

## What is high blood pressure?

- Blood pressure normally rises and falls throughout the day based on the kind of activity in which an individual is engaged.
- High blood pressure, also known as hypertension, is a disease that occurs when blood pressure stays above normal for a long time. As a result, the walls of arteries get stretched beyond their healthy limit, and damage occurs creating a variety of other health problems.
- Blood pressure is the force of blood pushing against the walls of the arteries, which are vessels that carry blood from the heart to other parts of the body.
- Blood pressure is measured in millimeters of mercury (mmHg) using two numbers.
  - The first/top number, systolic blood pressure, represents the pressure in blood vessels when the heart contracts.
  - The second/bottom number, diastolic blood pressure, represents the pressure in blood vessels when the heart relaxes between beats.
- High blood pressure usually has no warning signs or symptoms, so many people do not know that they have it. The only way to know whether you have high blood pressure is to have your blood pressure accurately measured.
- High blood pressure can lead to serious complications, including death, if not treated. However, controlling blood pressure through healthy lifestyle practices and/or medications could prevent or delay the development of complications.
- A hypertensive crisis is a medical emergency and occurs when blood pressure numbers rise above 180 for the systolic pressure or 120 for the diastolic pressure.

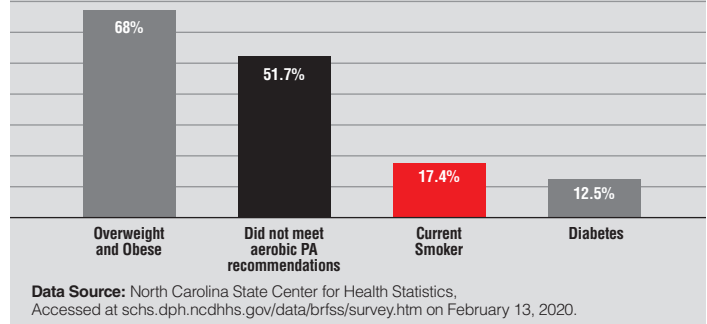
## How many people are affected by high blood pressure?

- High blood pressure is the 13th leading cause of death in the United States.<sup>1</sup>
- In North Carolina in 2018, high blood pressure was the primary cause of 1,014 deaths and a contributing cause to 24,326 heart disease and stroke deaths.<sup>2</sup> That means high blood pressure causes or contributes to at least 27% of all deaths in North Carolina each year.
- About 45% of adults in the United States (108 million) have hypertension defined as blood pressure greater than 130/80 or are taking medication for hypertension.<sup>3</sup>
- About 2.8 million adults in North Carolina (35%) have been diagnosed with high blood pressure by a health care professional.<sup>3</sup>
- High blood pressure led to 40,481 hospital admissions and \$1.4 billion in hospital charges in North Carolina in 2018. That equates to \$35,625 per admission.
- The North Carolina Medicaid program spent \$205 million on 68,083 beneficiaries with high blood pressure in 2018.<sup>4</sup> That's about \$3,013 per beneficiary with high blood pressure.

## What are the risk factors for high blood pressure?

- Risk factors that cannot be controlled include: advanced age, gender (men between 45-64 years and women 65 years and older), race/ethnicity (African-Americans) and heredity.
- Risk factors that can be controlled include: overweight/obesity, physical inactivity, smoking and secondhand smoke, diabetes, excessive alcohol consumption and a unhealthy diet of processed foods high in sodium (Figure 1).
- Elevated blood pressure and protein in urine during pregnancy is known as preeclampsia and usually resolves within six weeks after delivery. Having preeclampsia during more than one pregnancy is a risk factor for high blood pressure later in life.

**Figure 1. Prevalence of modifiable risk factors for high blood pressure, North Carolina, 2017–2018**



## What are the symptoms of high blood pressure?

- High blood pressure is sometimes referred to as the “silent killer” because it usually has no warning signs or symptoms, so many people don’t realize they have it.
- Only when blood pressure readings soar to very high levels (systolic of 180 or higher OR diastolic of 120 or higher) do obvious symptoms occur, such as severe headaches, severe anxiety, shortness of breath and nosebleeds occur. This is known as a hypertensive crisis and is a medical emergency.

## How is high blood pressure diagnosed?

- A trained health professional uses blood pressure measurement devices to diagnose high blood pressure, as shown in Table 1.
- Your doctor may recommend monitoring your blood pressure at home in addition to your healthcare visits. For recommendations on selecting a blood pressure monitor and instructions for taking accurate blood pressure measurements at home, please visit the [American Heart Association website—Symptoms, Diagnosis & Monitoring of High Blood Pressure page](#).

**Table 1: The New Definition of Hypertension**

| Blood Pressure Category | Systolic Blood Pressure           |     | Diastolic Blood Pressure         |
|-------------------------|-----------------------------------|-----|----------------------------------|
| Normal                  | Less than 120 mmHg                | and | Less than 80 mmHg                |
| Elevated                | 120–129 mmHg                      | and | Less than 80 mmHg                |
| <b>Hypertension</b>     |                                   |     |                                  |
| Stage 1                 | 130–139 mmHg                      | or  | 80–89 mmHg                       |
| Stage 2                 | Greater than or equal to 140 mmHg | or  | Greater than or equal to 90 mmHg |

**Source:** National Center for Chronic Disease Prevention and Health Promotion, Division for Heart Disease and Stroke Prevention. Facts about Hypertension. [cdc.gov/bloodpressure/facts.htm](https://www.cdc.gov/bloodpressure/facts.htm)

## What are the complications of high blood pressure?

- For years, blood pressure above 140/90 mmHg was said to be uncontrolled high blood pressure and could lead to serious complications. Blood pressure below 140/90 mmHg was said to be controlled high blood pressure and would likely not lead to serious complications.
- However, the 2017 Guidelines for Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults recommended that blood pressure readings greater than 130/80 mmHg be classified as elevated.<sup>5</sup>
- More than two out of every three people (69%) who have a first heart attack, three out of every four (77%) who have a first stroke and three out of every four (74%) who have chronic heart failure also have high blood pressure.<sup>6</sup>
- Other complications of high blood pressure include kidney damage, vision loss, erectile dysfunction, memory loss, fluid in the lungs, angina and peripheral artery disease.

## What are the treatment options for high blood pressure?

- The goal of treating high blood pressure is to maintain blood pressure control in order to prevent or delay the development of complications.
- Research shows that a team-based approach to treatment—involving the patient, his or her social support system (family, friends and/or support groups), the health care provider team (doctors, nurses and allied health personnel), community health workers and pharmacists—is an effective way to achieve blood pressure control in patients.
- The main options for controlling high blood pressure include healthy lifestyle practices and blood pressure lowering medications. For more information on how to manage high blood pressure visit [startwithyourheart.com](http://startwithyourheart.com).
- Healthy lifestyle practices that are beneficial in controlling high blood pressure include:
  - Maintaining a healthy weight or losing weight (for those who are overweight or obese). See [esmmweighless.com](http://esmmweighless.com).
  - Engaging in regular physical activity. See [eatsmartmovemore.com](http://eatsmartmovemore.com).
  - Maintaining a healthy diet (including reducing sodium intake). For general information on physical activity and healthy eating, please visit
    - [eatsmartmovemore.com](http://eatsmartmovemore.com).
    - [medinsteadofmeds.com](http://medinsteadofmeds.com).
    - [cdc.gov/dhdsp/data\\_statistics/fact\\_sheets/fs\\_sodium.htm](http://cdc.gov/dhdsp/data_statistics/fact_sheets/fs_sodium.htm).
  - 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 (1-800-784-8669).
  - Limiting alcohol consumption. Men should have no more than two drinks per day, and women should have no more than one. For more information, visit [cdc.gov/alcohol](http://cdc.gov/alcohol).
  - Getting adequate sleep (at least 7 hours per night). For more information on adequate sleep visit [cdc.gov/features/sleep/index.html](http://cdc.gov/features/sleep/index.html).
- In many circumstances, one or more blood pressure lowering medications may be needed in combination with healthy lifestyle practices to maintain blood pressure control.
  - If blood pressure-lowering medications are recommended by a health care provider, taking them every day as prescribed is vital to help control high blood pressure. Patients should never stop taking their medications without first talking to their health care provider or pharmacist.

- Because blood pressure can fluctuate, home monitoring and recording of blood pressure readings can provide health care providers with valuable information to determine whether a given treatment plan is working.
  - Visit [startwithyourheart.com](http://startwithyourheart.com) for information on how to monitor blood pressure.
- Patients can also work with their pharmacists to measure blood pressure and monitor blood pressure medication adherence.

## How can high blood pressure be prevented?

- The development of high blood pressure can be prevented or delayed by adopting a healthy lifestyle and managing other medical conditions that increase the risk of high blood pressure.
- The healthy lifestyle practices that are beneficial in controlling high blood pressure are also beneficial in preventing high blood pressure. (Refer back to the treatment section.)
- In some cases, medications may be necessary to control other medical conditions that increase the risk of high blood pressure, such as diabetes. For fact sheets about diabetes and obesity in North Carolina, visit [communityclinicalconnections.com](http://communityclinicalconnections.com).

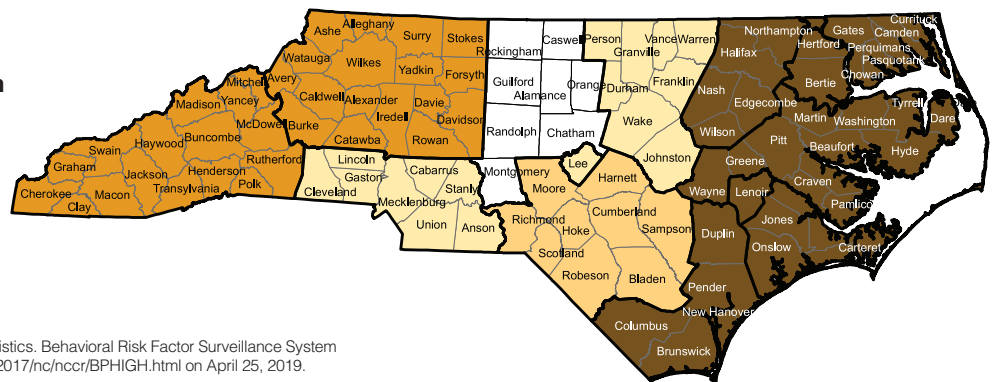
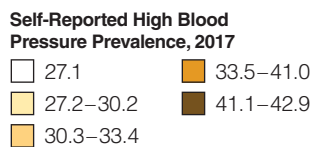
## How can the complications of high blood pressure be prevented?

- The primary way to prevent or delay complications of high blood pressure is to maintain blood pressure control. (Refer back to the treatment section.)

## What are the disparities, inequalities and inequities in the burden of high blood pressure?

- North Carolina has the 13th highest prevalence of diagnosed high blood pressure among the 50 states and Washington, D.C.<sup>7</sup>
- Non-Hispanic African-Americans (prevalence = 43%) are more likely to have been diagnosed with high blood pressure compared to non-Hispanic Whites (prevalence = 35%) in North Carolina.<sup>3</sup> In addition, there are about 11 more deaths per 100,000 population among non-Hispanic African-Americans (age-adjusted death rate = 21 per 100,000) compared to non-Hispanic Whites (age-adjusted death rate = 10 per 100,000) in North Carolina.<sup>8</sup>
- There is considerable geographic variation in the prevalence of high blood pressure and death and hospitalization rates due to high blood pressure, with the eastern part of the state generally having a higher burden. (Figure 2)

**Figure 2. Diagnosed High Blood Pressure Prevalence by Area Health Education Centers (AHEC)**



**Data Source:** North Carolina State Center for Health Statistics, Behavioral Risk Factor Surveillance System (BRFSS). Accessed at [schs.dph.ncdhs.gov/data/brfss/2017/nc/nccr/BPHIGH.html](http://schs.dph.ncdhs.gov/data/brfss/2017/nc/nccr/BPHIGH.html) on April 25, 2019.

## REFERENCES

1. Kochanek KD, Murphy SL, Xu JQ, Arias E. Deaths: Final data for 2017. National Vital Statistics Reports; vol 68 no 9. Hyattsville, MD: National Center for Health Statistics. 2019.
  2. North Carolina Department of Health and Human Services, Division of Public Health, State Center for Health Statistics. Detailed Mortality Statistics Report: 2018 North Carolina Resident Deaths. Accessed at [schs.dph.ncdhs.gov/data/vital/dms/2018](http://schs.dph.ncdhs.gov/data/vital/dms/2018) on February 13, 2020.
  3. 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.ncdhs.gov/data/brfss/2017/nc/all/BPHIGH.html](http://schs.dph.ncdhs.gov/data/brfss/2017/nc/all/BPHIGH.html) on February 14, 2020.
  4. North Carolina Department of Health and Human Services, Division of Medical Assistance. Data produced upon request, April 23, 2019.
  5. 2017 ACC/AHA/AAPA/ABC/ACMP/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol* 2017; Nov 13.
  6. American Heart Association. Heart disease and stroke statistics—2015 Update: A report from the American Heart Association.
  7. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System. Sortable Risk Factors and Health Indicators. Accessed at [sortablestats.cdc.gov/#](http://sortablestats.cdc.gov/#) on December 12, 2016.
  8. Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2018 on CDC WONDER Online Database, released in 2020. Data are from the Multiple Cause of Death Files, 1999-2018, 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 Feb 14, 2020
- In addition to the above references this fact sheet was developed with heavy reliance on information from:
- The American Heart Association website: [heart.org/HEARTORG/Conditions/HighBloodPressure/High-Blood-Pressure-or-Hypertension\\_UCM\\_002020\\_SubHomePage.jsp](http://heart.org/HEARTORG/Conditions/HighBloodPressure/High-Blood-Pressure-or-Hypertension_UCM_002020_SubHomePage.jsp).
  - The Centers for Disease Control and Prevention website: [cdc.gov/bloodpressure/about.htm](http://cdc.gov/bloodpressure/about.htm)