DIABETES DATA BRIEF

Summary of Diabetes Data Workgroup Analyses

diabetes ALLIANCE

Data Workgroup

The Diabetes Alliance works to improve diabetes management, awareness, and prevention. As part of the Diabetes Alliance, the Data Workgroup aims to be a data resource to support improving diabetes prevention and management in the Paso del Norte region. The Data Workgroup is led by the Paso del Norte Health Information Exchange (PHIX) with generous funding from the Paso del Norte Health Foundation. The Data Workgroup includes members from across Diabetes Alliance partners.

This Brief highlights the work of the Diabetes Data Workgroup in 2023, which the Workgroup will continue to build-on in the years to come to support Diabetes Alliance initiatives.

During 2023, the Data Workgroup analyzed diabetes data from PHIX. PHIX is a 501(c)3 non-profit based in El Paso that facilitates clinical data sharing between hospitals, emergency departments, clinics, laboratories, nutritionists, and other health providers.
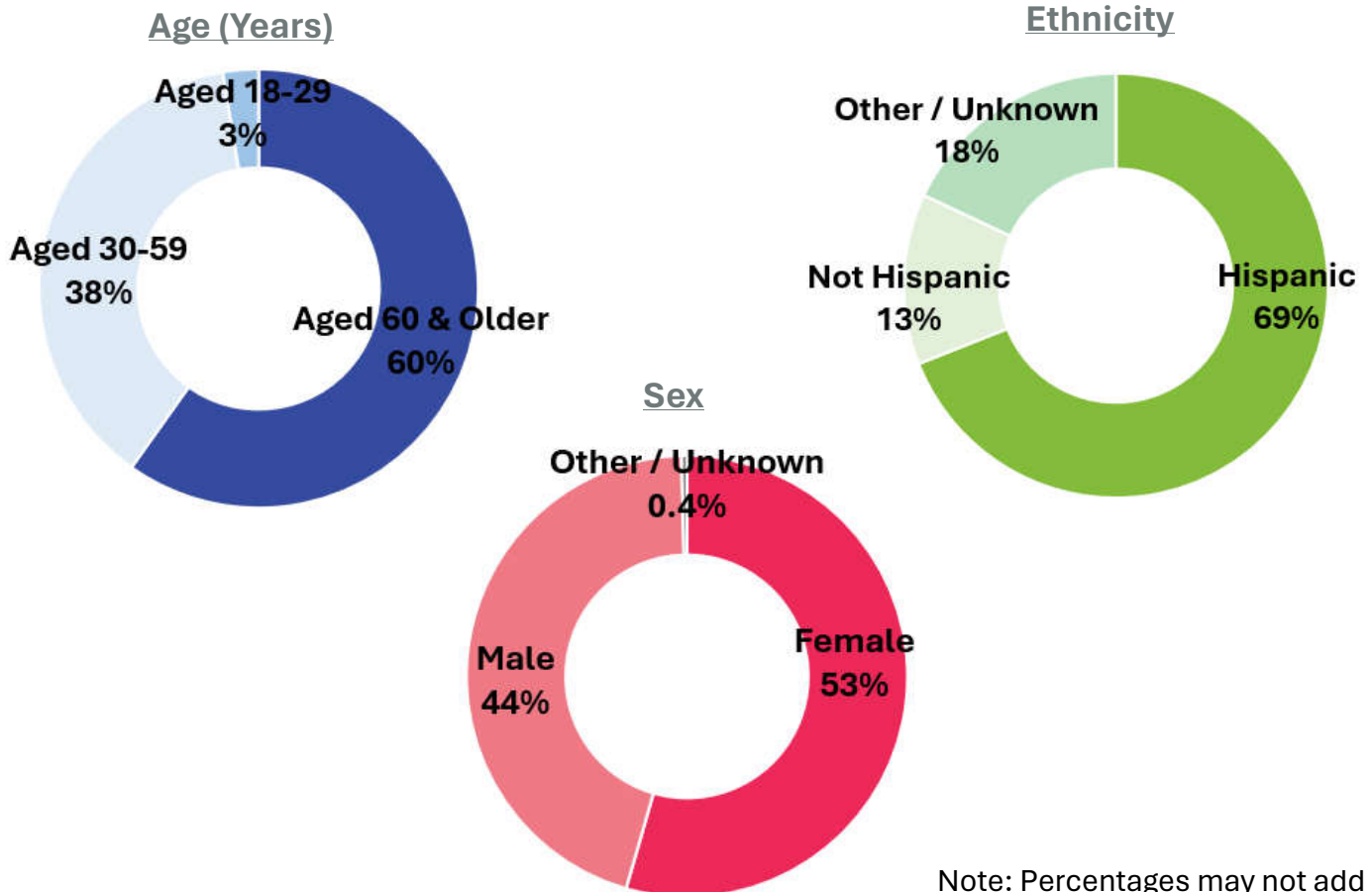
The Data Workgroup used de-identified data from PHIX's network of partners to create an initial baseline analysis of diabetes in the El Paso region. This Brief provides an overview of the analyses conducted. The detailed statistical methods and tables are available upon request. Please contact info@phixnetwork.org or 915-242-0674 to request the data or learn more.

Diabetes Population Health Analysis

For this analysis, PHIX pulled data from regional partners. The study population included:
- Individuals 18 years and older diagnosed with type 2 diabetes or prediabetes
- Health care encounter(s) between January 1st, 2021 and May 31st, 2023

Overall, the study population **included 100,811 people** with the demographics below. All of the analyses and conclusions outlined in this Brief are based on this population.
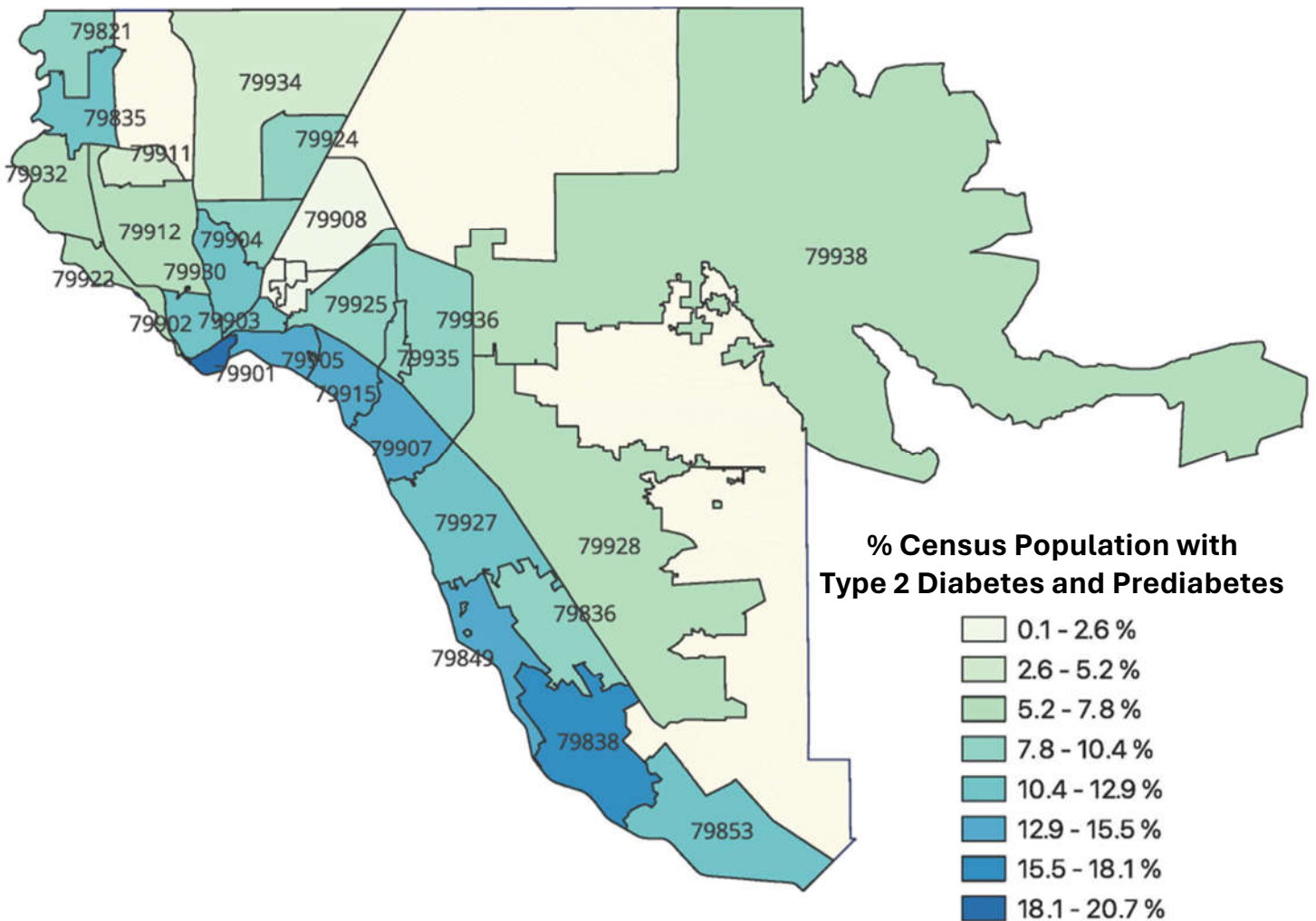
Age (Years)

Aged 18-29
3%

Aged 30-59
38%

Aged 60 & Older
60%

Ethnicity

Other / Unknown
18%

Not Hispanic
13%

Hispanic
69%

Sex

Other / Unknown
0.4%

Male
44%

Female
53%

Note: Percentages may not add to 100% due to rounding.

Where is diabetes in the El Paso region?

The map below shows the distribution of type 2 diabetes and prediabetes diagnoses. Within El Paso County, there is a greater proportion of the population with type 2 diabetes or prediabetes along the US-Mexico border. This trend may be driven by population age distribution and other factors, as explored further in this brief.

Type 2 Diabetes and Prediabetes Diagnoses, El Paso County

% Census Population with Type 2 Diabetes and Prediabetes

- 0.1 - 2.6 %
- 2.6 - 5.2 %
- 5.2 - 7.8 %
- 7.8 - 10.4 %
- 10.4 - 12.9 %
- 12.9 - 15.5 %
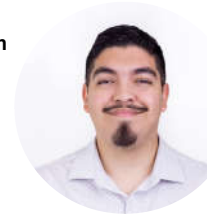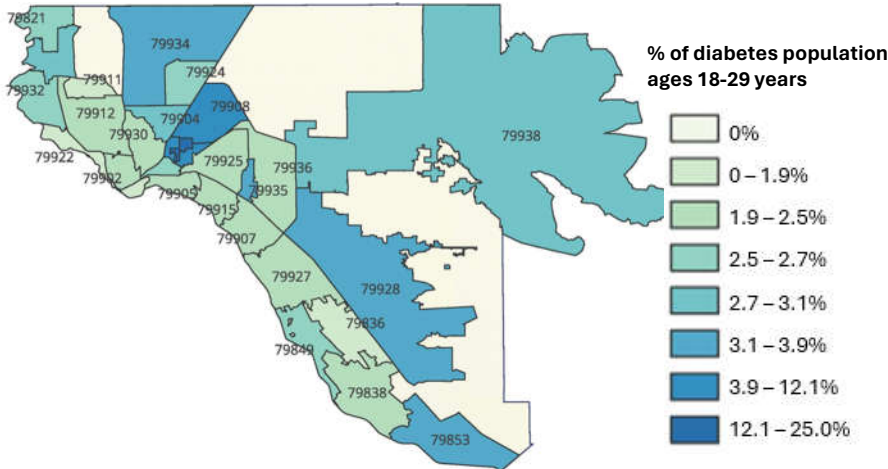- 15.5 - 18.1 %
- 18.1 - 20.7 %

How does the Diabetes Alliance support these communities?

Members of the Diabetes Alliance provide a variety of services, including Diabetes Self Management Programs, cooking and exercise classes, and community outreach and education. For example, Project VyBE trains community health workers as diabetes education coaches, who serve rural communities throughout west Texas.

Who has diabetes?

Distribution of Type 2 Diabetes and Prediabetes
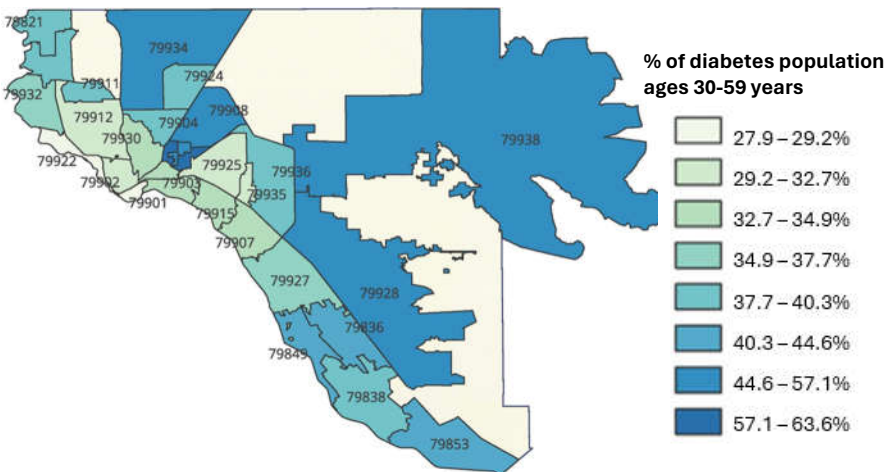
Youth: Type 2 Diabetes and Prediabetes

% of diabetes population ages 18-29 years

- 0%
- 0 – 1.9%
- 1.9 – 2.5%
- 2.5 – 2.7%
- 2.7 – 3.1%
- 3.1 – 3.9%
- 3.9 – 12.1%
- 12.1 – 25.0%

Middle Age: Type 2 Diabetes and Prediabetes

% of diabetes population ages 30-59 years

- 27.9 – 29.2%
- 29.2 – 32.7%
- 32.7 – 34.9%
- 34.9 – 37.7%
- 37.7 – 40.3%
- 40.3 – 44.6%
- 44.6 – 57.1%
- 57.1 – 63.6%

Older: Type 2 Diabetes and Prediabetes

% of diabetes population ages 60 years and older

- 0%
- 0 – 24.2%
- 24.2 – 35.7%
- 35.7 – 49.7%
- 49.7 – 55.8%
- 55.8 – 60.6%
- 60.6 – 65.3%
- 65.3 – 70.5%

Juan Nañez, RN BSN

"These maps show the spread of diabetes in El Paso County rather than the prevalence by zip code. When we look at the spread of diabetes by age group, we see that the youth and middle age populations with diabetes tend to live in northeast and rural, east El Paso.

By contrast, those 60 years and older with diabetes live primarily in west and central El Paso."

Sarah Ruiz, PhD, RD, LD, CDCES

"As the Diabetes Alliance develops programs to support communities throughout El Paso County, it is important to understand how communication needs may vary. These age maps will help tailor communication and outreach.

The Data Workgroup will continue to build on this analysis to inform program development and innovation. For example, type 2 diabetes and prediabetes will be analyzed separately."
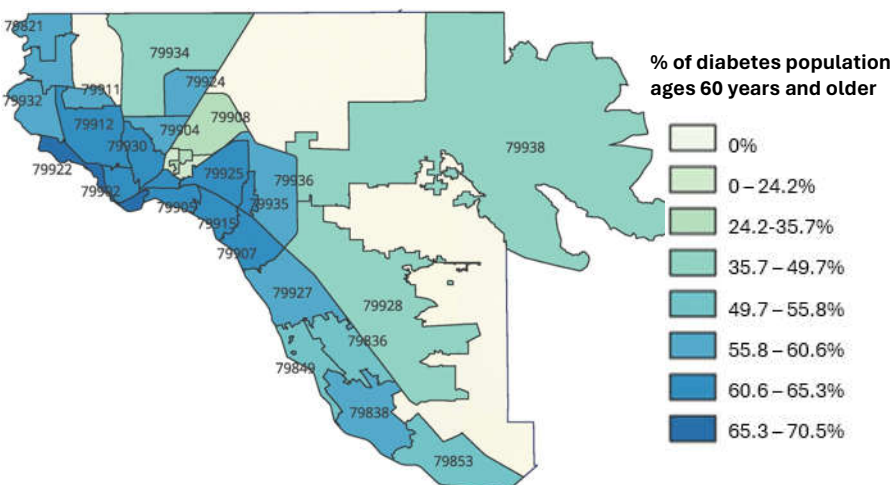
How well managed is diabetes?

Hemoglobin A1c (HbA1c) tests show the average blood sugar over the past two to three months. These laboratory tests indicate how well diabetes is managed. Among the 21,436 individuals with type 2 diabetes, there were over 92,000 associated HbA1c test results in the PHIX database.

Median HbA1c Results for Individuals with Type 2 Diabetes
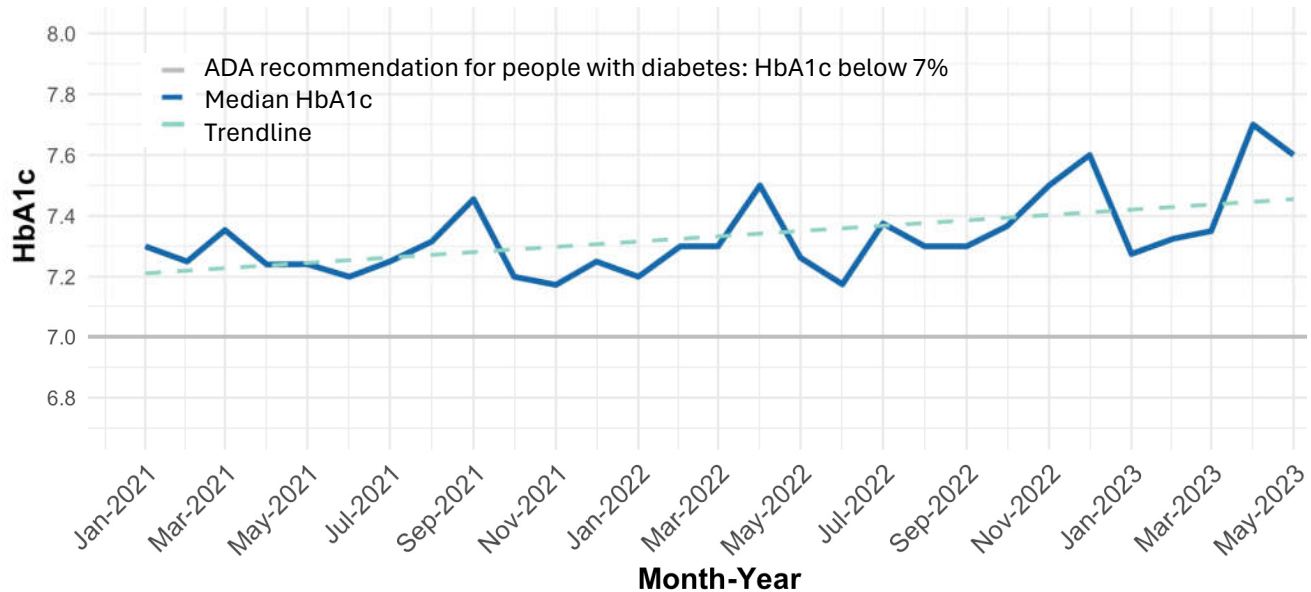
The American Diabetes Association (ADA) recommends an HbA1c result below 7% for those diagnosed with type 2 diabetes. In El Paso County, the median HbA1c result is consistently higher than the 7% recommendation. Additionally, the median HbA1c in El Paso County is increasing over time.

David P. Cistola, MD, PhD

"Notably, we can see an ebb and flow in HbA1c scores throughout the year. Peaks were observed each year in the March-April time frame. Also, a peak was observed in September 2021, but not September 2022. Likewise, a peak was observed in November/December 2022, but not in the same time frame in 2021. Further analysis is needed to identify the factors driving these fluctuations. If identified, then it may be possible to improve diabetes management through community-wide efforts that anticipate and address such factors."

Are individuals with diabetes improving?

To understand diabetes management over time, we analyzed changes in HbA1c results. The baseline was an individual's first HbA1c result, which we compared to an individual's last HbA1c result. Next, we applied the concept of minimally clinically important difference (MCID) . The MCID rule is that there must be a difference of 0.5% or greater between HbA1c results for an increase or decrease to be considered clinically significant.

Overall, **57% of individuals improved** and **43% of individuals worsened** between HbA1c tests. The maps below show the percentage of individuals that improved and worsened geographically. The only zip code with more worsening than improvement was Tornillo (79853). The Data Workgroup will conduct further analysis in 2024 to better understand these trends.
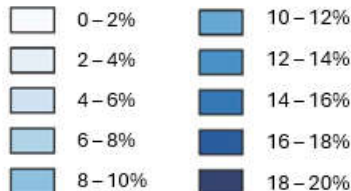
MCID Improvement of HbA1c Results Over Time by Zip Code
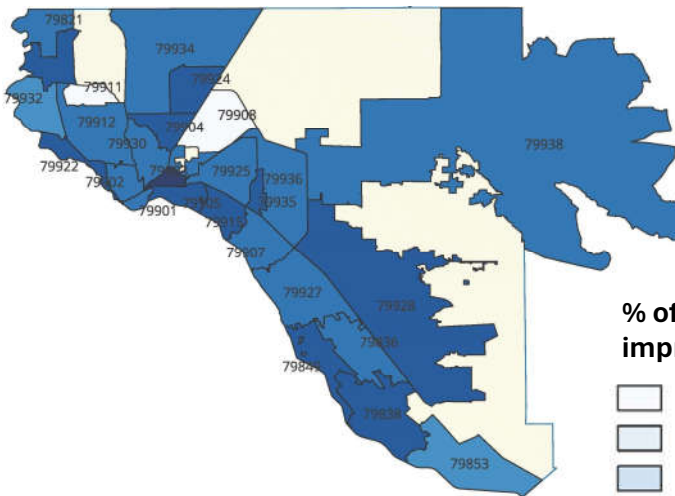
MCID Worsening of HbA1c Results Over Time by Zip Code
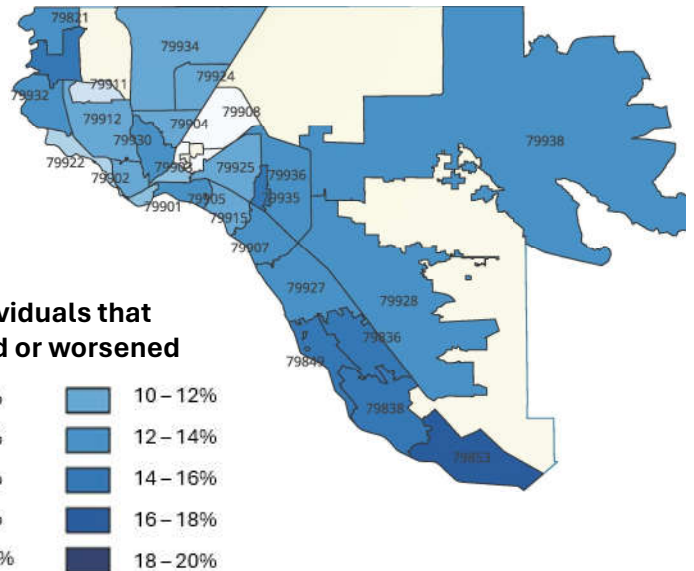
% of individuals that improved or worsened

0 – 2%	10 – 12%
2 – 4%	12 – 14%
4 – 6%	14 – 16%
6 – 8%	16 – 18%
8 – 10%	18 – 20%

Hector Ocaranza, MD

"A number of factors, such as diet, lifestyle, exercise and health access, can influence El Paso's HbA1c levels. More in-depth analysis is required to understand this geographic variation. It would be interesting to explore how cultural practices and social factors correlate with HbA1c results in these zip codes."

Pema Garcia

"Project VyBE trains community health workers as diabetes education coaches who serve rural communities, including Tornillo. This map can help guide outreach in rural areas of El Paso County."

How does risk increase with progression from prediabetes to type 2 diabetes?

We assessed the risks associated with progressing from prediabetes to type 2 diabetes because type 2 diabetes is associated with multiple comorbidities. Common comorbidities include hypertension, retinopathy, neuropathy, nephropathy, and dyslipidemia.

The chart below summarizes the risk of developing diseases across different body systems as prediabetes progresses to type 2 diabetes. Of note, individuals with type 2 diabetes were 2.5 times more likely to have heart disease than those with prediabetes.

Risk of Diseased Body Systems Due to Progression from Prediabetes to Type 2 Diabetes

Heart and circulatory diseases: **2.5 times more likely**	**Skin diseases:** **1.8 times more likely**	**Mental health:** **1.3 times more likely**	**Eye diseases:** **1.1 times more likely**
Infectious and parasitic diseases: **1.9 times more likely**	**Nervous system diseases:** **1.5 times more likely**	**Respiratory diseases:** **1.3 times more likely**	**Neoplasms:** **No difference**
Blood diseases: **1.8 times more likely**	**Genitourinary diseases:** **1.4 times more likely**	**GI diseases:** **1.2 times more likely**	**Ears and mastoid process diseases:** **No difference**

Ricardo Noriega, MD

"Our efforts should focus on curbing the progression from prediabetes to type 2 diabetes. By comparing the odds of associated conditions like heart disease between people with diabetes and prediabetes, providers can better understand the risk among their prediabetic patients. This helps to identify those who need more aggressive monitoring and guides intervention design, screening programs, and educational campaigns."

Acknowledgements