



# Test Definition: BUN

Blood Urea Nitrogen (BUN), Serum

## 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 the serum aliquoted into a plastic vial within 2 hours of collection.

### Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:

[-Kidney Transplant Test Request](#)

[-Renal Diagnostics Test Request](#) (T830)

### Specimen Minimum Volume

See Specimen Required

### Reject Due To

|                 |    |
|-----------------|----|
| Gross hemolysis | OK |
|-----------------|----|

**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.

## Females

1-17 years: 7-20 mg/dL

&gt; or =18 years: 6-21 mg/dL

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

**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

**Day(s) Performed**

Monday through Sunday

**Report Available**

Same day/1 to 2 days

**Specimen Retention Time**

1 week

**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**

84520

**LOINC® Information**

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

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