

Prediabetes and Diabetes Continuum

Prediabetes

Prediabetes is when a person's blood sugar is higher than normal but not as high as it would be with diabetes. People with prediabetes have an increased risk of developing type 2 diabetes, heart disease, and stroke. Data from the phone-based New Mexico Behavioral Risk Factor Surveillance System (BRFSS) show that 6.9% or 100,680 of NM adults aged 18 and older had diagnosed prediabetes in 2008-2009. The BRFSS is an annual survey of New Mexico adults that allows tracking of many health conditions and behaviors of NM adults 18 years and older.

National prediabetes estimates, derived from a combination of National Health and Nutrition Examination Survey (NHANES) and other national data sets, show a much higher prediabetes prevalence of 35% for US adults aged 20 and older (2005-2008). The NHANES methods include in-person interviews and clinical testing, which are more in-depth (and expensive) than the BRFSS phone-based self-reporting method. Consequently these different methods give us different estimates. Applying this NHANES percentage to the 2009 New Mexico population of adults 18 years and older would mean that 510,680 New Mexico adults have prediabetes.

Diagnosed Prediabetes Estimated Prevalence (%) 2008-2009, NM BRFSS

Have you ever been told by a doctor or other health professional that you have prediabetes or borderline diabetes?

	Percent of Adults		Percent of Adults
New Mexico	6.9	<u>Health & Human Services Regions:</u>	
Female	8.5	Region 1--Northwest	7.5
Male	5.3	Region 2--Northeast	7.2
		Region 3--Bernalillo County	7.0
<u>Age Groups:</u>		Region 4--Southeast	6.5
18-39 years	4.8	Region 5--Southwest	6.4
40-59 years	7.7		
60 years & older	9.7		
<u>Household Income:</u>		<u>NM DOH Race/Ethnicity:</u>	
< \$15,000	10.5	American Indian/ Alaska Native	11.1
\$15-24,999	6.9	Asian/ Native Hawaiian /Other Pacific Isle*	5.1*
\$25-34,999	7.3	Black/ African American*	10.7*
\$35-49,999	7.3	Hispanic	8.1
>\$50,000	7.0	White	5.9

Data Source: New Mexico Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

All rates except age group rates are age-adjusted to the 2000 US standard.

* This estimated rate should not be used to infer population/ group risk because it is statistically unreliable.

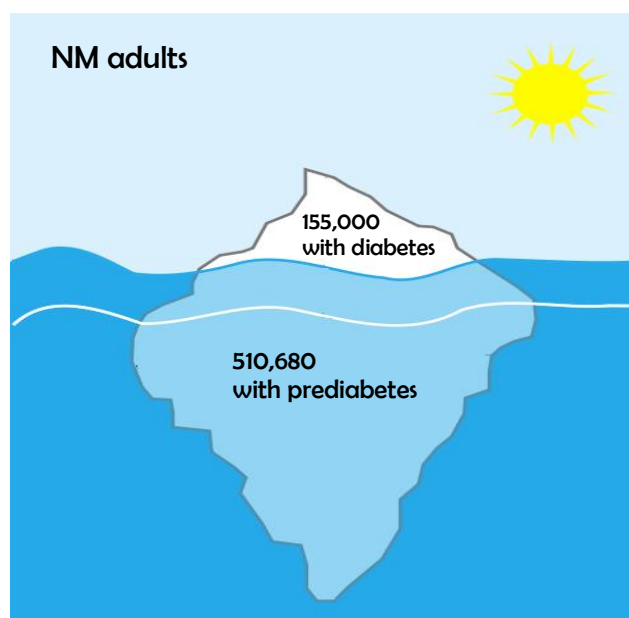
The male prediabetes rate was higher than the female rate. Rates increased as age increased: the two older age groups have higher rates than the youngest age group (18-39). The American Indian rate was almost twice the White rate and the Hispanic rate was 1.4 times higher than the White rate. All these differences in rates are statistically significant.

Smoking can increase blood pressure, increase insulin resistance and decrease levels of good cholesterol (HDL). Thus, those with prediabetes or diabetes who smoke likely further increase their risk of heart disease or stroke. Twenty-one percent of NM adults with prediabetes reported that they smoke, compared to 17.6% of NM adults with diabetes and 18.5% of all NM adults. These rates are statistically similar.

What Works to Delay or Prevent Diabetes:

People at risk for diabetes, which include those with prediabetes, can prevent or delay the onset of diabetes by losing a modest amount of weight (5-7% of body weight), increasing physical activity (150+ minutes per week) and adopting a healthier diet. The National Diabetes Prevention Program (NDPP) is a proven intervention to help people at risk for diabetes to achieve these lifestyle changes and is being implemented throughout the USA, including in NM.

This iceberg graphic nicely illustrates the burden of diabetes prevalence compared to prediabetes prevalence in NM. For 2007-2009, 10.6% of NM adults had either diagnosed or undiagnosed diabetes. This prevalence is based on the NM BRFSS. However, the prediabetes prevalence of 510,680 NM adults is based on the US NHANES estimate of 35%, since it is very likely that the prediabetes prevalence is underestimated by the NM BRFSS.



Important Links:

More information about prediabetes is at www.diabetesnm.org/education/forms.htm. NM Diabetes Prevention and Control Program contacts are: Judith Gabriele, program manager, judith.gabriele@state.nm.us, 505-476-7613; and, Corazon Halasan, program epidemiologist, 505-476-7617, corazon.halasan@state.nm.us.

References:

Centers for Disease Control and Prevention. National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA: U.S. Department of Health and Human Services, 2011. www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf

Cowie CC, Rust KF, Ford ES, Eberhardt MS, Byrd-Holt DD, Li C, Williams DE, Gregg EW, Bainbridge KE, Saydah SH, Geiss LS. Full accounting of diabetes and prediabetes in the U.S. population in 1988–1994 and 2005–2006. *Diabetes Care* 2009;32:287–294. <http://care.diabetesjournals.org/content/32/2/287.full.pdf+html>

Diabetes

Diabetes is a group of diseases marked by high levels of blood sugar due to defects in insulin production, insulin action, or both. Diabetes can lead to serious complications and premature death. People with diabetes can successfully control their diabetes and lower their risk of complications.¹

Table 1: Diagnosed Diabetes Estimated Prevalence (%). 2007-2009, NM BRFSS

Have you ever been told by a doctor that you have diabetes?

	Percent of Adults		Percent of Adults
New Mexico	7.9	<u>Health & Human Services Regions:</u>	
Female	7.6	Region 1--Northwest	9.2
Male	8.2	Region 2--Northeast	6.0
		Region 3--Bernalillo County	7.0
<u>Age Groups:</u>		Region 4--Southeast	10.3
18-39 years	3.0	Region 5--Southwest	8.1
40-59 years	8.4		
60 years & older	16.5		
<u>Household Income:</u>		<u>NM DOH Race/Ethnicity:</u>	
< \$15,000	13.0	American Indian/ Alaska Native	14.9
\$15-24,999	10.8	Asian/ Native Hawaiian /Other Pacific Isle*	6.1*
\$25-34,999	9.5	Black/ African American*	14.2*
\$35-49,999	8.2	Hispanic	12.0
>\$50,000	5.1	White	5.0

Data Source: New Mexico Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

All rates except age group rates are age-adjusted to the 2000 US standard.

* This estimated rate should not be used to infer population/ group risk because it is statistically unreliable.

In 2007-09, an estimated 7.9% of NM adults aged 18 years and older were diagnosed with diabetes; 10.6% NM adults (about 154,670) had diagnosed or undiagnosed diabetes. Despite appearances, the rates for females and for males were statistically the same. As is common with many chronic conditions, the oldest age group (60+) had by far the highest estimated prevalence, at 5.5 times that of the youngest age group (18-39).

Among New Mexico's race/ethnic groups, the American Indian/Alaska Native and the Hispanic populations had the highest estimated rates; the White population had the lowest rate. The American Indian/Alaska Native rate was three times, and the Hispanic rate was 2.4 times, the White rate.

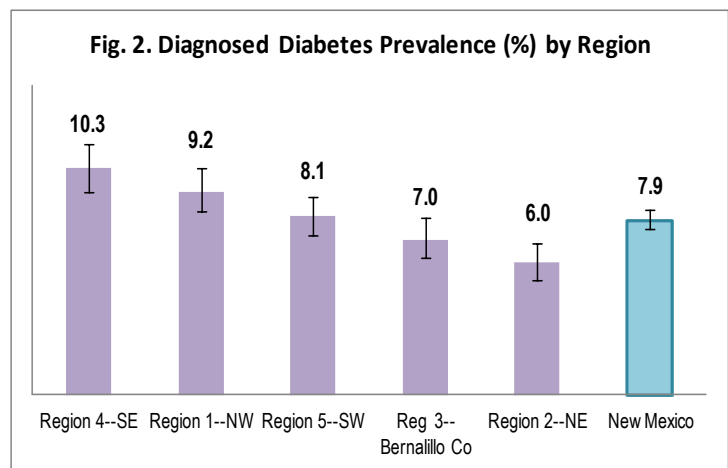
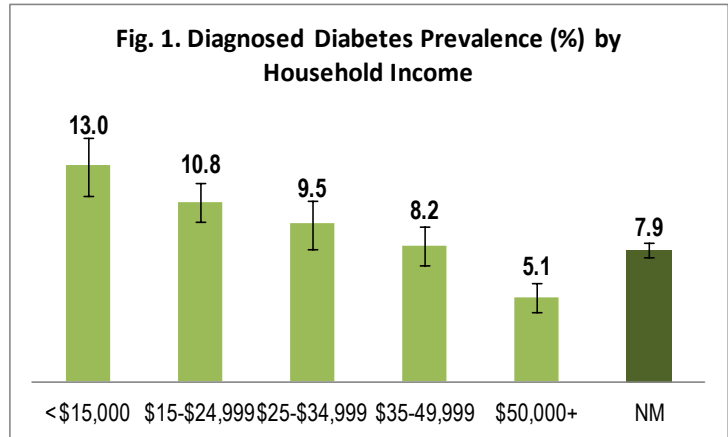
A common pattern found world-wide is that the lower the income, the higher the diabetes rate (Fig 1). The two lowest income groups had the highest rates, while the highest income group had the lowest rate. The lowest income group (<\$15,000) rate was 2.5 times higher than the highest income group (>\$50,000) rate.

Among NM's Health and Human Services Regions, Regions 4 and 1 had the highest rates and Regions 2 and 3 had the lowest rates (Fig 2). The rate for Region 4 was 1.7 times the rate for Region 2.

Diabetes 2007-2009 death rates for NM, Health and Human Services Regions and NM race/ethnic populations are in Table 2. Region 3 had the lowest diabetes death rate while Regions 1 and 5 had the highest rates. The state rate was also higher than the Region 3 rate.

Among race/ethnic rates, the American Indian death rate was highest; it was 3.5 times higher than the White rate, the lowest rate. The Black/African American and the Hispanic rates are similar and were the second highest rates; each rate was about twice the White rate.

These rates may be seen as the lowest possible rates of death due to diabetes, since some deaths, such as diabetes-related cardiovascular deaths, may not be counted as deaths caused by diabetes. They may instead be categorized as deaths due to cardiovascular causes. Thus, diabetes death rates are likely to be higher than shown here.



Important Links

More in-depth data and information about what works to prevent and control diabetes are at www.diabetesnm.org/facts.htm and http://ibis.health.state.nm.us/indicator/complete_profile/DiabPrevl.html. NM Diabetes Prevention and Control Program contacts are: Judith Gabriele, program manager, judith.gabriele@state.nm.us, 505-476-7613; and, Corazon Halasan, epidemiologist, corazon.halasan@state.nm.us 505-476-7617.

Table 2: Diabetes Death Rates 2007-2009 NM

(per 100,000 persons; age adjusted)

New Mexico	32.8		
Region 1--Northwest	39.5	American Indian / Alaska Native	76.1
Region 2--Northeast	33.1	Asian or Pacific Islander*	27.9*
Region 3--Bernalillo County	28.1	Black or African American	51.1
Region 4--Southeast	28.9	Hispanic	45.3
Region 5--Southwest	37.1	White	22.0

* This death rate should not be used to infer population risk because it is statistically unreliable.

References:

- Centers for Disease Control and Prevention. National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA: U.S. Department of Health and Human Services, 2011. www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf
- Cowie CC, Rust KF, Ford ES, Eberhardt MS, Byrd-Holt DD, Li C, Williams DE, Gregg EW, Bainbridge KE, Saydah SH, Geiss LS. Full accounting of diabetes and prediabetes in the U.S. population in 1988–1994 and 2005–2006. *Diabetes Care* 2009;32:287–294. <http://care.diabetesjournals.org/content/32/2/287.full.pdf+html>