Blood.

**Reference Values**

0-17 years: not established

> or =18 years: <2 mcg/g creatinine

**Interpretation**

Daily urine excretion of mercury above 50 mcg/day indicates significant exposure (per World Health Organization standard).

**Cautions**

To avoid contamination by dust, specimen should be collected away from the site of suspected exposure.

**Clinical Reference**

1. Snoj Tratnig J, Falnoga I, Mazej D, et al. Results of the first national human biomonitoring in Slovenia: Trace elements in men and lactating women, predictors of exposure and reference values Int. J. Hyg Environ Health. 2019;222(3):563-582.

2. Sherman LS, Blum JD, Franzblau A, Basu N: New insights into biomarkers of human mercury exposure using naturally occurring mercury stable isotopes. Environ Sci and Tech. 2013;47(7):3403-3409.

3. Lee R, Middleton D, Caldwell K, et al. A review of events that expose children to elemental mercury in the United States. Environ Health Perspect. 2009 Jun;117(6):871-878

4. Bjorkman L, Lundekvam BF, Laegreid T, et al: Mercury in human brain, blood, muscle and toenails in relation to exposure: an autopsy study. Environ Health. 2007 Oct 11;6:30

## Performance

## Method Description

Mercury(Hg) in urine is analyzed by inductively coupled plasma-mass spectrometry (ICP-MS) in kinetic energy discrimination (KED) mode using gallium (Ga), rhodium (Rh), and iridium (Ir) as internal standards and a 5% nitric acid salt matrix calibration.(Unpublished Mayo method)

## PDF Report

No

## 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

83825

82570

## LOINC® Information

Test ID	Test Order Name	Order LOINC Value
HGUCR	Mercury/Creat Ratio, Random,U	13465-0

Result ID	Test Result Name	Result LOINC Value
608903	Mercury/Creatinine Ratio, U	13465-0
CRETR	Creatinine, Random, U	2161-8