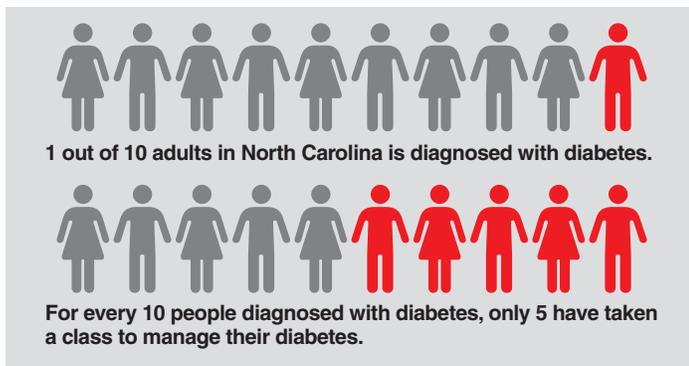


#### What is diabetes?

- 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>2,3</sup> In 2015, diabetes was the primary cause for 2,743 deaths (3.1% of all deaths) and a contributing cause to many more deaths in North Carolina.<sup>3</sup>
- An estimated 29.1 million people in the United States have diabetes, and of these, over a quarter (8.1 million individuals) do not know that they have the disease.<sup>1</sup> In North Carolina, almost 829,000 adults report having been diagnosed with diabetes by a health care professional.<sup>4</sup>
- There were 18,744 hospital discharges in North Carolina in 2014, with diabetes listed as the principal diagnosis.<sup>5</sup>
- Almost 61,000 new cases of diabetes were identified in North Carolina in 2014.<sup>6</sup>

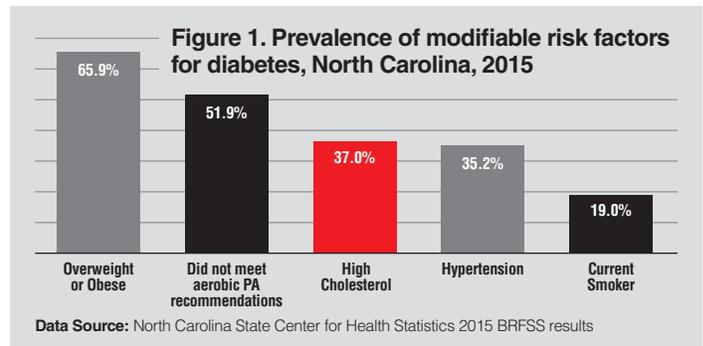


#### What are the risk factors for diabetes?

- Non-modifiable risk factors include older age, a family history of type 2 diabetes (parent, brother or sister) and race/ethnicity (African-Americans, Hispanics and other minority groups).
- Modifiable risk factors (Figure 1) include 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, 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, carpal tunnel syndrome, 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), Oral Glucose Tolerance Test (OGTT) and Glycated Hemoglobin (A1c) 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>7</sup>

#### What are the treatment options for diabetes?

- Three key components of diabetes treatment, the ABC 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 130/80 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. For more information about DSMES programs in North Carolina, visit [diabetesnc.com/management](http://diabetesnc.com/management).

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

### How can diabetes be prevented?

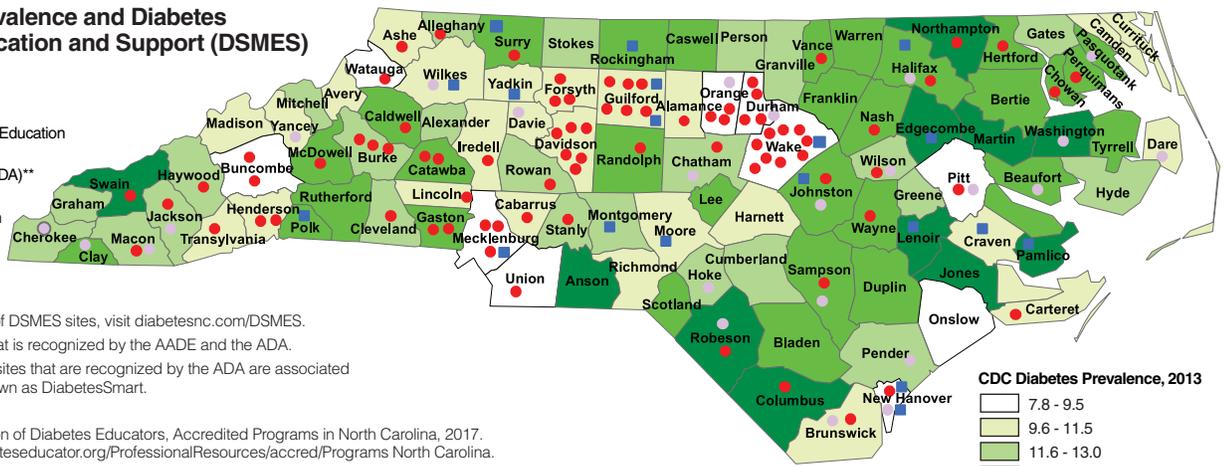
For individuals who do not have diabetes, prevention can be achieved by addressing modifiable risk factors:

- 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>9</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>8</sup> For more information on diabetes prevention programs, visit DiabetesFreeNC.com.

**Figure 2. Diabetes Prevalence and Diabetes Self-Management Education and Support (DSMES) Sites by County, NC**

#### DSMES Program Sites, May 2017\*

- American Association of Diabetes Education (AADE)\*\* (n=19)
- American Diabetes Association (ADA)\*\* (n=83)
- North Carolina Diabetes Education Recognition Program (DiabetesSmart)\*\*\* (n=24)



\* For an updated interactive map of DSMES sites, visit [diabetesnc.com/DSMES](http://diabetesnc.com/DSMES).

\*\* Insurers reimburse for DSMES that is recognized by the AADE and the ADA.

\*\*\* In North Carolina, many DSMES sites that are recognized by the ADA are associated with a state/local partnership known as DiabetesSmart.

**Data Sources:** American Association of Diabetes Educators, Accredited Programs in North Carolina, 2017. Accessed on April 7, 2017 at: [diabeteseducator.org/ProfessionalResources/accred/Programs North Carolina](http://diabeteseducator.org/ProfessionalResources/accred/Programs%20North%20Carolina).

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- 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%) in North Carolina.<sup>4</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>9</sup>
- African-Americans (age-adjusted death rate = 48.4 per 100,000) and American Indians (age-adjusted death rate = 45.5 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>10</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>3</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.