The Burden of Cardiovascular Disease in North Carolina

Justus-Warren Heart Disease and Stroke Prevention
Task Force Meeting
January 7, 2021

Purpose

1. To detail the burden of heart disease and stroke in North Carolina

2. To examine the risk factors for heart disease and stroke including identification of subpopulations at highest risk

3. To publicize the profile of the heart disease and stroke burden and its preventability

4. To identify priority strategies which are effective in preventing and controlling risks for heart disease and stroke

5. To recommend to the Governor and General Assembly funding and strategies needed to modify or enact laws to enhance heart disease and stroke prevention

US Heart Disease Death Rates and Ranking by State, 2015 - 2019

State	2015		2016		2017		2018		2019	
	Age Adjusted Death Rate	US Rank	Age Adjusted Death Rate	US Rank	Age Adjusted Death Rate	US Rank	Age Adjusted Death Rate	US Rank	Age Adjusted Death Rate	US Rank
Maryland	169.3	21	164.3	22	164.5	21	161.9	24	159.3	24
Rhode Island	160.4	26	152.4	33	155.7	29	158.9	27	159.3	25
Wisconsin	156.0	31	154.9	30	157.6	27	157.8	29	158.8	26
New Mexico	142.4	43	150.6	36	151.4	33	148.2	35	158.2	27
South Dakota	150.9	38	153.4	32	150.1	35	156.3	30	158.1	28
New Jersey	166.7	22	164.7	21	162.3	24	163.0	23	158.0	29
Montana	155.8	32	154.4	31	155.0	30	163.2	22	157.1	30
North Carolina	162.4	24	155.8	29	156.5	28	155.5	31	154.7	31
Delaware	165.2	23	163.2	23	158.4	25	159.1	25	154.3	32
Vermont	152.5	37	158.8	27	152.5	32	150.5	34	151.6	33
Idaho	156.4	30	160.0	25	162.4	23	157.9	28	150.7	34
Wyoming	159.4	27	157.8	28	148.9	38	152.7	32	150.4	35
Virginia	154.2	34	150.7	35	154.5	31	147.9	36	149.1	36

Heart Disease: ICD-10 codes I00-I09, I11, I13, I20-I51.
Rates per 100,000 population, age-adjusted to the 2000 U.S. standard population.
Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2019 on CDC WONDER Online Database, released in 2020. Accessed at https://wonder.cdc.gov/ucd-icd10.html on January 4, 2021.

US Stroke Death Rates and Ranking by State, 2015 - 2019

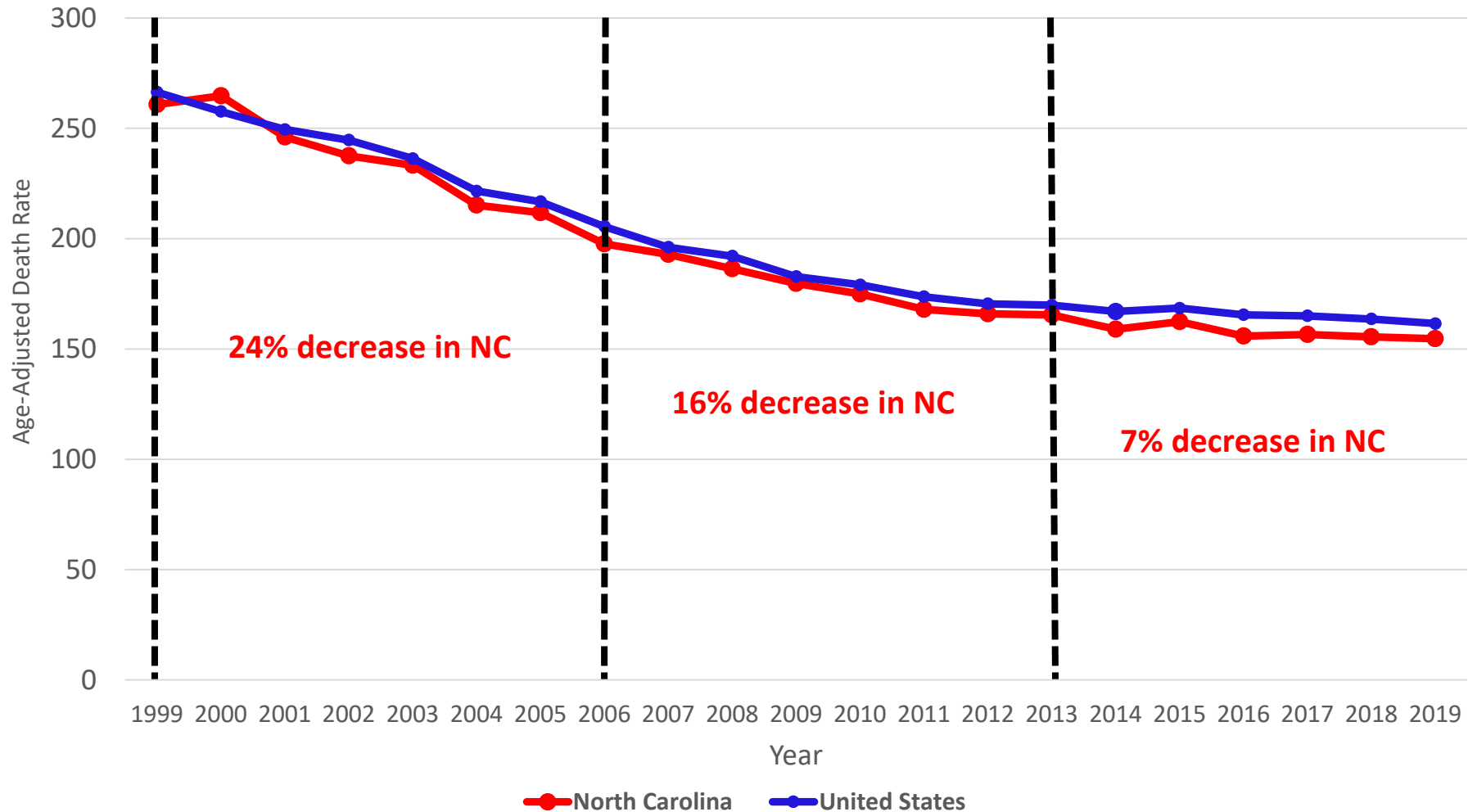| State	2015		2016		2017		2018		2019	
	Age Adjusted Death Rate	US Rank	Age Adjusted Death Rate	US Rank	Age Adjusted Death Rate	US Rank	Age Adjusted Death Rate	US Rank	Age Adjusted Death Rate	US Rank
Louisiana	46.0	5	46.0	3	47.4	3	46.7	3	44.1	4
Kentucky	40.8	12	40.4	14	39.4	18	41.5	10	42.5	5
Ohio	40.7	14	40.6	13	42.8	11	42.6	8	42.2	6
South Carolina	46.7	4	45.5	6	44.9	6	45.5	5	42.2	7
Georgia	45.3	7	44.3	7	43.5	8	43.4	7	41.9	8
Maryland	37.8	24	39.7	16	40.2	16	40.3	12	41.8	9
Tennessee	46.0	6	46.0	4	45.0	5	43.6	6	41.8	10
North Carolina	44.7	8	43.0	8	43.0	10	41.3	11	41.5	11
Indiana	39.1	16	39.5	17	40.2	15	39.3	18	41.4	12
Arkansas	46.8	3	45.6	5	43.8	7	41.5	9	40.7	13
Florida	37.1	28	37.3	26	38.9	20	39.6	17	40.4	14
West Virginia	43.8	9	41.7	11	41.8	12	38.6	20	40.2	15
Oregon	37.5	27	37.8	25	39.9	17	38.0	22	39.5	16

Stroke: ICD-10 codes I60-I69.
Rates per 100,000 population, age-adjusted to the 2000 U.S. standard population.
Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2019 on CDC WONDER Online Database, released in 2020. Accessed at
https://wonder.cdc.gov/ucd-icd10.html on January 4, 2021.

Heart Disease Death Rates, NC vs. US, 1999 - 2019

24% decrease in NC

16% decrease in NC

7% decrease in NC

Age-Adjusted Death Rate

Year
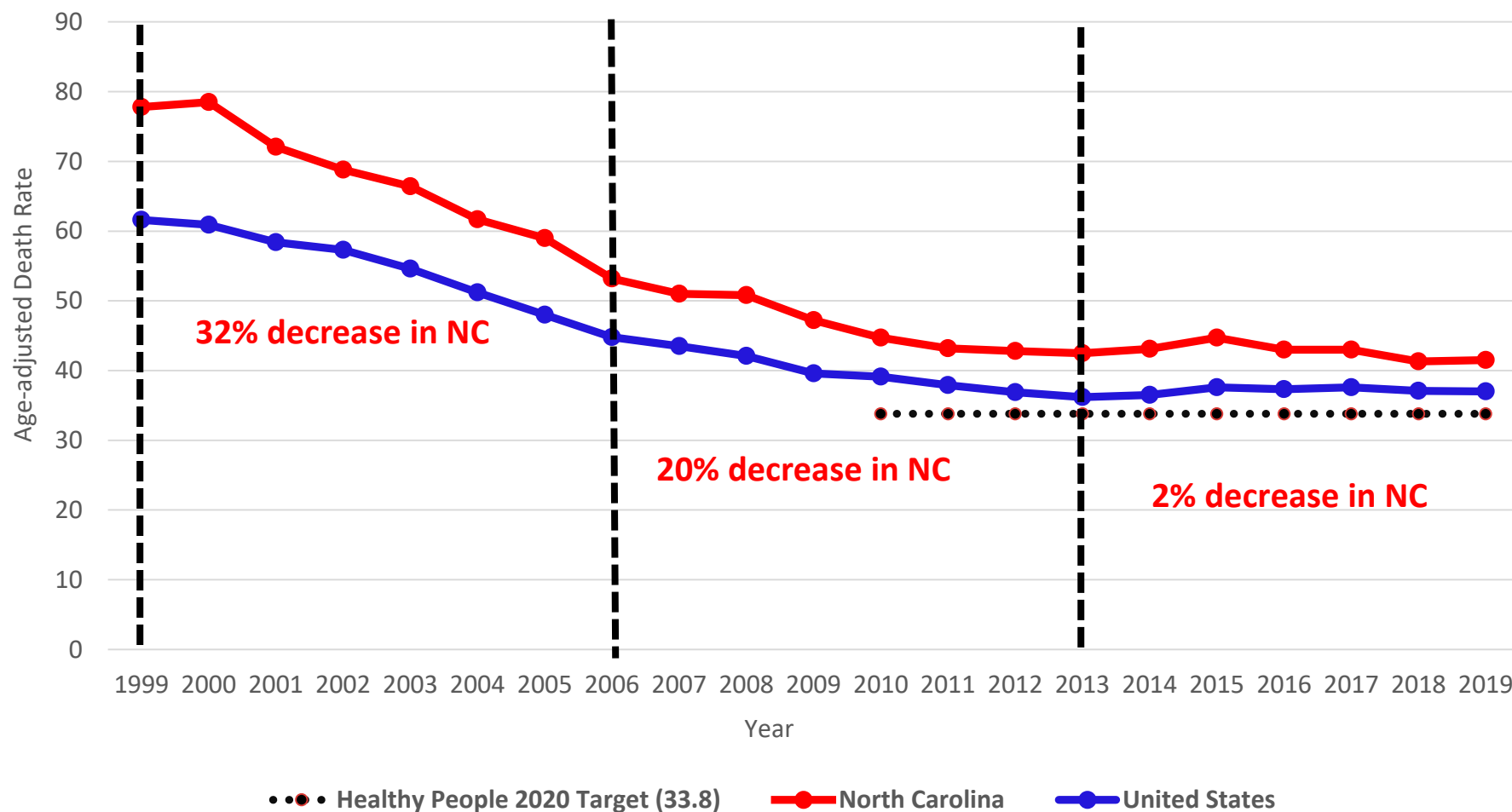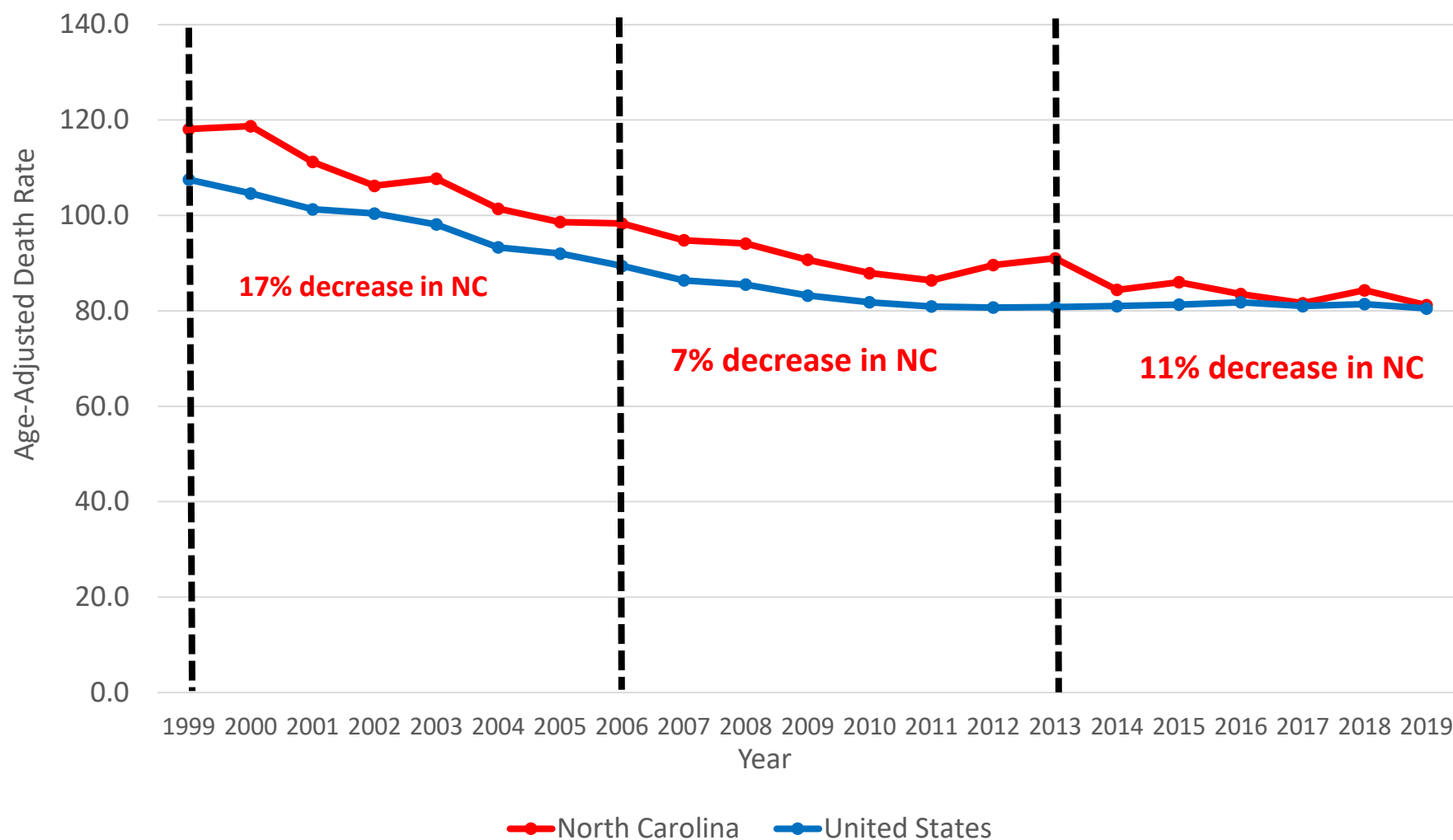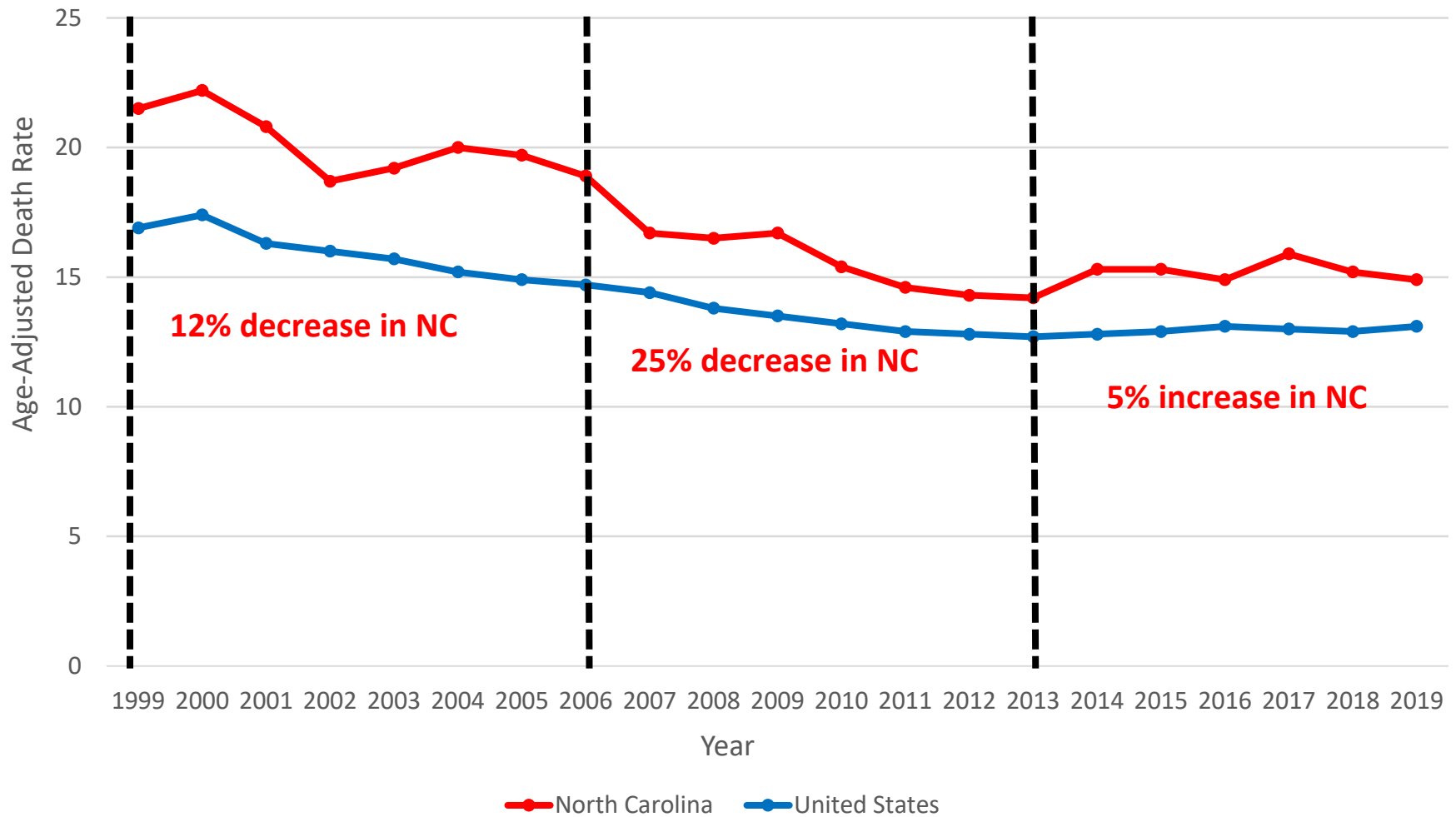
● North Carolina ● United States

Heart Disease: ICD-10 codes I00-I09, I11, I13, I20-I51
Rates per 100,000 population, age-adjusted to the 2000 U.S. standard population.
Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2019 on CDC WONDER Online Database, released in 2020. Accessed at
https://wonder.cdc.gov/ucd-icd10.html on January 4, 2021.

Stroke Death Rates NC vs. US, 1999 - 2019

Age-adjusted Death Rate (y-axis: 0 to 90)

Year (x-axis: 1999 – 2019)

32% decrease in NC

20% decrease in NC

2% decrease in NC

• • • • Healthy People 2020 Target (33.8)   ——●—— North Carolina   ——●—— United States

Stroke: ICD-10 codes I60-I69

Rates per 100,000 population, age-adjusted to the 2000 U.S. standard population.
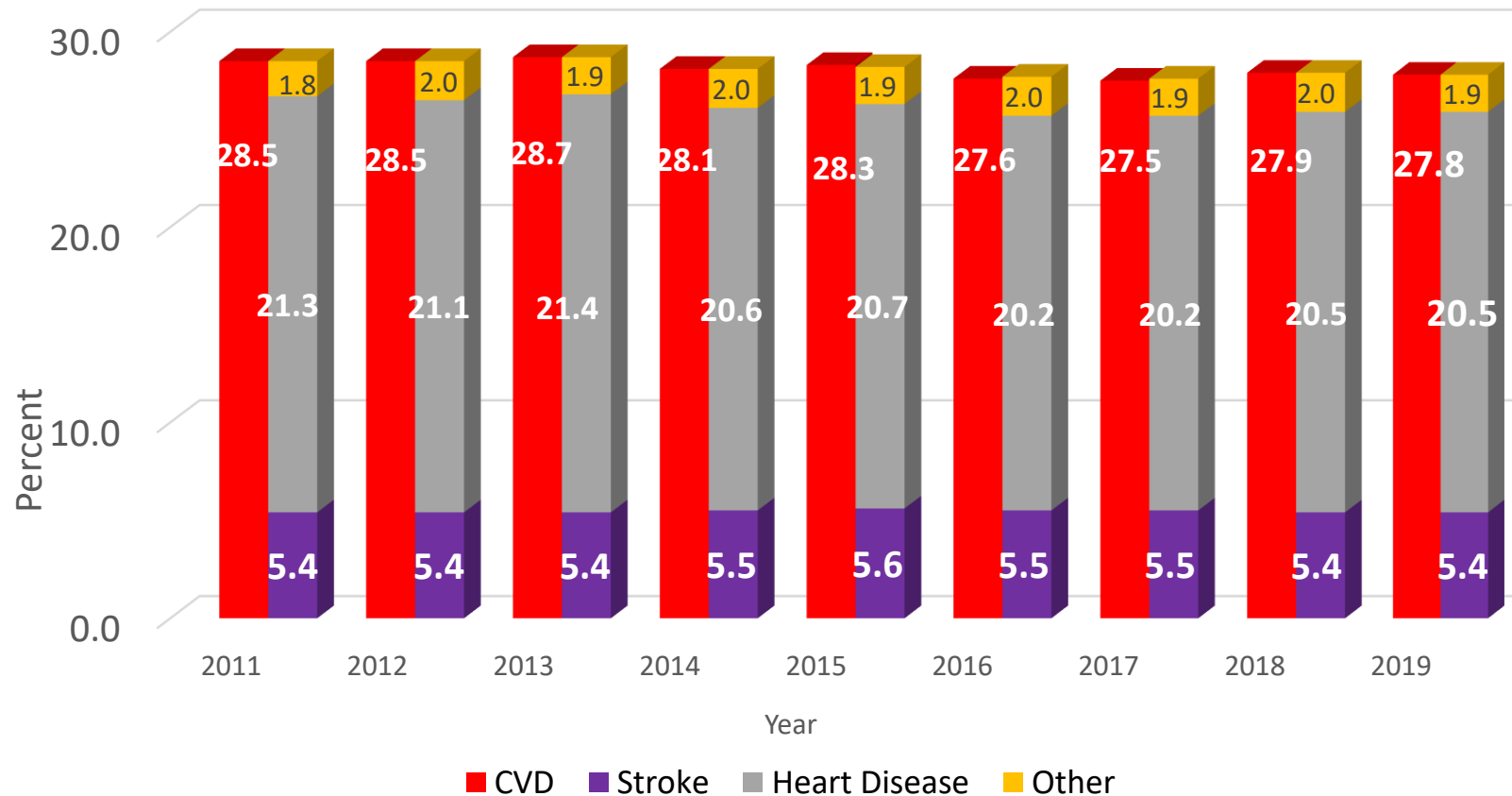
Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2019 on CDC WONDER Online Database, released in 2020. Accessed at https://wonder.cdc.gov/ucd-icd10.html on January 4, 2021.

Heart Disease Death Rates, Ages 35-64 Years, NC vs. US, 1999 - 2019

17% decrease in NC

7% decrease in NC

11% decrease in NC

●—● North Carolina   ●—● United States

Stroke Death Rates, Ages 35-64 Years, NC vs. US, 1999 - 2019

Leading Causes of Death, NC, 2019

Rank	Cause	Number	%
1	Cancer	19,963	20.8
2	**Diseases of heart**	**19,661**	**20.5**
3	Chronic lower respiratory diseases	5,411	5.6
4	**Cerebrovascular diseases**	**5,203**	**5.4**
5	All other unintentional injuries	4,683	4.9
6	Alzheimer's disease	4,508	4.7
7	Diabetes mellitus	3,127	3.3
8	Nephritis, nephrotic syndrome and nephrosis	2,121	2.2
9	Influenza and pneumonia	1,733	1.8
10	Motor vehicle injuries	1,608	1.7
	All other causes (Residual)	27,933	29.1
	Total Deaths -- All Causes	95,951	100

Percentage of Deaths Caused by CVD, NC, 2011 - 2019

Legend: CVD | Stroke | Heart Disease | Other

Year	CVD	Heart Disease	Stroke	Other
2011	28.5	21.3	5.4	1.8
2012	28.5	21.1	5.4	2.0
2013	28.7	21.4	5.4	1.9
2014	28.1	20.6	5.5	2.0
2015	28.3	20.7	5.6	1.9
2016	27.6	20.2	5.5	2.0
2017	27.5	20.2	5.5	1.9
2018	27.9	20.5	5.4	2.0
2019	27.8	20.5	5.4	1.9

CVD Deaths includes deaths from ICD-10 codes I00-I78; Heart Disease ICD -10 codes I00-I09, I11, I13, I20-I51.; Stroke ICD -10 codes I60-I69.
Data Source: North Carolina Division of Public Health, State Center for Health Statistics. Detailed Mortality Statistics for North Carolina. SCHS Online Database, accessed at https://schs.dph.ncdhhs.gov/data/vital.cfm on January 4, 2021.

Hospitalization Charges for Selected Cardiovascular Disease Conditions and Risk Factors, NC, 2019

DIAGNOSTIC CATEGORY	TOTAL CHARGES	TOTAL CASES	CHARGE PER CASE
HEART DISEASE	**$6.5 Billion**	**112,956**	**$57,517**
STROKE	**$1.8 Billion**	**31,878**	**$56,426**
CORONARY HEART DISEASE	$2.6 Billion	30,654	$83,650
HEART FAILURE	$182 Million	3,521	$51,740
DIABETES MELLITUS	$893 Million	24,817	$35,992
HYPERTENSION	$1.6 Billion	42,387	$38,241

Medicaid Expenditures on Beneficiaries with Selected Cardiovascular Disease Conditions and Risk Factors, NC, 2019

DIAGNOSTIC CATEGORY	TOTAL CHARGES	BENEFICIARIES	CHARGE PER BENEFICIARY
HEART DISEASE	**$805 Million**	**171,384**	**$4,700**
STROKE	**$413 Million**	**53,471**	**$7,731**
CORONARY HEART DISEASE	$277 Million	71,861	$3,851
HEART FAILURE	$361 Million	59,778	$6,046
DIABETES MELLITUS	$677 Million	160,771	$4,212
HYPERTENSION	$224 Million	69,779	$3,216

ICD-10 codes: Heart Disease (I00-I09, I11, I13, I20-I51), Stroke (I60 – I69), Coronary Heart Disease (I20 – I25), Heart Failure (I50), Diabetes Mellitus (E10-E11), Hypertension (I10-I15). Medicaid costs only by principal diagnosis.
Data Source: North Carolina Division of Medical Assistance. Data produced on request on March 31, 2020.

Morbidity, NC, 2019

- About 800,000 adult North Carolinians (9.7% of the adult population) have a history of either heart attack, coronary heart disease or stroke[1]

- Cardiovascular disease (CVD) is the leading cause of hospitalization in North Carolina[2]

  - 158,243 CVD hospital discharges (16% of all discharges) in 2019
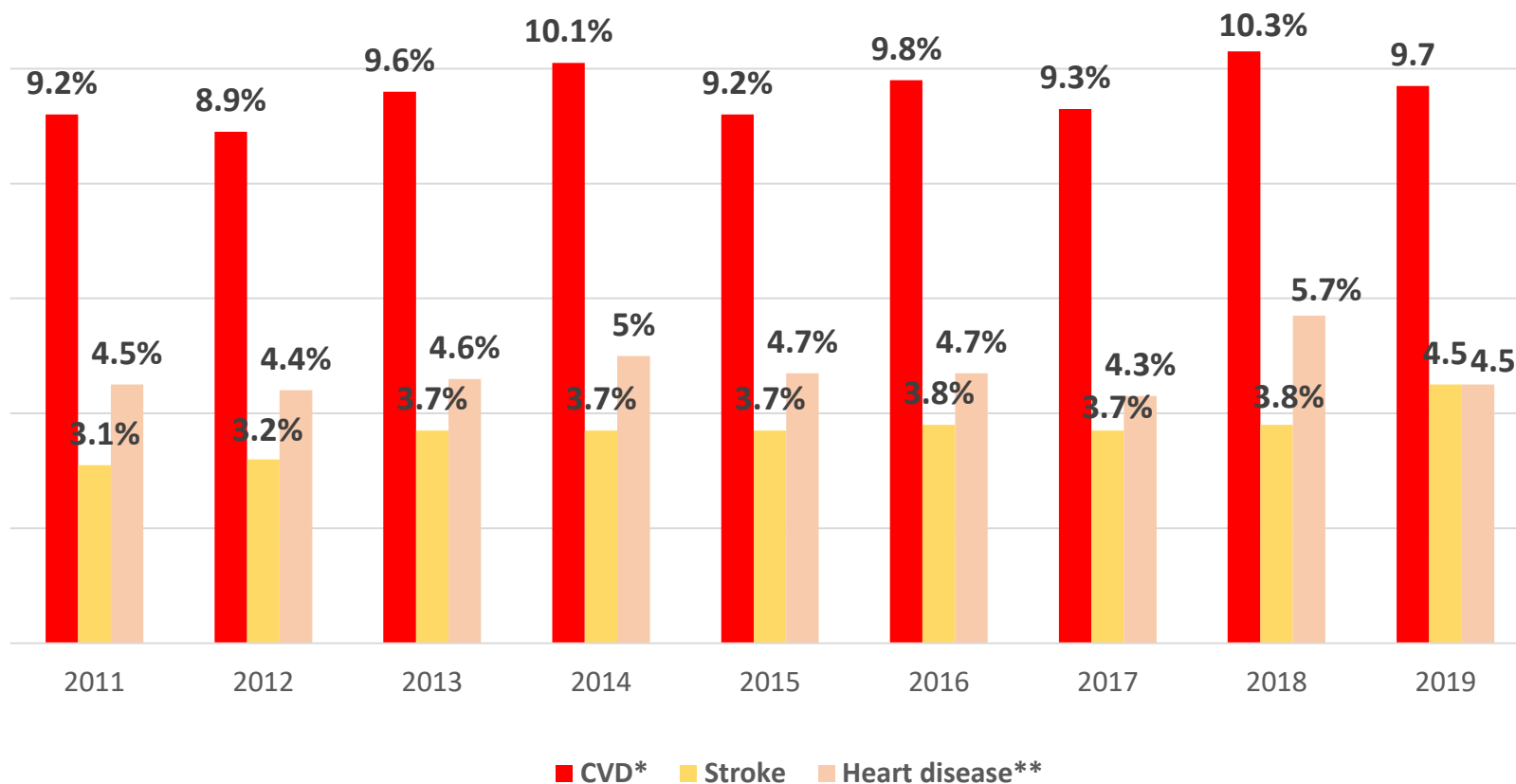
    - 31,878 stroke

    - 112,956 heart disease

Prevalence of Cardiovascular Disease in Adults, NC, 2011 - 2019
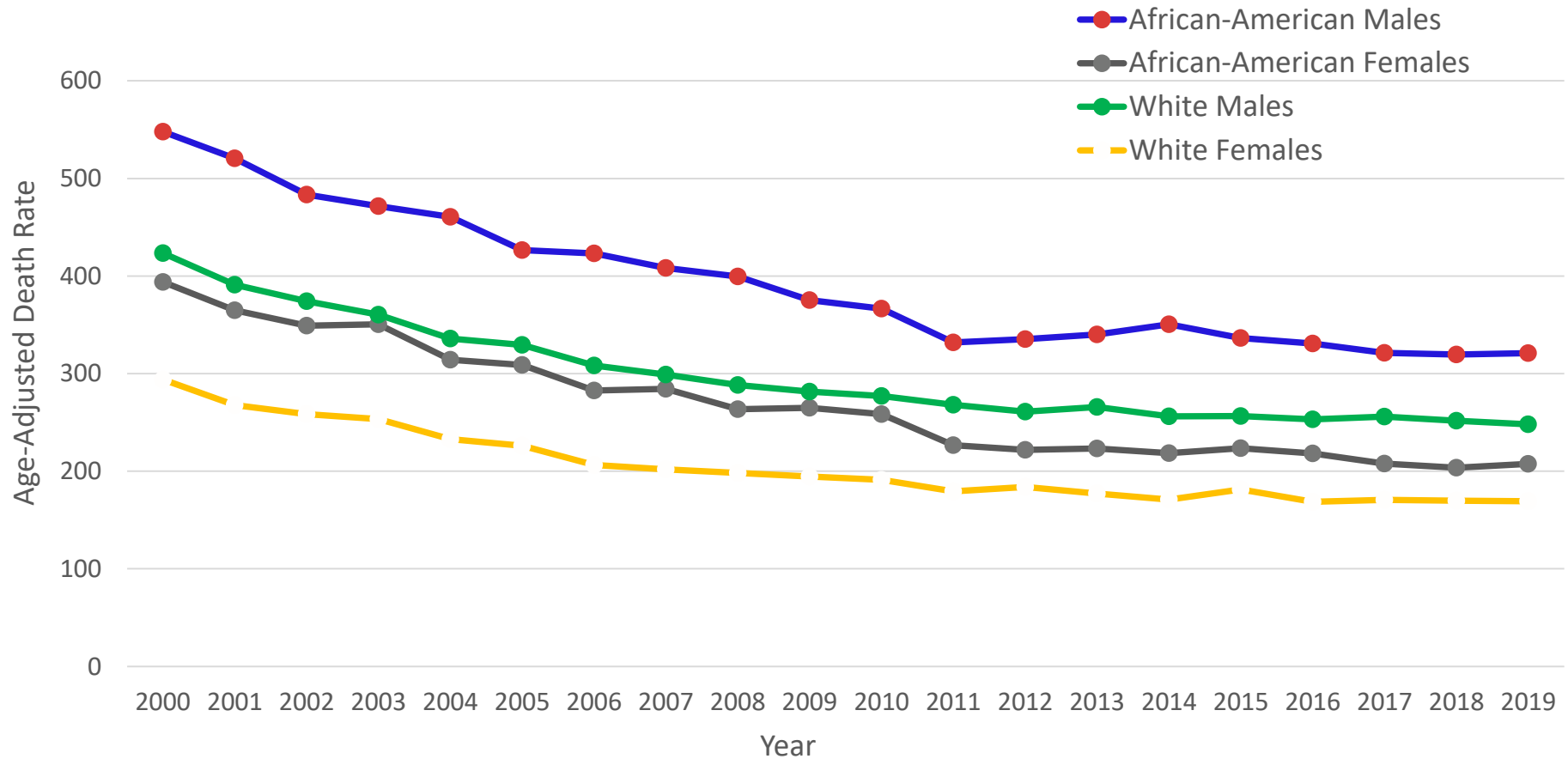

Legend: CVD* ■ Stroke ■ Heart disease**

*History of Any Cardiovascular Diseases (heart attack or coronary heart disease or stroke)
** Had angina or coronary heart disease
Data Source: NC State Center for Health Statistics. Behavioral Risk Factor Surveillance System (BRFSS) accessed at http://www.schs.state.nc.us/data/brfss/survey.htm on January 4, 2021.

Major Cardiovascular Disease Death Rates
by Race and Gender, NC, 1999 - 2019

Legend:
- African-American Males
- African-American Females
- White Males
- White Females

Y-axis: Age-Adjusted Death Rate (0, 100, 200, 300, 400, 500, 600)
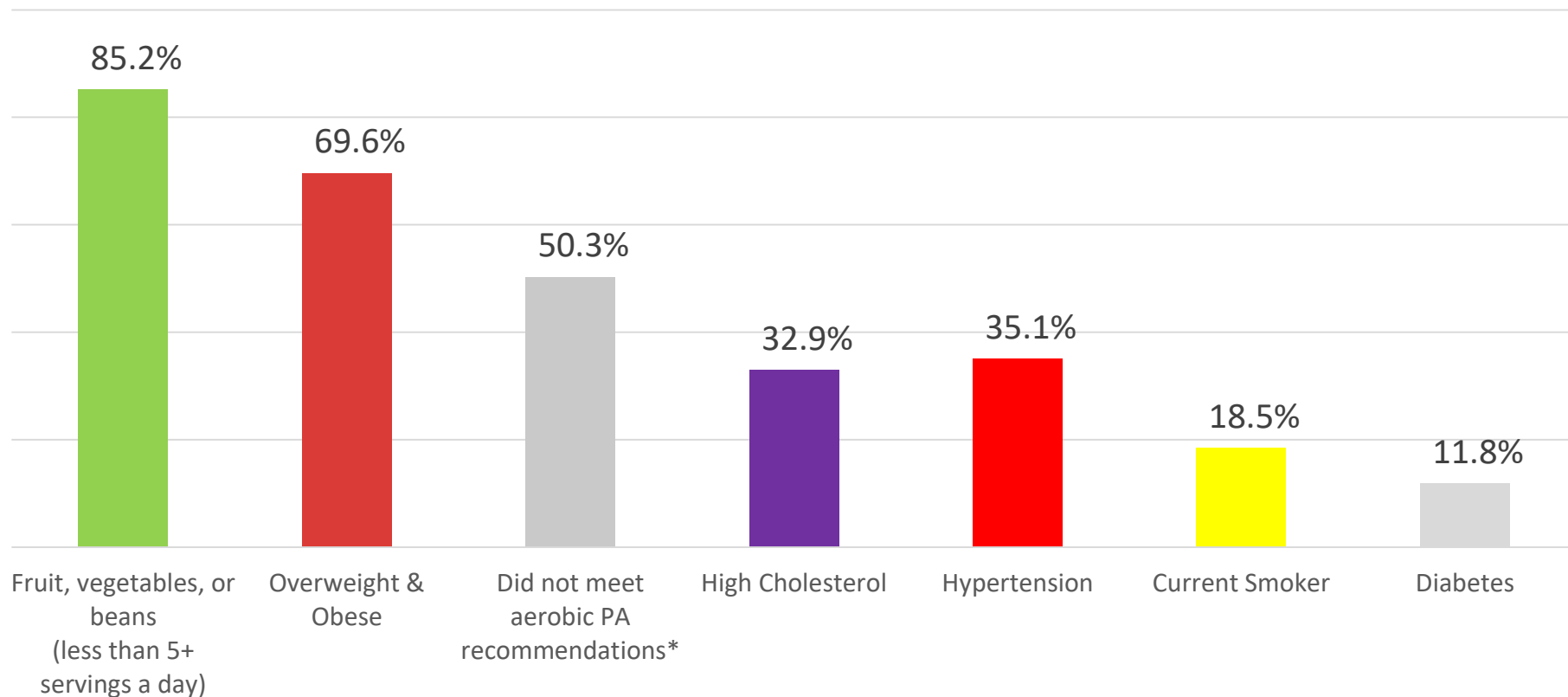
X-axis: Year (2000–2019)

Major Cardiovascular Disease: ICD-10 codes I00-I78
Rates per 100,000 population, age-adjusted to the 2000 U.S. standard population.
<u>Data Source:</u> Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2019 on CDC WONDER Online Database, released in 2020. Accessed at
https://wonder.cdc.gov/ucd-icd10.html on January 5, 2021.

Prevalence of CVD Risk Factors, NC, 2019

Bar chart showing prevalence of CVD risk factors:
- Fruit, vegetables, or beans (less than 5+ servings a day): 85.2%
- Overweight & Obese: 69.6%
- Did not meet aerobic PA recommendations*: 50.3%
- High Cholesterol: 32.9%
- Hypertension: 35.1%
- Current Smoker: 18.5%
- Diabetes: 11.8%

Adults=18+; *PA = Physical activity

Resources for Preventing Cardiovascular Disease

- Maintaining a healthy weight or losing weight.
  For information on achieving a healthy weight, visit esmmweighless.com

- Engaging in regular physical activity and healthy eating (including reducing sodium intake)
  For information on physical activity and healthy eating, visit eatsmartmovemorenc.com

- Avoiding tobacco products and secondhand smoke for non-smokers and quitting for current smokers
  For information visit quitlinenc.com or call 1-800-QUIT-NOW (1-800-784-8669)

- Preventing diabetes
  For information and to find a program visit diabetesfreenc.com

- Preventing diabetes
  For information on preventing or delaying the onset of type 2 diabetes visit esmmpreventdiabetes.com

Resources for Preventing Cardiovascular Disease

- Working with your health care team to manage diabetes
  For information visit diabetesnc.com

- Managing high blood pressure
  For resources and information visit startwithyourheart.com

- Limiting alcohol consumption.
  For more information visit cdc.gov/alcohol

- My Life Check - Life's Simple 7
  For resources and to conduct a heart self-assessment, visit heart.org

Visit startwithyourheart.com for more data, fact sheets, and resources.