MAYO CLINIC LABORATORIES

Test Definition: HGCU

Mercury/Creatinine Ratio, Random, Urine

Overview

Useful For

Detecting mercury toxicity using random urine specimens

Special Instructions

- Metals Analysis Specimen Collection and Transport

Method Name

Only orderable as part of profile. For more information see:
-HGUCR / Mercury/Creatinine Ratio, Random, Urine
-HMUCR / Heavy Metal/Creatinine Ratio, with Reflex, Random Urine.

Triple-Quadrupole Inductively Coupled Plasma Mass Spectrometry (ICP-MS/MS)

NY State Available

Yes

Specimen

Specimen Type

Urine

Specimen Required

Only orderable as part of profile. For more information see:
-HGUCR / Mercury/Creatinine Ratio, Random, Urine
-HMUCR / Heavy Metal/Creatinine Ratio, with Reflex, Random Urine.

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 & Interpretive

Clinical Information

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

Previous thought indicated urine as 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%),(1) 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.(2).

For more information see HG / Mercury, Blood.

Reference Values

Only orderable as part of profile. For more information see:
-HGUCR / Mercury/Creatinine Ratio, Random, Urine
-HMUCR / Heavy Metal/Creatinine Ratio, with Reflex, Random Urine.

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 Tratniid 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. doi:10.1016/j.ijheh.2019.02.008
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 Technol. 2013;47(7):3403-3409. doi:10.1021/es305250z
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;117(6):871-878. doi:10.1289/ehp.0800337
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;6:30. doi: 10.1186/1476-069X-6-30
5. Bernhoft RA. Mercury toxicity and treatment: a review of the literature. J Environ Public Health. 2012;2012:460508. doi:10.1155/2012/460508
6. Strathmann FG, Blum LM: Toxic elements. In: Rifai N, Chiu RWK, Young I, Burnham CD, Wittwer CT, eds. Tietz Textbook of Laboratory Medicine. 7th ed. Elsevier; 2023:chap 44

Performance

Method Description
The metal of interest is analyzed by triple-quadrupole inductively coupled plasma mass spectrometry.(Unpublished Mayo method).

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
2 to 4 days

Specimen Retention Time
14 days

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 account representative. 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. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
83825

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
HGCU	Mercury/Creatinine Ratio, U	13465-0

Result ID	Test Result Name	Result LOINC® Value
608903	Mercury/Creatinine Ratio, U	13465-0