Test Definition: RPHOC

Phosphorus, Random, Urine

Overview

Useful For

Evaluation of hypo- or hyperphosphatemic states

Evaluation of patients with nephrolithiasis

Method Name

Indirect Photometric

NY State Available

Yes

Specimen

Specimen Type

Urine

Specimen Required

Supplies: Sarstedt 5 mL Aliquot Tube (T914)
Container/Tube: Plastic, 5-mL tube
Specimen Volume: 4 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)	14 days	
	Ambient	7 days	

	Frozen	30 days	

Clinical & Interpretive

Clinical Information

Approximately 80% of filtered phosphorus is reabsorbed by renal proximal tubule cells. The regulation of urinary phosphorus excretion is principally dependent on regulation of proximal tubule phosphorus reabsorption. A variety of factors influence renal tubular phosphate reabsorption and consequent urine excretion. Factors that increase urinary phosphorus excretion include high phosphorus diet, parathyroid hormone, extracellular volume expansion, low dietary potassium intake, and proximal tubule defects (eg, Fanconi syndrome, X-linked hypophosphatemic rickets, tumor-induced osteomalacia). Factors that decrease, or are associated with decreases in, urinary phosphorus excretion include low dietary phosphorus intake, insulin, high dietary potassium intake, and decreased intestinal absorption of phosphorus (eg, phosphate-binding antacids, vitamin D deficiency, malabsorption states).

A renal leak of phosphate has also been implicated as contributing to kidney stone formation in some patients.

A timed 24-hour urine collection is the preferred specimen for measuring and interpreting this urinary analyte. Random collections normalized to urinary creatinine may be of some clinical use in patients who cannot collect a 24-hour specimen, typically small children.

Reference Values

No established reference values
Random urine phosphorus may be interpreted in conjunction with serum phosphorus, using both values to calculate fractional excretion of chloride.

The calculation for fractional excretion (FE) of phosphorus is
FE(P)= ([P(urine) X Creat(serum)]/[P(serum) X Creat(urine)])X100

Interpretation

Interpretation of urinary phosphorous excretion is dependent upon the clinical situation and should be interpreted in conjunction with the serum phosphorous concentration.

Cautions

No significant cautionary statements.

Clinical Reference

1. Delaney MP, Lamb EJ: Kidney disease. In: Rifai N, Horvath AR, Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018:1280-1283
2. Matos V, van Melle G, Boulat O et al: Urinary phosphate/creatinine, calcium/creatinine, and magnesium/creatinine ratios in a healthy pediatric population. J Pediatr. 1997;131:252-257
3. Agarwal R, Knochel JP: Hypophosphatemia and hyperphosphatemia. In: Brenner BM, ed. The Kidney. 6th ed. WB Saunders Company; 2000:1071-1125

Performance

Method Description
Inorganic phosphate forms an ammonium phosphomolybdate complex with ammonium molybdate in the presence of sulfuric acid. The concentration of phosphomolybdate formed is directly proportional to the inorganic phosphate concentration and is measured photometrically.(Package insert: Phosphate (Inorganic). Roche Diagnostics; 10/2023)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
Same day/1 to 3 days

Specimen Retention Time
7 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
84105

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
RPHOC	Phosphorus, Random, U	2778-9

Result ID	Test Result Name	Result LOINC® Value

RPHOC	Phosphorus, Random, U	2778-9