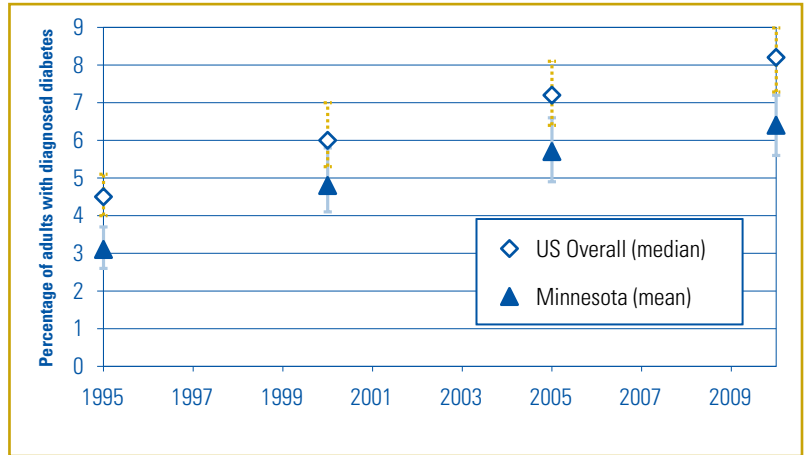


Diabetes affects more and more Minnesotans

Since 1995, the prevalence of diabetes has doubled among Minnesota adults, paralleling national trends.¹

This document highlights diabetes-related data including: the number of people living with diabetes and prediabetes in Minnesota; the problem of underdiagnosis and how it influences estimates of the number of people living with diabetes and prediabetes; the associated health risks and burden; and key measures of diabetes management and control in clinical settings and in everyday life.



Diabetes in Minnesota

- About 7.3 percent of adults 18 years and older (or ~290,000 persons) surveyed in 2011 reported they had received a diagnosis of diabetes.

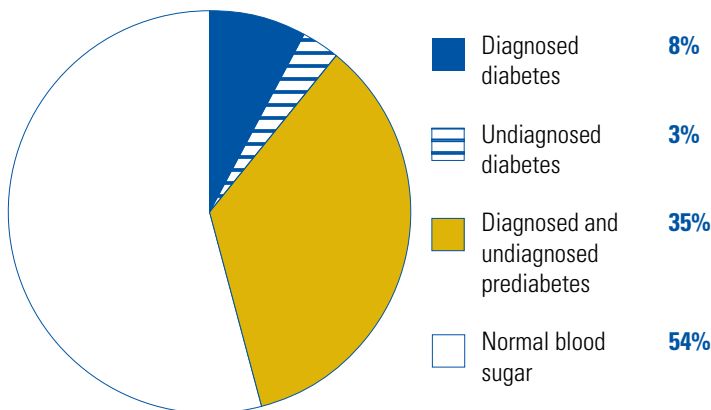
Prediabetes in Minnesota

- **As many as 1.4 million of the 4.1 million Minnesota adults may have prediabetes.**^{3,4*}
- Our best data show **only about 210,000 Minnesota adults knew they had prediabetes** in 2011.^{2**}
- Many adults in Minnesota likely have diabetes or prediabetes but are unaware that they have it^{***}

Overall Burden of Diabetes and Prediabetes

Underdiagnosis of diabetes and prediabetes markedly influences overall estimates of burden in Minnesota and the U.S.

Nearly half of U.S. adults have diabetes or prediabetes (national estimates)^{4***}



- For U.S. adults 20 years and older, an estimated 11.3 percent have diabetes (diagnosed or undiagnosed)
 - About 1 of every 4 adults with diabetes in the U.S. does not know they have it.⁴
- An estimated 35 percent of U.S. adults have prediabetes,⁴ which means they are at increased risk of developing type 2 diabetes.⁵
- In Minnesota, the number of persons expected to have prediabetes based on this estimate is 1.4 million.
 - Yet, only around 210,000 adults knew they had prediabetes (2011).²
 - Most persons with prediabetes are unaware they have it.^{***}

The Health Impacts of Diabetes and Prediabetes

- Diabetes is the 7th leading **cause of death** in Minnesota⁶ and nationally.⁴
- In 2010, 1,0367 **deaths** (or 2.7 percent of all deaths in Minnesota⁶) had diabetes listed as the **underlying cause**. The number of deaths in which diabetes is an underlying cause or a complicating factor may be more than 3 times larger.⁴⁺
- The **risk of death** is around twice as high for a person with diabetes vs. a similarly-aged person without diabetes.⁴
- **Heart disease** death rates are 2-4 times higher for adults with diabetes vs. adults without diabetes.⁴
- Adults with diabetes have a risk for **stroke** ~2-4 times higher than adults without diabetes.⁴
- 24 percent of Minnesota adults with diabetes report having **depression** as compared to 14 percent of adults without diabetes.²
- In Minnesota, 44 percent of persons with diabetes report having **arthritis**.²
- In Minnesota, 16 percent of persons with diabetes have been told by a provider that diabetes has affected their **eyes** or caused **retinopathy**.²
- Diabetes is the leading cause of non-traumatic lower extremity **amputations** in the US.⁴
- In the US, diabetes is the leading cause of **kidney failure** (End Stage Renal Disease (ESRD), accounting for ~44 percent of new cases in 2008.⁴
- In 2010, there were 2790 **ESRD cases with a primary diagnosis of diabetes** in Minnesota. This is 526 cases per million people vs. 656 cases per million nationally.⁸
- In 2009, 5.8 percent of **pregnancies** in Minnesota were complicated by diabetes.⁹⁺⁺
- **Gestational diabetes** is associated with greater risk of developing type 2 diabetes in women and poorer glucose tolerance in the child.¹⁰⁻¹²
- Persons with **prediabetes** have increased risk of microvascular disease,⁴ kidney disease,⁴ and stroke.¹³

Diabetes-Related Medical and Business Costs

Diabetes markedly impacts the lives of persons with the disease, those they interact with and our community. Some of this impact is reflected in medical costs and lost productivity.

- In the US, diabetes results in:
 - 15 million missed workdays
 - 120 million workdays with poorer performance
 - 107 million work days lost to unemployment disability related to diabetes¹⁴
- Annual medical costs and costs due to lost productivity due to diabetes are ~\$2.7 billion in Minnesota (2007 estimate).¹⁵
- Medical expenditures are greater if a person has diabetes vs. not having diabetes^{20,22} and whether or not a person has complications.¹⁶

Annual 2009 Cost of Care for a Sample of Insured US Adults by Diabetes-Diagnosis¹⁶

- General Population, No Diabetes - \$4,400
- All Persons with Diabetes (average) - \$11,700
 - Persons with Diabetes only - \$7,800
 - Persons with Diabetes and Complications - \$20,700

Diabetes Prevention and Treatment

Diabetes management and control takes teamwork between health care teams and individuals.

- Timely diagnosis and appropriate management can help people with diabetes achieve optimal health outcomes.¹⁷

The D5 are 5 clinical measures of diabetes management collected across medical practices in Minnesota (Data collected 2011) ¹⁸		
D5 Criteria	Percentage of Patients with Type 1 or 2 who Meet Clinical Indicator	Clinical Indicator Goal*
Blood Pressure Control Indicator	84%	<140/80 mm Hg
LDL Control Indicator	62%	<100 mg/dL
Hb A1c Control Indicator	75%	<8%
Tobacco-Free Indicator	84%	All patients do not use tobacco
Daily Aspirin Use Indicator (if appropriate)	99%	Daily aspirin use among patients with ischemic vascular disease only
All D5 Criteria (all of the above) met	38%	

* Please note that individual diabetes goals are set by the doctor and may differ from the D5 criteria. Individual goals are not tracked in the D5, rather it is a common set of clinical thresholds agreed to as a useful quality of care measure.

Self-reported positive diabetes self-management behaviors among adults in Minnesota with diagnosed diabetes (2011 except where noted) ²	
Indicator	Percentage
Saw a health care provider in last year for diabetes	87%
Received a dilated eye exam in the last year	74%
Received a foot examination in the last year by health care provider	80%
Had 2 or more A1c tests in the last year	71%
Received an influenza vaccination in the last year	59%
Had ever received a pneumonia vaccination	65%
Reported self-checking glucose daily	64%
Reported self-checking feet daily	73%
Had a routine dental check-up in the last year (2010 data) ¹⁹	71%
Had ever attended a disease self-management class	66%

Prediabetes Management and Control

Prevention of diabetes involves supporting healthier lifestyle choices.

- Moderate weight-loss (~7% of total body weight) and regular physical activity have been shown to reduce the risk of or delay the onset of type 2 diabetes for persons with prediabetes.^{20,21}

Prevalence of behaviors, lifestyle characteristics and complications among Minnesota adults with diagnosed prediabetes (2011) ²	
Indicator	Percentage
Is a current smoker	19%
Is obese (BMI≥30)	43%
Are either obese (BMI≥30) or overweight (BMI≥25)	80%
No physical activity in last 30 days	28%
Have received a diagnosis of hypertension	49%
Have received a diagnosis of high blood cholesterol	44%

References: ¹MMWR, CDC 2012; ²(MDH analysis) *Behavioral Risk Factor Surveillance System Survey Data*, CDC 2011; ³US Census 2011; ⁴National Diabetes Fact Sheet, CDC; ⁵Tabák et al 2012; ⁶2010 Minnesota Health Statistics Annual Summary; ⁷(MDH analysis) MDH, Vital Statistics Interactive Queries; ⁸(MDH analysis) U.S. Renal Data System 2012; ⁹(MDH analysis) CDC WONDER Online Database; ¹⁰Bellamy et al 2009; ¹¹ACOG Committee Opinion 2009; ¹²Malcolm et al. 2012; ¹³Lee et al 2012; ¹⁴Diabetesatwork.org, CDC; ¹⁵Diabetes Cost Calculator, ADA; ¹⁶Votja et al. 2012; ¹⁷National Diabetes Education Program; ¹⁸Minnesota Community Measurement; ¹⁹(MDH analysis) *Behavioral Risk Factor Surveillance System Survey Data*, CDC 2010; ²⁰DPP Research Group 2002; ²¹DPP Research Group 2009

See complete references and data notes (*, **, ***) on 'Diabetes and Prediabetes in Minnesota 2012: Methods and References'.