PRECISION
HEALTH REPORTS

Solutions to Address Individual Risk

Cardiometabolic Risk Report

Prepared for
Leonard Glassner

Report Date
02/26/2024

Ordering Healthcare Provider
William Cromwell MD
Precision Health Reports

Car•di•o•meta•bol•ic / *adjective*
Concerning both heart disease and metabolic disorders such as diabetes.

This report provides you with information about your cardiometabolic health based on your recent test results and personal information provided. There may be other factors not part of this report that could affect your risk. Talk to your healthcare provider about these results, questions you may have, and actions you can take to improve your cardiometabolic health. The information we provide is not a substitute for shared decision making with your healthcare provider.

Dear Leonard,

This report shows **your individual risk** for **heart attack, stroke, and type 2 diabetes.**

Cardiometabolic risk refers to the comprehensive group of factors that together impact your risk for heart attack, stroke, and type 2 diabetes.

Assessing your cardiometabolic risk is like putting together a jigsaw puzzle with 40+ interlocking pieces that together determine your risk for developing these costly and deadly conditions.

Some pieces represent common major risk factors such as high blood pressure, high cholesterol, smoking, elevated blood sugar, and family history of early heart attack, stroke, or diabetes.

Other pieces are part of insulin resistance, the metabolic disorder that begins and accelerates the process of vascular disease and diabetes.

Finally, some pieces are risk enhancing factors. These are specific conditions that measurably increase your risk beyond conventional risk factors.

Your cardiometabolic risk is more than simply counting major risk factors or calculating your risk from equations based on large populations. While these are a good starting point, **multiple expert guidelines** advise including **more than 30 additional "risk-enhancing" factors** to determine your personal cardiometabolic risk.

Precision Health Reports combines your unique clinical information, appropriate test results, and multiple guidelines to produce a report that identifies your personal risk.

Regardless of where you start, **you can reduce your risk of heart attack, stroke, and diabetes**. Success depends on implementing the diet, exercise, and medication (if needed) appropriate for your personal risk and following your response using tests most reflective of decreased cardiometabolic risk.

Armed with your Precision Health Report, your healthcare team will be able to offer more personalized counseling and treatment recommendations to address your personal risk, as well as track your improvement over time.

We appreciate the opportunity to be a part of your health journey. Let's get started!

Dr. William Cromwell, MD, FAHA, FNLA
Chief Medical Officer – Precision Health Reports

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Name: Leonard Glassner

Date of Birth: 09/09/1952   Age: 71

Report Date: 02/26/2024

Gender: Male

Your Cardiometabolic Risk Summary

(Details for each section are in the following pages)

Your Insulin Resistance—The Common Link

Your Lipoprotein Insulin Resistance Score (LP-IR) shows your gender-specific insulin resistance— the common factor linking metabolic syndrome, type 2 diabetes, and cardiovascular disease. A low value mean you are insulin sensitive (that's ideal), while high scores mean insulin resistant.

	Optimal	Near Optimal	Intermediate	High	Very High

LP-IR Score (20)

30   40   50   60   70   80+
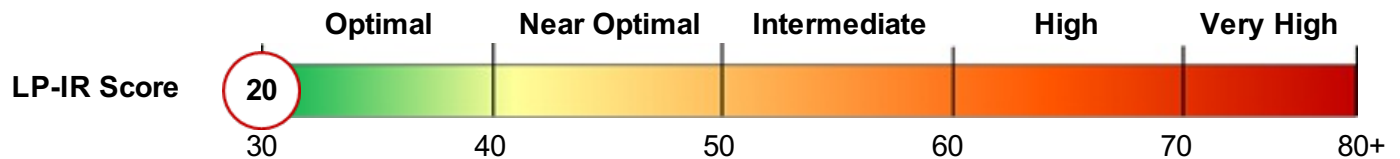
Learn more about insulin resistance and its impact on you: https://precisionhealthreports.com/ir-cmr
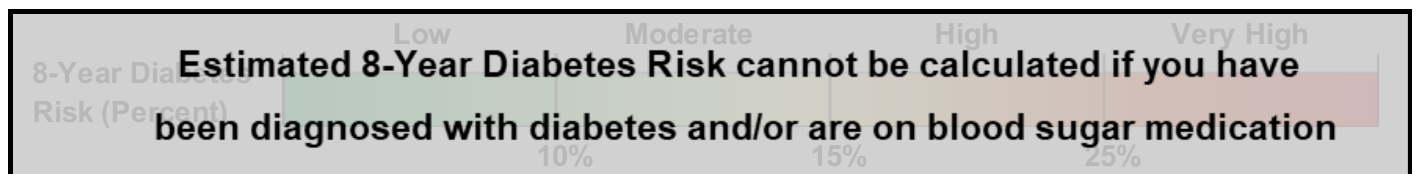
Your Metabolic Syndrome Risk

Your Metabolic Syndrome Severity Score is a detailed calculation that accounts for your gender, ethnicity, and clinical factors related to insulin resistance (aka "metabolic syndrome"). This score gives you a comprehensive picture of the severity of your metabolic syndrome related risk.

	Low	Borderline	Intermediate	High

Met Syndrome Severity Score (Percentile) (1)

25%   50%   75%   100%
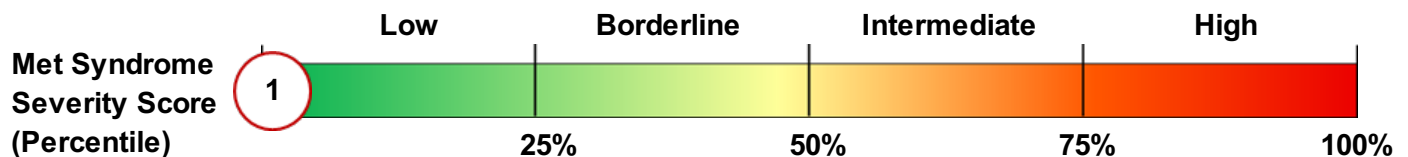
Your Type 2 Diabetes Risk

Your gender-specific risk for developing type 2 diabetes is based on both your fasting glucose and your (LP-IR) score.

	Low	Moderate	High	Very High

8-Year Diabetes Risk (Percent)

Estimated 8-Year Diabetes Risk cannot be calculated if you have been diagnosed with diabetes and/or are on blood sugar medication

10%   15%   25%

Your Overall Cardiovascular Risk (Heart Attack, Stroke)

Your individual risk for a cardiovascular event (heart attack or stroke) is a combination of your calculated risk and any of 30+ guideline defined Risk Enhancing Factors.

	Low	Moderate	High	Very High

Overall CV Risk   (X)

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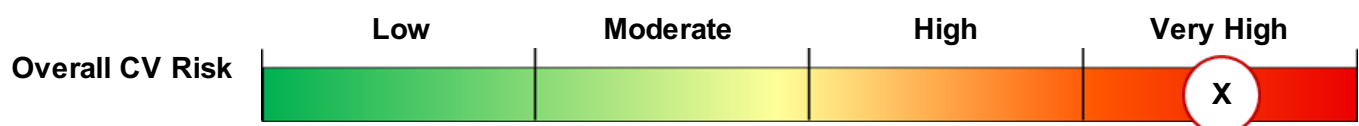
Your Metabolic Risk Details

Insulin Resistance Status

Insulin Sensitive | **Insulin Resistant**

NMR LP-IR Score ⟨20⟩

30 40 50 60 70 80+

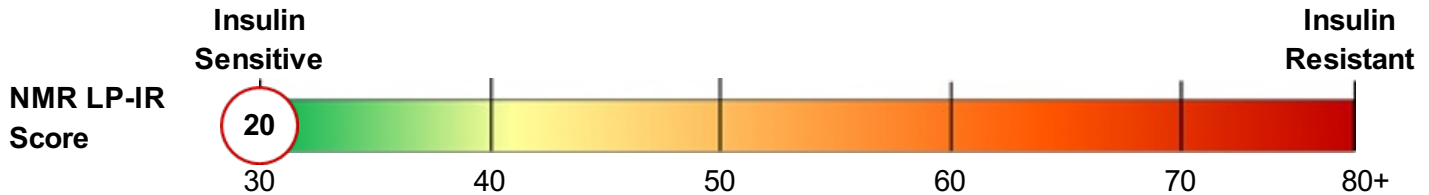The LP-IR Score is derived from several lipoprotein markers of insulin resistance.[1] The higher your LP-IR score, and the greater your insulin resistance,[2] the higher risk for type 2 diabetes.[3-6]

Insulin Resistance Syndrome ("Metabolic Syndrome")

Several insulin resistance factors cluster together to increase your risk for type 2 diabetes, heart attack, and stroke.[7] This cluster of factors is termed the **Insulin Resistance Syndrome** or Metabolic Syndrome.[8]

Metabolic syndrome is present if you have 3 or more Metabolic Syndrome criteria (shaded yellow) below.

Additional syndrome factors, elevated inflammation (GlycA) and high atherogenic particle number (Apo B), further increase your risk and are shaded red if they meet the high-risk criteria listed below.
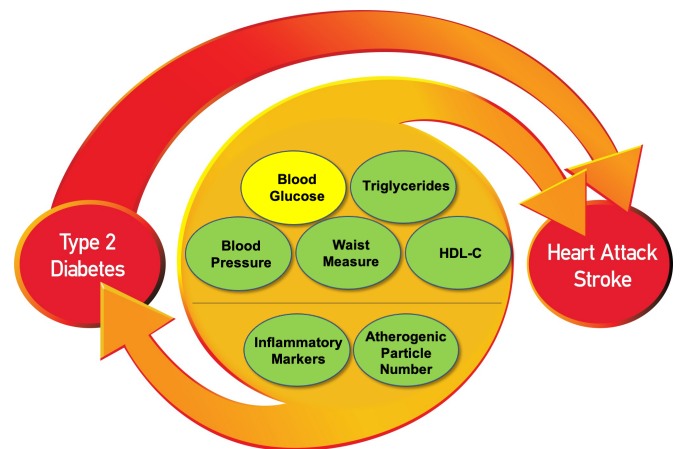
Metabolic Syndrome Factors for Your Gender & Ethnicity	Criteria	Your Value
1. Waist Measurement (inches)	> 40	31
2. Blood Pressure (mmHg)*		
Systolic Pressure <u>or</u>	≥ 130	108
Diastolic Pressure	≥ 85	62
3. Fasting Glucose (mg/dL)*	≥ 100	87
4. Triglycerides (mg/dL)*	≥ 150	57
5. HDL Cholesterol (mg/dL)*	< 40	94

* or on drug treatment for these factors

Additional High-Risk Syndrome Factors

Inflammation GlycA (umol/L)	> 400	346
Atherogenic Particle Number		
Apo B (mg/dL)	> 110	59

https://bit.ly/Glyc_A

https://bit.ly/LDL-P

You have 1 of 5 Metabolic Syndrome Criteria

Type 2 Diabetes — Blood Glucose — Triglycerides — Blood Pressure — Waist Measure — HDL-C — Inflammatory Markers — Atherogenic Particle Number — Heart Attack Stroke

Insulin Resistance Syndrome

Metabolic Syndrome Severity Score https://bit.ly/MetSynSS

The Metabolic Syndrome Severity Score assesses the clinical impact of your metabolic syndrome factors.[9,10] The higher the score, the greater your metabolic syndrome-related risk for type 2 diabetes,[11-13] heart attack, and stroke.[13-16] **This score can be significantly improved with diet and exercise.**

Low Borderline Intermediate High

Met Syndrome Severity Score (Percentile) ⟨1⟩

25% 50% 75% 100%
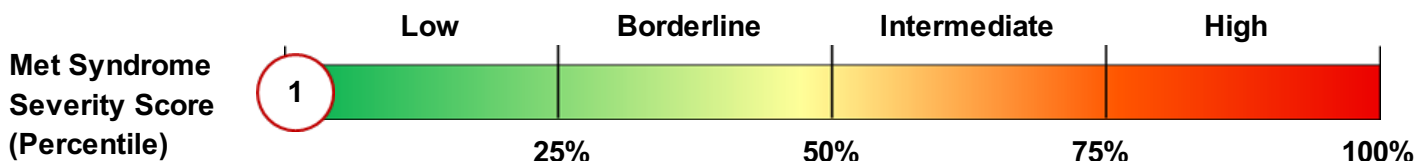
Your Diabetes Risk Details

Glycemic status

Hemoglobin A1C (percent)

Normal	Pre-Diabetes	Diabetes

5.2

4   5.6   6.4   9

NMR Lipoprotein Insulin Resistance Score (LP-IR)

LP-IR Score

Optimal	Near Optimal	Intermediate	High	Very High

20

30   40   50   60   70   80+
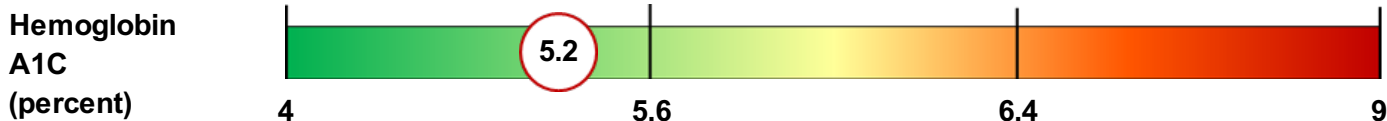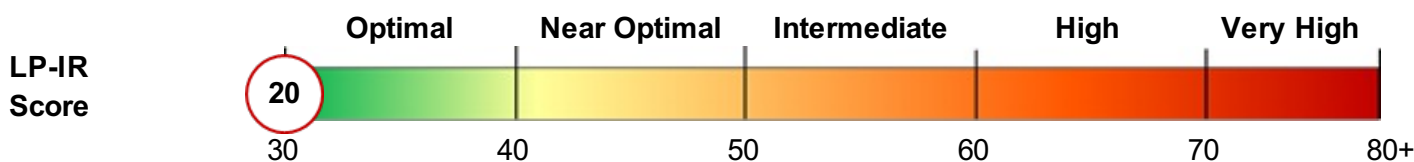
Your Diabetes Status*

While elevated glucose and elevated LP-IR score are both associated with risk of type 2 diabetes, your probability of developing diabetes depends on <u>both</u> your LP-IR Score and fasting glucose level.[3,4,6]

Legend:
- Maximum LP-IR Score (red line)
- Minimum LP-IR Score (green line)

Y-axis: 8-Year Estimated Diabetic Risk (Percent) — 0, 20, 40, 60, 80, 100

X-axis: Glucose (mg/dL) — 70, 100, 125

★ Positive History of Diabetes, Diabetic Range Glucose, or Glucose Lowering Medication Noted

Normal	Pre-Diabetes	Diabetes
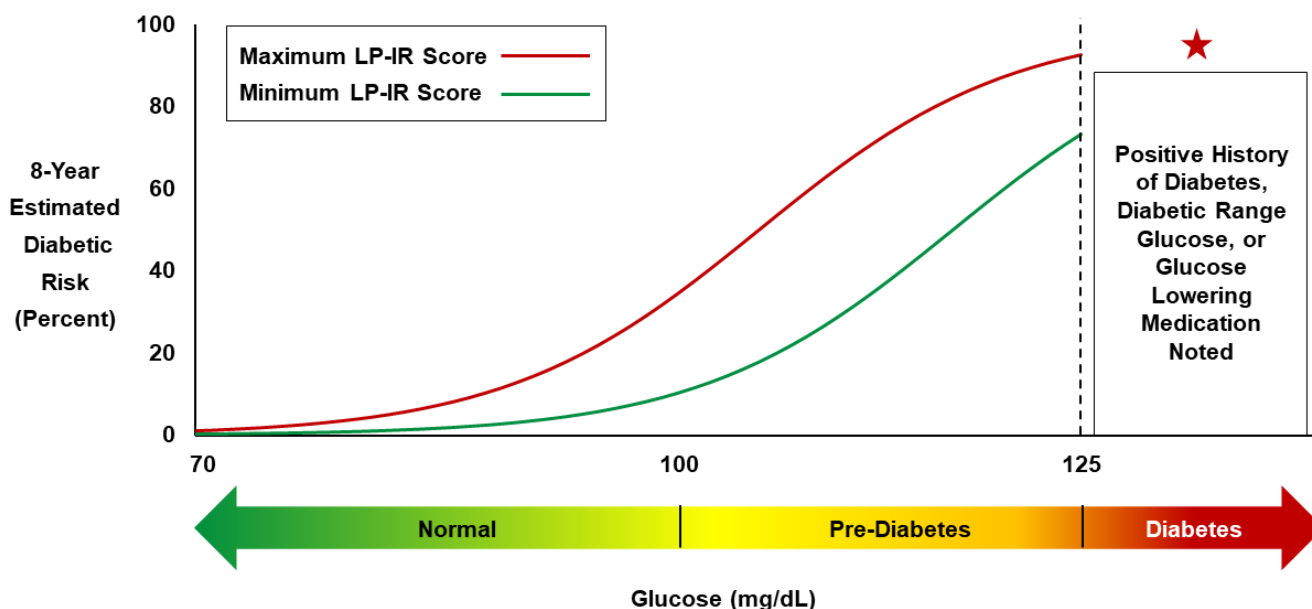
Your Diabetes Risk Is Modifiable

Diet and lifestyle modification can significantly improve your diabetes risk.

The most important modifiable factor in preventing development of diabetes is insulin resistance.

As you lower your LP-IR score, diabetic risk decreases at any glucose level.

* Based on data from the Multi-Ethnic Study of Atherosclerosis

Your Cardiovascular Risk Details

Guideline Calculated Cardiovascular Risk

The American College of Cardiology (ACC) Pooled Cohort Equation is based on age, gender, race, total cholesterol, HDL cholesterol, diabetes, blood pressure, smoking status, and medications (high blood pressure, statins, aspirin) in individuals with no history of cardiovascular events.[17] https://mayocl.in/3b7wK5T

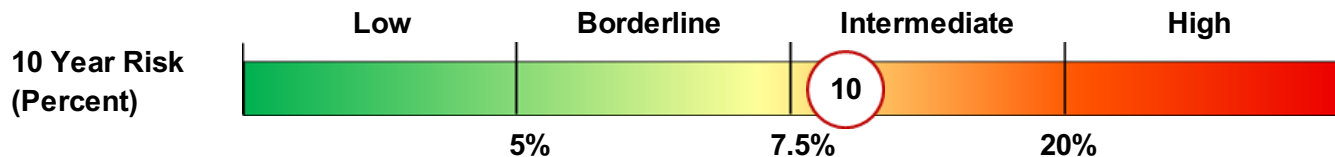|	Low	Borderline	Intermediate	High

10 Year Risk (Percent)

10

5%   7.5%   20%

Clinical Factors That Further Enhance Your Cardiovascular Risk

Coronary Artery Plaque

Age > 65 years

Very High Lp(a) (≥ 125 nmol/L)

Carotid Artery Plaque

Chronic Kidney Disease

Your Cardiovascular Risk (Cardiovascular Risk Plus Risk Enhancing Factors)
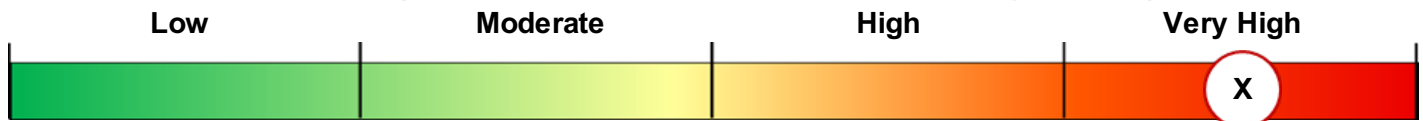
Low	Moderate	High	Very High

X

Your individual risk for a cardiovascular event (Heart Attack or Stroke) is a combination of your calculated risk and the presence of clinical factors that enhance your risk.[17]

Your Personalized Lipoprotein Management Goals to Improve Your Risk Scores

Atherogenic Cholesterol Test	Your Baseline Values	Your Current Values	Threshold Goal (Value to stay below to reduce your CV risk - the lower, the better)
LDL-C (mg/dL)	**Unknown**	**49**	**< 55 ****
Non HDL-C (mg/dL)	**Unknown**	**61**	**< 85**

Atherogenic Particle Number Test *	Your Baseline Values	Your Current Values	Threshold Goal (Value to stay below to reduce your CV risk - the lower, the better)
ApoB mg/dL	**Unknown**	**59**	**< 65 ****

* The greatest reduction in cardiovascular risk occurs with reduction of particle number.[20-22] The lower the particle number attained, and the longer low particle number is maintained, the greater the reduction in cardiovascular risk.[21,22]

** For your risk category, the threshold goal is the lower of two guideline-recommended numbers – the recommended percent reduction from baseline, OR the recommended absolute value.[18,29-30]

Name: Leonard Glassner

Date of Birth: 09/09/1952   **Age:** 71

Report Date: 02/26/2024

Gender: Male

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Additional Topics for Discussion with Your Provider

Learn More about Reading Your Cardiometabolic Risk Assessment Report

https://precisionhealthreports.com/understanding-your-cardiometabolic-risk-report

Your Atherogenic Lipoprotein Values are High

Lipoprotein particles carry cholesterol in the blood. Atherogenic ("Bad") particles cause blockage in your arteries responsible for heart attack and stroke. The higher the atherogenic particle number (ApoB), the greater the formation of blockage ("plaques") in your arteries over time. Elevated values may be related to abnormal thyroid, kidney, liver, or glucose metabolism, as well as other issues.

- Your Lipoprotein(a) Biomarker is Very High (Lp(a) ≥ 125 nmol/L)

Lipoprotein(a) is a type of LDL particle that carries a unique protein on the surface that can cause greater cardiovascular risk than other LDL particles. Learn more about Lp(a) and your potential next steps at: https://precisionhealthreports.com/high-lpa

Noninvasive Imaging May be a Prudent Next Step for You

Noninvasive imaging identifies plaques (blockages) in your arteries. Artery blockage can be treated to stop plaques from growing, prevent new plaques from developing, and reduce your risk for heart attack and stroke. Learn more about noninvasive imaging at: https://precisionhealthreports.com/noninvasive-imaging

References cited throughout this report may be found at:

https://precisionhealthreports.com/cmr-references

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Your Comprehensive Tracking Charts & Additional Information

NOTE: Several topics marked with (link) will take you to additional useful information about the topic.

For off line use, this QR code will take you to a reference page with all topics covered in this report.

Learn More

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Metabolic Risk Tracking

Metabolic Syndrome Factors

Test	Date	Waist (inches)	Systolic BP (mm/Hg)	Diastolic BP (mm/Hg)	Glucose (mg/dL)	Triglycerides (mg/dL)	HDL Cholesterol (mg/dL)
1	02/26/2024	31	108	62	87	57	94

Individual metabolic syndrome factors meeting criteria are highlighted in yellow.

Metabolic Syndrome Severity Score, Inflammation (GlycA)
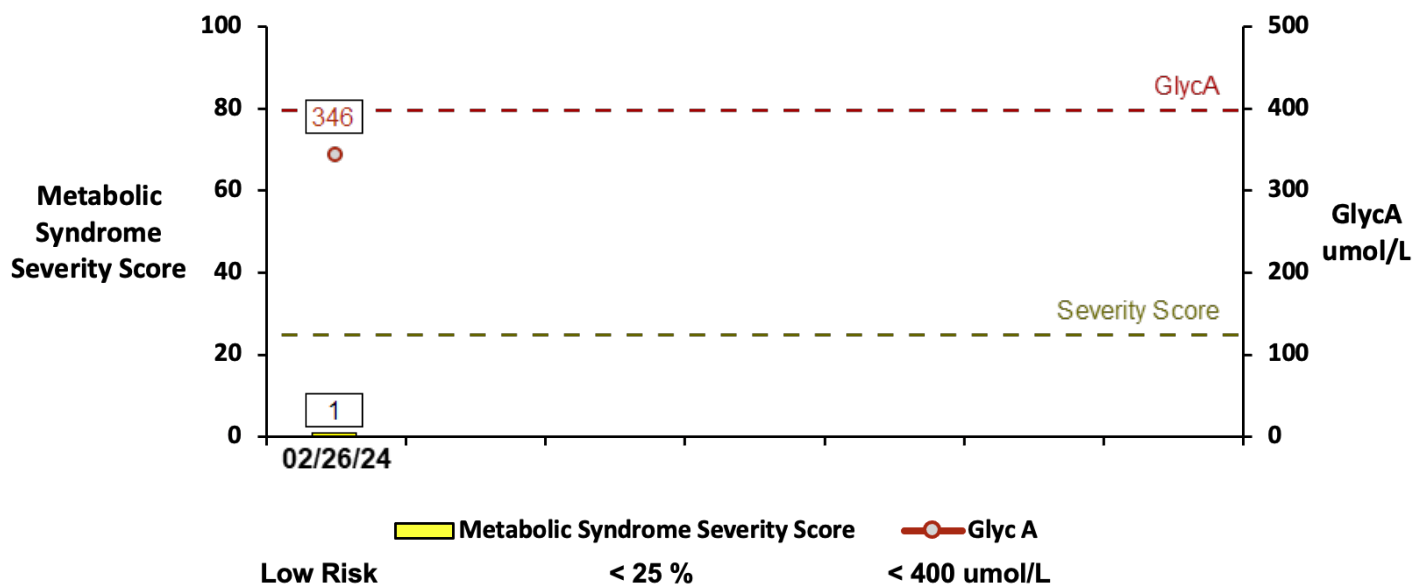
Low Risk	**< 25 %**	**< 400 umol/L**

The Metabolic Syndrome Severity Score assesses the clinical impact of your metabolic syndrome factors.[9-10] The higher the score, the greater your metabolic syndrome-related risk for type 2 diabetes,[11-13] heart attack, and stroke.[13-16] You can significantly improve this score with proper diet and exercise.

Diabetes Risk Tracking

Test	Date	Hemoglobin A1C (Percent)	Fasting Glucose (mg/dL)	LP-IR Score	Estimated 8 Year Diabetic Risk (Percent)	Risk
1	02/26/2024	5.2	87	20	--	VERY HIGH
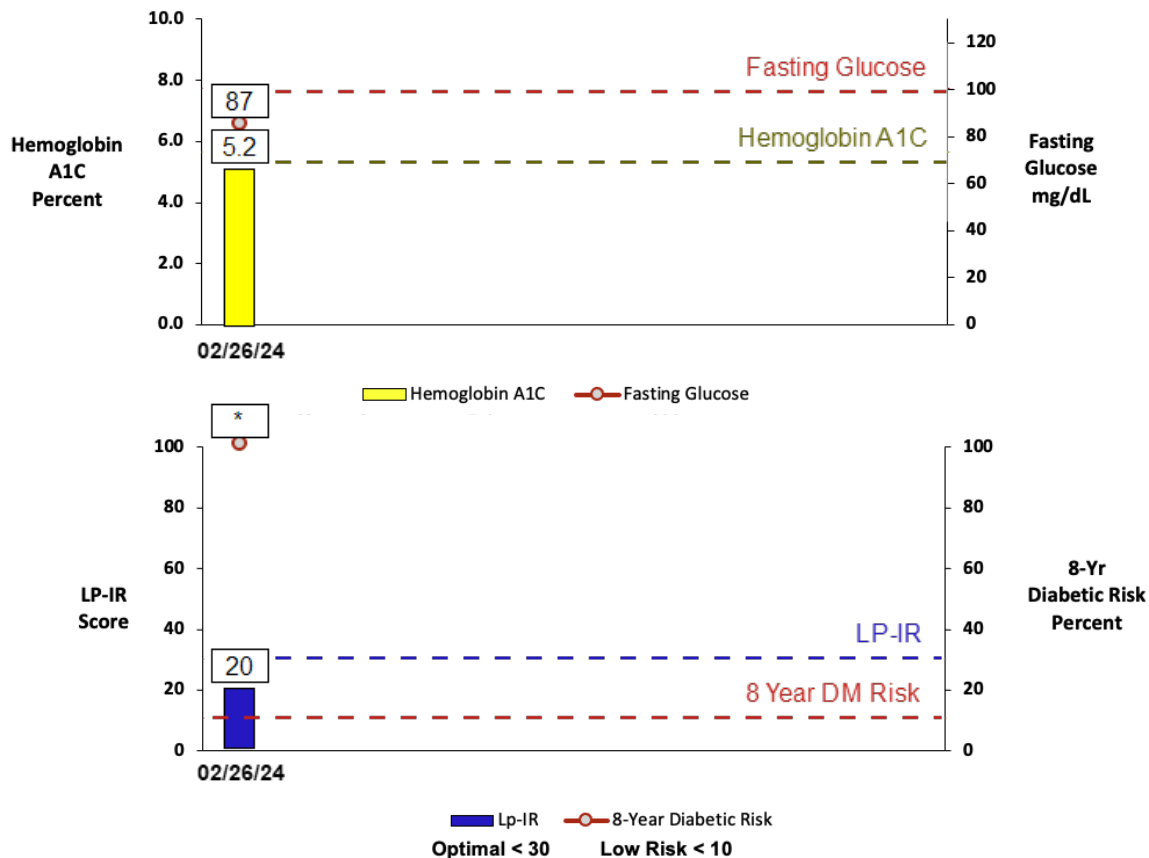
Your risk of developing diabetes depends on your LP-IR score and glucose levels.[4,6]

Lifestyle interventions producing weight loss and increased insulin sensitivity have been shown to significantly lower LP-IR scores, improve insulin sensitivity, lower glucose, and are associated with preventing or delaying the onset of type 2 diabetes.[23-28]

Atherogenic Lipoprotein Tracking

Test	Date	LDL-C (mg/dL)		Non HDL-C (mg/dL)		ApoB (mg/dL)	
		Value	Goal	Value	Goal	Value	Goal
1	02/26/2024	49	55	61	85	59	65
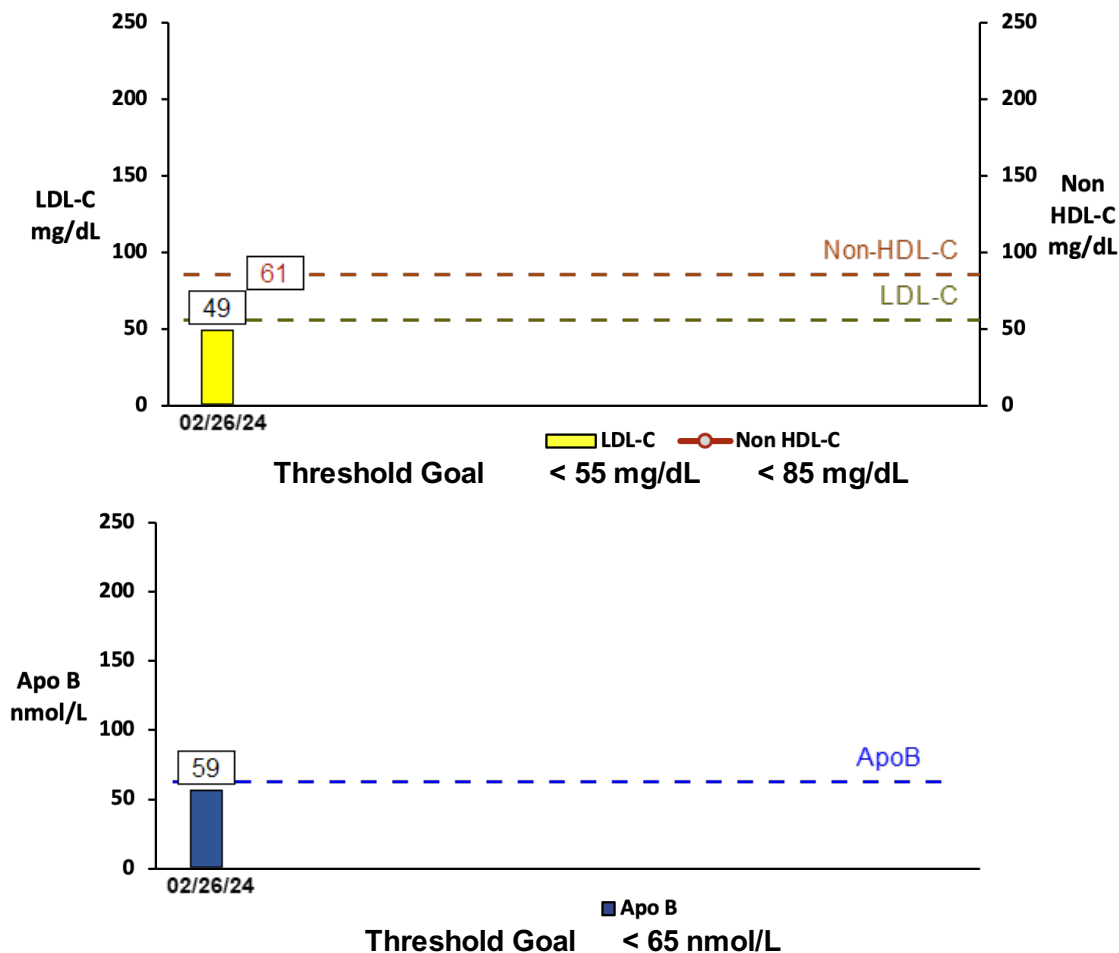
The greatest reduction in cardiovascular risk occurs with reduction of ApoB[20-22]

The lower the particle number attained, and the longer low particle number is maintained, the greater the reduction in cardiovascular risk.[21,22]

Information Provided from the Pre-Assessment Survey

Height: 69 inches   **Weight:** 122 lbs   **Waist:** 31 inches   **BMI:** 18.0   **Blood Pressure:** 108 / 62
Ethnicity / Race: White

Reported Blood Pressure History: No
    On Blood Pressure Medication: No

Reported Glucose History: No history
    Diabetes During Pregnancy: No
    On Glucose Lowering Medication: **Yes**
    Parental Family History Diabetes: No
    Evidence of Possible Diabetic Organ Damage:
        Diabetic Eye Disease: No
        Diabetic Kidney Disease: No
        Urine Protein Elevation: No
        Nerve Damage / Symptoms (numbness, pain): No

Reported Smoking History:
    Do You Currently Smoke: No
    Did You Previously Smoke: No

Reported Cardiovascular History:
    ANY Artery Blockage: **Yes**
    ANY Abnormal Test for Artery Blockage:
        Coronary Artery Calcium: Not Performed
        Coronary CT Angiogram: Not Performed
        Carotid Ultrasound (CIMT, Duplex): **Yes, blockage detected**
        Ankle Brachial Index: Not Performed
        Ultrasound or Angiogram Leg Arteries: Not Performed
        Coronary Angiogram: Not Performed
        Carotid Angiogram: Not Performed
    ANY Worsening of Artery Blockage on Follow Up Testing: No
    Symptomatic Cardiovascular Disease:
        Angina: No
        Unstable Angina: No   Dates:
        Claudication: No
        TIA: No
        Stroke: No   Dates:
        Heart Attack: No   Dates:
        Silent Heart Attack: No
        Coronary Angioplasty/Stent: No   Dates:
        Coronary Artery Bypass Surgery: No   Dates:
        Peripheral Artery (Leg) Surgery: No   Dates:
        Carotid (Neck) Artery Stent / Surgery: No   Dates:
    Family History Premature ASCVD (Male age < 55; Female age < 65): No

Reported Lipid / Lipoprotein History:

Highest LDL Cholesterol: less than 160 mg/dL

Have You Been Diagnosed with Familial Hypercholesterolemia (FH): No

Have You Had a Positive DNA Test for FH: No

Possible FH Physical Findings:

Achilles Tendon Thickening: **Unknown**

Tendon Xanthomas: **Unknown**

Corneal Arcus Before Age 45: **Unknown**

Relative Diagnosed with FH: No

Family History – FH Characteristics:

Adult (> 18 years) LDL-C > 190 mg/dL: **Unknown**

Child (< 18 years) LDL-C > 160 mg/dL: **Unknown**

Achilles Tendon Thickening: **Unknown**

Tendon Xanthomas: **Unknown**

Corneal Arcus Before Age 45: **Unknown**

Current Lipid Medications Taken

LDL Lowering Medicine: **Yes**

Statin: **Yes**

HDL Raising Medicine: No

Triglyceride Lowering Medicine: No

Reported Additional Risk Enhancing Factor History:

Do You Have a History of ANY of The Following Conditions?

Metabolic Syndrome: No

Chronic Kidney Disease (stage 3 or 4): **Yes**

Congestive Heart Failure: No

Atrial Fibrillation: No

Non-alcoholic Fatty Liver Disease: No

Aortic Aneurysm: No

Left Ventricular Hypertrophy: No

Obstructive Sleep Apnea: No

Psoriasis: No

Rheumatoid Arthritis: No

Ankylosing Spondylitis: No

HIV / AIDS: No

Systemic Lupus Erythematosus: No

History of Preeclampsia or Eclampsia During Pregnancy: No

History of Menopause Before Age 40: No

Erectile Dysfunction: No

Have You Ever Had a Positive Diagnosis for COVID19: No

Glassner, Leonard

Patient ID:

Specimen ID: **053-544-7580-0**

DOB: **09/09/1952**

Age: **71**

Sex: **Male**

Patient Report

Account Number: **32049540**

Ordering Physician: **W CROMWELL**

labcorp

| Date Collected: **02/22/2024** | Date Received: **02/22/2024** | Date Reported: **02/25/2024** | Fasting: **Yes** |

Ordered Items: **Lipid Panel+ApoB+IR; Hemoglobin A1c; Lipoprotein (a); GlycA; Glucose; Venipuncture**

Date Collected: **02/22/2024**

Lipid Panel+ApoB+IR

Test	Current Result and Flag		Previous Result and Date	Units	Reference Interval
Cholesterol, Total [A, 01]	155			mg/dL	100-199
Triglycerides [A, 01]	57			mg/dL	0-149
HDL-C [A, 01]	94			mg/dL	>39
Non-HDL Cholesterol [01]	61			mg/dL	0-129
LDL-C (NIH Calc) [01]	49			mg/dL	0-99

```
                              Optimal            <  100
                              Above optimal    100 -  129
                              Borderline       130 -  159
                              High             160 -  189
                              Very high          >  189
```

| Apolipoprotein B [01] | 59 | | | mg/dL | <90 |

```
                              Desirable          <  90
                              Borderline High   90 -  99
                              High             100 - 130
                              Very High          >130
          --------------------------------------------------
                  ASCVD RISK            THERAPEUTIC TARGET
                   CATEGORY               APO B (mg/dL)
              Very High Risk       <80 (if extreme risk <70)
              High Risk            <90
              Moderate Risk        <90
```

Insulin Resistance/Diab. Risk [01]					
Large VLDL-P [A, 01]	<0.8			nmol/L	<=2.7
Small LDL-P [A, 01]	<90			nmol/L	<=527
Large HDL-P [A, 01]	15.9			umol/L	>=4.8
⚠ **VLDL Size** [A, 01]	**50.7**	**High**		nm	<=46.6
LDL Size [A, 01]	21.1			nm	>=20.8
HDL Size [A, 01]	10.6			nm	>=9.2
Insulin Resistance Score [01]					
LP-IR Score [A, 01]	<25				<=45

```
          --------------------------------------------------------
                       INSULIN RESISTANCE / DIABETES RISK MARKERS
                        <--Insulin Sensitive    Insulin Resistant-->
                            Percentile in Reference Population
            Large VLDL-P     Low     25th     50th    75th    High
                             <0.9    0.9      2.7     6.9     >6.9
            Small LDL-P      Low     25th     50th    75th    High
                             <117    117      527     839     >839
            Large HDL-P      High    75th     50th    25th    Low
                             >7.3    7.3      4.8     3.1     <3.1
            VLDL Size        Small   25th     50th    75th    Large
                             <42.4   42.4     46.6    52.5    >52.5
            LDL Size         Large   75th     50th    25th    Small
                             >21.2   21.2     20.8    20.4    <20.4
            HDL Size         Large   75th     50th    25th    Small
```

Glassner, Leonard
Patient ID:
Specimen ID: **053-544-7580-0**

DOB: **09/09/1952**
Age: **71**
Sex: **Male**

Patient Report
Account Number: **32049540**
Ordering Physician: **W CROMWELL**

labcorp

Date Collected: **02/22/2024**

Lipid Panel+ApoB+IR (Cont.)

```
                        >9.6    9.6     9.2     8.9     <8.9
        Insulin Resistance Score
        LP-IR SCORE     Low     25th    50th    75th    High
                        <27     27      45      63      >63

        ----------------------------------------------------
```

Comment: 01	
	LP-IR Score is inaccurate if patient is non-fasting. The LP-IR score is a laboratory developed index that has been associated with insulin resistance and diabetes risk and should be used as one component of a physician's clinical assessment.

Hemoglobin A1c

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Hemoglobin A1c 02	5.2		%	4.8-5.6
Please Note: 02				

```
                Prediabetes: 5.7 - 6.4
                Diabetes: >6.4
                Glycemic control for adults with diabetes: <7.0
```

Lipoprotein (a)

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
▲ **Lipoprotein (a)** 01	**156.4** **High**		nmol/L	<75.0

```
             Note:  Values greater than or equal to 75.0 nmol/L may
                    indicate an independent risk factor for CHD,
                    but must be evaluated with caution when applied
                    to non-Caucasian populations due to the
                    influence of genetic factors on Lp(a) across
                    ethnicities.
```

GlycA

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
GlycA A, 01	346		umol/L	<400

```
                        GlycA Medical Decision Limit:
                            Low Risk        <400
                            High Risk       >or=400
```

Glucose

Test	Current Result and Flag	Previous Result and Date	Units	Reference Interval
Glucose 02	87		mg/dL	70-99

Disclaimer

The Previous Result is listed for the most recent test performed by Labcorp in the past 5 years where there is sufficient patient demographic data to match the result to the patient. Results from certain tests are excluded from the Previous Result display.

Icon Legend

▲ Out of Reference Range   ■ Critical or Alert

Comments

A: This test was developed and its performance characteristics determined by Labcorp. It has not been cleared or approved by the Food and Drug

Glassner, Leonard
Patient ID:
Specimen ID: **053-544-7580-0**

DOB: **09/09/1952**
Age: **71**
Sex: **Male**

Patient Report
Account Number: **32049540**
Ordering Physician: **W CROMWELL**

labcorp

Comments (Cont.)
Administration.

Performing Labs
01: BN - Labcorp Burlington, 1447 York Court, Burlington, NC 27215-3361 Dir: Sanjai Nagendra, MD
02: SO - Labcorp San Diego, 13112 Evening Creek Dr So Ste 200, San Diego, CA 92128-4108 Dir: Earle Collum, Jr, MD
For Inquiries, the physician may contact Branch: 800-762-4344 Lab: 858-668-3700

Patient Details
Glassner, Leonard
, La Jolla, CA, 92037

Phone:
Date of Birth: **09/09/1952**
Age: **71**
Sex: **Male**
Patient ID:
Alternate Patient ID:

Physician Details
W CROMWELL
Precision Health Reports Inc
8300 Health Park Dr Ste 316, Raleigh, NC,
27615

Phone: **919-569-5971**
Account Number: **32049540**
Physician ID:
NPI: **1699777565**

Specimen Details
Specimen ID: **053-544-7580-0**
Control ID: **L2401290034**
Alternate Control Number: **L2401290034**
Date Collected: **02/22/2024 0929 Local**
Date Received: **02/22/2024 0000 ET**
Date Entered: **02/22/2024 1150 ET**
Date Reported: **02/25/2024 2235 ET**