MAYO CLINIC LABORATORIES

Test Definition: SGUR

Specific Gravity, Random, Urine

Overview

Useful For
As a partial assessment of the kidney's ability to concentrate urine

Method Name
Refractometer

NY State Available
Yes

Specimen

Specimen Type
Urine

Ordering Guidance
Urine with contrast dye, glucose, or excessive protein should not be evaluated with this test. In these cases, urine osmolality is a better measure of urine concentration. Order UOSMU / Osmolality, Random, Urine.

Specimen Required
Container/Tube: Plastic urine container
Specimen Volume: 20 mL
Collection Instructions:
1. Collect a random urine specimen.
2. No preservative.

Forms
If not ordering electronically, complete, print, and send a Renal Diagnostics Test Request (T830) with the specimen.

Specimen Minimum Volume
1 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

Specific gravity (SG), the ratio of the mass of a solution compared to the mass of an equal volume of water, is an estimate of the concentration of substances dissolved in the solution.

Urine SG can be used to assess the kidney's ability to concentrate or dilute urine. However, because protein, glucose, and contrast dye have molecular masses that are relatively large compared to other major components of urine (eg, sodium, chloride, potassium), they disproportionately affect SG. In these cases, urine osmolality is a better measure of urine concentration

Reference Values

1.002-1.030

Interpretation

Low specific gravity (SG) (1.001-1.003) may indicate the presence of diabetes insipidus, a disease caused by impaired functioning of antidiuretic hormone (ADH). Low SG also can occur in patients with glomerulonephritis, pyelonephritis, and other renal abnormalities. In these cases, the kidney has lost its ability to concentrate due to tubular damage.

High SG may occur in patients with adrenal insufficiency, hepatic disease, congestive heart failure, or in patients experiencing excessive water loss due to sweating, fever, vomiting, or diarrhea.

Cautions

No significant cautionary statements

Clinical Reference

1. Schumann GB, Schweitzer SC: Examination of urine. In: Kaplan LA, Pesce AJ, eds. Clinical Chemistry, Theory, Analysis and Correlation. 3rd ed. Mosby-Year Book Inc; 1996:1118-1119
2. Free HM, ed: Modern Urine Chemistry (Manual). 8th ed. Bayer Corp; 1996:36-37
3. Perrier ET, Bottin JH, Vecchio M, Lemetais G: Criterion values for urine-specific gravity and urine color representing adequate water intake in healthy adults. Eur J Clin Nutr. 2017 Feb;71:561-563

Performance

Method Description

The refractive index of a material, which is its light-bending power as compared to air, is a physical constant, which varies directly with the chemical composition of a substance. This is accomplished by viewing a drop of solution through a lens-prism system of the total solids meter (refractometer). The refractometer measures total solids in urine to an accuracy of 0.1 g/100 mL and since it requires about 0.25 g/100 mL in total solids to change the specific gravity by about 0.001 units, optical urinometry proves excellent for clinical measurement of specific gravity. Refractometers are temperature compensated and will read standards correctly only at temperatures between 20 degrees C and 30 degrees C.(Minton DM, O'Neal EK, Torres-McGehee TM: Agreement of urine specific gravity measurements between manual and digital refractometers. J Athl Train. 2015;50[1]:59-64)

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PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
Same day/1 day

Specimen Retention Time
2 Days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

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 has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information
81005

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
SGUR	Specific Gravity, U	5810-7

Result ID	Test Result Name	Result LOINC® Value
SGUR	Specific Gravity, U	5810-7