

# TYPE 2 DIABETES

## IN NORTH CAROLINA

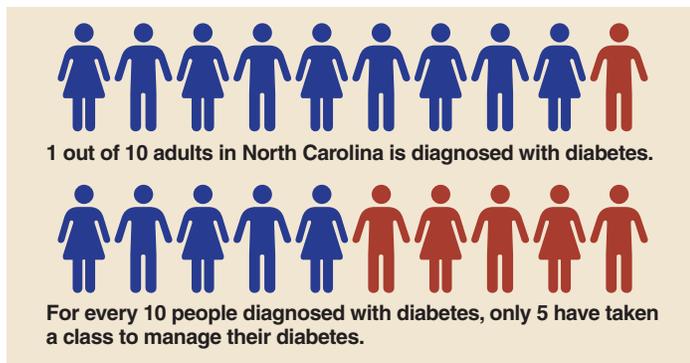
## Fact Sheet

### What is diabetes?

- Diabetes is marked by high levels of blood glucose (sugar) resulting from defects in the production or action of insulin, a hormone that regulates blood glucose levels.
- Diabetes can lead to serious complications and premature death, but people with diabetes, working together with their support network and their health care providers, can take steps to control the disease and lower the risk of complications.
- Type 2 diabetes accounts for about 90% to 95% of all diagnosed cases of diabetes in adults.<sup>1</sup>

### How many people have diabetes?

- Diabetes is the seventh leading cause of death in both the United States and North Carolina.<sup>1,2</sup> In 2016, diabetes was the primary cause for 2,813 deaths (3.1% of all deaths) and a contributing cause to many more deaths in North Carolina.<sup>2</sup>
- An estimated 30.3 million people in the United States have diabetes, and of these, about a quarter (7.2 million people) do not know that they have the disease.<sup>1</sup> In North Carolina, over 886,000 adults report having been diagnosed with diabetes by a health care professional.<sup>3</sup>
- There were 16,969 hospital discharges in North Carolina in 2016, with diabetes listed as the principal diagnosis.<sup>4</sup>
- Over 50,000 adults are newly diagnosed in North Carolina with diabetes each year.<sup>5</sup>

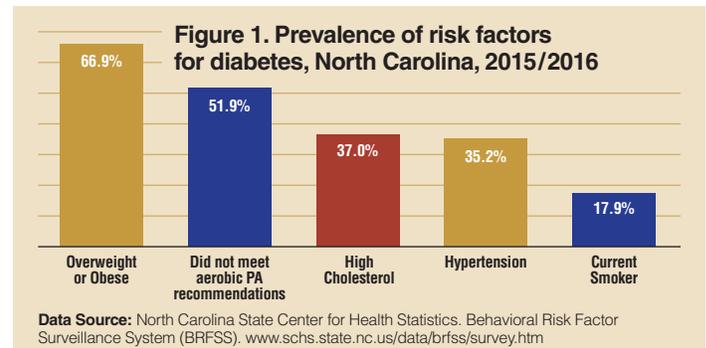


### What are the risk factors for diabetes?

- 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 blood cholesterol, high blood pressure and smoking.
- Additional risk factors specific to women include history of polycystic ovary syndrome, gestational diabetes and having a baby weighing over 9 pounds.

### What are the complications of diabetes?

- Diabetes affects multiple areas of the body and can lead to serious complications including but not limited to: heart disease and stroke, hypertension, hearing loss, blindness and other eye problems, kidney disease, nervous system disease (e.g., impaired sensation or pain in



the feet or hands, slowed digestion of food in the stomach, erectile dysfunction), amputations (mainly of the lower limbs), dental disease (especially of the gums), excessively large babies, diabetic coma, increased susceptibility to pneumonia and influenza and depression.

### How is diabetes diagnosed?

- Fasting Blood Glucose (FBG), Glycated Hemoglobin A1c and Oral Glucose Tolerance Test (OGTT) are blood tests used to diagnose 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 past three years.<sup>6</sup>

### What are the treatment options for diabetes?

- Three key components of diabetes treatment, the ABCs of diabetes control, include optimal control of blood glucose, blood pressure and blood cholesterol. The ABC treatment goals for most people with diabetes are:
  - A. A1c less than 7
  - B. Blood pressure less than 120/80 mmHg
  - C. Cholesterol-LDL less than 100 mg/dl
- Many people with type 2 diabetes can control their blood glucose by following a healthy meal plan and exercise program, losing excess weight, taking oral medication and/or, in some cases, taking insulin.
- Diabetes Self-Management Education and Support (DSMES)—training that focuses on self-care behaviors such as healthy eating, being active and monitoring blood sugar—is a key step in improving health outcomes and quality of life for people with diabetes. People with diabetes should receive DSMES when their diabetes is diagnosed and as needed thereafter. To obtain information about DSMES programs in North Carolina, visit [diabetesnc.com](http://diabetesnc.com).

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

| Test                          | Normal     | Prediabetes   | Diabetes   |
|-------------------------------|------------|---------------|------------|
| Fasting Blood Glucose (FBG)   | <100 mg/dl | 100–125 mg/dl | >126 mg/dl |
| Oral Glucose Tolerance (OGTT) | <140 mg/dl | 140–199 mg/dl | >200 mg/dl |
| A1c                           | <5.7%      | 5.7%–6.4%     | >6.5%      |

**Source:** American Diabetes Association, Diagnosing Diabetes and Learning About Prediabetes. 2016. [diabetes.org/diabetes-basics/diagnosis](http://diabetes.org/diabetes-basics/diagnosis)

- Many people with diabetes also need to take medications to control their cholesterol and blood pressure.

### How can complications of diabetes be prevented?

- Adherence to the ABCs of diabetes control—optimal control of blood glucose, blood pressure and blood cholesterol.
- Detection and treatment of diabetes related eye disease.
- Comprehensive foot care including risk assessment, education, preventive therapy, treatment of foot problems and referral to specialists.
- Detection and treatment of early diabetes related kidney disease.
- Vaccination against the flu and pneumonia.

### How can diabetes be prevented?

For individuals who do not have a diagnosis of diabetes, prevention can be achieved by addressing modifiable risk factors:

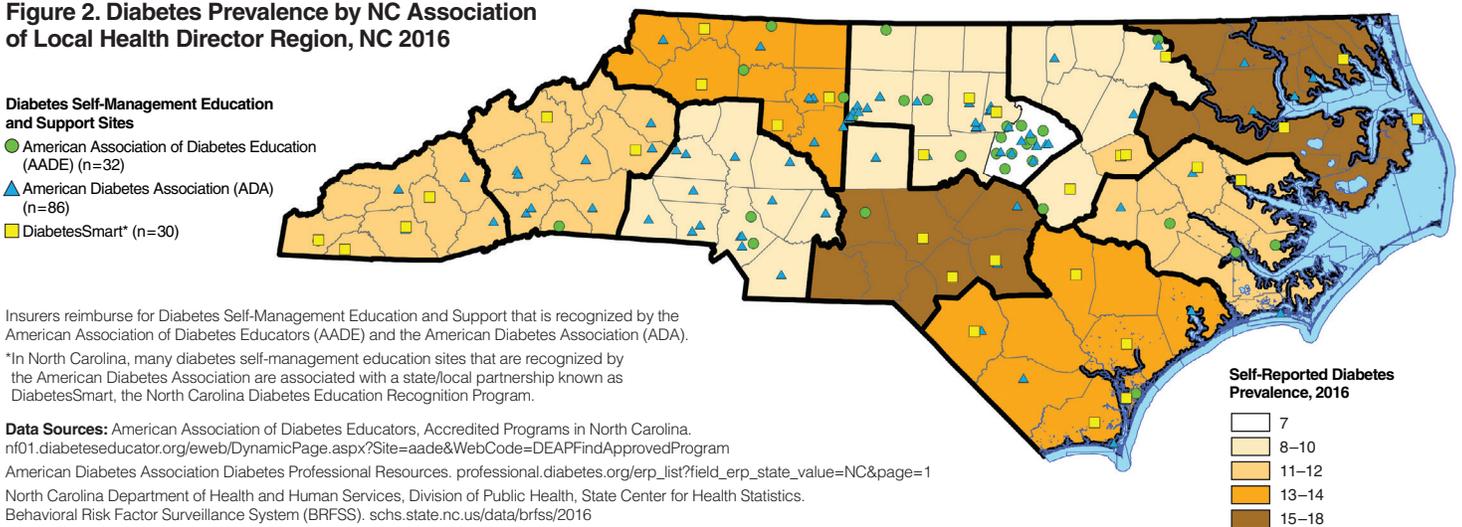
- Losing a modest amount of weight (5% to 7% of total body weight) through healthy diet and moderate physical activity (such as brisk walking 30 minutes a day, five days a week) within the context of an intensive lifestyle intervention program, like the CDC’s Diabetes Prevention Program or similar programs, has been proven to be the most effective way of delaying or preventing progression from prediabetes to type 2 diabetes.<sup>7</sup> Metformin, a drug used for the treatment of diabetes has also been shown to be effective, but is not as effective as lifestyle modification.<sup>7</sup> For more information on diabetes prevention programs, visit DiabetesFreeNC.com.

- Preventing and/or controlling high blood cholesterol and high blood pressure through lifestyle modification 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 [quitline.com](http://quitline.com) or call 1-800-QUIT-NOW.

### Disparities, inequality and inequity in the burden of diabetes

- Non-Hispanic African-Americans (prevalence = 15%) are more likely to have been diagnosed with diabetes compared to Non-Hispanic Whites (prevalence = 10.7%) in North Carolina.<sup>3</sup>
- Diabetes is the seventh leading cause of death among whites, the fifth leading cause of death for American Indians in North Carolina and the fourth leading cause of death for African-Americans.<sup>8</sup>
- African-Americans (age-adjusted death rate = 43.7 per 100,000) and American Indians (age-adjusted death rate = 39.2 per 100,000) are more likely to die from diabetes compared to Whites (age-adjusted death rate = 19.3 per 100,000) in North Carolina.<sup>9</sup>
- Type 2 diabetes in children and adolescents, although still rare, is being diagnosed more frequently among U.S. minority populations than in non-Hispanic whites.<sup>1</sup>
- There is geographic variation in the burden of diabetes (prevalence, mortality rates and hospitalization rates). Figure 2 shows the prevalence of diabetes throughout North Carolina.

**Figure 2. Diabetes Prevalence by NC Association of Local Health Director Region, NC 2016**



### REFERENCES

- 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 March 27, 2018.
- North Carolina Department of Health and Human Services, Division of Public Health, State Center for Health Statistics. North Carolina Vital Statistics 2016 – Volume 2, Leading Causes of Death. Accessed at [schs.state.nc.us/data/vital/lcd/2016/pdf/TblsA-F.pdf](http://schs.state.nc.us/data/vital/lcd/2016/pdf/TblsA-F.pdf) on March 27, 2018.
- 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.state.nc.us/data/brfss/2016/nc/all/DIABETE3.html](http://schs.state.nc.us/data/brfss/2016/nc/all/DIABETE3.html) on March 27, 2018.
- North Carolina Department of Health and Human Services, Division of Public Health, State Center for Health Statistics. Data produced upon request on February 22, 2018.
- Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion, Division of Diabetes Translation. Diabetes Interactive Atlas available at [cdc.gov/diabetes/atlas](http://cdc.gov/diabetes/atlas). Accessed on March 28, 2018.
- 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.state.nc.us/data/brfss/2015/nc/all/PDIABTST.html](http://schs.state.nc.us/data/brfss/2015/nc/all/PDIABTST.html) on April 6, 2017.
- 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.
- North Carolina Department of Health and Human Services, Division of Public Health, State Center for Health Statistics. North Carolina Vital Statistics 2016 – Volume 2, Leading Causes of Death. Accessed at [schs.state.nc.us/data/vital/lcd/2016/pdf/TblsA-F.pdf](http://schs.state.nc.us/data/vital/lcd/2016/pdf/TblsA-F.pdf) on March 27, 2018.
- Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2015 on CDC WONDER Online Database, released December, 2017. Data are from the Multiple Cause of Death Files, 1999-2016, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at [wonder.cdc.gov/ucd-icd10.html](http://wonder.cdc.gov/ucd-icd10.html) on March 27, 2018.

