

Reporting Title: Creatine Disorders Panel, S
Performing Location: Rochester

Ordering Guidance:
For additional diagnostic testing, consider ordering CRDPU / Creatine Disorders Panel, Random, Urine.

Additional Testing Requirements:
To diagnose all creatine deficiency syndromes, order CRDPU / Creatine Disorders Panel, Random, Urine in addition to this test.

Necessary Information:
Patient's age and sex are required.

Specimen Requirements:
Collection Container/Tube: Red top (serum gel/SST are **not acceptable**)
Submission Container/Tube: Plastic vial
Specimen Volume: 0.5 mL
Collection Instructions: Centrifuge and aliquot serum into plastic vial. Send serum frozen.

Specimen Type	Temperature	Time	Special Container
Serum	Frozen (preferred)	14 days	
	Refrigerated	7 days	
	Ambient	72 hours	

Result Codes:

Result ID	Reporting Name	Type	Unit	LOINC®
608077	Interpretation	Alphanumeric		59462-2
608078	Creatine	Numeric	nmol/mL	15045-8
608079	Creatinine	Numeric	nmol/mL	14682-9
608080	Guanidinoacetate	Numeric	nmol/mL	33244-5
608081	Creatine/Creatinine	Alphanumeric		In Process
610857	Guanidinoacetate/Creatine	Alphanumeric		In Process
610858	Guanidinoacetate/Creatinine	Alphanumeric		In Process
608082	Reviewed By	Alphanumeric		18771-6

LOINC® and CPT codes are provided by the performing laboratory.

Supplemental Report:
No

CPT Code Information:
82540
82565

82542

Reference Values:

Creatine Disorders Panel Reference Values (creatinine, creatinine, and guanidinoacetate results reported as nmol/mL)						
	< or =11 Months		12-23 Months		24-35 Months	
	Female	Male	Female	Male	Female	Male
Creatine	38.6-96.8	39.0-97.0	38.2-96.5	38.6-96.5	37.7-96.0	38.2-96.0
Creatinine	27.6-35.9	27.6-35.2	27.6-36.5	27.6-35.5	27.6-37.1	27.6-36.0
Guanidinoacetate	0.7-2.0	0.7-2.1	0.7-2.0	0.7-2.1	0.7-2.0	0.7-2.1
Creatine/ creatinine	< or =3.07	< or =3.60	< or =3.02	< or =3.54	< or =2.96	< or =3.48
Guanidinoacetate / creatinine	< or =0.040	< or =0.040	< or =0.042	< or =0.040	< or =0.043	< or =0.042
Guanidinoacetate / creatinine	< or =0.051	< or =0.081	< or =0.051	< or =0.080	< or =0.051	< or =0.079

	3 Years		4 Years		5 Years	
	Female	Male	Female	Male	Female	Male
Creatine	37.1-95.5	37.7-95.3	36.0-94.4	36.8-94.1	34.6-93.2	35.6-92.7
Creatinine	27.6-37.9	27.7-36.9	27.6-39.3	27.7-38.2	27.6-40.9	27.8-39.9
Guanidinoacetate	0.7-2.1	0.7-2.2	0.7-2.1	0.7-2.2	0.7-2.1	0.7-2.2
Creatine/ creatinine	< or =2.89	< or =3.40	< or =2.77	< or =3.26	< or =2.64	< or =3.09
Guanidinoacetate / creatinine	< or =0.045	< or =0.043	< or =0.049	< or =0.045	< or =0.053	< or =0.049
Guanidinoacetate / creatinine	< or =0.050	< or =0.077	< or =0.050	< or =0.075	< or =0.049	< or =0.072

	6 Years		7 Years		8 Years	
	Female	Male	Female	Male	Female	Male
Creatine	33.0-91.7	34.3-91.0	31.2-90.0	32.7-89.2	29.2-88.1	31.0-87.3
Creatinine	27.6-42.8	28.0-41.9	27.7-44.9	28.3-44.3	27.8-47.0	28.8-47.1
Guanidinoacetate	0.7-2.1	0.7-2.3	0.7-2.1	0.8-2.3	0.8-2.1	0.8-2.4
Creatine/ creatinine	< or =2.49	< or =2.91	< or =2.33	< or =2.70	< or =2.17	< or =2.49
Guanidinoacetate / creatinine	< or =0.058	< or =0.053	< or =0.063	< or =0.058	< or =0.069	< or =0.064
Guanidinoacetate	< or =0.049	< or =0.069	< or =0.048	< or =0.066	< or =0.047	< or =0.063

/ creatinine						
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	9 Years		10 Years		11 Years	
	Female	Male	Female	Male	Female	Male
Creatine	27.2-85.9	29.3-85.2	25.2-83.7	27.4-83.1	23.4-81.3	25.7-80.9
Creatinine	28.0-49.3	29.5-50.1	28.2-51.5	30.6-53.6	28.4-53.6	32.0-57.2
Guanidinoacetate	0.8-2.2	0.8-2.5	0.9-2.2	0.9-2.6	0.9-2.2	1.0-2.6
Creatine/ creatinine	< or =2.02	< or =2.28	< or =1.86	< or =2.07	< or =1.72	< or =1.87
Guanidinoacetate / creatine	< or =0.075	< or =0.070	< or =0.081	< or =0.078	< or =0.087	< or =0.085
Guanidinoacetate / creatinine	< or =0.047	< or =0.060	< or =0.046	< or =0.057	< or =0.045	< or =0.055

	12 Years		13 Years		14 Years	
	Female	Male	Female	Male	Female	Male
Creatine	21.7-78.7	23.9-78.6	20.3-76.2	22.3-76.2	19.0-73.6	20.8-73.8
Creatinine	28.7-55.7	33.8-61.0	29.1-57.7	35.9-64.8	29.5-59.5	38.1-68.5
Guanidinoacetate	0.9-2.2	1.0-2.7	1.0-2.3	1.1-2.8	1.0-2.3	1.1-2.9
Creatine/ creatinine	< or =1.58	< or =1.68	< or =1.45	< or =1.50	< or =1.33	< or =1.34
Guanidinoacetate / creatine	< or =0.092	< or =0.093	< or =0.097	< or =0.101	< or =0.101	< or =0.109
Guanidinoacetate / creatinine	< or =0.044	< or =0.053	< or =0.043	< or =0.051	< or =0.042	< or =0.050

	15 Years		16 Years		17 Years	
	Female	Male	Female	Male	Female	Male
Creatine	18.1-71.1	19.5-71.2	17.4-68.7	18.4-68.6	16.9-66.5	17.4-65.9
Creatinine	29.9-61.3	40.4-71.9	30.4-62.9	42.4-75.0	30.9-64.4	44.2-77.6
Guanidinoacetate	1.0-2.3	1.2-2.9	1.1-2.3	1.3-3.0	1.1-2.3	1.3-3.1
Creatine/ creatinine	< or =1.22	< or =1.20	< or =1.12	< or =1.07	< or =1.04	< or =0.97
Guanidinoacetate / creatine	< or =0.104	< or =0.117	< or =0.107	< or =0.125	< or =0.109	< or =0.132
Guanidinoacetate / creatinine	< or =0.041	< or =0.049	< or =0.040	< or =0.048	< or =0.040	< or =0.048

	18 Years		19 Years		20 Years	
	Female	Male	Female	Male	Female	Male
Creatine	16.7-64.4	16.6-63.3	16.6-62.7	15.8-60.7	16.5-61.1	15.2-58.3
Creatinine	31.3-65.8	45.6-80.0	31.8-67.0	46.7-82.0	32.2-68.2	47.4-83.9
Guanidinoacetate	1.1-2.4	1.4-3.1	1.1-2.4	1.4-3.2	1.1-2.4	1.5-3.2
Creatine/ creatinine	< or =0.98	< or =0.87	< or =0.93	< or =0.80	< or =0.89	< or =0.73
Guanidinoacetate / creatine	< or =0.111	< or =0.139	< or =0.112	< or =0.145	< or =0.113	< or =0.150
Guanidinoacetate / creatinine	< or =0.039	< or =0.047	< or =0.038	< or =0.047	< or =0.038	< or =0.046

	21 Years		22 Years		23 Years	
	Female	Male	Female	Male	Female	Male
Creatine	16.6-59.8	14.7-56.0	16.6-58.8	14.2-54.0	16.7-57.9	13.7-52.2
Creatinine	32.5-69.2	47.9-85.6	32.8-70.2	48.2-87.2	33.1-71.1	48.4-88.8
Guanidinoacetate	1.1-2.4	1.5-3.2	1.1-2.5	1.5-3.3	1.1-2.5	1.6-3.3
Creatine/ creatinine	< or =0.87	< or =0.68	< or =0.85	< or =0.64	< or =0.84	< or =0.61
Guanidinoacetate / creatine	< or =0.114	< or =0.156	< or =0.115	< or =0.161	< or =0.116	< or =0.165
Guanidinoacetate / creatinine	< or =0.037	< or =0.045	< or =0.037	< or =0.045	< or =0.037	< or =0.044

	24 Years		25 Years		26 Years	
	Female	Male	Female	Male	Female	Male
Creatine	16.7-57.2	13.3-50.6	16.7-56.5	12.9-49.3	16.7-56.0	12.5-48.1
Creatinine	33.3-71.9	48.6-90.2	33.6-72.8	48.7-91.5	33.7-73.6	48.9-92.7
Guanidinoacetate	1.1-2.5	1.6-3.3	1.1-2.5	1.6-3.3	1.1-2.6	1.6-3.4
Creatine/ creatinine	< or =0.84	< or =0.58	< or =0.84	< or =0.56	< or =0.84	< or =0.54
Guanidinoacetate / creatine	< or =0.116	< or =0.170	< or =0.117	< or =0.174	< or =0.118	< or =0.179
Guanidinoacetate / creatinine	< or =0.036	< or =0.043	< or =0.036	< or =0.043	< or =0.036	< or =0.042

	27 Years	28 Years	29 Years
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	Female	Male	Female	Male	Female	Male
Creatine	16.7-55.5	12.1-47.1	16.6-55.1	11.8-46.3	16.5-54.7	11.5-45.4
Creatinine	33.9-74.4	49.0-93.7	34.1-75.2	49.1-94.5	34.2-76.0	49.2-95.3
Guanidinoacetate	1.1-2.6	1.6-3.4	1.1-2.6	1.6-3.4	1.1-2.6	1.6-3.4
Creatine/ creatinine	< or =0.84	< or =0.52	< or =0.84	< or =0.51	< or =0.84	< or =0.49
Guanidinoacetate / creatine	< or =0.118	< or =0.182	< or =0.119	< or =0.186	< or =0.119	< or =0.188
Guanidinoacetate / creatinine	< or =0.036	< or =0.042	< or =0.036	< or =0.041	< or =0.036	< or =0.041

	30 Years		31 Years		32 Years	
	Female	Male	Female	Male	Female	Male
Creatine	16.4-54.2	11.3-44.7	16.4-53.8	11.1-43.9	16.3-53.4	11.0-43.2
Creatinine	34.4-76.8	49.3-96.0	34.6-77.5	49.3-96.7	34.7-78.2	49.4-97.4
Guanidinoacetate	1.2-2.7	1.6-3.5	1.2-2.7	1.6-3.5	1.2-2.7	1.6-3.5
Creatine/ creatinine	< or =0.84	< or =0.48	< or =0.83	< or =0.47	< or =0.83	< or =0.46
Guanidinoacetate / creatine	< or =0.120	< or =0.190	< or =0.120	< or =0.192	< or =0.119	< or =0.192
Guanidinoacetate / creatinine	< or =0.036	< or =0.041	< or =0.036	< or =0.042	< or =0.037	< or =0.042

	33 Years		34 Years		35 Years	
	Female	Male	Female	Male	Female	Male
Creatine	16.3-53.0	10.9-42.5	16.4-52.7	10.8-41.7	16.4-52.3	10.7-41.0
Creatinine	34.9-78.8	49.4-98.0	35.1-79.4	49.5-98.6	35.3-79.9	49.5-99.2
Guanidinoacetate	1.2-2.8	1.6-3.5	1.2-2.8	1.6-3.5	1.2-2.8	1.6-3.4
Creatine/ creatinine	< or =0.82	< or =0.45	< or =0.82	< or =0.45	< or =0.82	< or =0.44
Guanidinoacetate / creatine	< or =0.119	< or =0.192	< or =0.118	< or =0.191	< or =0.118	< or =0.189
Guanidinoacetate / creatinine	< or =0.037	< or =0.042	< or =0.037	< or =0.042	< or =0.037	< or =0.042

	36 Years		37 Years		38 Years	
	Female	Male	Female	Male	Female	Male
Creatine	16.5-52.0	10.7-40.2	16.7-51.6	10.6-39.5	16.9-51.3	10.6-38.9

Creatinine	35.4-80.3	49.5-99.8	35.6-80.7	49.5-100.3	35.8-81.0	49.6-100.8
Guanidinoacetate	1.2-2.8	1.6-3.4	1.2-2.8	1.6-3.4	1.2-2.9	1.6-3.4
Creatine/ creatinine	< or =0.82	< or =0.44	< or =0.82	< or =0.44	< or =0.83	< or =0.44
Guanidinoacetate / creatinine	< or =0.117	< or =0.187	< or =0.115	< or =0.184	< or =0.114	< or =0.182
Guanidinoacetate / creatinine	< or =0.037	< or =0.042	< or =0.037	< or =0.042	< or =0.036	< or =0.042

	39 Years		40 Years		41 Years	
	Female	Male	Female	Male	Female	Male
Creatine	17.1-51.1	10.6-38.2	17.3-50.9	10.7-37.7	17.5-50.8	10.7-37.2
Creatinine	35.9-81.4	49.6-101.3	36.0-81.6	49.6-101.7	36.1-81.9	49.7-102.1
Guanidinoacetate	1.2-2.9	1.6-3.4	1.2-2.9	1.6-3.4	1.2-2.9	1.6-3.4
Creatine/ creatinine	< or =0.83	< or =0.44	< or =0.83	< or =0.44	< or =0.84	< or =0.44
Guanidinoacetate / creatinine	< or =0.113	< or =0.179	< or =0.111	< or =0.176	< or =0.110	< or =0.174
Guanidinoacetate / creatinine	< or =0.036	< or =0.041	< or =0.036	< or =0.041	< or =0.036	< or =0.040

	42 Years		43 Years		44 Years	
	Female	Male	Female	Male	Female	Male
Creatine	17.7-50.8	10.8-36.7	17.8-50.8	10.9-36.3	17.8-50.9	11.0-36.0
Creatinine	36.2-82.1	49.7-102.5	36.3-82.4	49.8-102.8	36.4-82.6	49.8-103.1
Guanidinoacetate	1.2-3.0	1.6-3.3	1.2-3.0	1.6-3.3	1.2-3.0	1.6-3.3
Creatine/ creatinine	< or =0.84	< or =0.44	< or =0.84	< or =0.43	< or =0.84	< or =0.43
Guanidinoacetate / creatinine	< or =0.109	< or =0.172	< or =0.108	< or =0.171	< or =0.107	< or =0.170
Guanidinoacetate / creatinine	< or =0.036	< or =0.039	< or =0.036	< or =0.039	< or =0.036	< or =0.038

	45 Years		46 Years		47 Years	
	Female	Male	Female	Male	Female	Male
Creatine	17.7-51.0	11.1-35.6	17.6-51.2	11.2-35.3	17.4-51.4	11.3-35.1
Creatinine	36.4-82.8	49.9-103.4	36.5-83.0	49.9-103.6	36.5-83.2	49.9-103.9
Guanidinoacetate	1.2-3.0	1.7-3.3	1.2-3.1	1.7-3.3	1.2-3.1	1.7-3.3

Creatine/ creatinine	< or =0.84	< or =0.42	< or =0.83	< or =0.41	< or =0.83	< or =0.40
Guanidinoacetate / creatinine	< or =0.106	< or =0.169	< or =0.106	< or =0.168	< or =0.106	< or =0.167
Guanidinoacetate / creatinine	< or =0.037	< or =0.038	< or =0.037	< or =0.037	< or =0.037	< or =0.037

	48 Years		49 Years		50 Years	
	Female	Male	Female	Male	Female	Male
Creatine	17.2-51.7	11.5-34.8	17.1-51.9	11.6-34.6	17.0-52.1	11.7-34.4
Creatinine	36.6-83.4	49.9-104.1	36.6-83.5	49.9-104.2	36.7-83.7	49.9-104.4
Guanidinoacetate	1.2-3.1	1.7-3.3	1.2-3.1	1.7-3.3	1.2-3.1	1.7-3.3
Creatine/ creatinine	< or =0.82	< or =0.39	< or =0.82	< or =0.38	< or =0.82	< or =0.38
Guanidinoacetate / creatinine	< or =0.106	< or =0.166	< or =0.106	< or =0.164	< or =0.105	< or =0.163
Guanidinoacetate / creatinine	< or =0.038	< or =0.036	< or =0.038	< or =0.036	< or =0.039	< or =0.036

	51 Years		52 Years		53 Years	
	Female	Male	Female	Male	Female	Male
Creatine	17.0-52.2	11.9-34.3	17.1-52.3	12.0-34.3	17.3-52.4	12.2-34.3
Creatinine	36.8-83.9	49.8-104.6	36.8-84.0	49.8-104.8	36.9-84.2	49.8-104.9
Guanidinoacetate	1.2-3.1	1.7-3.3	1.2-3.1	1.7-3.2	1.2-3.1	1.6-3.2
Creatine/ creatinine	< or =0.82	< or =0.37	< or =0.82	< or =0.37	< or =0.82	< or =0.38
Guanidinoacetate / creatinine	< or =0.105	< or =0.161	< or =0.104	< or =0.159	< or =0.103	< or =0.157
Guanidinoacetate / creatinine	< or =0.039	< or =0.036	< or =0.039	< or =0.036	< or =0.039	< or =0.036

	54 Years		55 Years		56 Years	
	Female	Male	Female	Male	Female	Male
Creatine	17.6-52.5	12.4-34.3	18.1-52.6	12.5-34.4	18.6-52.7	12.6-34.4
Creatinine	37.0-84.4	49.8-105.0	37.1-84.5	49.8-105.2	37.2-84.7	49.8-105.3
Guanidinoacetate	1.2-3.1	1.6-3.2	1.2-3.1	1.6-3.2	1.2-3.1	1.6-3.2
Creatine/ creatinine	< or =0.82	< or =0.38	< or =0.83	< or =0.39	< or =0.84	< or =0.40

Guanidinoacetate / creatine	< or =0.102	< or =0.155	< or =0.100	< or =0.154	< or =0.099	< or =0.152
Guanidinoacetate / creatinine	< or =0.039	< or =0.036	< or =0.039	< or =0.036	< or =0.039	< or =0.036

	57 Years		58 Years		59 Years	
	Female	Male	Female	Male	Female	Male
Creatine	19.2-52.9	12.7-34.4	19.9-53.1	12.8-34.3	20.5-53.3	12.8-34.2
Creatinine	37.3-84.9	49.8-105.4	37.4-85.1	49.8-105.5	37.6-85.2	49.8-105.6
Guanidinoacetate	1.2-3.0	1.6-3.2	1.3-3.0	1.6-3.2	1.3-3.0	1.6-3.2
Creatine/ creatinine	< or =0.84	< or =0.40	< or =0.85	< or =0.41	< or =0.86	< or =0.42
Guanidinoacetate / creatine	< or =0.098	< or =0.151	< or =0.096	< or =0.151	< or =0.095	< or =0.150
Guanidinoacetate / creatinine	< or =0.039	< or =0.036	< or =0.038	< or =0.036	< or =0.038	< or =0.036

	60 Years		61 Years		62 Years	
	Female	Male	Female	Male	Female	Male
Creatine	21.0-53.6	12.8-34.1	21.5-53.9	12.7-34.0	21.9-54.2	12.6-33.9
Creatinine	37.8-85.4	49.9-105.7	38.0-85.5	49.9-105.9	38.3-85.7	49.9-106.0
Guanidinoacetate	1.3-2.9	1.6-3.2	1.3-2.9	1.6-3.1	1.3-2.9	1.6-3.1
Creatine/ creatinine	< or =0.87	< or =0.43	< or =0.87	< or =0.44	< or =0.88	< or =0.44
Guanidinoacetate / creatine	< or =0.094	< or =0.150	< or =0.093	< or =0.150	< or =0.093	< or =0.150
Guanidinoacetate / creatinine	< or =0.037	< or =0.036	< or =0.036	< or =0.035	< or =0.036	< or =0.035

	63 Years		64 Years		65 Years	
	Female	Male	Female	Male	Female	Male
Creatine	22.2-54.6	12.4-33.7	22.3-55.0	12.3-33.6	22.5-55.5	12.2-33.4
Creatinine	38.7-85.8	50.0-106.1	39.1-85.9	50.0-106.3	39.6-86.1	50.1-106.4
Guanidinoacetate	1.3-2.8	1.6-3.1	1.3-2.8	1.6-3.1	1.3-2.8	1.6-3.1
Creatine/ creatinine	< or =0.88	< or =0.45	< or =0.89	< or =0.46	< or =0.89	< or =0.46
Guanidinoacetate / creatinine	< or =0.092	< or =0.150	< or =0.092	< or =0.149	< or =0.091	< or =0.149

creatinine						
Guanidinoacetate / creatinine	< or =0.035	< or =0.035	< or =0.034	< or =0.034	< or =0.034	< or =0.034

	66 Years		67 Years		68 Years	
	Female	Male	Female	Male	Female	Male
Creatine	22.6-55.9	12.3-33.1	22.7-56.3	12.3-32.8	22.9-56.7	12.5-32.4
Creatinine	40.2-86.2	50.2-106.6	40.7-86.3	50.3-106.7	41.3-86.5	50.4-106.9
Guanidinoacetate	1.3-2.7	1.6-3.1	1.3-2.7	1.6-3.0	1.4-2.7	1.6-3.0
Creatine/ creatinine	< or =0.90	< or =0.47	< or =0.90	< or =0.48	< or =0.90	< or =0.48
Guanidinoacetate / creatine	< or =0.091	< or =0.149	< or =0.090	< or =0.148	< or =0.090	< or =0.148
Guanidinoacetate / creatinine	< or =0.034	< or =0.034	< or =0.033	< or =0.034	< or =0.033	< or =0.034

	69 Years		70 Years		> or = 71 Years	
	Female	Male	Female	Male	Female	Male
Creatine	23.2-57.0	12.8-32.0	23.6-57.2	13.1-31.4	24.1-57.3	13.6-30.8
Creatinine	41.9-86.6	50.5-107.1	42.4-86.8	50.7-107.4	42.8-86.9	50.8-107.6
Guanidinoacetate	1.4-2.6	1.6-3.0	1.4-2.6	1.6-3.0	1.4-2.5	1.5-3.0
Creatine/ creatinine	< or =0.90	< or =0.48	< or =0.90	< or =0.48	< or =0.90	< or =0.48
Guanidinoacetate / creatine	< or =0.090	< or =0.148	< or =0.090	< or =0.148	< or =0.090	< or =0.148
Guanidinoacetate / creatinine	< or =0.033	< or =0.034	< or =0.033	< or =0.034	< or =0.033	< or =0.034