Diabetes Dataset

https://archive.ics.uci.edu/dataset/891/cdc+diabetes+health+indicators

https://www.cdc.gov/brfss/annual_data/annual_2014.html

https://pmc.ncbi.nlm.nih.gov/articles/PMC11008431/

Medicare Dataset

https://data.cms.gov/resources/medicare-physician-other-practitioners-by-provider-data-dictionary

https://catalog.data.gov/dataset/medicare-physician-other-practitioners-by-provider-b297e

Diabetes Risk Factors:

http://cdc.gov/diabetes/risk-factors/?CDC_AAref_Val=https://www.cdc.gov/diabetes/basics/risk-factors.html

- Have overweight or obesity.
- Are age 45 or older.
- Have a parent or sibling with type 2 diabetes.
- Are physically active less than 3 times a week.
- Have non-alcoholic fatty liver disease (NAFLD).
- Have ever had gestational diabetes (diabetes during pregnancy) or given birth to a baby who weighed over 9 pounds.
- Are an African American, Hispanic or Latino, American Indian, or Alaska Native person. Some Pacific Islander people and Asian American people also have a higher risk.
- you can do to reduce your risk of prediabetes, type 2 diabetes, or gestational diabetes. Some behavior changes to lower your risk include:
    - Increasing physical activity.
    - Eating a healthy diet.
    - Losing weight if you have overweight or obesity

Diabetes Symptoms:

https://www.niddk.nih.gov/health-information/diabetes/overview/what-is-diabetes/type-2-diabetes

- increased thirst and urination
- increased hunger

- feeling tired
- blurred vision
- numbness or tingling in the feet or hands
- sores that do not heal
- unexplained weight loss

Complications from Diabetes

- heart disease and stroke
- nerve damage
- kidney disease
- foot problems
- eye disease
- gum disease and other dental problems
- sexual and bladder problems

BFRSS Info

The BRFSS is a telephone survey administered to the U.S. adult population to collect uniform state-specific data on preventive health practice and risk behaviors associated with chronic diseases, injuries, and preventable infectious diseases. The survey is composed of a set of core questions and modules (e.g., diabetes). The BRFSS is developed, coordinated, and funded by the Centers for Disease Control and Prevention (CDC).

(ADA) “Standards of Medical Care in Diabetes” recommendations for frequency of A1c tests, dilated eye exams, and feet exams over the past year: at least two A1c tests, at least one dilated eye exam, and at least one feet exam (Table 3)

https://pmc.ncbi.nlm.nih.gov/articles/PMC5411452/#:~:text=Education%20and%20income%20operate%20in,(8.3%25)%20(20).

- Date of study 2017
- Type 2 diabetes mellitus (T2DM) is one of the leading causes of death from worldwide non-communicable diseases

- The economic burden of diabetes, due to decreased productivity, disability, and medical costs, is staggering and increases significantly when T2DM-related complications occur.
- Collected information from Monterrey, MX
- The prevalence of diabetes in the Mexico- US borders states exceeds national averages for both countries
- Study conducted on 351 adults with self-reported Type 2 Diabetes
- The highest rate of people with diabetes in Mexico and US was Nuevo Leon (Monterrey is the capital city of Nuevo Leon, and is considered the most Americanized city in Mexico) and Texas, with estimated prevalence rate of 17% each.
- The US nationwide direct and indirect cost of T2DM was $245 Billion in 2010.
- 2/3rds (62.7%) were women
- Mean age 59%
- 73% married
- 67% less than high school education
- 58% unemployed
- 77% make less than $20K
- 95% had health insurance
- 75% had a doctor
- 74% had BMI greater than 25
- 53.6% did not exercise
- 85% did not smoke
- General Health: Excellent (5.7%), Very Good (8.5%), Good (31%), Fair (47.9%), Poor (6.3%)
- 10% reported bad physical health
- 10% reported bad mental health
- Education and income operate in an inverse relationship with diabetes, the higher the education and income levels, the lower the rate of diabetes (20). The BRFSS data indicate that the T2DM prevalence (19.5%) among those with an annual income ≤USD$15,000 was twice the rate of those with an income ≥$50,000 (8.3%) (20).
- Socioeconomic factors, including income, are adversely related to incidence, prevalence, and health status.
- Both the American Diabetes Association with the Standards of Medical Care (17) and the Mexican NOM (11) share recommendations regarding BMI (<25 kg/m^2) and the importance of physical activity for T2DM patients. In our cohort, 74% of respondents had self-reported BMI values outside of optimal range (>25 kg/m^2). Based on the majority of participants who self-reported, they exercised and recognizing that BMI is directly influenced by the balance between caloric intake and physical activity, these were not the expected BMI results
- Environmental and personal obesogenic factors include lack of time, physical pain, depression, being overweight, unsafe neighborhoods, and lack of exercising facilities (4, 24–27), a lower socioeconomic class with poor availability to high-quality foods (4) but easy access to low-priced, well marketed, high-calorie, and high-fat processed foods (28).

https://health.maryland.gov/phpa/ccdpc/Reports/Documents/Diabetes%20in%20Maryland%E2%80%94Maryland%20BRFSS%20Surveillance%20Brief%202022.pdf

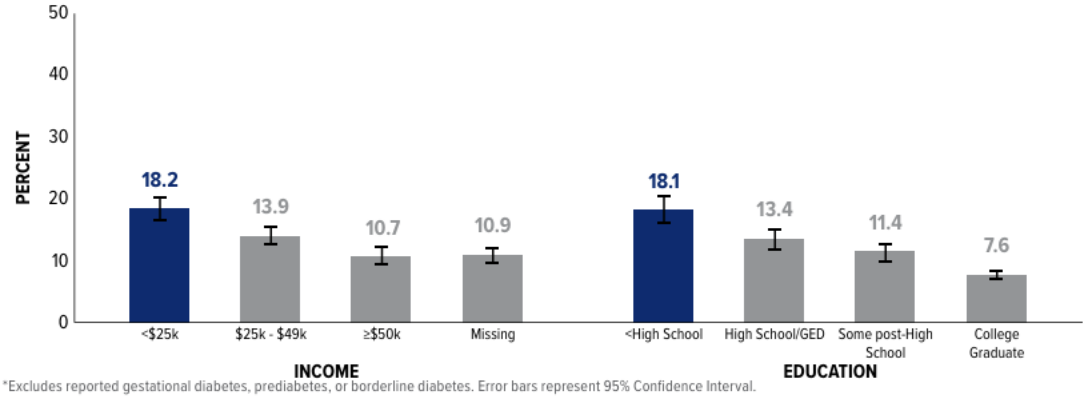
- Data collected between 2018 and 2020 in Maryland
- Study published in 2022
- Nationally, 37.3 million adults or 11.3% of the United States adult population are estimated to have diabetes; 8.5 million or 23.0% of those are undiagnosed
- People who have higher risk of developing type 2 diabietes:
    - Overweight or obese
    - Physically inactive
    - Age 45 or older
    - African America, Hispanic, American Indian
- People with diabetes have increased risk of severe complications including hypertension; stroke; kidney disease; lower-limb amputations; skin infections and disorders; glaucoma, cataracts, and other eye problems; and nervous system damage
- Diabetes requires continuous medical care with a variety of risk reduction strategies that go beyond glycemic control. These include self-management education; addressing cardiovascular risks such as blood pressure, lipid control, smoking prevention and cessation; weight management; physical activity; and regular monitoring for eye and foot health.
- 11.2% of adults had diabetes in Maryland, 11.3 % nationally
- 11.5% of males and 10.9% of females
- Ages: 25-34 (2.4%), 35-44 (5.7%), 45-54 (12.1%), 55 – 64 (17.6%), 65+ (22.6%)
- BMI: 18.5 – 24.9 (5.4%), 25 to 29.9 (10.1%), 30+ (19.1%)
- No smoking 9.5%, Current smoker 11.3%, former smoker 16.5%
- 9.4% reported physical activity, 18.1% reported no physical activity
- 10.7% graduated highschool, 16.7% did not graduate highschool
- 89% saw a doctor or medical professional in the past year
- Adults classified as obese, former smokers, and individuals engaging in no physical activity reported diabetes significantly more frequently than other adults (19.1% obese and 10.1% overweight vs. 5.4% healthy weight; 16.5% former smoker and 11.3% current smoker vs. 9.5% no history of smoking; and 18.1% engaging in no physical activity vs. 9.4% engaging in physical activity).
- People with diabetes who did not graduate high school were significantly less likely to receive the recommended care compared to other adults (29.7% who did not graduate high school vs. 56.6% who graduated from high school).
- he prevalence of diabetes was higher among certain racial and ethnic groups and people who are obese, former smokers, report no physical activity, have one or more disabilities, did not graduate high school, and live in rural areas.

https://www.health.ny.gov/statistics/brfss/reports/docs/2024-04_brfss_diabetes.pdf

- Study conducted in 2021 in New York

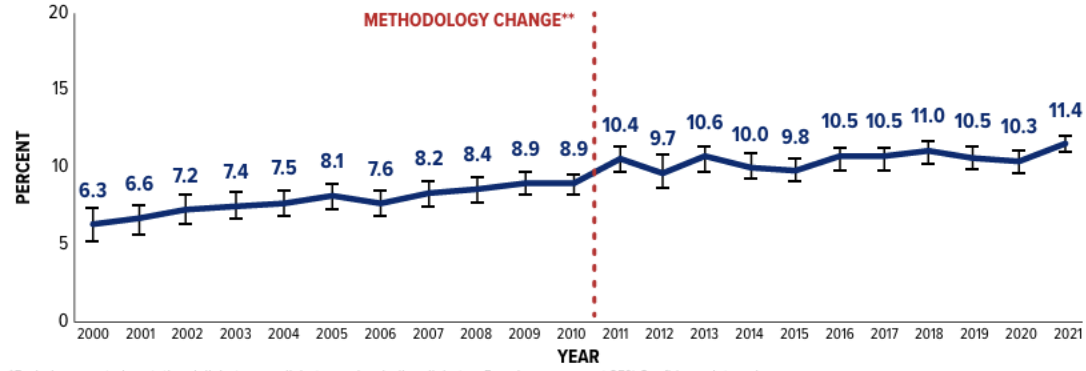
- In type 2 diabetes, the cells of the body become resistant to insulin.1 Type 2 diabetes accounts for about 90%-95% of all diagnosed cases
- Medical spending for people with diagnosed diabetes is more than double compared to those without diabetes.
- Diabetes is more common among Black, non-Hispanic adults, Hispanic adults, adults with lower income, adults with less education attainment, and adults living with a disability.
- Social determinants of health such as lack of access to healthy food, lack of safe places for physical activity, and housing instability, especially when fueled by structural racism, contribute to disparities in the burden of diabetes.
- 11.4 % of adult New Yorkers diagnosed
- Adults with an annual household income of less than $25,000 are more likely to have diabetes than those with an annual household income of $50,000 or more (18.2% vs. 10.7%)
- Adults with less than a high school education are more likely to have diabetes (18.1%) than those who graduated from college (7.6%)
- Adults with obesity are more likely to have diabetes (19.3%) compared to adults with overweight (11.3%) or those with neither overweight nor obesity (6.1%).
- Diabetes increases with age and is most common among adults aged 65 years and older (21.9%).
- The prevalence of diabetes among adults living with disability (22.4%) is almost three times greater than those living without disability (7.7%)

Figure 2. Percent of Diagnosed Diabetes* Among New York State Adults by Annual Household Income and Educational Attainment, Behavioral Risk Factor Surveillance System 2021



*Excludes reported gestational diabetes, prediabetes, or borderline diabetes. Error bars represent 95% Confidence Interval.

Figure 3. Percent of Diagnosed Diabetes* Among New York State Adults, Behavioral Risk Factor Surveillance System 2000-2021**



*Excludes reported gestational diabetes, prediabetes, or borderline diabetes. Error bars represent 95% Confidence Interval.

**Because of BRFSS methodology changes to account for the increasing proportion of cellular telephone-only households and declining response rates, 2011 and later reports are not comparable to prior years (http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6122a3.htm?s_cid=mm6122a3_w).

Table 1. Diagnosed Diabetes[a] Among New York State Adults, Behavioral Risk Factor Surveillance System 2021

	Diabetes[a]	
	%[b]	95% CI[b]
New York State [n=39,095]	**11.4**	**10.9 - 12.0**
Sex		
Male	12.3	11.4 - 13.1
Female	10.6	9.9 - 11.4
Age (Years)		
18-24	1.2	0.6 - 1.8
25-34	1.7	1.2 - 2.3
35-44	4.9	4.0 - 5.8
45-54	12.8	11.2 - 14.5
55-64	19.7	17.9 - 21.5
65+	21.9	20.5 - 23.4
Race/ethnicity		
White, non-Hispanic	9.5	8.9 - 10.0
Black, non-Hispanic	13.7	12.1 - 15.3
Hispanic	12.7	11.1 - 14.2
Other race groups combined, non-Hispanic[c]	16.6	13.8 - 19.3
Annual household income		
Less than $25,000	18.2	16.3 - 20.1
$25,000-$49,999	13.9	12.5 - 15.3
$50,000 and greater	10.7	9.5 - 11.9
Missing[d]	10.9	9.8 - 12.0
Education attainment		
Less than high school	18.1	15.9 - 20.3
High school or GED	13.4	12.2 - 14.7
Some college	11.4	10.2 - 12.5
College graduate	7.6	6.9 - 8.3
Weight status		
Neither overweight nor obese	6.1	5.2 - 7.0
Overweight	11.3	10.3 - 12.4
Obese	19.3	17.9 - 20.6
Health care coverage type		
Private	8.1	7.4 - 8.8
Medicare	20.1	18.6 - 21.7
Medicaid	13.4	11.6 - 15.2
Other insurance[e]	12.4	10.7 - 14.1
No coverage	4.5	2.9 - 6.1
Disability status[f]		
Yes	22.4	20.9 - 23.9
No	7.7	7.1 - 8.2
Region		
New York City	12.0	11.0 - 13.1
New York State exclusive of New York City	11.0	10.4 - 11.6

Notes: [a] Does not include reported gestational diabetes, prediabetes, or borderline diabetes. [b] % = Weighted percentage; CI = Confidence interval. [c] All other race groups combined, non-Hispanic includes American Indian or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, or other race or multiracial. [d] "Missing" category included because more than 10% of the sample did not report income. [e] Other insurance includes Children's Health Insurance Plan (CHIP), TRICARE, VA/Military, Indian Health Service, state sponsored health plan, or other government plan. [f] All respondents who reported at least one type of disability (cognitive, mobility, vision, self-care, independent living, or deafness).

https://www.cdc.gov/diabetes/php/data-research/index.html

- The total direct and indirect estimated costs* of diagnosed diabetes in the United States in 2022 was $413 billion.
- Total direct estimated costs of diagnosed diabetes increased from $227 billion in 2012 to $307 billion in 2022 (2022 dollars). Total

indirect costs increased from $89 billion to $106 billion in the same period (2022 dollars).

- From 2012 to 2022, excess medical costs per person associated with diabetes increased from $10,179 to $12,022 (2022 dollars).
- In 2021, diabetes was the eighth leading cause of death in the United States. This finding is based on 103,294 death certificates in which diabetes was listed as the underlying cause of death (crude rate, 31.1 per 100,000 people).
-