
Lab Dept: Urine/Stool

Test Name: METANEPHRINES FRACTIONATED, RANDOM URINE

General Information

Lab Order Codes: MTNU

Synonyms: N/A

CPT Codes: 83835 – Metanephrines

Test Includes: Metanephrines Total/Creat Ratio Random Urine, Normetanephrine/Creat Ratio Random urine, Metanephrine/Creat Ratio Random urine, and Creatinine, Urine.

Logistics

Test Indications: A second-order screening test for the presumptive diagnosis of pheochromocytoma in patients with non-episodic hypertension.

Confirming positive plasma metanephrine results in patients with non-episodic hypertension.

Lab Testing Sections: Urine/Stool - Sendouts

Referred to: Mayo Medical Laboratories (Test: METRN)

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 3-5 days, test set up Monday - Friday

Special Instructions: See [Patient Preparation](#)

Specimen

Specimen Type: Urine, Random

Container: Plastic leakproof container

Draw Volume: Submit entire urine collection

Processed Volume: 10 mL (Minimum: 2 mL) aliquot from a random urine collection

Collection: Random urine collection

Special Processing: Lab Staff: Mix random urine well. Remove 10 mL (Minimum: 3 mL) aliquot into a 13 mL urine tube. Store and ship specimen at refrigerated temperatures. Forward promptly.

Patient Preparation: Patient should refrain from cold medicines, nose drops, and nasal sprays for at least 48 hours prior to test. Tricyclic antidepressants and labetalol and sotalol (beta blockers) may elevate levels of metanephrines. If clinically feasible, these medications should be discontinued at least 1 week before collection.

Sample Rejection: Specimens other than urine; mislabeled or unlabeled specimens

Interpretive

Reference Range:

Metanephrine/Creatinine (mcg/g Cr)		
Age	Males (mcg/g Cr)	Females (mcg/g Cr)
Normotensives		
0 – 2 years:	82 - 418	82 - 419
3 – 8 years:	65 - 332	65 - 332
9 – 12 years:	41 - 209	41 - 209
13 – 17 years:	30 - 154	30 - 154
≥18 years:	29 - 158	29 - 158
Normetanephrine/Creatinine (mcg/g Cr)		
Age	Males (mcg/g Cr)	Females (mcg/g Cr)
Normotensives		
0 – 2 years:	121 - 946	121 - 946
3 – 8 years:	92 - 718	92 - 718
9 – 12 years:	53 - 413	53 - 413
13 – 17 years:	37 - 286	57 – 286

18 – 29 years:	53 – 190	81 – 330
30 – 39 years:	60 – 216	93 - 379
40 – 49 years:	69 – 247	107 – 436
50 – 59 years:	78 – 282	122 – 500
60 – 69 years:	89 – 322	141 – 574
≥70 years:	102 – 367	161 – 659
Total Metanephrine/Creatinine (mcg/g Cr)		
Age	Males (mcg/g Cr)	Females (mcg/g Cr)
Normotensives		
0 – 2 years:	241 - 1272	241 - 1272
3 – 8 years:	186 - 980	186 - 980
9 – 12 years:	110 – 582	110 – 582
13 – 17 years:	78 – 412	78 – 412
18 – 29 years:	96 – 286	131 – 467
30 – 39 years:	106 – 316	147 – 523
40 – 49 years:	117 – 349	164 – 585
50 – 59 years:	222 – 680	164 – 588
60 – 69 years:	143 – 427	206 – 733
≥70 years:	159 – 472	230 – 821
<p>Interpretation: Increased metanephrine and normetanephrine levels are found in patients with pheochromocytoma and tumors derived from neural crest cells.</p> <p>Increased urine metanephrines can be detected in non-pheochromocytoma hypertensive patients; quantification may help distinguish these patients from those with tumor-induced symptoms..</p>		

Critical Values:

N/A

Limitations:

See [Patient Preparation](#)

While screening for pheochromocytoma is best accomplished by measuring plasma free fractionated metanephrines (a more sensitive assay), follow-up testing with urinary fractionated metanephrines (a more specific assay) may identify false-positive results. Twenty-four hour urine collections are preferred, especially for patients with episodic hypertension; ideally the collection should begin at the onset of a "spell".

This test utilizes a liquid chromatography/tandem mass spectrometry method and is not affected by the interfering substances that affected the previously utilized spectrophotometric (Pisano reaction) method (i.e., diatrizoate, chlorpromazine, hydrazine derivatives, imipramine, MAO inhibitors, methyl dopa, phenacetin, ephedrine, or epinephrine).

This method is also not subject to the known interference of acetaminophen which is seen with the plasma metanephrine high-performance liquid chromatography-electrochemical method.

When N-acetylcystine is administered at levels sufficient to act as an antidote for the treatment of acetaminophen overdose, it may lead to falsely decreased creatinine levels.

Methodology:

Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)
Stable Isotope Dilution Analysis

References:

[Mayo Clinic Laboratories](#) November 2021

Updates:

11/10/2021: Updated per Mayo, new reference ranges.