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**Overview****Useful For**

Screening test for evaluation of kidney function

**Method Name**

Photometric/Urease

**NY State Available**

Yes

**Specimen****Specimen Type**

Serum

**Necessary Information**

Patient's age and sex are required.

**Specimen Required****Collection Container/Tube:**

**Preferred:** Serum gel

**Acceptable:** Red top

**Submission Container/Tube:** Plastic vial

**Specimen Volume:** 0.5 mL

**Collection Instructions:**

1. Serum gel tubes should be centrifuged within 2 hours of collection.
2. Red-top tubes should be centrifuged and aliquoted within 2 hours of collection.

**Forms**

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

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**Reject Due To**

Gross hemolysis OK

**Specimen Minimum Volume**

See Specimen Required

**Specimen Stability Information**

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	7 days	
	Frozen	365 days	

**Clinical & Interpretive****Clinical Information**

Urea is the final degradation product of protein and amino acid metabolism. In protein catabolism, the proteins are broken down to amino acids and deaminated. The ammonia formed in this process is synthesized to urea in the liver. This is the most important catabolic pathway for eliminating excess nitrogen in the human body.

Increased blood urea nitrogen (BUN) may be due to prerenal causes (cardiac decompensation, water depletion due to decreased intake and excessive loss, increased protein catabolism, and high protein diet), renal causes (acute glomerulonephritis, chronic nephritis, polycystic kidney disease, nephrosclerosis, and tubular necrosis), and postrenal causes (eg, all types of obstruction of the urinary tract, such as stones, enlarged prostate gland, tumors).

The determination of serum BUN currently is the most widely used screening test for the evaluation of kidney function. The test is frequently requested along with the serum creatinine test since simultaneous determination of these 2 compounds appears to aid in the differential diagnosis of prerenal, renal and postrenal hyperuremia.

**Reference Values**

Males

1-17 years: 7-20 mg/dL

&gt; or =18 years: 8-24 mg/dL

Reference values have not been established for patients who are &lt;12 months of age.

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Females

1-17 years: 7-20 mg/dL

> or =18 years: 6-21 mg/dL

Reference values have not been established for patients who are <12 months of age.

### Interpretation

#### Cautions

No significant cautionary statements.

#### Clinical Reference

Lamb EJ, Jones GRD: Kidney function tests. In: Rifai N, Horvath AR, Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018:497-500

### Performance

#### Method Description

This kinetic ultraviolet assay utilizes urease to cleave urea, forming ammonia and carbon dioxide. The ammonia formed then reacts with alpha-ketoglutarate and reduced nicotinamide adenine dinucleotide (NADH) in the presence of urease/glutamate dehydrogenase to yield glutamate and NAD(+). The decrease in absorbance, due to the consumption of NADH, is measured kinetically and is proportional to the amount of urea in the sample. (Package insert: Urea/BUN reagent, Roche Diagnostics, 12/2019)

#### PDF Report

No

#### Specimen Retention Time

1 week

#### Performing Laboratory Location

Rochester

### Fees & Codes

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**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**

84520

**LOINC® Information**

Test ID	Test Order Name	Order LOINC Value
BUN	Bld Urea Nitrog (BUN), S	3094-0

Result ID	Reporting Name	LOINC®
BUN	Bld Urea Nitrog (BUN), S	3094-0