



OMG...I DIDN'T KNOW THAT!

# The Need for Diabetes Screening

PODCAST 27



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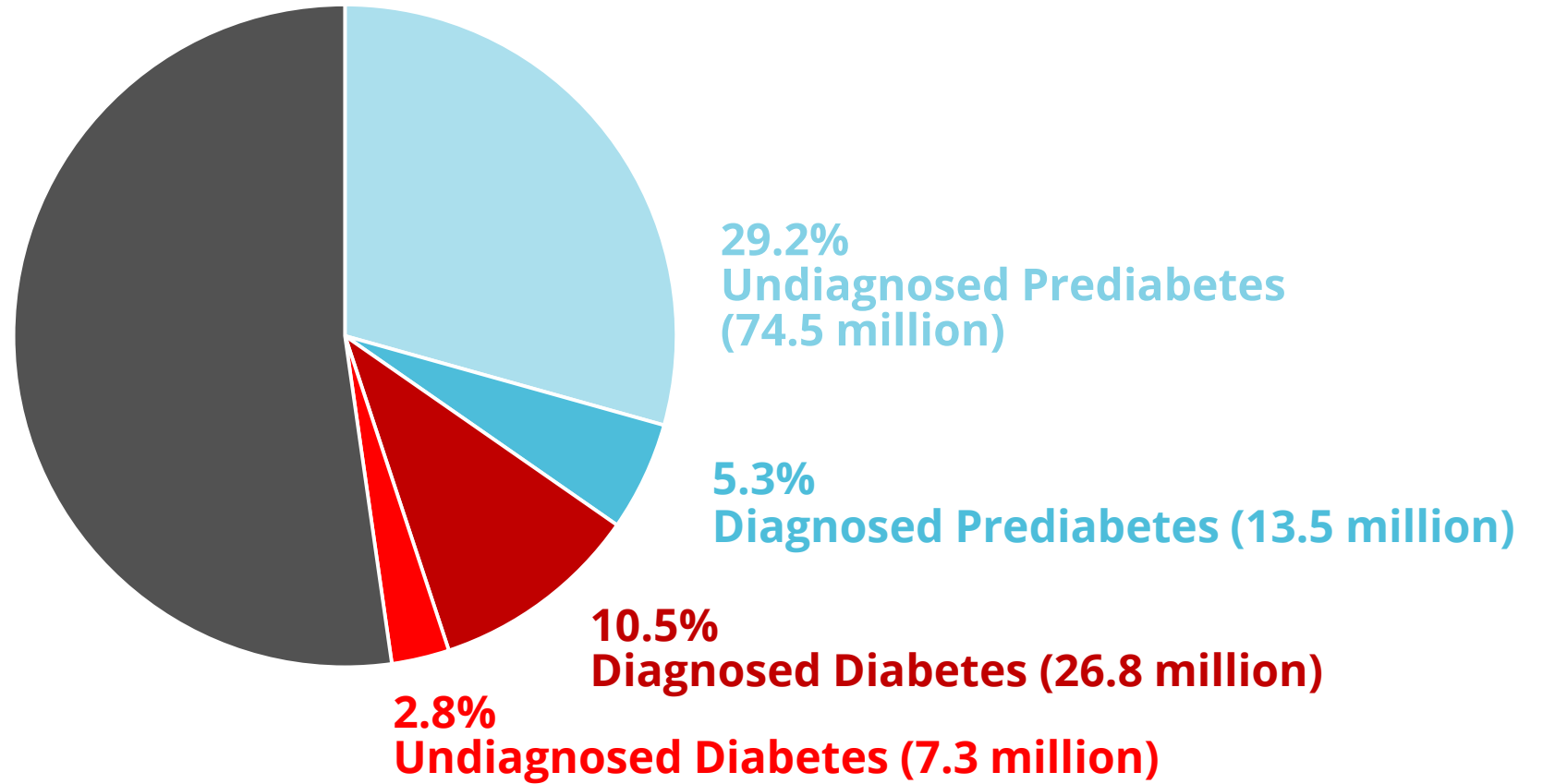
### Disclosures

Consulting: Abbott, Astra Zeneca, Bayer, Eli Lilly, Nevro, NovoNordisk

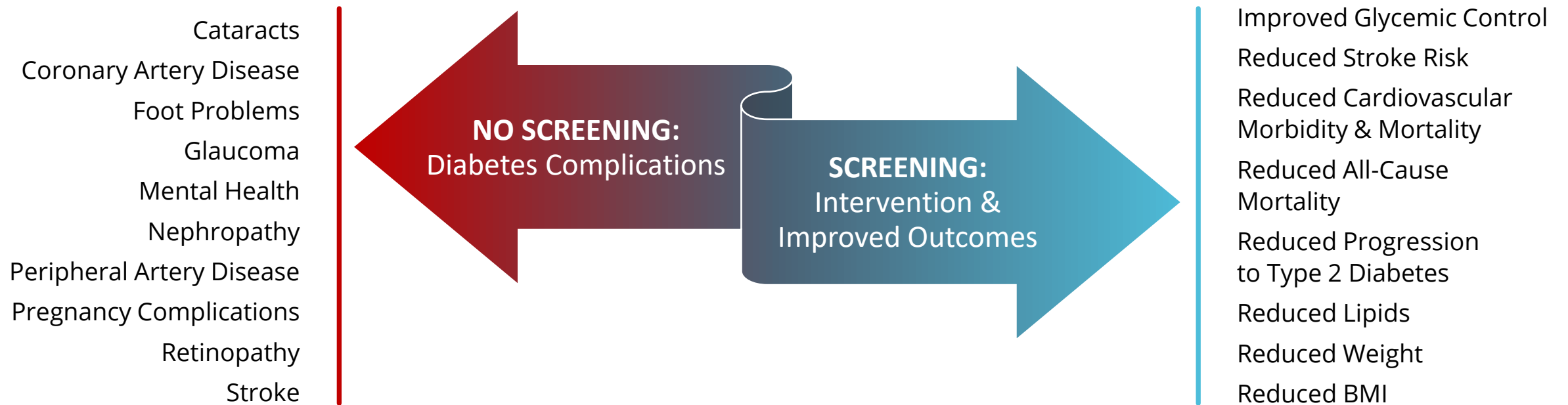
Writing Support: Bayer, NovoNordisk

# Prediabetes and Diabetes by the Numbers

**U.S. Adults**



# HbA1c Screening Gives Prediabetes Direction



# Who Should Be Screened for Diabetes?

## Overweight or obese adults who have $\geq 1$ of the following risk factors:

First degree relative with diabetes

High-risk race/ethnicity (e.g., African American, Latino, Native American, Asian American, Pacific Islander)

History of CVD

Hypertension ( $\geq 140/90$  mmHg or on therapy for hypertension)

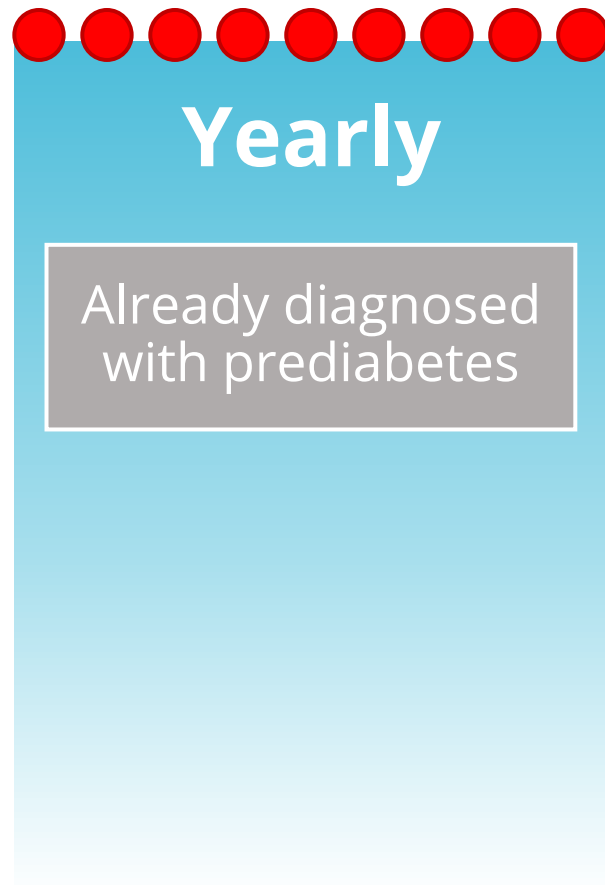
HDL cholesterol level  $< 35$  mg/dL (0.90 mmol/L) and/or a triglyceride level  $> 250$  mg/dL (2.82 mmol/L)

Women with polycystic ovary syndrome

Physical inactivity

Other clinical conditions associated with insulin resistance (e.g., severe obesity, acanthosis nigricans)

# How Often Should Individuals Be Screened for Diabetes?



**Yearly**

Already diagnosed with prediabetes



**Every 3 Years**

Gestational diabetes

HIV

Over 45 with risk factors

# USPSTF Screening Recommendations

	Recommendation
What does the USPSTF recommend?	Adults aged 35 to 70 years who are overweight or obese: Screen for prediabetes and type 2 diabetes and offer or refer patients with prediabetes to effective preventive interventions.
To whom does this recommendation apply?	Non-pregnant adults aged 35 to 70 years who are overweight or obese and no symptoms of diabetes.
How to implement this recommendation?	<ol style="list-style-type: none"> <li>1. Assess risk: <ul style="list-style-type: none"> <li>• Obtain height and weight measurements to determine whether patient is overweight or obese. Overweight and obesity are defined as a BMI <math>\geq 25</math> and <math>\geq 30</math>, respectively.</li> </ul> </li> <li>2. Screen: <ul style="list-style-type: none"> <li>• If the patient is aged 35 to 70 years and is overweight or obese (BMI <math>\geq 25</math>), consider screening at an earlier age if the patient is from a population with a disproportionately high prevalence of diabetes (American Indian/Alaska Native, Black, Hispanic/Latino, Native Hawaiian/Pacific Islander). Patients who are Asian American should be screened at a lower BMI (<math>\geq 23</math>).</li> <li>• Screening tests for prediabetes and type 2 diabetes include measurement of fasting plasma glucose or HbA1c level or an oral glucose tolerance test.</li> </ul> </li> </ol>
How often?	The optimal screening interval for adults with an initial normal glucose test result is uncertain. Screening every 3 years may be a reasonable approach for adults with normal blood glucose levels.



# ADA Standard of Care Definitions

Prediabetes
<b>Fasting plasma glucose</b> 100 mg/dL (5.6 mmol/L) to 125 mg/dL (6.9 mmol/L) (IFG)
OR
<b>2-h plasma glucose</b> during 75-g OGTT 140 mg/dL (7.8 mmol/L) to 199 mg/dL (11.0 mmol/L) (IGT)
OR
<b>HbA1c:</b> 5.7 – 6.4% (39 – 47 mmol/mol)

Diabetes
<b>Fasting plasma glucose</b> $\geq$ 126 mg/dL (7.0 mmol/L)
OR
<b>2-h plasma glucose</b> $\geq$ 200 mg/dL (11.1 mmol/L) during OGTT
OR
<b>HbA1c:</b> $\geq$ 6.5% (48 mmol/mol NGSP certified assay)
OR
In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a <b>random plasma glucose</b> $\geq$ 200 mg/dL (11.1 mmol/L)

# What Are the Risk Factors for Type 2 Diabetes?



Overweight



Have prediabetes



Physically active  
less than  
3 times a week



Have a parent  
or sibling with  
type 2 diabetes



African American,  
Hispanic/Latino,  
American Indian, or  
Alaska Native heritage



Non-alcoholic  
fatty liver disease



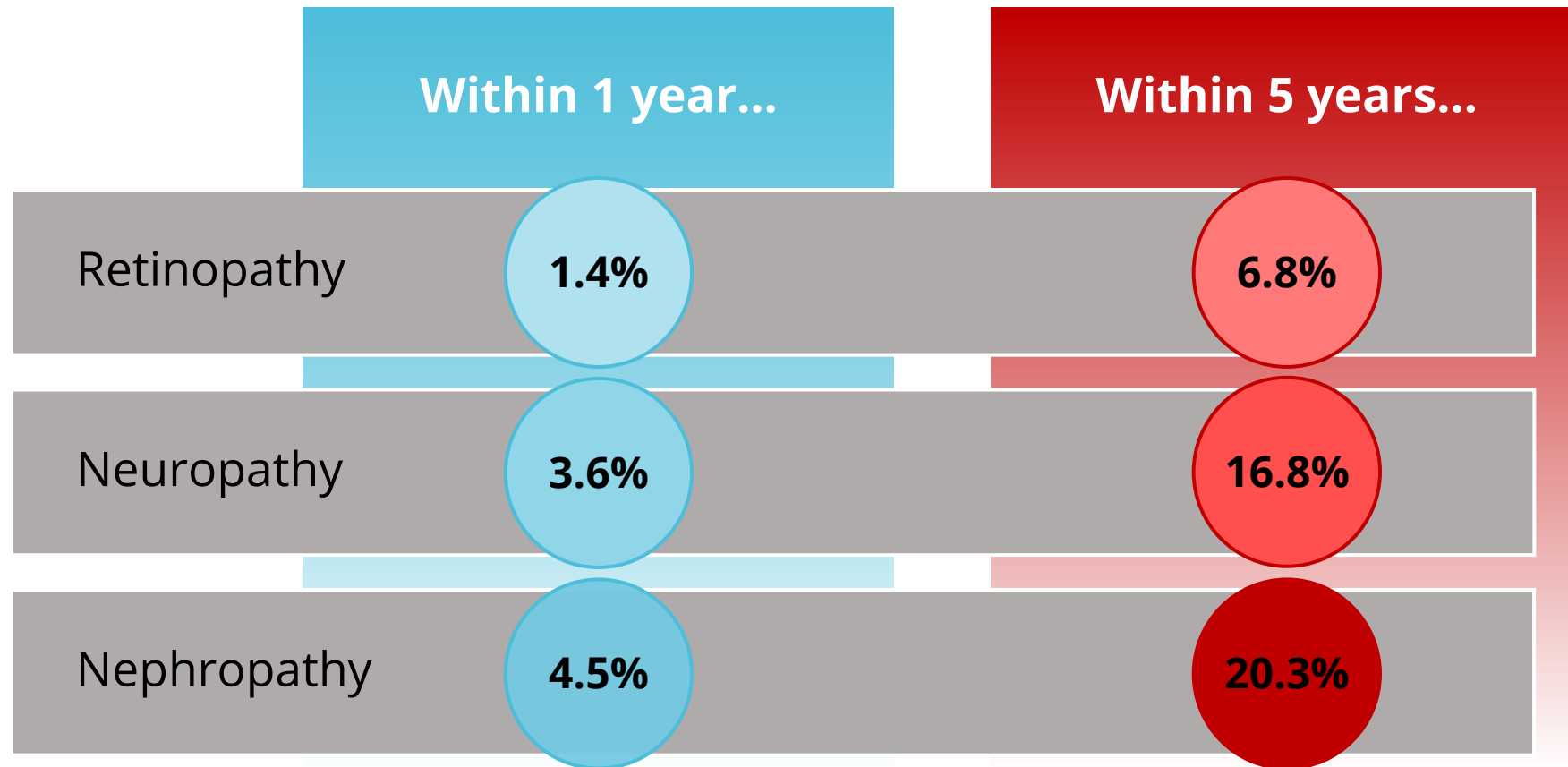
45 years or older



Have ever had  
gestational diabetes  
or given birth to a baby  
more than 9 pounds

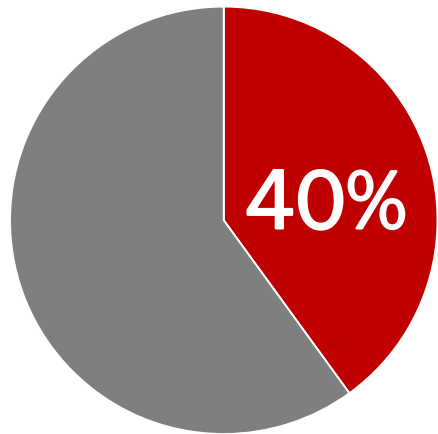
# Estimated Diabetes Complication Rates

For every 1000 patients diagnosed with diabetes...



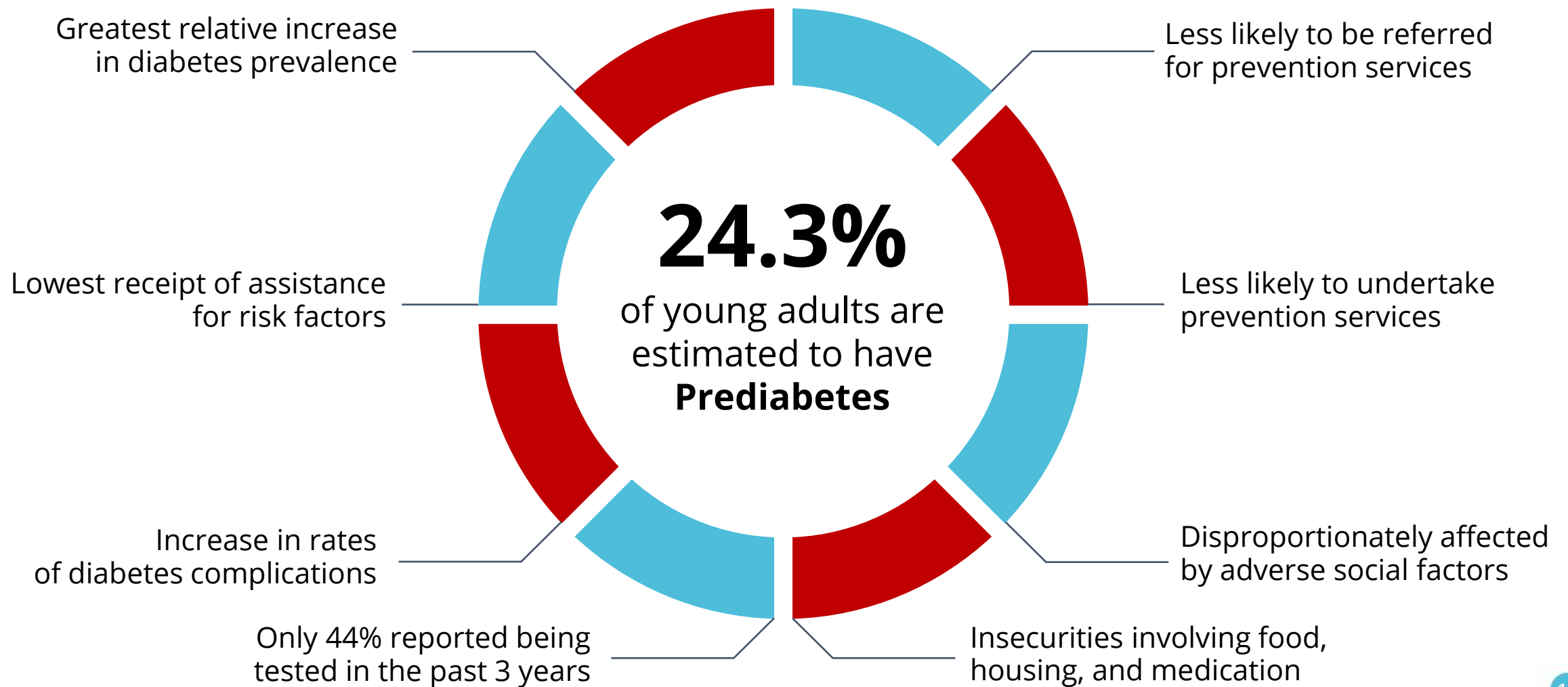
## Prediabetes Remains a Missed Opportunity

Only **5%** of patients diagnosed with prediabetes are referred to a diabetes prevention program or weight loss program.

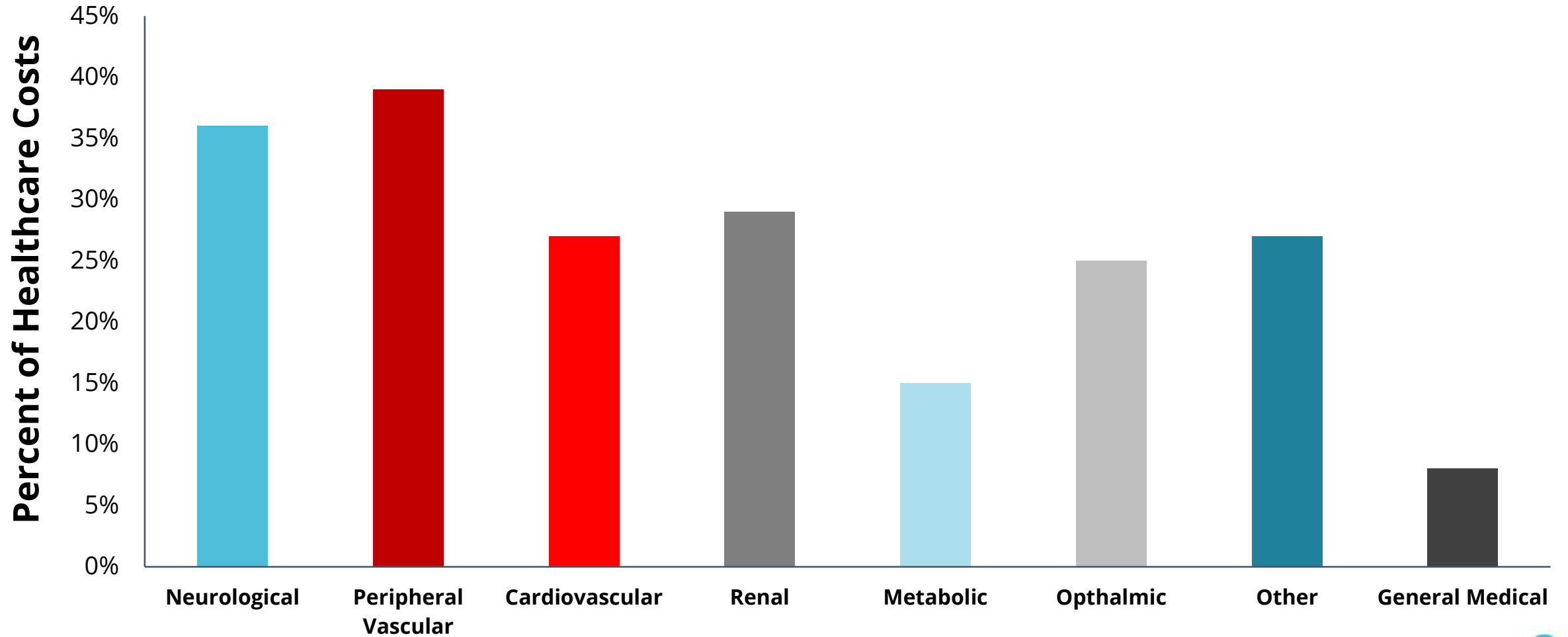


Of these, only **40%** participate.

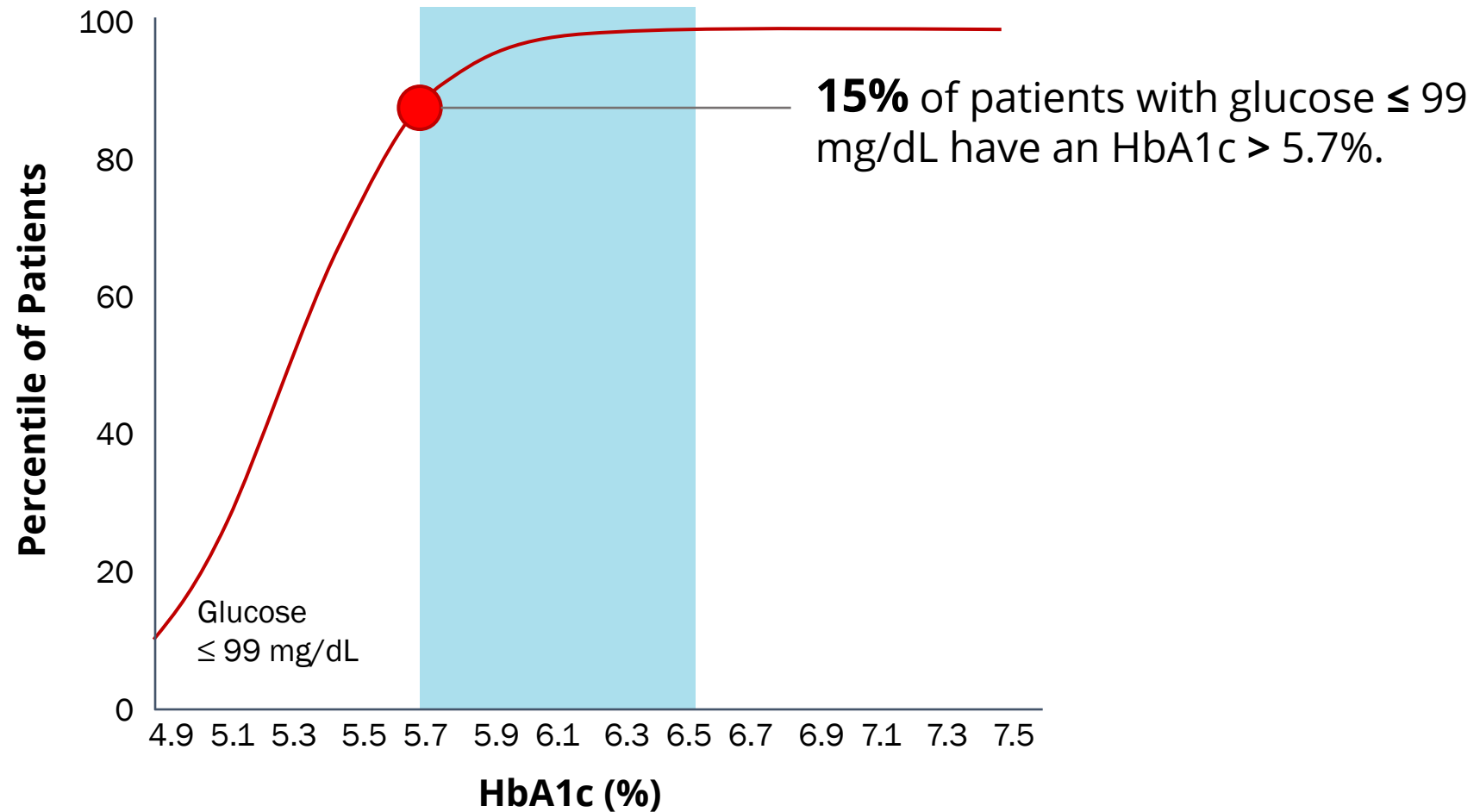
# Young Adults: Most To Lose and Most To Gain



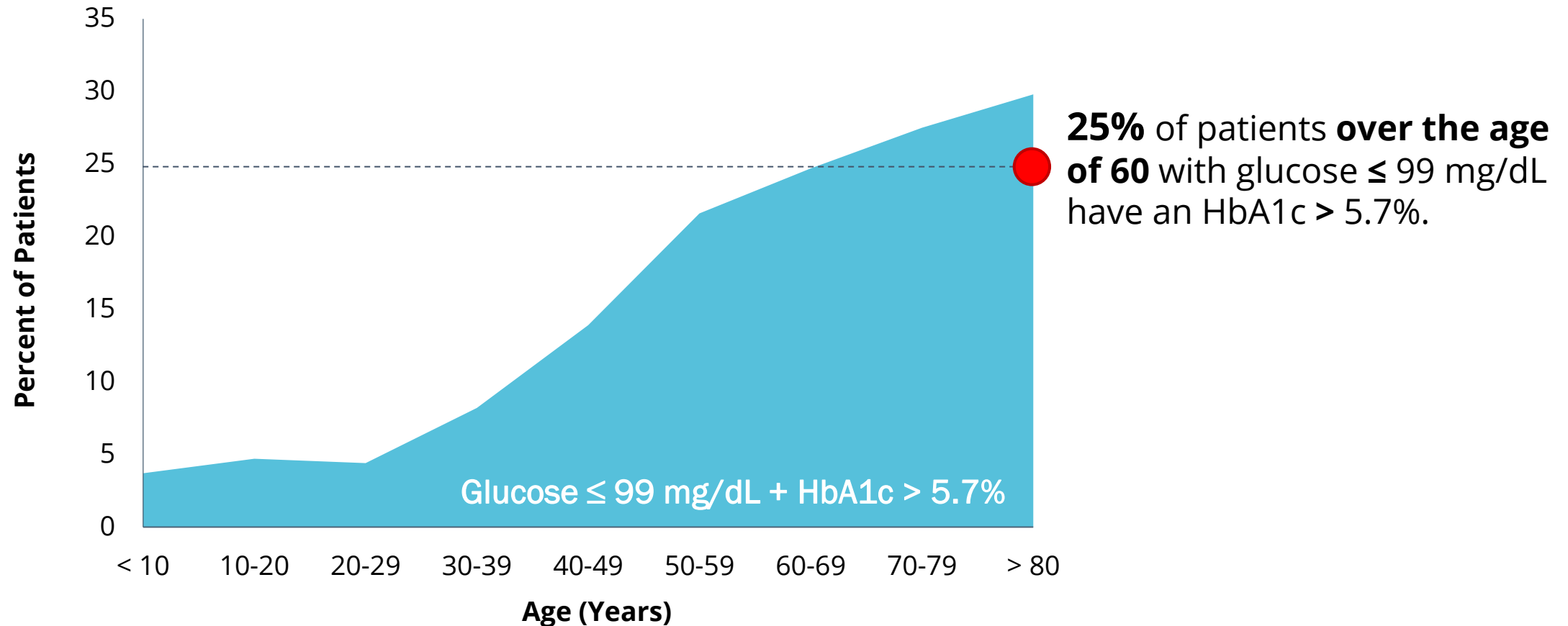
# Cost of Chronic Complications of Diabetes



# HbA1c Levels May Detect Prediabetes When Glucose Levels Do Not



# Percent of Patients With HbA1c > 5.7% and Normal Glucose Increases With Age



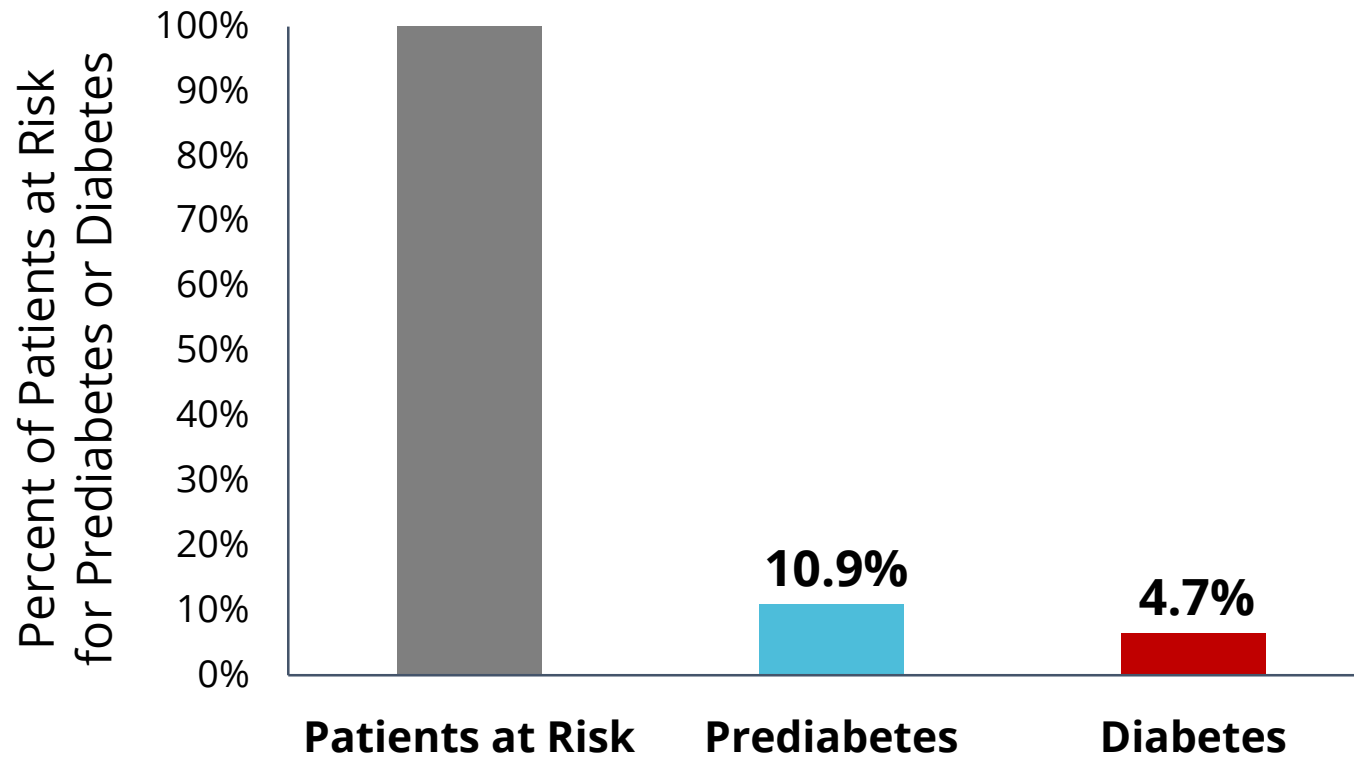


# Screening With POC HbA1c Identifies More Instances of Prediabetes and Diabetes

Screening Outcome	Screening Practice*	
	Active Screening, N (%)	Standard Practice, N (%)
Diabetes	16 (10)	6 (8)
Prediabetes	88 (53)	24 (33)
Euglycemic	60 (37)	43 (59)

\*  $P = 0.005$

# POC Tests Improve Detection of Prediabetes and Diabetes in Urgent Care



# POC HbA1c Improves Glycemic Control Thereby Reducing Diabetes Complications

**Early  
identification  
is key.**

## **Timely**

POC HbA1c testing provides the opportunity for more **timely** treatment.

## **Treatment**

Intensive treatment of glycemia in **newly diagnosed** diabetes patients may reduce chronic complications.

POC HbA1c reduces appointments, costs, and provides face-to-face counseling after real-time results.

# HbA1c Prediabetes Screening May Prevent Complications and Associated Costs

	Prediabetes HbA1c 5.7% - 6.4%	Diabetes HbA1c > 6.5%
Number identified per 10,000 screened	1,185 (11.9%)	287 (2.9%)
Expected complications after screening and identification		
1 year	47	105
5 years	213	489
Average annual healthcare costs of complications	\$10,000	\$30,000

Screening for prediabetes early with HbA1c can **reduce** complications associated with diabetes.



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