

Specimen
 Requisition
 Lab Ref No

Collected Date
 Received Date

Legend

Result Value Colors

Normal Result is within the clinical reference range

Result Value Labels

- H** Above High Normal
- L** Below Low Normal

Result	Value	Reference Range	Lab
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Cardiovascular Health

Cholesterol & Triglycerides

Lipid Panel with Ratios

Cholesterol, Total

CHOLESTEROL, TOTAL	239 H 03/04/23	<200 mg/dL	MI
TRIGLYCERIDES	90 03/04/23	<150 mg/dL	MI
CHOL/HDL-C RATIO	3.8 03/04/23	<5.0 (calc)	MI
LDL/HDL RATIO	2.5 03/04/23	(calc)	MI

Comments

Below average Risk:	<2.34
Average Risk:	2.35-4.12
Moderate Risk:	4.13-5.56
High Risk:	>5.57

NON HDL CHOLESTEROL	176 H 03/04/23	<130 mg/dL (calc)	MI
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Comments

For patients with diabetes plus 1 major ASCVD risk factor, treating to a non-HDL-C goal of <100 mg/dL (LDL-C of <70 mg/dL) is considered a therapeutic

Result	Value	Reference Range	Lab
	option.		

HDL Particles

Lipid Panel with Ratios

Cholesterol, HDL

HDL CHOLESTEROL	63 03/04/23	> OR = 50 mg/dL	MI
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LDL Particles

Lipid Panel with Ratios

LDL-Cholesterol

LDL-CHOLESTEROL	156 H 03/04/23	mg/dL (calc)	MI
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Comments

Reference range: <100

Desirable range <100 mg/dL for primary prevention;
 <70 mg/dL for patients with CHD or diabetic patients
 with > or = 2 CHD risk factors.

LDL-C is now calculated using the Martin-Hopkins
 calculation, which is a validated novel method providing
 better accuracy than the Friedewald equation in the
 estimation of LDL-C.

Martin SS et al. JAMA. 2013;310(19): 2061-2068
 (<http://education.QuestDiagnostics.com/faq/FAQ164>)

Inflammation

hs-CRP

HS CRP	0.7 03/04/23	mg/L	MI
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Comments

Reference Range

Optimal <1.0

Jellinger PS et al. Endocr Pract.2017;23(Suppl 2):1-87.

For ages >17 Years:

hs-CRP mg/L Risk According to AHA/CDC Guidelines

Result	Value	Reference Range	Lab
	<1.0	Lower relative cardiovascular risk.	
	1.0-3.0	Average relative cardiovascular risk.	
	3.1-10.0	Higher relative cardiovascular risk.	
		Consider retesting in 1 to 2 weeks to exclude a benign transient elevation in the baseline CRP value secondary to infection or inflammation.	
	>10.0	Persistent elevation, upon retesting, may be associated with infection and inflammation.	

Vitamin Deficiency

Homocysteine

HOMOCYSTEINE	7.8 03/04/23	<10.4 umol/L	MI
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Comments Homocysteine is increased by functional deficiency of folate or vitamin B12. Testing for methylmalonic acid differentiates between these deficiencies. Other causes of increased homocysteine include renal failure, folate antagonists such as methotrexate and phenytoin, and exposure to nitrous oxide.
 Selhub J, et al., Ann Intern Med. 1999;131(5):331-9.

Metabolic & Endocrine Health

Thyroid

T3 Reverse (RT3), LC/MS/MS

T3 REVERSE, LC/MS/MS	12 03/04/23	8-25 ng/dL	AMD
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Comments This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute Chantilly, VA. It has not been cleared or approved by the U.S. Food and Drug Administration. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

T3 Total

T3, TOTAL	114 03/04/23	76-181 ng/dL	MI
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Result	Value	Reference Range	Lab
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T3 Uptake

T3 UPTAKE	31 03/04/23	22-35 %	MI
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T3, Free

T3, FREE	3.3 03/04/23	2.3-4.2 pg/mL	MI
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T4 (Thyroxine), Total

T4 (THYROXINE), TOTAL	7.0 03/04/23	5.1-11.9 mcg/dL	MI
FREE T4 INDEX (T7)	2.2 03/04/23	1.4-3.8	MI

T4, Free

T4, FREE	1.1 03/04/23	0.8-1.8 ng/dL	MI
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TSH

TSH	2.06 03/04/23	mIU/L	MI
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Comments

Reference Range

> or = 20 Years 0.40-4.50

Pregnancy Ranges

First trimester 0.26-2.66

Second trimester 0.55-2.73

Third trimester 0.43-2.91

Diabetes & Insulin Resistance

Comprehensive Metabolic Panel (CMP)

GLUCOSE	88 03/04/23	65-99 mg/dL	MI
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Comments

Fasting reference interval

Hemoglobin A1c with eAG

Result	Value	Reference Range	Lab
HEMOGLOBIN A1c	5.7 H 03/04/23	<5.7 % of total Hgb	MI

Comments

For someone without known diabetes, a hemoglobin A1c value between 5.7% and 6.4% is consistent with prediabetes and should be confirmed with a follow-up test.

For someone with known diabetes, a value <7% indicates that their diabetes is well controlled. A1c targets should be individualized based on duration of diabetes, age, comorbid conditions, and other considerations.

This assay result is consistent with an increased risk of diabetes.

Currently, no consensus exists regarding use of hemoglobin A1c for diagnosis of diabetes for children.

eAG (mg/dL)	117 03/04/23	mg/dL	MI
eAG (mmol/L)	6.5 03/04/23	mmol/L	MI

Insulin

INSULIN	3.0 03/04/23	uIU/mL	MI
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Comments

Reference Range < or = 18.4

Risk:

Optimal	< or = 18.4
Moderate	NA
High	>18.4

Adult cardiovascular event risk category cut points (optimal, moderate, high) are based on Insulin Reference Interval studies performed at Quest Diagnostics in 2022.

Reproductive Hormones

DHEA Sulfate, Immunoassay

DHEA SULFATE	85 03/04/23	5-167 mcg/dL	MI
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Result	Value	Reference Range	Lab
Comments	DHEA-S values fall with advancing age. For reference, the reference intervals for 31-40 year old patients are: Male: 93-415 mcg/dL Female: 19-237 mcg/dL		

Estradiol

ESTRADIOL	<15 03/04/23	pg/mL	MI
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Comments	<p>Reference Range</p> <table border="0"> <tr> <td>Follicular Phase:</td> <td>19-144</td> </tr> <tr> <td>Mid-Cycle:</td> <td>64-357</td> </tr> <tr> <td>Luteal Phase:</td> <td>56-214</td> </tr> <tr> <td>Postmenopausal:</td> <td>< or = 31</td> </tr> </table> <p>Reference range established on post-pubertal patient population. No pre-pubertal reference range established using this assay. For any patients for whom low Estradiol levels are anticipated (e.g. males, pre-pubertal children and hypogonadal/post-menopausal females), the Quest Diagnostics Nichols Institute Estradiol, Ultrasensitive, LCMSMS assay is recommended (order code 30289).</p> <p>Please note: patients being treated with the drug fulvestrant (Faslodex(R)) have demonstrated significant interference in immunoassay methods for estradiol measurement. The cross reactivity could lead to falsely elevated estradiol test results leading to an inappropriate clinical assessment of estrogen status. Quest Diagnostics order code 30289-Estradiol, Ultrasensitive LC/MS/MS demonstrates negligible cross reactivity with fulvestrant.</p>			Follicular Phase:	19-144	Mid-Cycle:	64-357	Luteal Phase:	56-214	Postmenopausal:	< or = 31
Follicular Phase:	19-144										
Mid-Cycle:	64-357										
Luteal Phase:	56-214										
Postmenopausal:	< or = 31										

Estrogen, Total, Serum

ESTROGEN, TOTAL, SERUM	183.6 03/04/23	pg/mL	EZ
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Comments	<p>Reference Ranges for Total Estrogen:</p> <table border="0"> <tr> <td>Follicular Phase</td> <td></td> </tr> <tr> <td>(1-12 days):</td> <td>90-590 pg/mL</td> </tr> <tr> <td>Luteal Phase:</td> <td>130-460 pg/mL</td> </tr> <tr> <td>Postmenopausal:</td> <td>50-170 pg/mL</td> </tr> </table> <p>The total estrogen assay is not recommended for use in pre-pubertal children.</p>			Follicular Phase		(1-12 days):	90-590 pg/mL	Luteal Phase:	130-460 pg/mL	Postmenopausal:	50-170 pg/mL
Follicular Phase											
(1-12 days):	90-590 pg/mL										
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Postmenopausal:	50-170 pg/mL										

Result	Value	Reference Range	Lab
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Progesterone, Immunoassay

PROGESTERONE	<0.5 03/04/23	ng/mL	MI
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Comments

Reference Ranges

Female

Follicular Phase	< 1.0
Luteal Phase	2.6-21.5
Post menopausal	< 0.5
Pregnancy	
1st Trimester	4.1-34.0
2nd Trimester	24.0-76.0
3rd Trimester	52.0-302.0

Testosterone, Total And Free And Sex Hormone Binding Globulin

TESTOSTERONE, TOTAL, MS	12 03/04/23	2-45 ng/dL	AMD
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Comments

For additional information, please refer to <http://education.questdiagnostics.com/faq/TotalTestosteroneLCMSMSFAQ165>
 (This link is being provided for informational/educational purposes only.)

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TESTOSTERONE, FREE	1.2 03/04/23	0.1-6.4 pg/mL	AMD
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SEX HORMONE BINDING GLOBULIN	56 03/04/23	17-124 nmol/L	AMD
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Liver Health

Result	Value	Reference Range	Lab
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Liver Enzymes and Function Tests

Comprehensive Metabolic Panel (CMP)

PROTEIN, TOTAL	7.1 03/04/23	6.1-8.1 g/dL	MI
ALBUMIN	4.4 03/04/23	3.6-5.1 g/dL	MI
GLOBULIN	2.7 03/04/23	1.9-3.7 g/dL (calc)	MI
ALBUMIN/GLOBULIN RATIO	1.6 03/04/23	1.0-2.5 (calc)	MI
BILIRUBIN, TOTAL	0.6 03/04/23	0.2-1.2 mg/dL	MI
ALKALINE PHOSPHATASE	59 03/04/23	37-153 U/L	MI
AST	17 03/04/23	10-35 U/L	MI
ALT	16 03/04/23	6-29 U/L	MI

Gamma Glutamyl Transferase (GGT)

GGT	11 03/04/23	3-70 U/L	MI
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Lactate Dehydrogenase (LD)

LD	133 03/04/23	120-250 U/L	MI
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Kidney & Urinary Health

Kidney Function Metabolic

Comprehensive Metabolic Panel (CMP)

UREA NITROGEN (BUN)	15 03/04/23	7-25 mg/dL	MI
CREATININE	0.78 03/04/23	0.50-1.03 mg/dL	MI

Result	Value	Reference Range	Lab
EGFR	91 03/04/23	> OR = 60 mL/min/1.73m ²	MI
Comments	The eGFR is based on the CKD-EPI 2021 equation. To calculate the new eGFR from a previous Creatinine or Cystatin C result, go to https://www.kidney.org/professionals/kdoqi/gfr%5Fcalculator		
BUN/CREATININE RATIO	NOT APPLICABLE 03/04/23	6-22 (calc)	MI
CALCIUM	9.3 03/04/23	8.6-10.4 mg/dL	MI

Electrolytes

Electrolytes

Comprehensive Metabolic Panel (CMP)

SODIUM	141 03/04/23	135-146 mmol/L	MI
POTASSIUM	4.1 03/04/23	3.5-5.3 mmol/L	MI
CHLORIDE	106 03/04/23	98-110 mmol/L	MI
CARBON DIOXIDE	29 03/04/23	20-32 mmol/L	MI

Blood Health

Iron

Ferritin

FERRITIN	61 03/04/23	16-232 ng/mL	MI
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Iron and Total Iron Binding Capacity (TIBC)

IRON, TOTAL	93 03/04/23	45-160 mcg/dL	MI
IRON BINDING CAPACITY	290 03/04/23	250-450 mcg/dL (calc)	MI

Result	Value	Reference Range	Lab
% SATURATION	32 03/04/23	16-45 % (calc)	MI

Platelets

CBC (includes Differential and Platelets)

PLATELET COUNT	253 03/04/23	140-400 Thousand/uL	MI
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Red Blood Cells

CBC (includes Differential and Platelets)

RED BLOOD CELL COUNT	3.92 03/04/23	3.80-5.10 Million/uL	MI
HEMOGLOBIN	11.9 03/04/23	11.7-15.5 g/dL	MI
HEMATOCRIT	35.2 03/04/23	35.0-45.0 %	MI
MCV	89.8 03/04/23	80.0-100.0 fL	MI
MCH	30.4 03/04/23	27.0-33.0 pg	MI
MCHC	33.8 03/04/23	32.0-36.0 g/dL	MI
RDW	12.2 03/04/23	11.0-15.0 %	MI
MPV	9.9 03/04/23	7.5-12.5 fL	MI

White Blood Cells

CBC (includes Differential and Platelets)

WHITE BLOOD CELL COUNT	3.4 L 03/04/23	3.8-10.8 Thousand/uL	MI
ABSOLUTE NEUTROPHILS	1918 03/04/23	1500-7800 cells/uL	MI
ABSOLUTE LYMPHOCYTES	1187 03/04/23	850-3900 cells/uL	MI

Result	Value	Reference Range	Lab
ABSOLUTE MONOCYTES	235 03/04/23	200-950 cells/uL	MI
ABSOLUTE EOSINOPHILS	31 03/04/23	15-500 cells/uL	MI
ABSOLUTE BASOPHILS	31 03/04/23	0-200 cells/uL	MI
NEUTROPHILS	56.4 03/04/23	%	MI
LYMPHOCYTES	34.9 03/04/23	%	MI
MONOCYTES	6.9 03/04/23	%	MI
EOSINOPHILS	0.9 03/04/23	%	MI
BASOPHILS	0.9 03/04/23	%	MI

Vitamins, Minerals & Dietary Fatty Acids

Vitamins

QuestAssured™ 25-Hydroxyvitamin D (D2, D3), LC/MS/MS

VITAMIN D, 25-OH, TOTAL	36 03/04/23	30-100 ng/mL	AMD
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Comments

Vitamin D, 25-Hydroxy reports concentrations of two common forms, 25-OHD2 and 25-OHD3. 25-OHD3 indicates both endogenous production and supplementation. 25-OHD2 is an indicator of exogenous sources such as diet or supplementation. Therapy is based on measurement of Total 25-OHD, with levels <20 ng/mL indicative of Vitamin D deficiency, while levels between 20 ng/mL and 30 ng/mL suggest insufficiency. Optimal levels are > or = 30 ng/mL.

Vitamin D is fat-soluble and therefore inadvertent or intentional ingestion of excessively high amounts could be toxic. Studies in children and adults suggest blood levels would need to exceed 150 ng/mL before there is any concern. Holick MF, Binkley NC, Bischoff-ferrari HA, et al. Evaluation, treatment and prevention of vitamin D deficiency: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab. 2011;96(7):1911-30.

Result	Value	Reference Range	Lab
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For additional information, please refer to <http://education.QuestDiagnostics.com/faq/FAQ199>

(This link is being provided for informational/educational purposes only.)

VITAMIN D, 25-OH, D3	36 03/04/23	ng/mL	AMD
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Comments

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VITAMIN D, 25-OH, D2	<4 03/04/23	ng/mL	AMD
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Comments

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Vitamin B12 (Cobalamin) and Folate Panel, Serum

VITAMIN B12	409 03/04/23	200-1100 pg/mL	MI
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FOLATE, SERUM	23.0 03/04/23	ng/mL	MI
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Comments

Reference Range

Low: <3.4
 Borderline: 3.4-5.4
 Normal: >5.4

Omega 3 & 6 Fatty Acids

Omega-3 and -6 Fatty Acids, Plasma

OMEGA 3 (EPA+DHA) INDEX	2.3 03/04/23	1.4-4.9 %	EZ
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Comments

Risk: Optimal > 3.2%; Moderate 2.2-3.2%; High < 2.2%

Cardiovascular event risk category cut points for Omega3 index (optimal, moderate, high) are based on quartiles of adult U.S reference population. Association between Omega3

Result	Value	Reference Range	Lab
	index and cardiovascular events is based on Albert et al. NEJM. 2002;346:1113.		
RISK	Moderate 03/04/23		EZ
Comments	<p>The Omega-3 Index is associated with a moderate risk of cardiovascular disease because it is in the central two population quartiles. The Omega-3 Index categories are based on the top (75th percentile) and bottom (25th percentile) quartiles of the reference population. Consumption of foods high in omega-3 fatty acids (EPA and DHA) or supplements containing omega-3 fatty acids can increase the Omega-3 Index.</p> <p>Index <2.2: High Index 2.2-3.2: Moderate Index >3.2: Optimal</p>		
OMEGA 6/OMEGA 3 RATIO	10.6 03/04/23	5.7-21.3	EZ

Fatty Acids

Omega-3 and -6 Fatty Acids, Plasma

EPA/ARACHIDONIC ACID RATIO	<0.1 03/04/23	0.2 OR LESS	EZ
ARACHIDONIC ACID	8.8 03/04/23	5.2-12.9 %	EZ
EPA	0.2 03/04/23	0.2-1.5 %	EZ
DHA	2.0 03/04/23	1.2-3.9 %	EZ

Comments This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute San Juan Capistrano. It has not been cleared or approved by FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

Other

Other

Pregnenolone, LC/MS/MS

Result	Value	Reference Range	Lab
PREGNENOLONE, LC/MS	30 03/04/23	22-237 ng/dL	EZ

Comments

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