MAYO CLINIC LABORATORIES

Test Definition: UIOD

Iodine, 24 Hr, U

Overview

Useful For

Assessment of 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
- Trace 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 is required

Specimen Required

Patient Preparation:

1. High concentrations of gadolinium and iodine are known to interfere with most metal tests. If gadolinium- or iodine-containing contrast media has been administered, wait a minimum of 96 hours before starting collection.

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)

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

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 Trace Metals Analysis Specimen Collection and Transport in Special Instructions for complete instructions.

Additional Information: See Urine Preservatives-Collection and Transportation for 24-Hour Urine Specimens in Special Instructions 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	OK
Refrigerate	Preferred
Frozen	OK
50% Acetic Acid	OK
Boric Acid	No
Diazolidinyl Urea	No
6M Hydrochloric Acid	No
6M Nitric Acid	No
Sodium Carbonate	No
Thymol	No
Toluene	No

Reject Due To

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

Specimen Minimum Volume

0.3 mL

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	146 days	
	Ambient	146 days	
	Frozen	146 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(1)

Children >6 years old and adults

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

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

Lactating women and children <2 years old

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. Rifai N, Horwath AR, Wittwer CT, eds: Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018

2. 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;54:361-363

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

4. 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

5. Leung AM, Braverman LE: Consequences of excess iodine. Nat Rev Endocrinol 2014 Mar;10(3):136-142 doi 10.1038/nrendo.2013.251 6. U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry: Toxicological Profile for Iodine. HHS, 2004 Accessed November 25, 2020.Available at www.atsdr.cdc.gov/ToxProfiles/tp158.pdf

Performance

Method Description

Iodine in urine is analyzed by inductively coupled plasma-mass spectrometry (ICP-MS) in standard mode using tellurium (Te) as an internal standard and an aqueous acidic calibration.(Unpublished Mayo method)

PDF Report

No

Specimen Retention Time

14 days

Performing Laboratory Location

Rochester

Fees & Codes

Test Definition: UIOD

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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 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

Result ID	Reporting Name	LOINC®
9549	Iodine, 24 Hr, U	2492-7
TIME5	Collection Duration	13362-9
VL23	Urine Volume	3167-4
614369	Iodine Concentration	26842-5
614423	Iodine Concentration Interpretation	77202-0