MAYO CLINIC LABORATORIES

Test Definition: UIOD

Iodine, 24 Hour, Urine

Overview

Useful For

Assessing iodine toxicity or recent exposure in a 24-hour urine collection

Monitoring iodine excretion rate as index of replacement therapy

Special Instructions

- Urine Preservatives-Collection and Transportation for 24-Hour Urine Specimens
- Metals Analysis Specimen Collection and Transport

Method Name

Inductively Coupled Plasma Mass Spectrometry (ICP-MS)

NY State Available

Yes

Specimen

Specimen Type

Urine

Necessary Information

24-Hour volume (in milliliters) is required.

Specimen Required

Patient Preparation:

1. High concentrations of gadolinium and iodine are known to potentially interfere with most inductively coupled plasma mass spectrometry-based metal tests. If either gadolinium- or iodine-containing contrast media has been administered, **a specimen should not be collected for 96 hours**.

2. If this test is used in conjunction with the (131)I uptake test, then specimen collection should begin immediately after the dose of (131)I is given (ie, the patient should void and discard urine just prior to the (131)I dose, and all subsequent urine should be collected for the next 24 hours). The last void should be included in the collection.

Supplies: Urine Tubes, 10 mL (T068)

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

Submission Container/Tube: Plastic, 10-mL urine tube

Specimen Volume: 10 mL

Collection Instructions:

1. Collect urine for 24 hours.
2. Refrigerate specimen within 4 hours of completion of 24-hour collection.
3. See Metals Analysis Specimen Collection and Transport for complete instructions.

Additional Information: See Urine Preservatives-Collection and Transportation for 24-Hour Urine Specimens for multiple collections.

Urine Preservative Collection Options

Note: The addition of preservative or application of temperature controls **must occur within 4 hours of completion** of the collection.

Ambient (no additive)	OK
Refrigerate (no additive)	Preferred
Frozen (no additive)	OK
50% Acetic Acid	OK
Boric Acid	No
Diazolidinyl Urea	No
6M Hydrochloric Acid	No
6M Nitric Acid	No
Sodium Carbonate	No
Toluene	No

Specimen Minimum Volume

0.3 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)	28 days	
	Ambient	28 days	
	Frozen	28 days	

Clinical & Interpretive

Clinical Information

Iodine is an essential element for thyroid hormone production. The measurement of urinary iodine is preferred for assessment of toxicity, recent exposure, and monitoring iodine excretion rate as an index of replacement therapy.

Reference Values

0-17 years: Not established

> or =18 years: 75-851 mcg/24 hour

Interpretation

Measurement of urinary iodine excretion provides the best index of dietary iodine intake and deficiency is generally

indicated when the concentrations are below 100 mcg/L.

World Healthcare Organization (WHO) Criteria for Assessing Iodine Status

Children older than 6 years and adults(1)

Median urinary iodine (mcg/L)	Iodine intake	Iodine status
<20	Insufficient	Severe deficiency
20-49	Insufficient	Moderate deficiency
50-99	Insufficient	Mild deficiency
100-199	Adequate	Adequate nutrition
200-299	Above requirements	May pose a slight risk of more than adequate
>299	Excessive	Risk of adverse health consequences

Pregnant women(1)

Median urinary iodine (mcg/L)	Iodine intake
<150	Insufficient
150-249	Adequate
250-499	Above requirements
>499	Excessive

Lactating women and children younger than 2 years(1)

Median urinary iodine (mcg/L)	Iodine intake
<100	Insufficient
>99	Adequate

Cautions

Administration of iodine-based contrast media and drugs containing iodine, such as amiodarone, will yield elevated results.

Clinical Reference

1. Department of Nutrition for Health and Development (NHD); World Health Organization. Urinary iodine concentrations for determining iodine status in populations. World Health Organization; 2013. Accessed November 12, 2025. Available at www.who.int/publications/i/item/WHO-NMH-NHD-EPG-13.1

2. Rifai N, Chiu RWK, Young I, Burnham CAD, Wittwer CT, eds. Tietz Textbook of Laboratory Medicine. 7th ed. Elsevier; 2023

3. Knudsen N, Christiansen E, Brandt-Christensen M, et al. Age- and sex-adjusted iodine/creatinine ratio. A new standard in epidemiological surveys? Evaluation of three different estimates of iodine excretion based on casual urine samples and comparison to 24 h values. Eur J Clin Nutr. 2000;54(4):361-363

4. Liberman CS, Pino SC, Fang SL, et al. Circulating iodine concentrations during and after pregnancy. J Clin Endocrinol Metab. 1998;83(10):3545-3549

5. Pfeiffer CM, Sternberg MR, Schleicher RL, et al. CDC's second national report on biochemical indicators of diet and nutrition in the US population is a valuable tool for researchers and policy makers. J Nutr. 2013;143(6):938S-947S

6. Leung AM, Braverman LE. Consequences of excess iodine. Nat Rev Endocrinol. 2014;10(3):136-142. doi:10.1038/nrendo.2013.251
7. U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry: Toxicological Profile for Iodine. HHS, 2004. Accessed November 12, 2025. Available at www.atsdr.cdc.gov/ToxProfiles/tp158.pdf

Performance

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

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
1 to 4 days

Specimen Retention Time
14 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Superior Drive

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
83789

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
UIOD	Iodine, 24 Hr, U	2492-7

Test Definition: UIOD

Iodine, 24 Hour, Urine

Result ID	Test Result Name	Result LOINC® Value
9549	Iodine, 24 Hr, U	2492-7
TIME5	Collection Duration (h)	13362-9
VL23	Volume (mL)	3167-4
614369	Iodine Concentration	26842-5
614423	Iodine Concentration Interpretation	77202-0