

# PREDIABETES

## IN NORTH CAROLINA

## Fact Sheet

### What is prediabetes?

- Prediabetes is a condition whereby people have higher than normal blood glucose (sugar) levels, but not yet high enough to be diagnosed as diabetes.
- Prediabetes is a precursor of type 2 diabetes, as well as a risk factor for heart disease and stroke. With a lifestyle change program, people with prediabetes can lower their risk of developing type 2 diabetes by as much as 58%.<sup>1,2</sup>
- Unlike diabetes, prediabetes often has no noticeable symptoms.
- Prediabetes can be developed at any age from childhood and adolescence through adulthood.



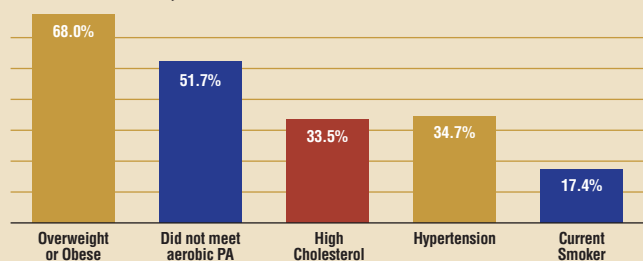
### How many people have prediabetes?

- Based on fasting blood glucose or HbA1c level, 34% of US adults (84.1 million people) had prediabetes in 2015. The prevalence jumped to 48% among adults 65 years or older.<sup>3</sup>
- Nationwide, only about 1 out of every 10 individuals with prediabetes (about 10%) are aware of their condition.<sup>1,3</sup>
- If the measured national prevalence for prediabetes of 34% is applied to the North Carolina adults, then about 2.4 million North Carolinians may have prediabetes. However, only about 855,000 North Carolinian adults with prediabetes (about 12.1% of the population) reported being told by a health professional that they had this condition.<sup>4</sup> This suggests that over 1.5 million North Carolinians may have prediabetes but are unaware of their condition.
- According to the Centers for Disease Control and Prevention (CDC) 2016 data, about 145 adults in North Carolina develop diabetes every day;<sup>5</sup> without intervention people with prediabetes are more likely to develop diabetes.

### What are the risk factors for prediabetes?

- The risk factors include older age (45 years and older), a family history of type 2 diabetes (parent, brother or sister) and race/ethnicity (African-Americans, Hispanics and other minority groups), overweight/obesity, physical inactivity, high cholesterol, high blood pressure and smoking.

**Figure 1. Prevalence of risk factors for prediabetes, North Carolina, 2017/2018**



**Data Source:** North Carolina State Center for Health Statistics, Behavioral Risk Factor Surveillance System (BRFSS) [schs.dph.ncdhs.gov/data/brfss/survey.htm](https://schs.dph.ncdhs.gov/data/brfss/survey.htm)

- Additional risk factors for prediabetes specific to women include: gestational diabetes (abnormal blood sugar during pregnancy), giving birth to a baby who weighed more than 9 pounds and having a history of polycystic ovary syndrome (a common condition characterized by irregular menstrual periods, excess hair growth and obesity).

### How is prediabetes diagnosed?

- CDC has a simple screening tool that uses seven questions to assess an individual's risk of prediabetes.<sup>6</sup> A score of five or higher indicates a high risk for prediabetes, and a confirmatory blood test for prediabetes (Table 1) is recommended.
- Fasting blood glucose, oral glucose tolerance test, and HbA1c are blood tests used to confirm both prediabetes and diabetes as shown in Table 1.
- In North Carolina, only three out of five adults (61%) without a known diagnosis of diabetes have had a blood sugar test within the last three years.<sup>7</sup>

**Table 1: Diagnostic test criteria for prediabetes**

Test	Normal	Prediabetes	Diabetes
Fasting Blood Glucose (FBG)	less than 100 mg/dl	100 mg/dl to 125 mg/dl	126 mg/dl or higher
Oral Glucose Tolerance Test (OGTT)	less than 140 mg/dl	140 mg/dl to 199 mg/dl	200 mg/dl or higher
HbA1c	less than 5.7%	5.7% to 6.4%	6.5% or higher

**Source:** American Diabetes Association, Diagnosing Diabetes and Learning About Prediabetes. [diabetes.org/diabetes-basics/diagnosis](https://diabetes.org/diabetes-basics/diagnosis)

## How is prediabetes treated?

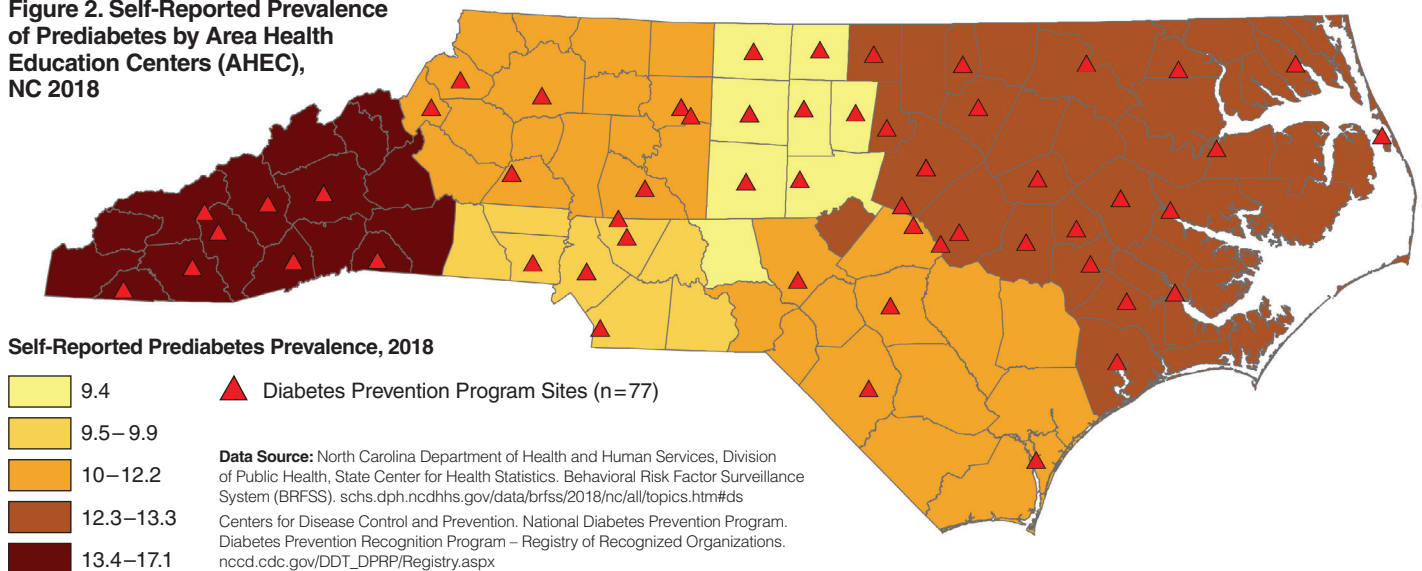
- Once an individual is diagnosed with prediabetes, the main goal of treatment is to delay or prevent progression to type 2 diabetes.
- Losing a modest amount of weight (5% to 7% of total body weight) through healthy eating and moderate physical activity with the help of a lifestyle change program, such as the CDC-recognized National Diabetes Prevention Program, has been proven to be the most effective way of delaying or preventing progression from prediabetes to type 2 diabetes.<sup>1</sup>
  - For more information, visit [DiabetesFreeNC.com](http://DiabetesFreeNC.com) or call the North Carolina Diabetes Prevention Program Navigator at 844-328-0021.
- Metformin, a drug used to control blood sugar, has also been shown to be somewhat effective in delaying or preventing progression from prediabetes to type 2 diabetes, but it is not as effective as lifestyle change.<sup>2</sup>

## How is prediabetes prevented?

For individuals who do not have prediabetes, prevention can be achieved by addressing the following modifiable risk factors:

- Preventing overweight/obesity through regular physical activity and healthy eating. For general information on physical activity and healthy eating please visit [esmmweighless.com](http://esmmweighless.com).
- Preventing and/or controlling high cholesterol and high blood pressure through lifestyle change and medications if necessary.
- Avoiding tobacco products and secondhand smoke for non-smokers and quitting for current smokers. For general information about smoking and how to get help quitting please visit: [quitlinenc.com](http://quitlinenc.com) or call 1-800-QUIT-NOW.

**Figure 2. Self-Reported Prevalence of Prediabetes by Area Health Education Centers (AHEC), NC 2018**



## REFERENCES

1. National Center for Chronic Disease Prevention and Health Promotion, Division of Diabetes Translation. Prediabetes. Accessed at [cdc.gov/diabetes/basics/prediabetes.html](http://cdc.gov/diabetes/basics/prediabetes.html) on December 10, 2019.
2. Knowler WC, Barrett-Connor E, Fowler SE, et al. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med.* 2002;346(6):393-403.
3. Centers for Disease Control and Prevention. National Diabetes Statistics Report, 2017. Estimates of Diabetes and Its Burden in the United States. Accessed at [cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf](http://cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf) on December 10, 2019.
4. North Carolina Department of Health and Human Services, Division of Public Health, State Center for Health Statistics. Behavioral Risk Factor Surveillance System (BRFSS). Accessed at [schs.dph.ncdhhs.gov/data/brfss/2018/nc/all/prediab.html](http://schs.dph.ncdhhs.gov/data/brfss/2018/nc/all/prediab.html) on December 10, 2019. The 2018 estimates of the NC population were obtained from: [schs.dph.ncdhhs.gov/interactive/query/population/nchspop.cfm](http://schs.dph.ncdhhs.gov/interactive/query/population/nchspop.cfm).
5. Centers for Disease Control and Prevention. National Diabetes Prevention Program. Diabetes Data and Statistics. Accessed at [gis.cdc.gov/grasp/diabetes/DiabetesAtlas.html](http://gis.cdc.gov/grasp/diabetes/DiabetesAtlas.html) on December 10, 2019.
6. Centers for Disease Control and Prevention. National Diabetes Prevention Program. Prediabetes Risk Test. Accessed at [cdc.gov/prediabetes/takethetest](http://cdc.gov/prediabetes/takethetest) on December 10, 2019.
7. North Carolina Department of Health and Human Services, Division of Public Health, State Center for Health Statistics. Behavioral Risk Factor Surveillance System (BRFSS). Accessed at [schs.dph.ncdhhs.gov/data/brfss/2018/nc/all/PDIABTST.html](http://schs.dph.ncdhhs.gov/data/brfss/2018/nc/all/PDIABTST.html) on December 10, 2019.

