

Patient
 Name: SAMPLE1, KBMO
 DOB: 06.03.1968
 Patient ID: 162794
 ACC/AHA Risk Score:
 Patient Info:

Provider
 Provider: PROVIDER AUTHORIZED
 4 Business Way
 Hopedale, MA 01747
 Account No: 11699

Specimen
 Accession No: T0327678
 Requisition No:
 Report Date & Time: 11.09.2023 1:37 PM
 Received Date & Time: 11.09.2023 1:28 PM
 Collection Date & Time: 11.08.2023 11:35 AM

Test Name	Optimal	Borderline	Increased Risk	Footnotes	Previous Results
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Lipid Tests

Total Cholesterol ¹		218		9	
	<200	200-240	>240 mg/dL		
Direct LDL-C ¹		108		9	
	<100	100-160	>160 mg/dL		
HDL-C ¹		49		9	
	>50	40-50	<40 mg/dL		
Triglycerides ¹		155		9	
	<150	150-200	>200 mg/dL		
Non-HDL-C		169		9	
	<130	130-190	>190 mg/dL		
ApoB ¹			139	9	
	<80	80-120	>120 mg/dL		
Lp(a) ¹		33		9	
	<30	30-50	>50 mg/dL		

Lipid Ratios

TC/HDL-C		4.4		9	
	<4	4-6	>6		
HDL-C/TG		0.32		9	
	>0.5	0.25-0.5	<0.25		

Inflammation and Oxidation Tests

hs-CRP ¹			3.4	9	
	<1.0	1.0-3.0	>3.0 mg/L		

Interpretation: HIGH hs-CRP may indicate inflammation and may be associated with increased CVD risk.

Consideration: Consider evaluating potential contributing CVD risk factors. Identify and treat underlying causes such as atherogenic lipoproteins. If indicated, control blood pressure, encourage smoking cessation and weight reduction.

Metabolic Tests

HbA1c ¹	5.6			9	
	<5.7	5.7-6.4	>6.4 %		
Glucose ^{1 2}	98			9	
	70-99	100-125	<70 or >125 mg/dL		

Interpretation: Based on the HbA1c value, the estimated Average Glucose (eAG) is 114 mg/dL which includes the non-fasting state.

Notes

Patient

Name: SAMPLE1, KBMO

Patient ID: 162794

Gender: M

Provider

Provider: PROVIDER AUTHORIZED

Account No: 11699

Specimen

Accession No: T0327678

Report Date & Time: 11.09.2023 1:37 PM

Test Name	Optimal	Borderline	Increased Risk	Footnotes	Previous Results
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Other Tests

Homocysteine ¹		11.5		9	
	<10.0	10.0-14.0	>14.0 µmol/L		

Patient
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 Patient ID: 162794 Gender: M

Provider
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Specimen
 Accession No: T0327678
 Report Date & Time: 11.09.2023 1:37 PM

Test Name 11.09.2023 (Most Recent)

Lipid Tests

Total Cholesterol ¹	218
Direct LDL-C ¹	108
HDL-C ¹	49
Triglycerides ¹	155
Non-HDL-C	169
ApoB ¹	139
Lp(a) ¹	33

Lipid Ratios

TC/HDL-C	4.4
HDL-C/TG	0.32

Inflammation and Oxidation Tests

hs-CRP ¹	3.4
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Metabolic Tests

HbA1c ¹	5.6
Glucose ^{1 2}	98

Other Tests

Homocysteine ¹	11.5
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Patient	Name: SAMPLE1, KBMO	Provider	Provider: PROVIDER AUTHORIZED	Specimen	Accession No: T0327678
	Patient ID: 162794		Gender: M		Account No: 11699

Treatment Consideration Summary

The intended use of this report is to provide an aid in the physician's treatment decisions. This report is intended for a physician or other qualified health care provider. Please consult with your physician regarding any questions.

	Lifestyle and Dietary Modification	Statins	Ezetimibe	Fibrates	Omega-3 Fatty Acids	Aspirin	Soluble Fiber Supplements	Bile Acid Sequestrants
Lipids								
LDL-C	•	•	•	•			•	•
HDL-C	•	•		•	•			•
Triglycerides	•	•		•	•		•	
Non-HDL-C	•	•	•	•	•			•
ApoB	•	•	•	•				•
Lp(a)						•		
Inflammation Tests								
hs-CRP	•	•			•			
Other Tests								
Homocysteine	•							

Lifestyle and Dietary Modification

Therapeutic lifestyle change is the cornerstone for reducing risk for Cardiovascular Disease (CVD) and diabetes.

The following recommendations are based on the American Heart Association's dietary and lifestyle guidelines. Consume a dietary pattern that emphasizes intake of vegetables, fruits and whole grains; includes low-fat dairy products, poultry, fatty fish, legumes, non-tropical vegetable oils and nuts; and limits intake of refined grains, sweets, sugar-sweetened beverages and red meats. Eliminate foods high in trans fat.

If indicated: control blood pressure, reduce weight, engage in smoking cessation and be physically active — work up to getting at least 30 minutes of a moderate intensity physical activity, at least 5 days per week.

- To increase HDL-C and to decrease ApoB, non-HDL-C, LDL-C levels it is important to reduce saturated fat intake, refined carbohydrates, sugars and eliminate trans fats.
- To lower triglycerides reduce intake of simple carbohydrates and alcohol and if indicated reduce weight and increase physical activity. Triglycerides are utilized for fat storage or for energy. Elevated levels may increase CVD risk by altering lipoprotein metabolism by increasing the formation of small dense LDL particles and lowering levels of large HDL particles.
- Homocysteine is an amino acid that is associated with endothelial dysfunction and an increased risk for CVD. Increasing intake of foods rich in folate (such as legumes or dark green vegetables) and vitamins B6 and B12; smoking cessation and decreasing excess alcohol and caffeine intake may help lower homocysteine.

Statins

According to studies, statins have been shown to reduce cholesterol production, increase LDL clearance and lower the risk of CVD and its progression. Statins can lower CoQ10 levels.

- Statins:
- may raise HDL-C by 5-10%; may lower LDL-C by 30-60%; may lower non-HDL cholesterol; may decrease triglycerides by 10-50%. Triglycerides are utilized for fat storage or for energy. Elevated levels increase CVD risk and alter lipoprotein metabolism by increasing the formation of small dense LDL particles and lowering levels of large HDL particles.
 - may lower ApoB; ApoB is the primary protein on non-HDL lipoproteins and is a direct measure of the number of atherogenic lipoproteins.
 - lowering CRP with statin therapy has been shown to lower CVD events. Elevated CRP may indicate inflammation and CVD risk.

Ezetimibe (Cholesterol Absorption Inhibitor)

Ezetimibe blocks the intestinal absorption of both biliary and dietary cholesterol, but may also promote a compensatory increase in cholesterol production. Combination therapy with statins may improve clinical outcomes.

- Ezetimibe:
- may lower non-HDL cholesterol; may reduce LDL-C up to 20%.
 - may lower ApoB up to 15%.

Fibrates

For patients unable to tolerate statins consider fibrate therapy.

- Fibrates:
- may lower triglycerides 23-54%; may modestly lower LDL-C by 20-31%; provide a modest increase in HDL-C by 5-15%; may lower non-HDL cholesterol.
 - may lower ApoB.

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Report Interpretation (continued)

Omega-3 Fatty Acids

Studies have shown that Omega-3 Fatty Acids are essential to heart health. Their benefits may include improved cholesterol balance, improved immune system function, reduced inflammation and reduced rates of heart disease.

Omega-3 Fatty Acids:

- may modestly increase HDL-C; may modestly decrease non-HDL-C; reduce plasma triglycerides by about 25-50% resulting primarily from the decline in hepatic very low density lipoprotein (VLDL- TG) production and secondarily from the increase in VLDL clearance.

Aspirin

Consider low dose aspirin after risk benefit analysis including contraindications and clinical correlation.

Aspirin:

- according to studies may reduce the risk of clot associated with Lp(a) elevations.

Soluble Fiber Supplements

Soluble fiber works by decreasing cholesterol absorption in the gut by increasing LDL receptor expression in the liver. Consider a soluble fiber supplement such as guar gum, psyllium, pectin and glucomannan.

Bile Acid Sequestrants

Bile Acid Sequestrants (BAS), according to studies, bind bile acids in the intestine, causing more liver cholesterol to be converted to bile acids and decreasing availability of cholesterol to build bile acids. This process upregulates LDL receptors and increases LDL clearance.

Bile Acid Sequestrants:

- may lower ApoB up to 12%; may increase HDL 3-5%; may lower LDL-C up to 20%; may lower non-HDL cholesterol.

Notes

Footnotes

The intended use of this report is to provide an aid in the physician's treatment decisions. This report is intended for a physician or other qualified health care provider. Please consult with your physician regarding any questions.

¹This test was developed and its performance characteristics determined by Boston Heart Diagnostics. It has not been cleared or approved by the U.S. Food and Drug Administration (FDA). The FDA has determined that such clearance is not necessary. This test is used for clinical purposes. It should not be regarded as investigational or for research. Methods: HDL Map: Gel electrophoresis; Cholesterol Balance and Fatty Acid Balance: GC/MS; MPO: Immunoturbidometric; CoQ10: UPLC/UV; Adiponectin: Latex turbidimetric immunoassay; Aldosterone: Chemiluminescent immunoassay; LDL-P, HDL-P, LipoMap and Serum MetaboMap: NMR; TMAO: LC/MS/MS; Dried Blood Spot Testing.

²A fasting glucose level of >125 mg/dL indicates the presence of diabetes mellitus, and a fasting glucose level of <70 mg/dL indicates hypoglycemia.

³A test result in the low range is normal in a non-diabetic, but low if a patient has diabetes (consistent with diabetes).

⁴Genetic analysis is performed by real time Polymerase Chain Reaction (PCR) using TaqMan® probes. Amplified gene nucleotide sites: APOE - Apolipoprotein E, T471C rs429358, C609T rs7412; F5 - Coagulation Factor V, G1746A rs6025; F2 - Coagulation Factor 2, G20210A rs1799963; CYP2C19 (Clopidogrel response) -Cytochrome P450 2C19, G681A rs4244275, G636A rs4986893, C-806T rs12248560; SLC01B1 (Statin Myopathy) - Solute Carrier Organic Anion Transporter Family, Member 1B1, T625C rs4149056. MTHFR – Methylenetetrahydrofolate reductase, C677T rs1801133, A1298C rs1801131. Limitations: Other rare mutations not detected by these assays may be present in some individuals. Recommendation: Genetic counseling with discussion of testing for other family members is recommended.

⁹This testing was done after dried blood spot sampling. If any clinically unexpected results occur we recommend confirming with phlebotomy.

* Tests performed with alternative methodologies are not displayed for comparative purposes.

● = Critical Value, ▲ = Alert Value, TNP = Test Not Performed, PEND = Test Result Pending, GSP = Glycated Serum Protein, ADA = American Diabetes Association