Test Definition: CRT2F

Creatinine, 24 Hour, Urine

Overview

Useful For
Normalizing urinary analytes to account for the variation in urinary concentration

Method Name
Only orderable as part of a profile. For more information see:
-TLTE4 / Leukotriene E4, 24 Hour, Urine
-MCM24 / Mast Cell Mediators, 24 Hour, Urine

Enzymatic Colorimetric Assay

NY State Available
Yes

Specimen

Specimen Type
Urine

Specimen Required
Only orderable as part of a profile. For more information see:
-TLTE4 / Leukotriene E4, 24 Hour, Urine
-MCM24 / Mast Cell Mediators, 24 Hour, Urine

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	Frozen (preferred)	30 days	
	Ambient	14 days	
	Refrigerated	30 days	

Clinical & Interpretive

Clinical Information

Creatinine is formed from the metabolism of creatine and phosphocreatine, both of which are principally found in muscle. Thus, the amount of creatinine produced is, in large part, dependent upon the individual's muscle mass and tends not to fluctuate much from day-to-day.

Creatinine is not protein bound and is freely filtered by glomeruli. All filtered creatinine is excreted in the urine. Renal tubular secretion of creatinine contributes a small proportion of excreted creatinine. Although most excreted creatinine is derived from an individual's muscle mass, dietary protein intake, particularly of cooked meat, can contribute to urinary creatinine levels.

The renal clearance of creatinine provides an estimate of glomerular filtration rate.

Reference Values

Only orderable as part of a profile. For more information see:
-TLTE4 / Leukotriene E4, 24 Hour, Urine
-MCM24 / Mast Cell Mediators, 24 Hour, Urine

Normal values mg per 24 hours:
Males: 930-2955 mg/24 hours
Females: 603-1783 mg/24 hours

Reference values have not been established for patients who are younger than 18 years.

Interpretation

Decreased creatinine clearance indicates decreased glomerular filtration rate. This can be due to conditions, such as progressive kidney disease, or result from adverse effect on renal hemodynamics that are often reversible, including certain drugs or from decreases in effective renal perfusion (eg, volume depletion or heart failure).

Increased creatinine clearance is often referred to as "hyperfiltration" and is most frequently seen during pregnancy or in patients with diabetes mellitus before diabetic nephropathy has occurred. It may also occur with large dietary protein intake.

Cautions

The reliability of 24-hour urinary creatinine determinations is, as for all timed urine collections, very dependent on accurately collected 24-hour specimens.

Intraindividual variability in creatinine excretion may be due to differences in muscle mass or amount of ingested meat.

Acute changes in glomerular filtration rate, before a steady state has developed, will alter the amount of urinary creatinine excreted.

Rifampicin, levodopa, and calcium dobesilate (eg, Dexium) cause artificially low creatinine results. According to Clinical and Laboratory Standards Institute guidelines, methyldopa, as tested, causes artificially low creatinine results.

Dicynene (etamsylate) at therapeutic concentrations may lead to falsely low results.

N-Ethylglycine at therapeutic concentrations and DL-proline at concentrations greater or equal to 1 mmol/L gives falsely high results.

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; 2018:1256-1323
2. Meeusen JW, Rule AD, Voskoboev N, Baumann NA, Lieske JC. Performance of cystatin C- and creatinine-based estimated glomerular filtration rate equations depends on patient characteristics. Clin Chem. 2015;61(10):1265-1272. doi:10.1373/clinchem.2015.243030
3. Newman DJ, Price CP. Renal function and nitrogen metabolites. In: Burtis CA, Ashwood ER, eds. Tietz Textbook of Clinical Chemistry. 3rd ed. WB Saunders Company; 1999:1204-1270
4. Kasiske BL, Keane WF. Laboratory assessment of renal disease: clearance, urinalysis, and renal biopsy. In: Brenner BM, ed. The Kidney. 6th ed. WB Saunders Company; 2000:1129-1170

Performance

Method Description

This enzymatic method is based on the determination of sarcosine from creatinine with the aid of creatininase, creatinase, and sarcosine oxidase. The liberated hydrogen peroxide is measured via a modified Trinder reaction using a colorimetric indicator. Optimization of the buffer system and the colorimetric indicator enables the creatinine concentration to be quantified both precisely and specifically.(Package insert: Creatinine plus ver 2. Roche Diagnostics; V 15.0, 03/2019)

PDF Report

No

Day(s) Performed

Monday through Sunday

Report Available

1 day

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.

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
CRT2F	Creatinine, 24 HR, U	65634-8

Result ID	Test Result Name	Result LOINC® Value
CR_AF	Creatinine, 24 HR, U	2162-6
TM10F	Collection Duration (h)	13362-9
VL8F	Urine Volume (mL)	3167-4
CRF24	Creatinine Concentration, 24 HR, U	20624-3