The Burden of Cardiovascular Disease in North Carolina

Start With Your Heart
Justus-Warren Heart Disease & Stroke Prevention Task Force

Justus-Warren Heart Disease and Stroke Prevention
Task Force Meeting
April 11, 2018

1

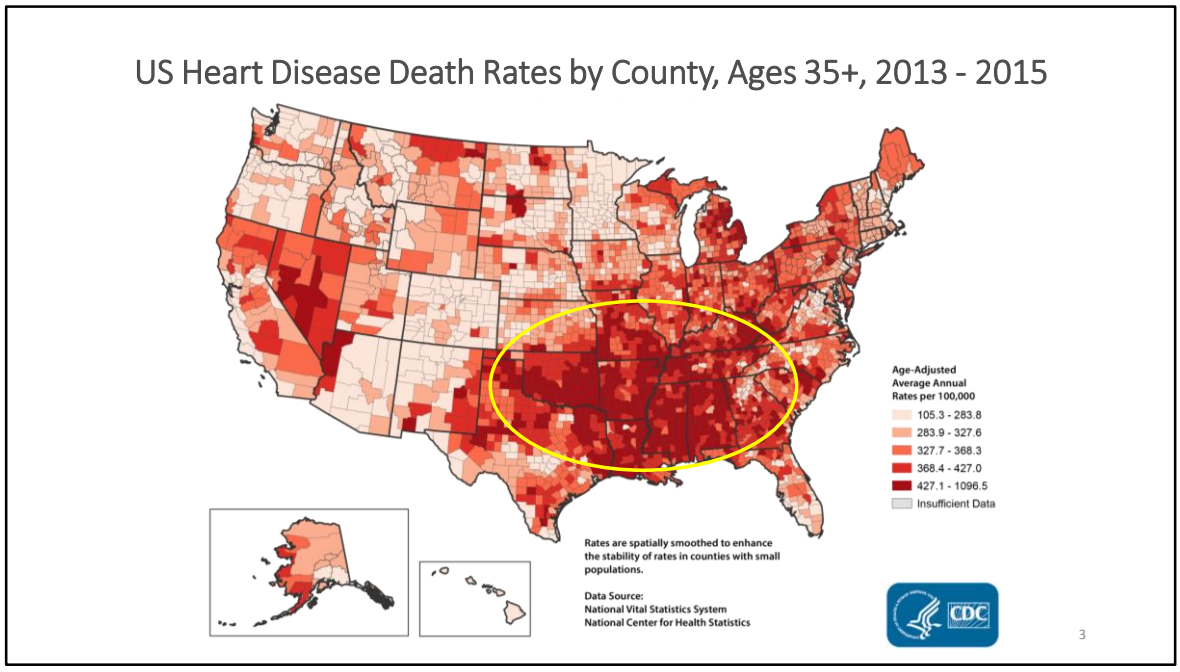
In 2017 the National Center for Health Statistics reported that US life expectancy had decreased from 2015 to 2016 for the second year in a row. What is causing this downturn for the first time in 2 decades?
Since 2010 or so, there has been a substantial slowdown in the rate of decline for cardiovascular mortality. It seems to be leveling off.
How are we doing in North Carolina?

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

2

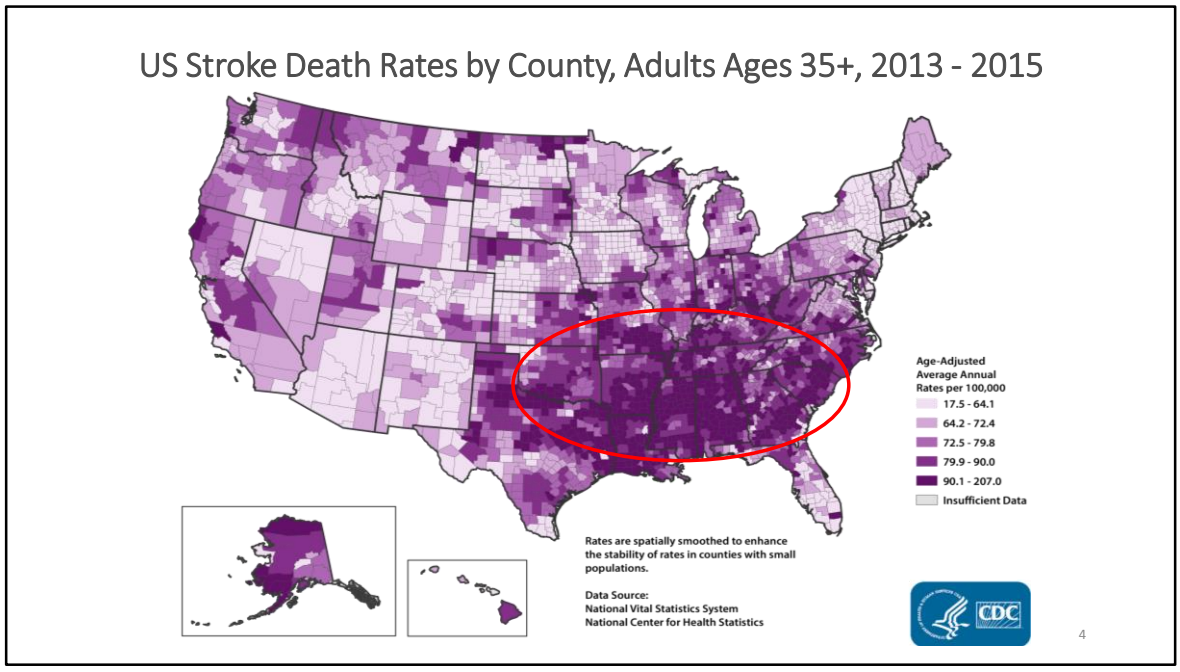
Today we dig into the data. The Task Force is charged with creating a burden profile, examining risk factors including identifying subpopulations at highest risk and we are charged to publicize the profile. We are also charged with identifying priority strategies to prevent and control risks and to make recommendations to the GA and governor on funding and strategies needed to modify or enact laws to enhance heart disease and stroke prevention. In order to do that, we begin by examining the burden profile.



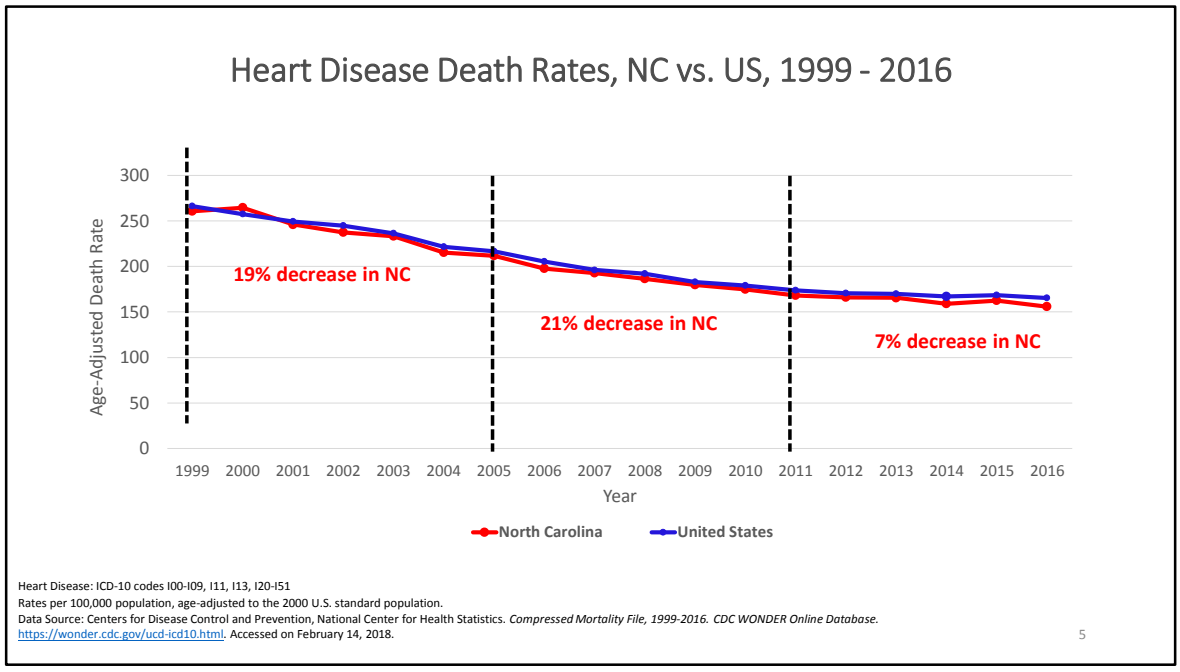
This presentation is part of a larger burden profile that has been posted on SWYH under data. Epidemiologist Essete Kebede has gathered the most current data available from the CDC, State Center, Medicaid, research articles, etc. At the bottom of the slide you'll find the source material.

We will start with the US and move to state level and then to county-level data. As we go through the deck, we will show heart disease and then stroke data.

This first map shows recent heart disease death rates in the US. Heart disease is the #1 cause of death, and stroke is the 5th in the US. In this slide, the darker the red, the higher the rate of death by heart disease.

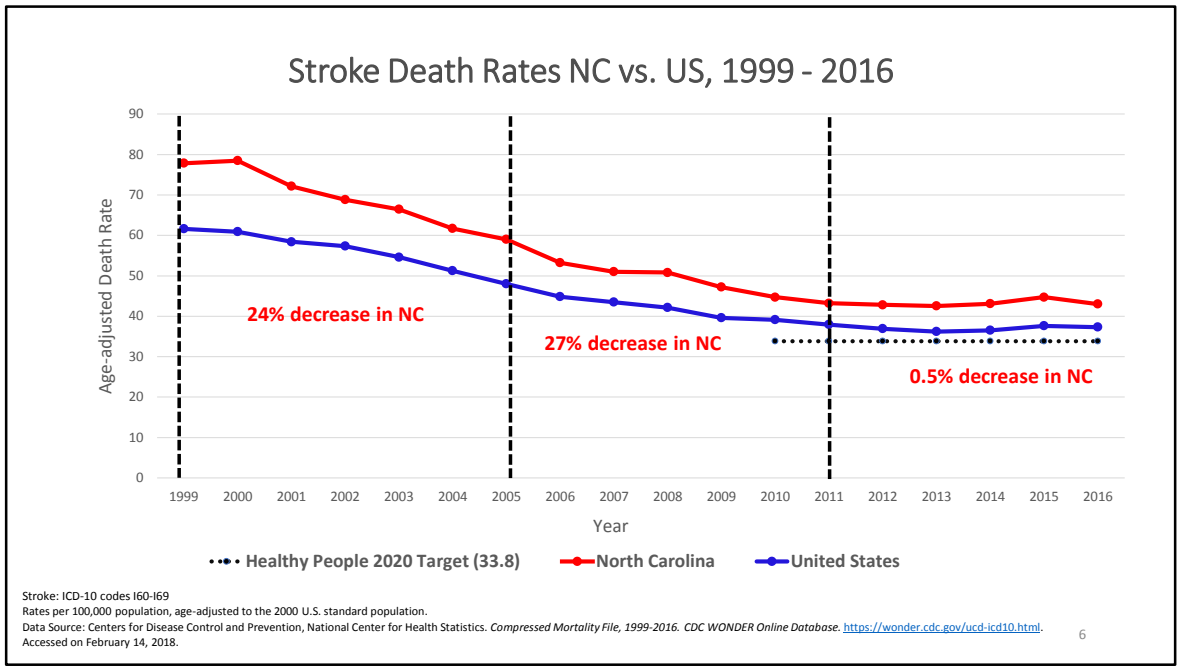


The swath of southeastern states that has a concentration of high stroke death rates was termed the stroke belt, has been studied for 20 years and continues to be studied to try to understand the cause. Recent trends in stroke death rates show that after more than four decades of decline, stroke death rates in the US have declined more slowly, stalled or reversed among some subpopulations.
At this point, I'd like to ask epidemiologist Essete Kebede who gathered all this data to present.



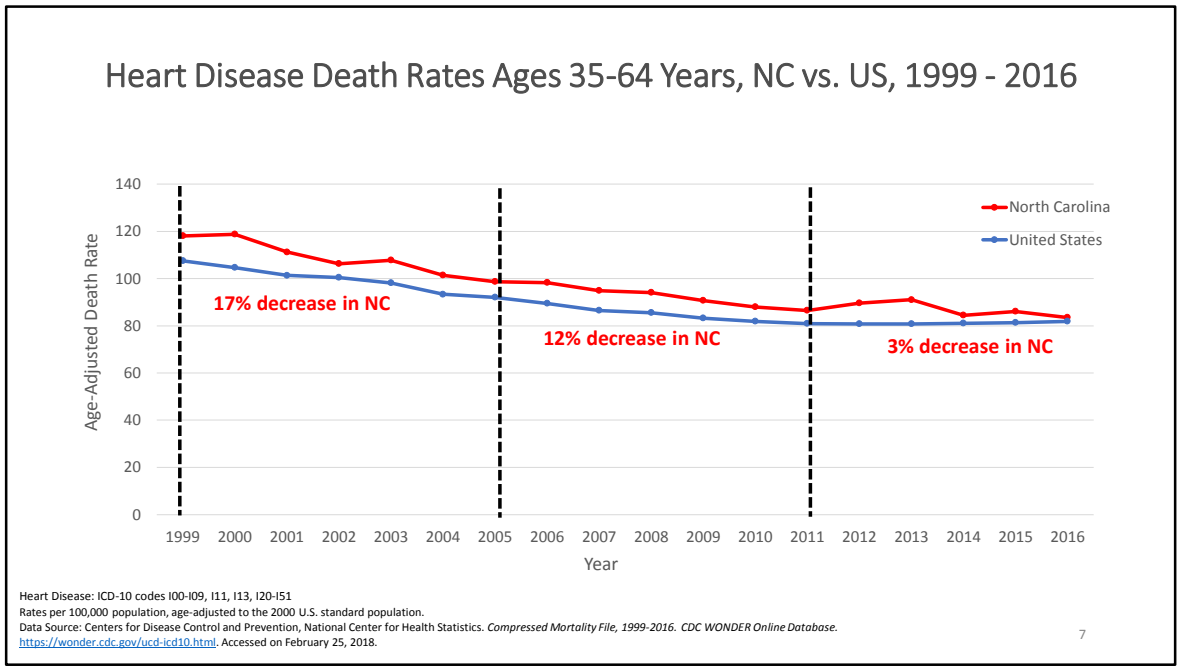
Essete

This graph shows that the dramatic decreases in heart disease death rates in NC (in red) and the US (in blue) have declined. There was a 19% decrease in NC between the 1999 death rate and the 2005 death rate; 21% decrease between the 2005 rate and the 2011 rate; and only 7% decrease between the 2011 rate and the 2016 rate.



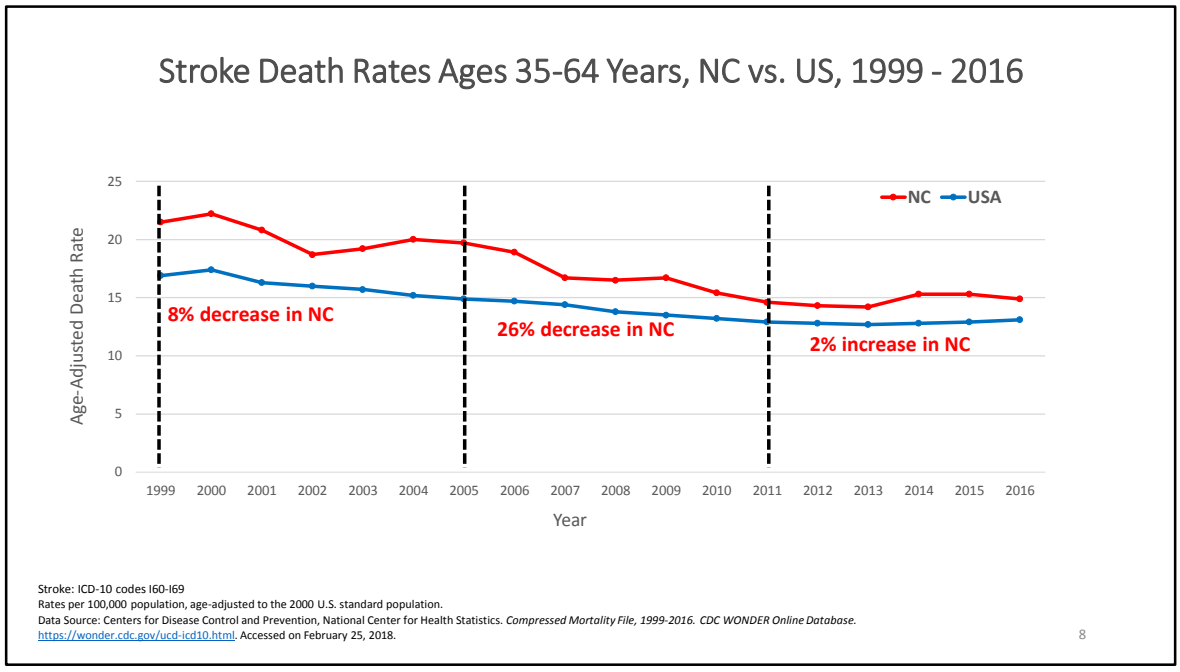
This graph shows stroke death rates in NC (in red) and the US (in blue). The rate of decline has slowed in NC. There was a 24% decrease between the 1999 stroke death rate and the 2005 rate; 27% decrease between the 2005 rate and the 2011 rate; but only 0.5% decrease between the 2011 rate and the 2016 rate.

The 2020 target is to lower the stroke death rate to 33.8. However, the 2016 rate (the most recent data we have) was 43.0.



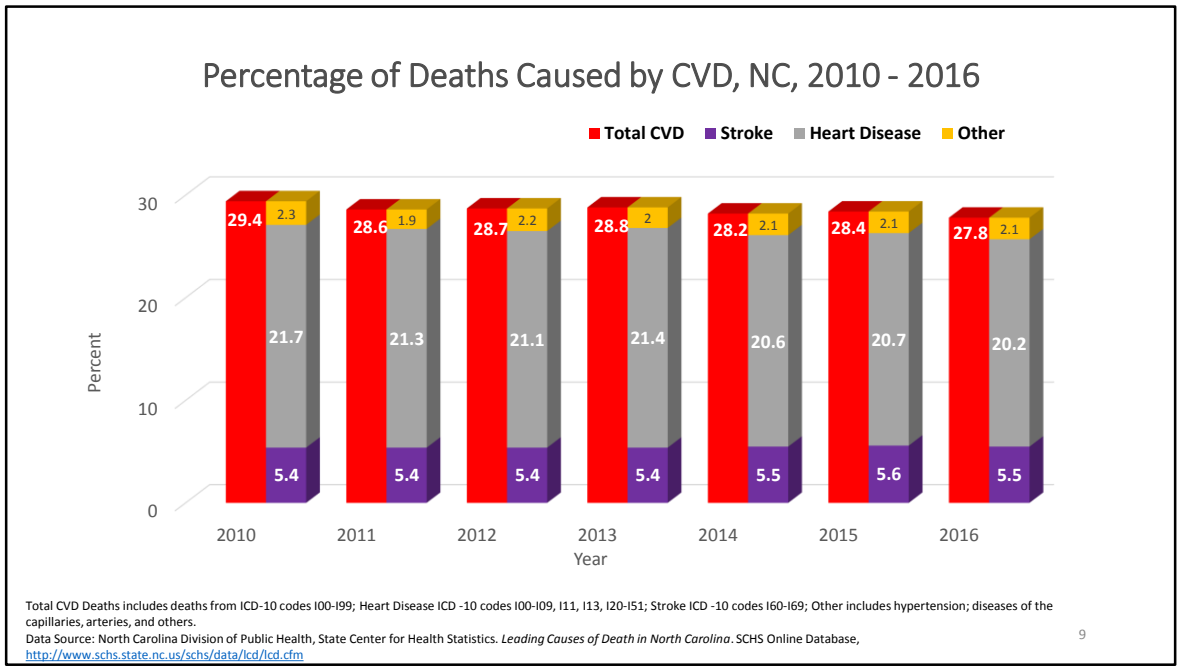
Note the age range on this graph. Heart disease death rates in those 35-64. Rates among this age group have declined. There was a 17% decrease between the 1999 death rate and the 2005 rate; 12% decrease between the 2005 death rate and the 2011 rate; and only 3% decrease between the 2011 rate and the 2016 rate.

The gap between NC and US narrowed in 2016; NC had 84 death rate and US had 82.



Stroke death rates among adults ages 35-64. In NC, the rates have been fluctuating. It picked in 2000, dropped in 2002, picked up again in 2004. In 2013, reached to its lowest point but picked up again in 2014 and 2015.

There was an 8% decrease between the 1999 rate and the 2005 rate, then 26% decrease between the 2005 rate and the 2011 rate, and 2% increase between the 2011 rate and the 2016.

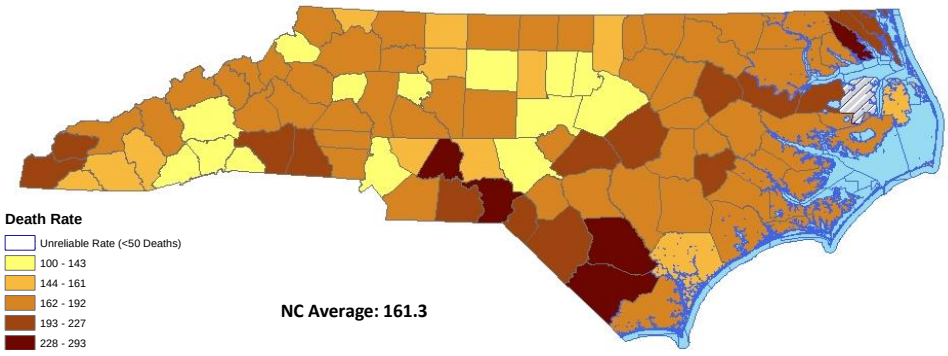


This double bar graph shows the percentage of deaths caused by cardiovascular disease in NC. The red bar shows total CVD deaths in a year, and the joint bar shows breakdown of deaths caused by CVD. The percentages of deaths caused by heart disease in gray, stroke in purple, and other conditions of CVD (hypertension; diseases of the capillaries, arteries, and others) in orange.

CVD accounts for 1 in every 4 deaths in NC. Heart disease and stroke contribute to over 90% of deaths caused by CVD.

Now I'll turn it back over to Anna Bess.

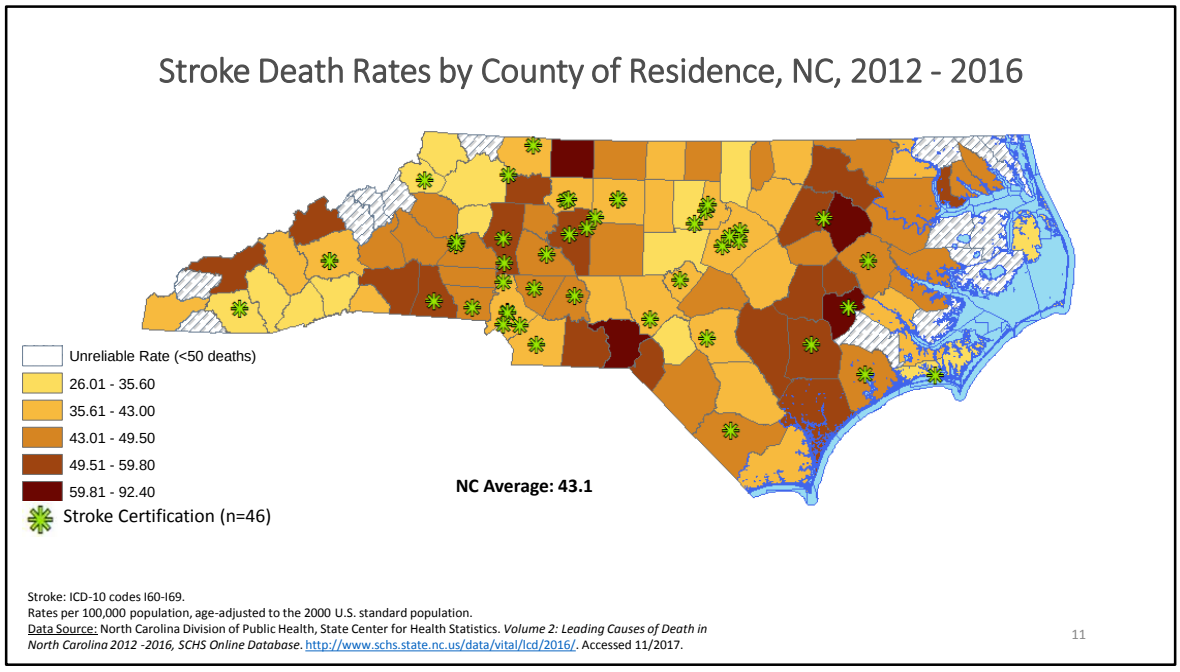
Heart Disease Death Rates by County of Residence, NC, 2012 - 2016



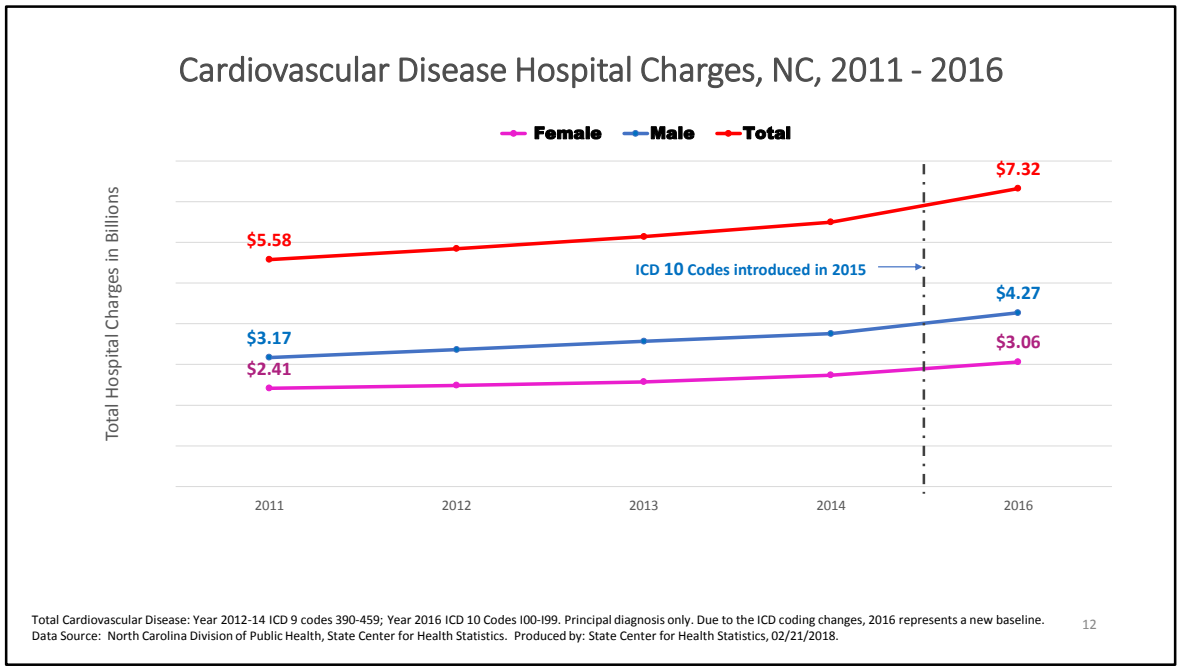
Heart Disease: ICD-10 codes I00-I09, I11, I13, I20-I51.
Rates per 100,000 population, age-adjusted to the 2000 U.S. standard population.
N.C. Data Source: North Carolina Division of Public Health, State Center for Health Statistics. *Volume 2: Leading Causes of Death in North Carolina 2012-2016, SCHS Online Database*. http://www.schs.state.nc.us/data/vital/lcd/2016/. Accessed 11/2017.

10

Anna Bess: this map shows heart disease death rates by county of residence in NC. The darker the color, the worse the death rates.
Stanley, Richmond, Bladen, Columbus and Pasquotank had the highest death rates (the darkest brown).
An MMWR recently reported that heart valve infections (endocarditis) associated with injection drug use increased 13.5 times between 2010-2015 in NC.



This slide shows stroke death rates by county of residence. Overlaid are green starbursts at the locations of certified stroke centers. Note that high rates of stroke are not only in the east but scattered across NC.
Edgecombe, Lenoir, Stokes and Richmond had the highest stroke death rates.
Keep in mind: Richmond County has the highest rates in both heart disease and stroke deaths.



Now we move to hospital charges. Note that these numbers are in the billions of dollars for CVD hospital charges in NC alone.
The dotted line at 2015 indicates when ICD 10 codes were introduced, and, as a result, there is no data for 2015. ICD stands for International Statistical Classification of Diseases and Conditions. Many new codes were added under ICD 10; therefore, we cannot compare data prior to this addition with data after 2015. With the coding changes, 2016 will represent a new baseline moving forward.

Hospitalization Charges for Selected Cardiovascular Disease Conditions and Risk Factors, NC, 2016

DIAGNOSTIC CATEGORY	TOTAL CHARGES	TOTAL CASES	CHARGE PER CASE
HEART DISEASE	**$5.1 Billion**	**103,909**	**$49,912**
HEART FAILURE	$936 Million	28,118	$33,306
CORONARY HEART DISEASE	$2.2 Billion	31,667	$70,237
STROKE	**$1.3 Billion**	**30,407**	**$44,485**
HYPERTENSION	$466 Million	14,521	$32,153
DIABETES MELLITUS	$492 Million	16,969	$29,027

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). Data includes only NC residents served in NC hospitals.
Data Source: North Carolina Division of Public Health, State Center for Health Statistics. Inpatient Hospital Utilization and Charges by Principal Diagnosis.
Data produced on request on 02/21/2018.

13

Primary diagnosis for hospitalization. Heart Disease includes coronary heart disease and heart failure. Note this is for one year: 2016.
Heart disease negatively impacts population health beyond deaths alone. Heart disease tends to be long lasting and treatable though not curable. As we look at hospital discharge data and costs, we consider the numbers of people in our state who survive heart attacks and strokes and require ongoing care, therapy and accommodations. Half the stroke patients in NC are discharged directly home. Of these patients, 25% are readmitted within 90 days; and 65% are readmitted within one year, according to the COMPASS study which has been examining the direct experiences of stroke patients discharged from hospitals across NC.

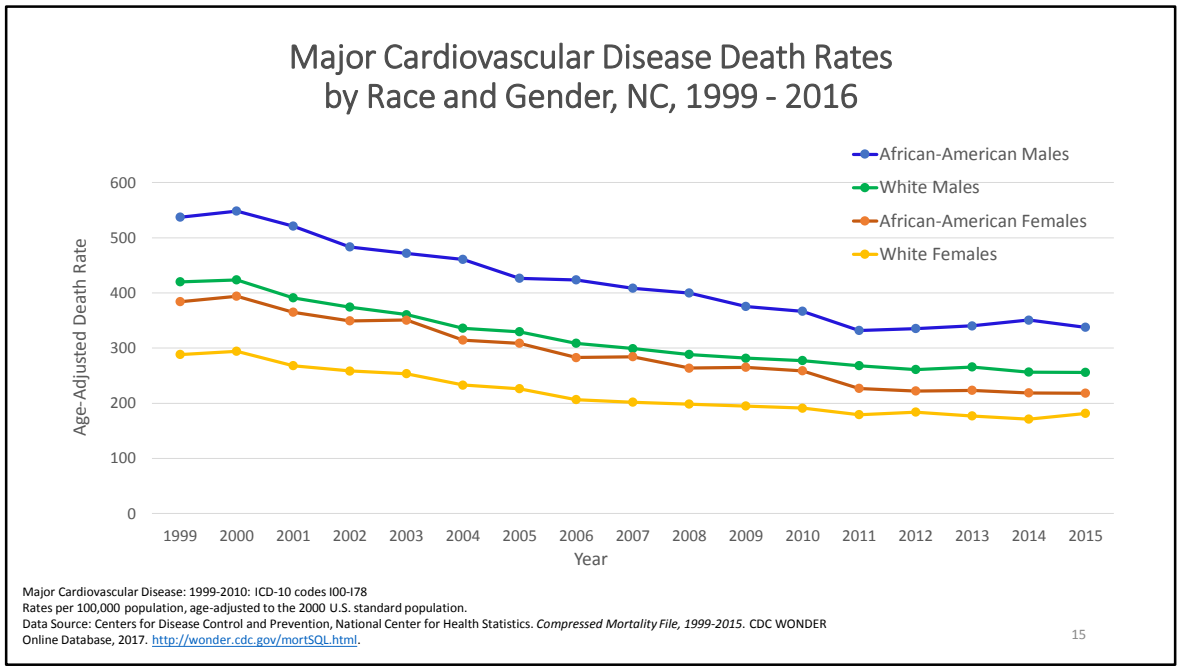
Medicaid Costs for Selected Cardiovascular Disease Conditions and Risk Factors, NC, 2017

DIAGNOSTIC CATEGORY	TOTAL CHARGES	BENEFICIARIES	CHARGE PER CASE
HEART DISEASE	**$737 Million**	**168,588**	**$4,374**
CORONARY HEART DISEASE	$254 Million	71,813	$3,542
HEART FAILURE	$305 Million	56,502	$5,398
HYPERTENSION	$194 Million	64,561	$3,001
STROKE	**$383 Million**	**55,046**	**$6,959**
DIABETES MELLITUS	$638 Million	165,398	$3,855

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 01/05/2018.

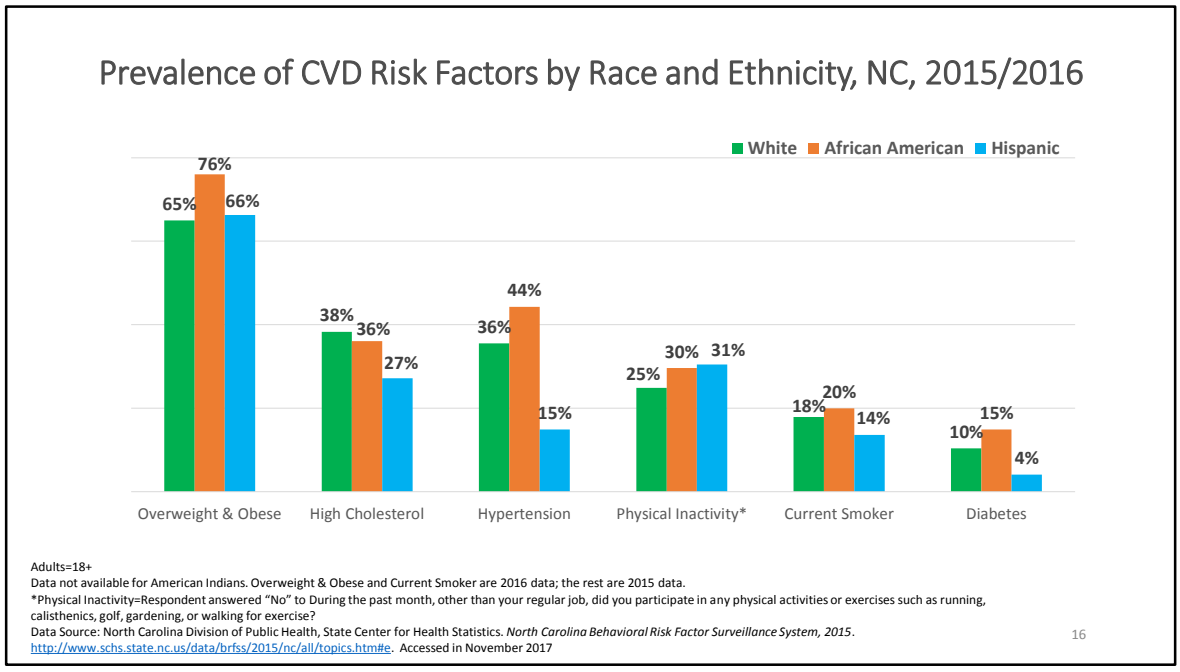
14

Next we look at Medicaid costs for CVD in NC in 2017. Stroke's charge per case is the highest.



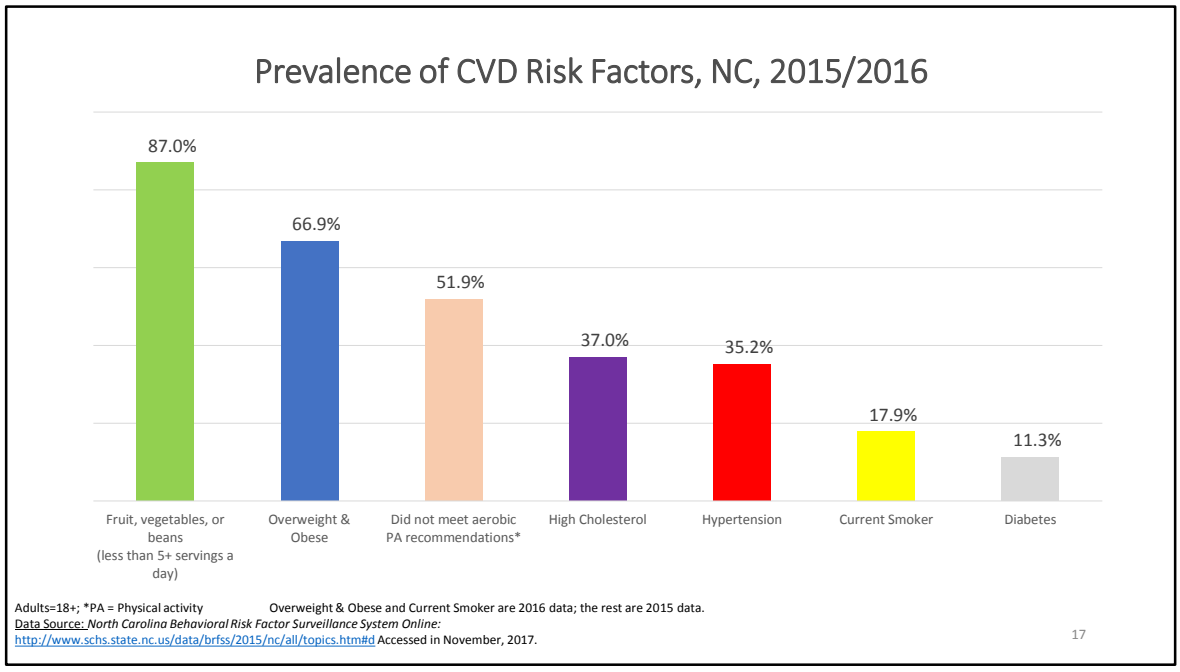
Next we look at CVD by race & gender. In NC, AA and white males are at higher risk and AA females are at higher risk than white females. The burden of CVD in the AA community remains high and is a primary cause of disparities in life expectancy between AA and whites. CVD has been estimated to explain about 30-40% of the difference in mortality (CDC).

[Non-Hispanic white or black]



What are the risk factors that cause so much CVD death? Risk factors such as race/ethnicity, gender, age and geographical location we can't help. However, many risk factors are modifiable. Look at this self-reported data. 76% of AAs reported being overweight or obese. AAs had the highest rate of overweight & obesity compared to the state average for the previous 5 years. Hypertension is the primary or contributing cause of 45% of all CVD deaths and is responsible for about 45% of all strokes in hypertensive individuals according to the IOM.

AA have a higher prevalence of traditional risk factors such as hypertension, diabetes, and obesity. Adverse health behaviors such as poor diet, physical inactivity and smoking also contribute. Comorbidities such as renal disease, sickle cell disease and others contribute to cardiovascular health disparities.



This chart also shows self-reported data. Risk factors of heart disease and stroke: unhealthy diet, overweight/obesity, physical inactivity, high blood pressure, smoking, high cholesterol, diabetes, and excessive alcohol use.

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

Resources for Preventing Cardiovascular Disease

- Managing high blood pressure
  For resources and information visit startwithyourheart.com
- Limiting alcohol consumption.
  For more information visit cdc.gov/alcohol
- Healthy for Good
  For resources to Eat Smart. Add Color. Move More. Be Well, visit healthyforgood.heart.org
- My Life Check - Life's Simple 7
  For resources and to conduct a heart self-assessment, visit heart.org

19

Visit startwithyourheart.com for more data