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Diabetes and Health

**Diabetes Prevention and Control Program
Population and Community Health Bureau**

Public Health Division

NM Department of Health

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- There are no conflicts of interest to disclose

Today's Discussion

- Introduction
- Diabetes Basics
 - Diabetes defined
 - Common forms
 - Uncommon forms
- Risk Factors/Complications
- Management
- Prevention
- Questions



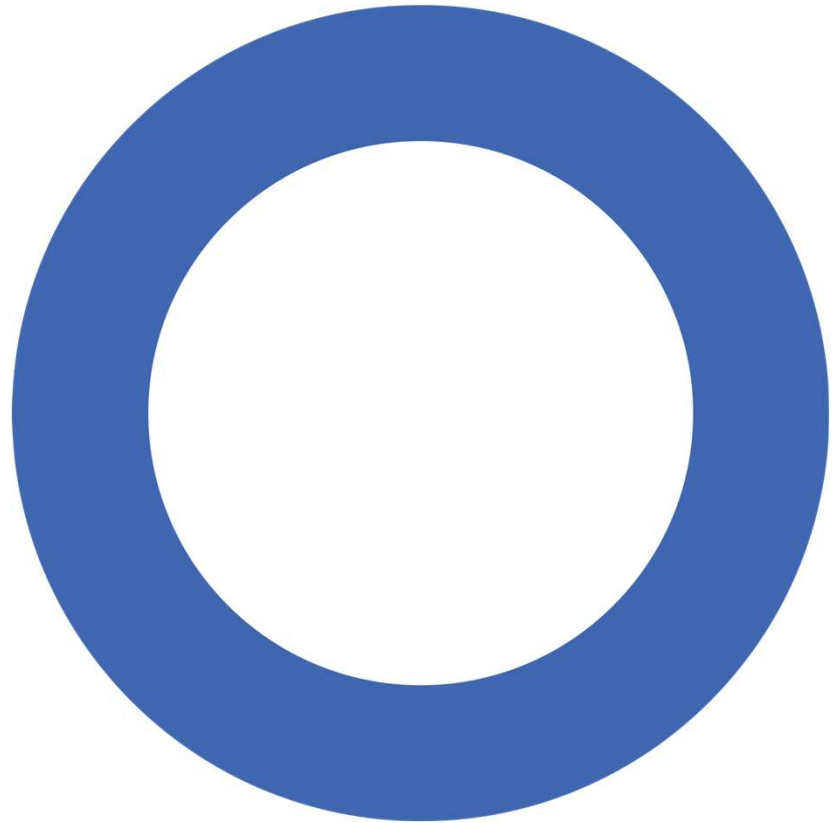
New Mexico Department of Health Diabetes Prevention and Control Program

- Prevent or delay diabetes
- Prevent complications, disabilities, and burden associated with diabetes and related chronic conditions
- Advance health equity to improve health outcomes and quality of life among all New Mexicans.

Diabetes and Prediabetes

Why talk about these?

- Because of the numbers
- Because diabetes has profound effects on our bodies



Slide 5

JJ1

Jill Joseph, 5/17/2021

Diabetes is:

- A disorder of the body's ability to process food for **energy use**. The food we eat is turned into glucose, or sugar, for our bodies to use for energy. The pancreas, an organ near the stomach, makes the hormone insulin. Insulin helps glucose move into the cells of our bodies. With diabetes the body either doesn't make enough insulin or can't use its own insulin well. This causes glucose to build up in your blood. This is why many people refer to diabetes as "sugar." ¹
- A chronic health condition.
- 34.2 million Americans (1 in 10 people) have diabetes
- 245,000 New Mexican adults have diabetes
- 6th leading cause of death in NM ²

1. <https://www.cdc.gov/media/presskits/aaahd/diabetes.pdf>

2. 2021 Diabetes Prevention and Control Program Legislative Fact Sheet



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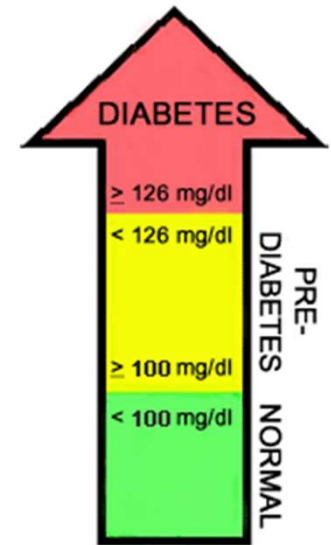
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Diagnosis of Diabetes

- Signs and Symptoms
 - Increased thirst
 - Increased urination
 - Unexplained weight loss
- Lab tests
 - Fasting blood sugar (FBS)- plasma glucose measured after at least 8 hours of fasting
 - Random blood glucose (RBG)- plasma glucose measured at a random time
 - HbA1c, or A1c- glycated hemoglobin test, measures an average of blood glucose over 2-3 months
 - Oral glucose tolerance test (OGTT)- measures glucose level at various times after drinking a sugary drink, used often to diagnose gestational diabetes.

Lab levels

- FBS: normal is 99 mg/dL or below. 100-125 mg/dL is considered prediabetes.
- RBG: Diabetes is 200 mg/dL or higher.
- A1c: normal is below 5.7. Prediabetes is 5.7-6.4. Diabetes is 6.5 or higher.
- OGTT: Oral glucose tolerance test. Normal is 139 mg/dL or lower. Prediabetes is 140-199 mg/dL. Diabetes is 200 mg/dL or higher.



More Common Types of Diabetes

- *Type 1 diabetes*- caused by an autoimmune reaction (the body attacks itself by mistake) that stops your body from making insulin.
- *Type 2 diabetes*- your body doesn't use insulin well and can't keep blood sugar at normal levels
- *Gestational Diabetes*- develops in pregnant women who have never had diabetes.

<https://www.cdc.gov/diabetes/basics/diabetes.html>



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Type 1 Diabetes

- Previously called juvenile onset diabetes
- Auto immune condition
- Beta cells in the pancreas are attacked, destroyed
- The body doesn't produce enough insulin, or none at all



Living with Type 1 Diabetes



Type 2 Diabetes

- Previously called adult onset diabetes
- Most prevalent type of diabetes
- Not enough insulin is produced in the body, or what is produced is not used well
- Connected to Insulin Resistance



Insulin Resistance

- Cells in the muscles, fat and liver don't respond to insulin well.
- Person then can't use circulating glucose for energy properly.
- To compensate → the pancreas makes more insulin, glucose levels rise.
- Part of metabolic syndrome.



Metabolic Syndrome

- A combination of risk factors for diabetes and heart disease
 - high blood pressure (130/80 or higher)
 - abnormal cholesterol levels: high triglycerides, low HDL
 - large waist size
 - Fasting glucose level over 100 mg/dL
- More disposed to pre-diabetes and diabetes, heart attacks, strokes, heart disease
- Common: 1 in 4 people estimated to have this

Gestational Diabetes

- Diabetes that first develops during pregnancy (NOT the same as a woman with diabetes who becomes pregnant)
- Greater risks for both the mother and baby
- Related to higher rates of Type 2 diabetes later in life for the mother

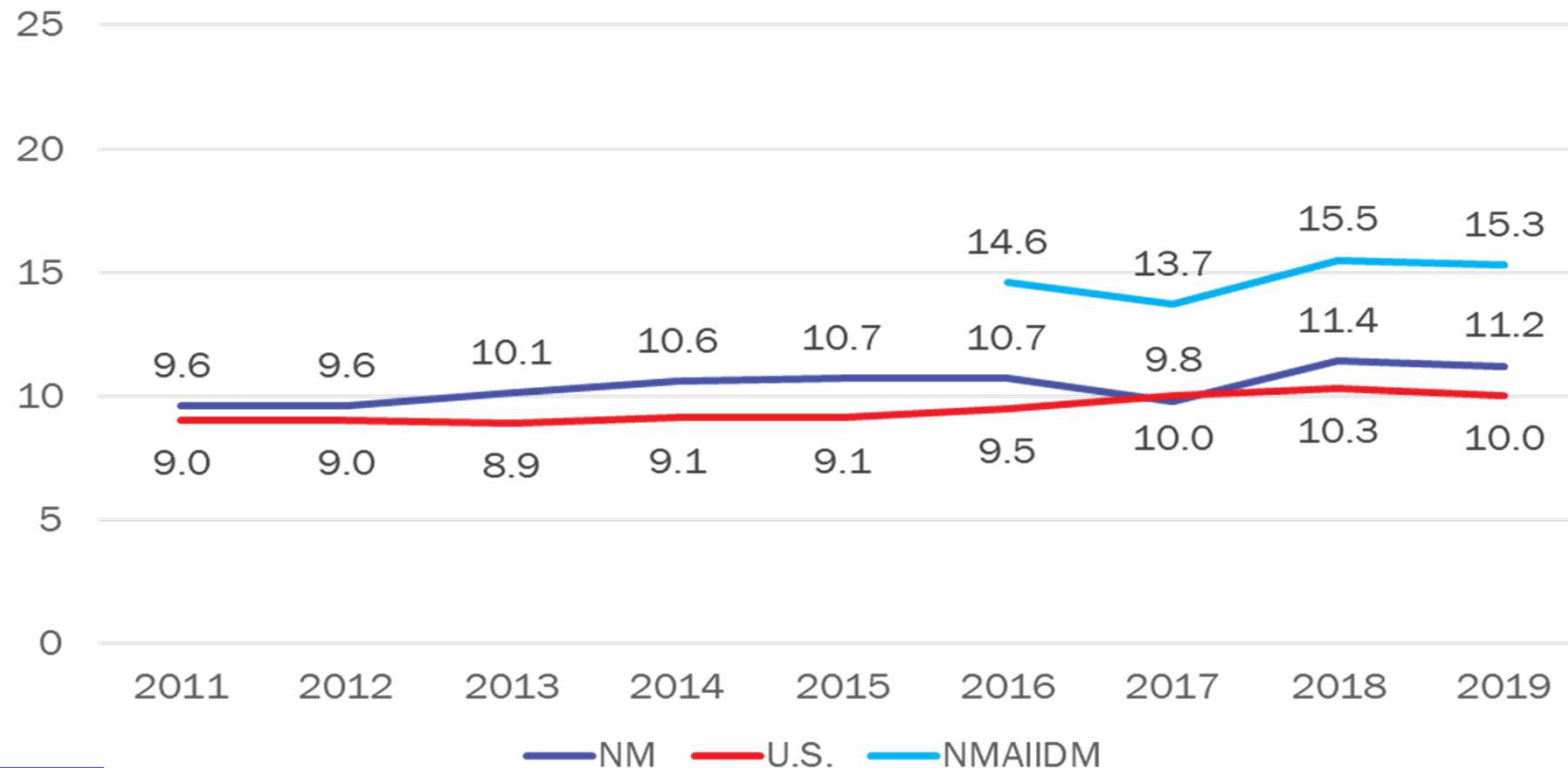


Gestational Diabetes

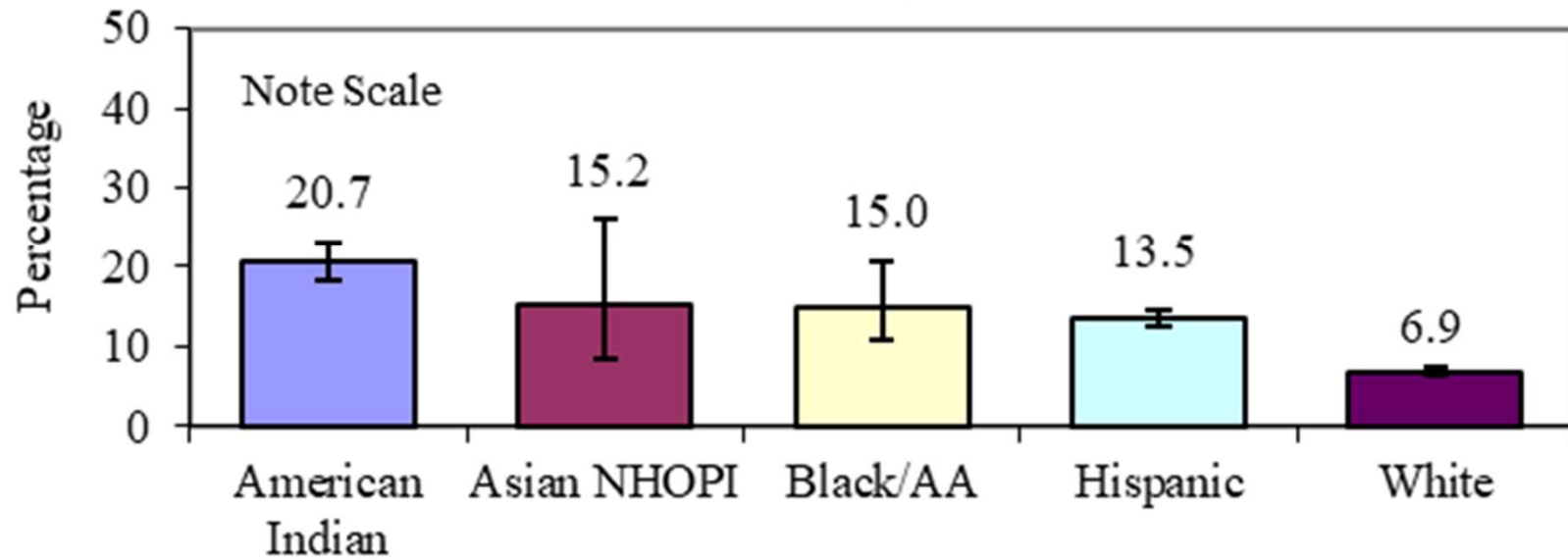


Let's look at the numbers

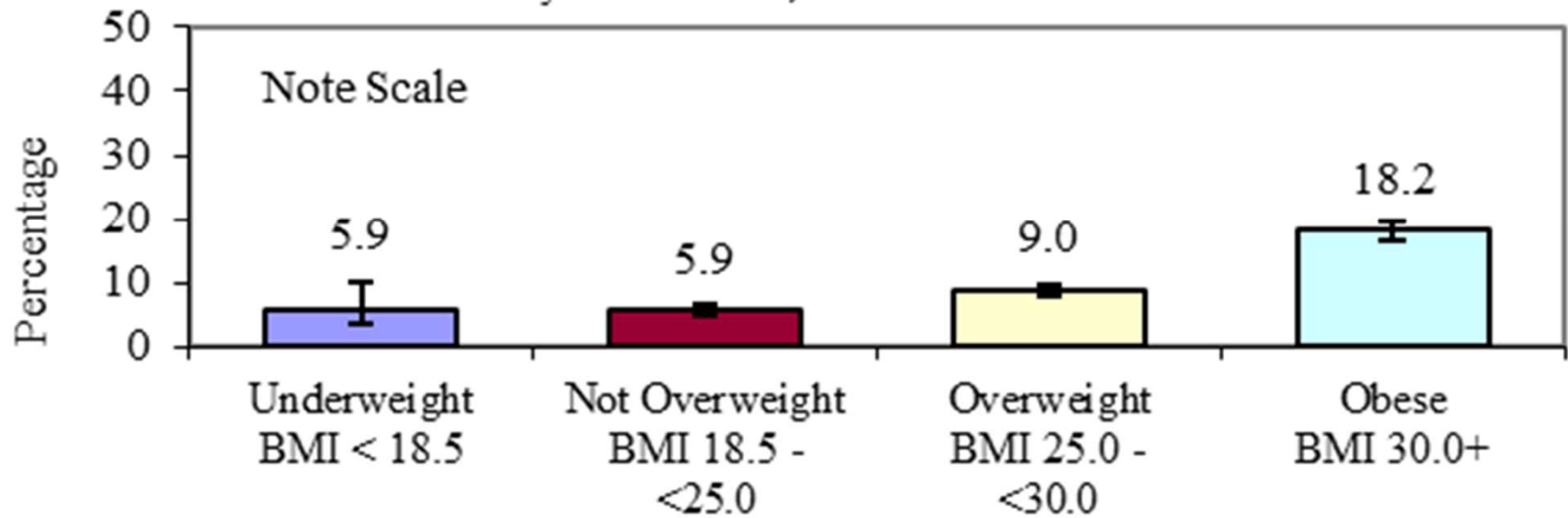
Diabetes
NM and U.S.



Diagnosed Diabetes - Age-adjusted by Race/Ethnicity, 2017-2019



Diagnosed Diabetes - Age-adjusted by BMI Status, 2017-2019



Less Common Types of Diabetes

- Maturity Onset Diabetes of the Young (MODY)
- Neonatal Diabetes mellitus (NDM)
- Cystic Fibrosis Related Diabetes (CFRD)
- Latent Autoimmune Disease in Adults (LADA, or Type 1.5)
- Type 3 (related to Alzheimer's disease)
- Diabetes insipidus



Maturity Onset Diabetes of the Young (MODY)

- Monogenetic
- Single mutation in a single gene
- Rare? Often misdiagnosed and missed
- Estimated in 2% of young people with diabetes under age 20
- Treatment is often different than other forms of diabetes



Cystic Fibrosis Related Diabetes (CFRD)

CFRD is a distinct form of diabetes that is a direct consequence of cystic fibrosis

Approximately 40-50% of adults with cystic fibrosis develop diabetes.

The thick sticky mucus characteristic of cystic fibrosis can cause scarring in the pancreas.

This scarring prevents the pancreas from producing normal amounts of insulin.

People with CFRD may have more issues with insulin resistance- linked to corticosteroids treatments for cystic fibrosis, other reasons

CFRD is different from T1D and T2D, with different nutritional requirements and medication management.

Insulin is often the medication of choice.

Guidelines for people with cystic fibrosis age 10 and older- test annually for CFRD with an oral glucose tolerance test. Not recommended: A1c testing, since this is often low in people with cystic fibrosis

Latent Autoimmune Disease in Adults (LAIA, or Type 1.5)

Not a universally
accepted term

A cross between
T1D and T2D, or a
subset of T1D.

Autoimmune
components with a
slow onset

Often
misdiagnosed,
especially as T2D

Average onset- age
52

Managed with diet,
activity, weight loss
initially. Eventually
insulin is needed.

Type 3 (Alzheimer's Disease)

- Not universally accepted, controversial
- Proposed that Alzheimer's disease is triggered by insulin resistance and insulin-like growth factor dysfunction in the brain
- Named for the coexistence of Alzheimer's disease and T2D.
- 2016 study: people with T2D may be up to 60% more likely to develop dementia and Alzheimer's disease.

[Type 2 Diabetes as a Risk Factor for Dementia in Women Compared With Men: A Pooled Analysis of 2.3 Million People Comprising More Than 100,000 Cases of Dementia | Diabetes Care \(diabetesjournals.org\)](#)

What we know about diabetes and Alzheimer's

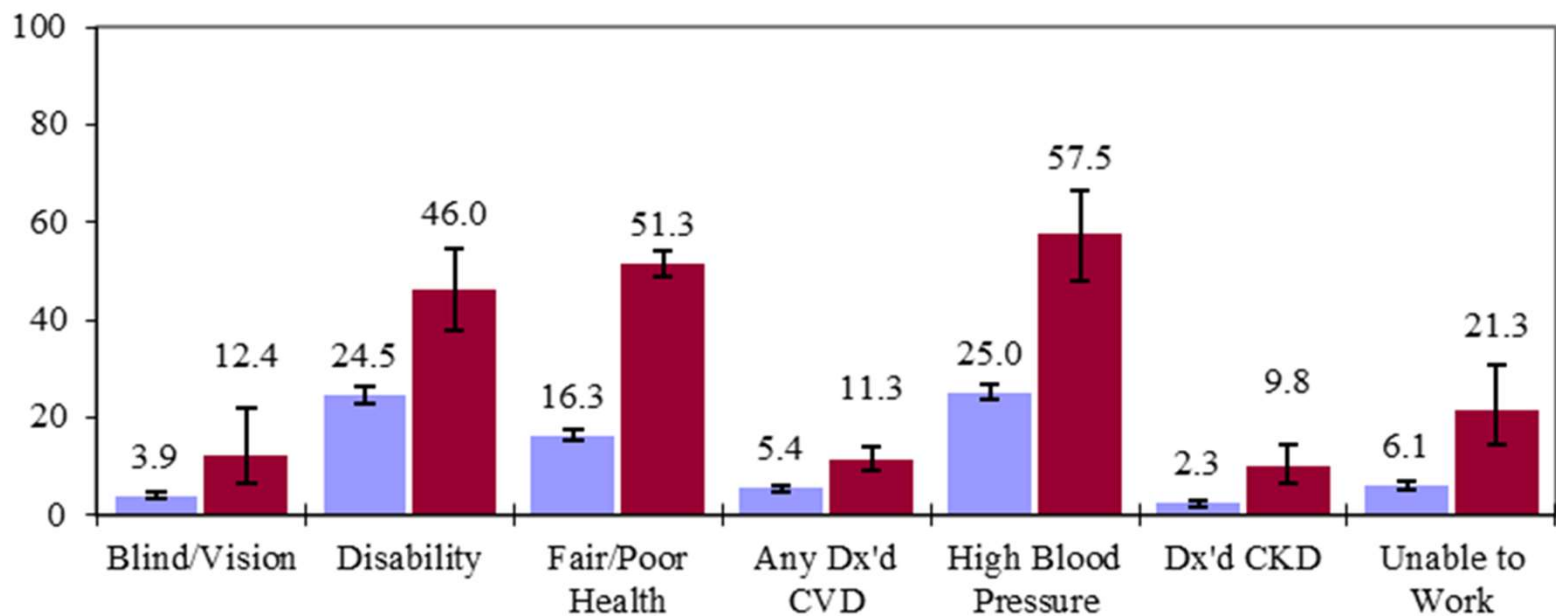
- High glucose levels leads to inflammation which may damage brain cells
- Diabetes can cause chemical brain imbalances which may trigger Alzheimer's
- Diabetes is a risk factor for vascular dementia.
- No test available for Type 3 diabetes



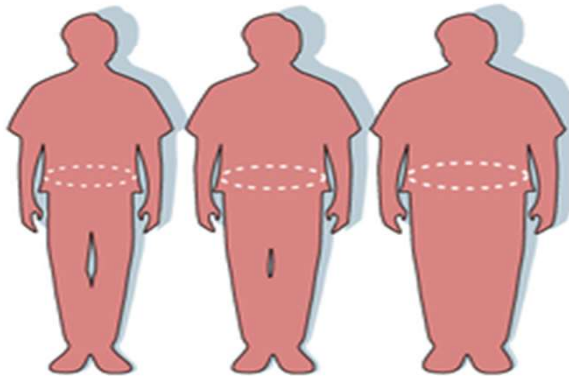
Percentage of Adults, Age 20+, with Select Health Conditions,
by Diagnosed Diabetes, 2019
Age-adjusted to 2000 U.S. Census

Percentage Reporting Health Condition

■ W/out Dx'd Diabetes
■ Dx'd Diabetes



Risk Factors



My Family



Physical inactivity

has been identified as the fourth leading risk factor for global mortality causing an estimated

3.2m

deaths globally.

The World Health Organisation, 2015



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Complications

- Cardiovascular and circulatory problems
- Heart disease
- Kidney disease
- Stroke
- Retinopathy
- Neuropathy
- Dental decay



Diabetes Management

- Lifestyle
- Diet
- Activity
- Medication



Treatments

- Lifestyle approach: healthy diet, physical activity, weight loss
- Monitor blood glucose levels
 - Intermittent finger sticks
 - Continuous glucose monitor
- Insulin
- Oral medications
- “Artificial Pancreas”
- Bariatric surgery





Diabetes Self-Management Education and Support Services

- Learn how to manage diabetes, prevent complications
- Personal, individualized care
- Taught by health care providers who have special knowledge and training about diabetes
- Need a prescription to participate
- Programs must meet strict national guidelines
- Very underutilized!

Self- Management Programs

Chronic Disease Self-Management Programs

Diabetes Self-Management Programs

Kitchen Creations

Diabetes Self-Management Education and Support Programs

Know Diabetes by Heart

Diabetes Prevention Programs

Take control
of your
health

Home Contact


Paths to Health ^{NM}
Tools for *Healthier* Living

 Find a Class  Refer a Patient  Instructor Login

[Programs](#) [Healthcare Professionals](#) [Resources](#) [Training](#) [Success Stories](#) [Partners](#)



Paths to Health NM: Tools for Healthier Living is an initiative that includes several prevention and self-management programs. These programs are designed to help adults gain the confidence and skills they need to better manage or prevent chronic health conditions or injuries. These programs have been proven to work and improve quality of life.

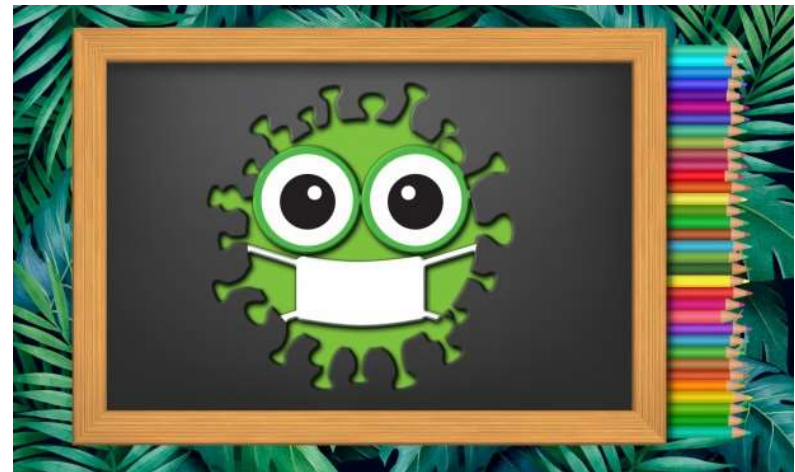
Technical assistance and funding for *Paths to Health NM* are provided by the *New Mexico Department of Health Diabetes Prevention and Control Program*.

[Learn more about *Paths to Health NM Programs* >](#)

Improve Your *Health*

COVID 19 and Diabetes

- **Are people with diabetes more likely to get COVID 19?**
- **Do people with diabetes have a higher risk of serious complications from COVID-19?**
- **Are the risks different for people with type 1 and type 2 diabetes?**



Pre-diabetes: are you at risk?

- Some folks you already know may have it...



What is Prediabetes?

- Prediabetes is when your blood sugar levels are higher than normal, but not high enough to be called diabetes. People who develop type 2 diabetes may have prediabetes first. ¹
- 88 million Americans have prediabetes. ¹
- 535,000 New Mexican adults have prediabetes ²
- Only 3 in 10 people who have prediabetes are aware of it



1. <https://www.cdc.gov/diabetes/basics/prediabetes.html>

2. 2021 Diabetes Prevention and Control Program Legislative Fact Sheet

Who's at risk for prediabetes?

- 40 years or older (age lowered from 45)
- Have a parent, brother, or sister with type 2 diabetes
- Physically active less than 3 times a week
- Had diabetes during pregnancy
- African Americans, Hispanic/Latino Americans, American Indians, or Alaska Natives (some Pacific Islanders and Asian Americans are also at higher risk)
- Overweight

<https://www.cdc.gov/diabetes/basics/prediabetes.html>

<https://www.cdc.gov/prediabetes/takethetest/>

Percentage of 20+ Adults with Select Health Conditions,

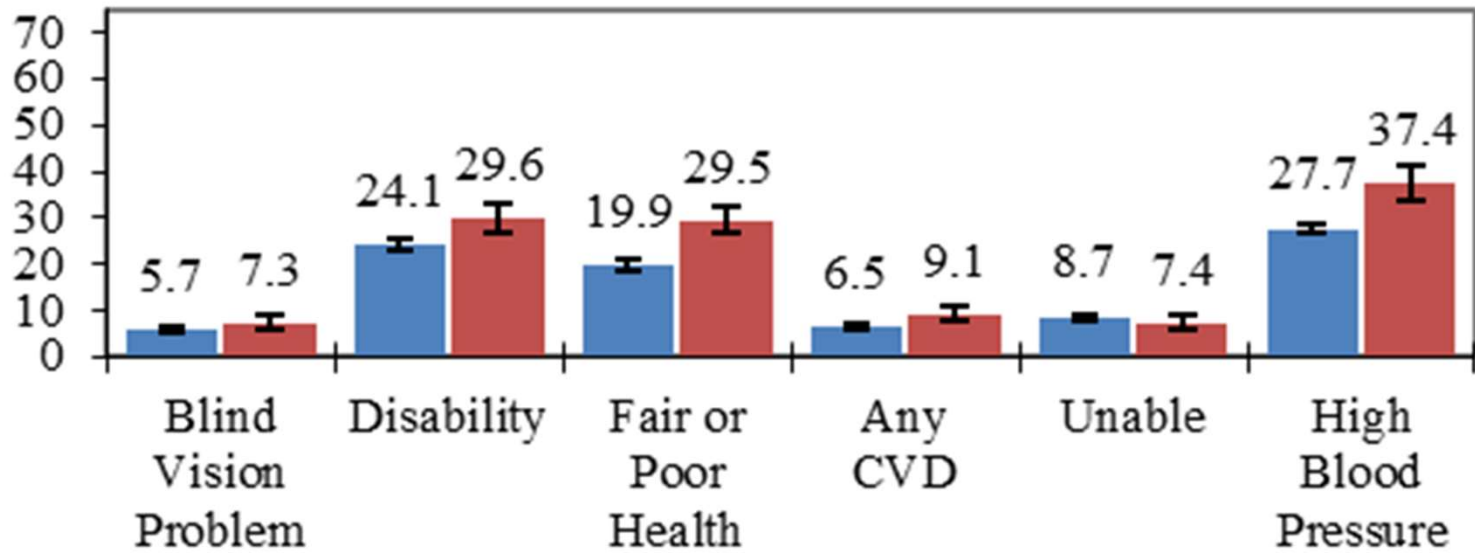
by Diagnosed Prediabetes, 2017-2019

Age-adjusted to 2000 U.S. Census

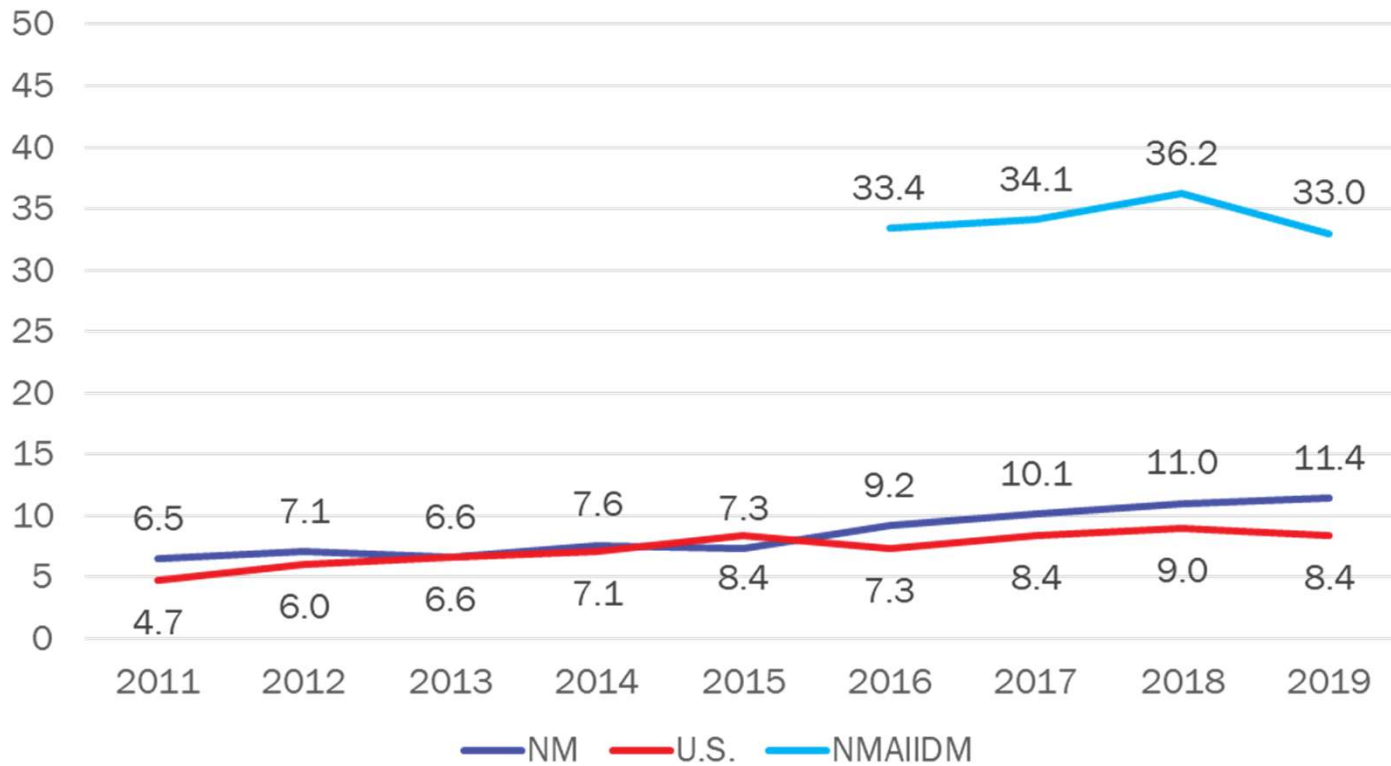
■ W/out Dx'd Prediabetes

■ Dx'd Prediabetes

Percentage Reporting Health Condition



Pre-diabetes NM and U.S.



How is prediabetes diagnosed?

- You can get a simple blood glucose test to find out if you have prediabetes. Ask your health care provider if you should be tested.
- Losing a small amount of weight if you're overweight and getting regular physical activity can lower your risk for developing type 2 diabetes.



- <https://www.cdc.gov/diabetes/basics/prediabetes.html>

Blood Glucose testing

Adults age 45 and older:

- 30.9% had not been checked for 3 years
- 29.5% with healthcare coverage had not been tested in 3 years
- 46.1% without healthcare coverage had not been tested in 3 years

Demographic disparities-
even worse!

National Diabetes Prevention Program

- For adults with *prediabetes* or at high *risk for Type 2 diabetes (such as women who had gestational diabetes)*
- Goal=prevent diabetes or delay its start
- Small group classes, group support
- Virtual group classes available
- Year long lifestyle change program

- <https://www.cdc.gov/diabetes/prevention/what-is-dpp.htm>



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Questions

