



Georgia Department of Public Health

Burden of Cardiovascular Disease in Georgia

Presentation to: Chronic Disease University

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Chronic Disease, Healthy Behaviors,
and Injury Epidemiology Section

Date: October 22, 2015



We Protect Lives.



Learning Objectives

- Definition
- Cardiovascular Disease Morbidity and Mortality
- Health Conditions and Risk Behaviors Related to Cardiovascular Disease
- Cost Associated with Cardiovascular Disease

DEFINITION

Cardiovascular Disease: Definition

- Cardiovascular Disease (CVD) includes:
 - Heart Disease
 - Stroke
 - Hypertension
 - Atherosclerosis
 - And Other (Aortic Aneurysm, Aortic Dissection and Disease of the Arteries, Arterioles and Capillaries)

MORTALITY

Leading Causes of Death, Georgia 2013

CVD is the leading cause of death in GA and contribute to 29% of all deaths.

| Cause of Death | Number of Deaths | Age-Adjusted Rate Per 100,000 population |
|----------------------------|------------------|--|
| Heart Disease | 16,430 | 177 |
| Ischemic Heart Disease | 7,598 | |
| Hypertensive Heart Disease | 1,482 | |
| Other Heart Disease | 7,350 | |
| Stroke | 3,665 | 41 |
| Hypertension | 1,082 | 11.7 |
| Atherosclerosis | 137 | 1.6 |
| Other CVD | 516 | |
| Total | 21,831 | 237 |

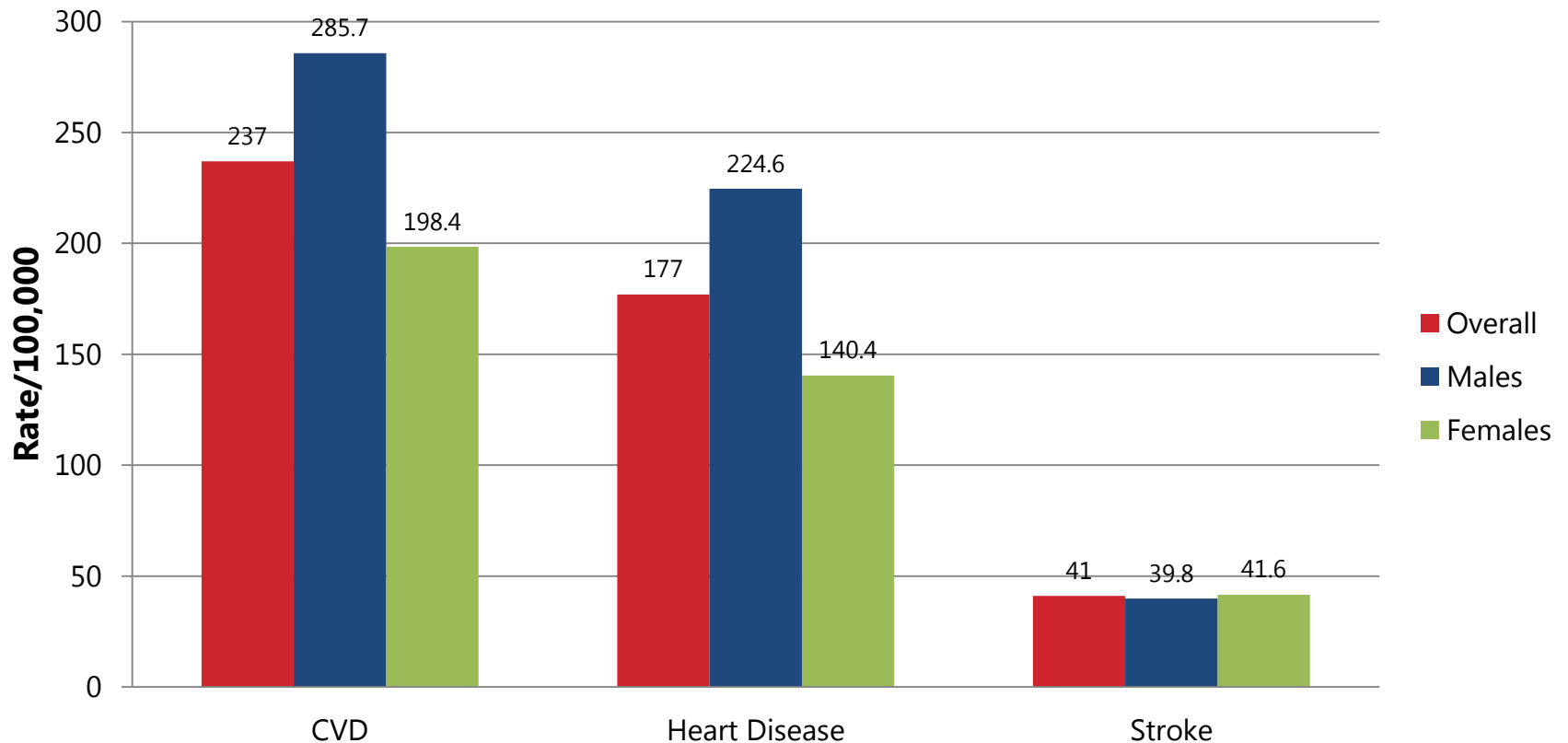
Cardiovascular Disease Mortality Georgia vs US, 2013

| | | GA Age-Adjusted Rate/100,000 | US Age-Adjusted Rate/100,000 | Comparison |
|------------------------|--------|-------------------------------------|-------------------------------------|-------------------|
| Cardiovascular Disease | 21,831 | 237 | 222.9 | 6% Higher |
| Heart Disease | 16,430 | 177 | 168.7 | 5% Higher |
| Stroke | 3,665 | 41 | 36.2 | 13.3% Higher |

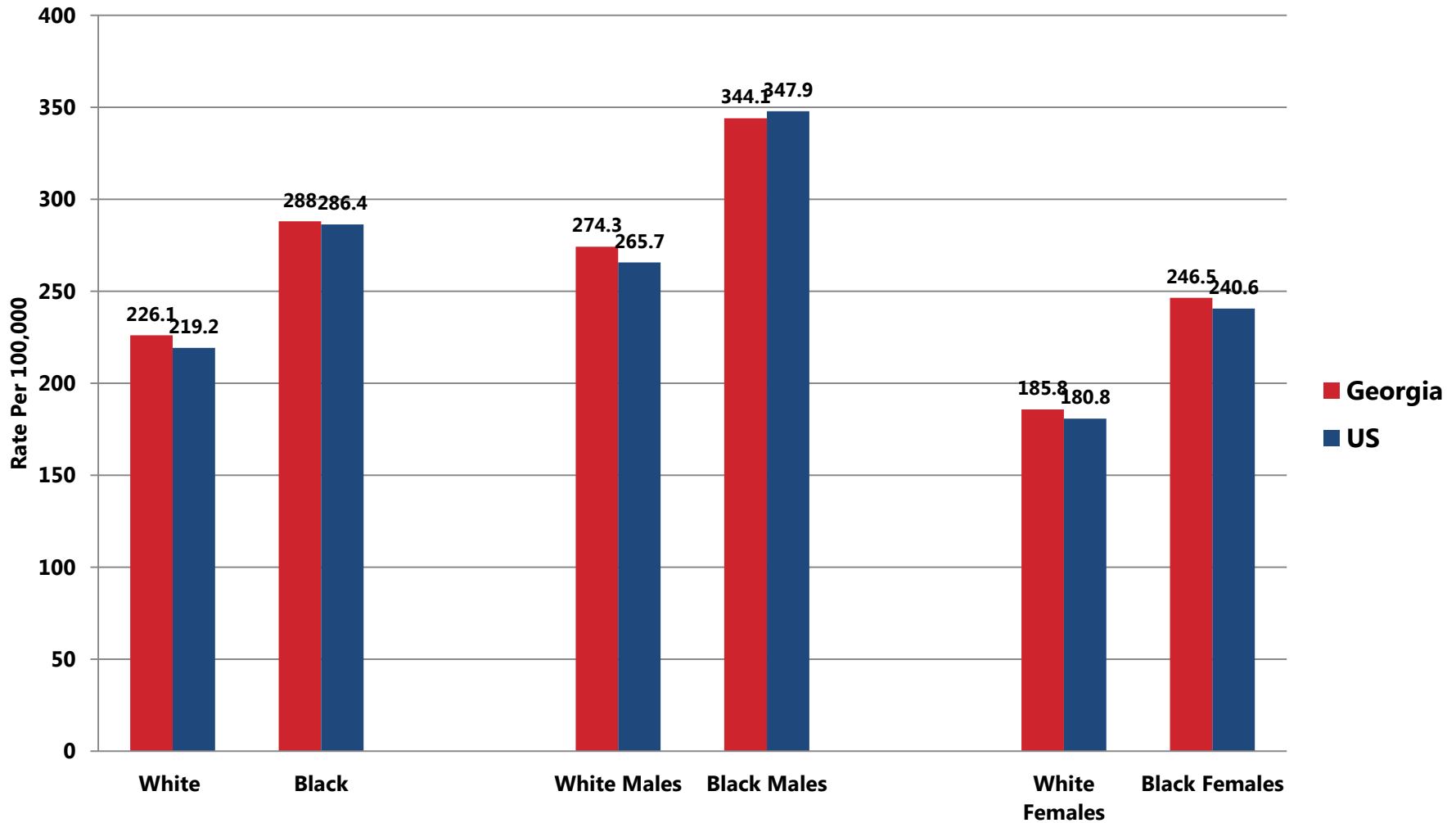
Cardiovascular Disease Mortality

- Both Georgia males and females have a higher age-adjusted CVD mortality rate than US males (269.8) and US females (184.8)

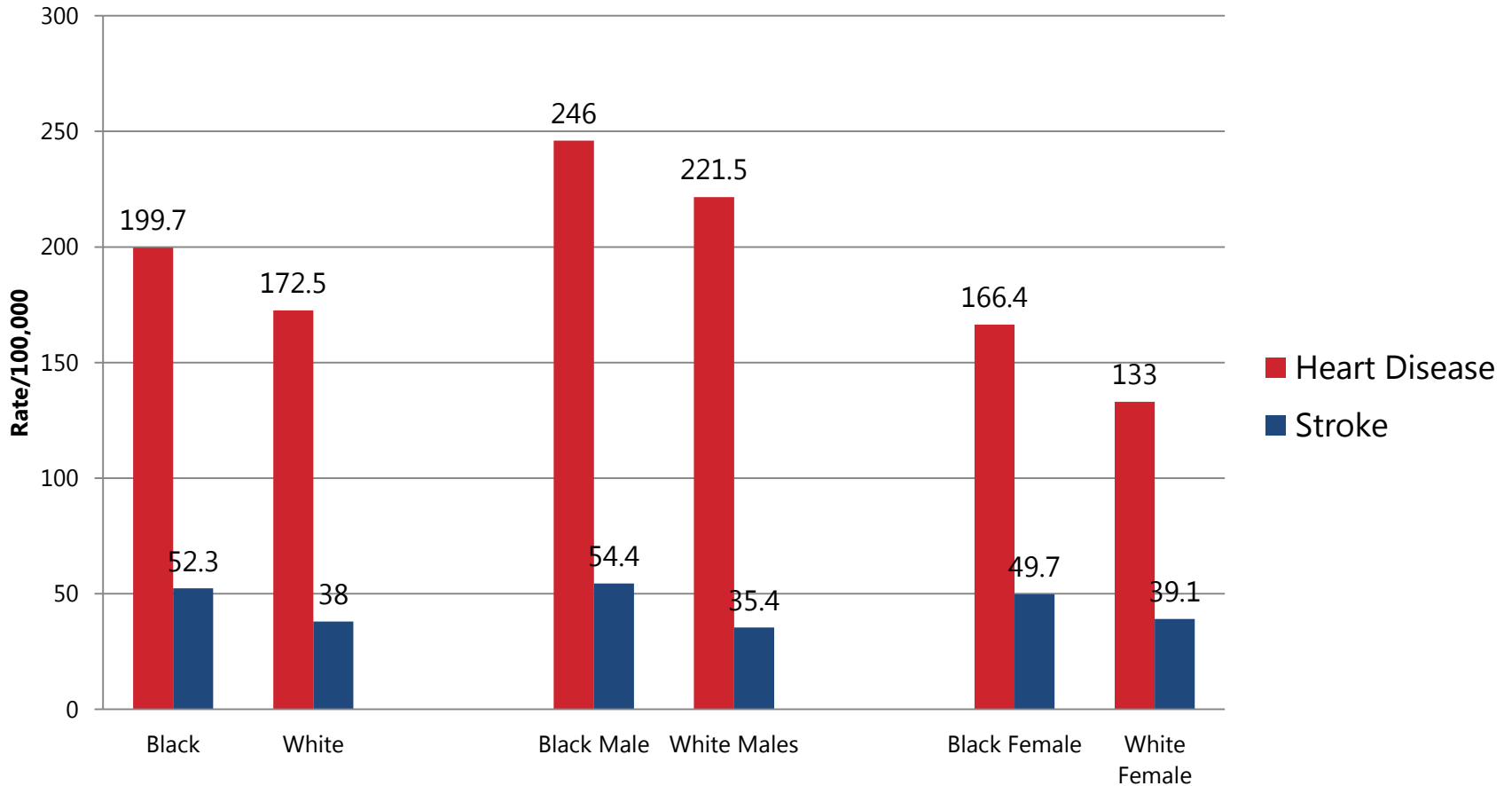
Age-Adjusted Mortality Rate, Georgia 2013



Age-Adjusted Cardiovascular Disease Mortality Rate by Race and by Race and Gender, Georgia 2013

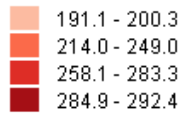


Age-Adjusted Heart Disease and Stroke Mortality Rate by Race and Gender, Georgia 2014



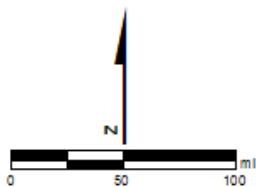
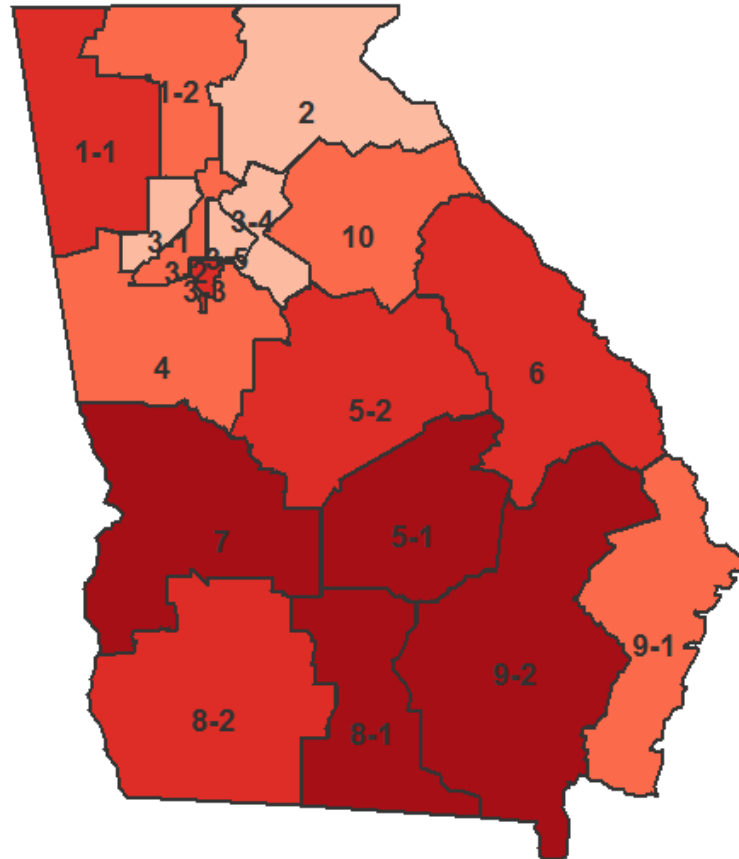
Age-Adjusted Death Rate by Public Health District of Residence, Major Cardiovascular Diseases, 2013

Age-Adjusted Death Rate



Legend

— PHD



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Data Classification Method: Quantile

Note: This is a color map.

We Protect Lives.

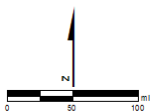
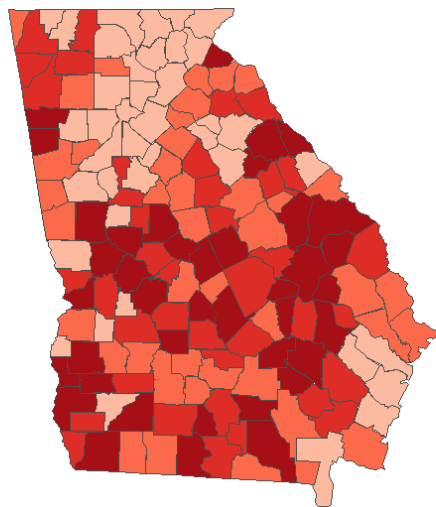
Age-Adjusted Death Rate by County of Residence, Major Cardiovascular Diseases, 2009-2013

Age-Adjusted Death Rate

- 104.1 - 242.0
- 242.3 - 279.9
- 280.0 - 312.2
- 312.4 - 395.2

Legend

- County



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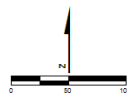
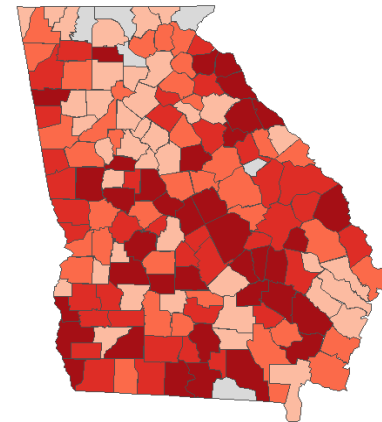
Age-Adjusted Death Rate by County of Residence, Black or African-American, Major Cardiovascular Diseases, 2009-2013

Age-Adjusted Death Rate

- 0.0 - 285.3
- 285.4 - 328.6
- 329.8 - 379.5
- 383.2 - 606.2
- Not Reportable

Legend

- County



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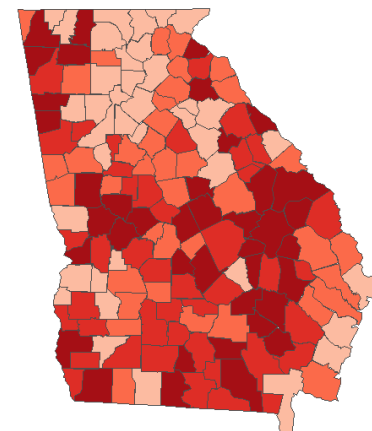
Age-Adjusted Death Rate by County of Residence, White, Major Cardiovascular Diseases, 2009-2013

Age-Adjusted Death Rate

- 123.7 - 230.7
- 230.8 - 265.7
- 266.4 - 293.8
- 293.9 - 412.6

Legend

- County

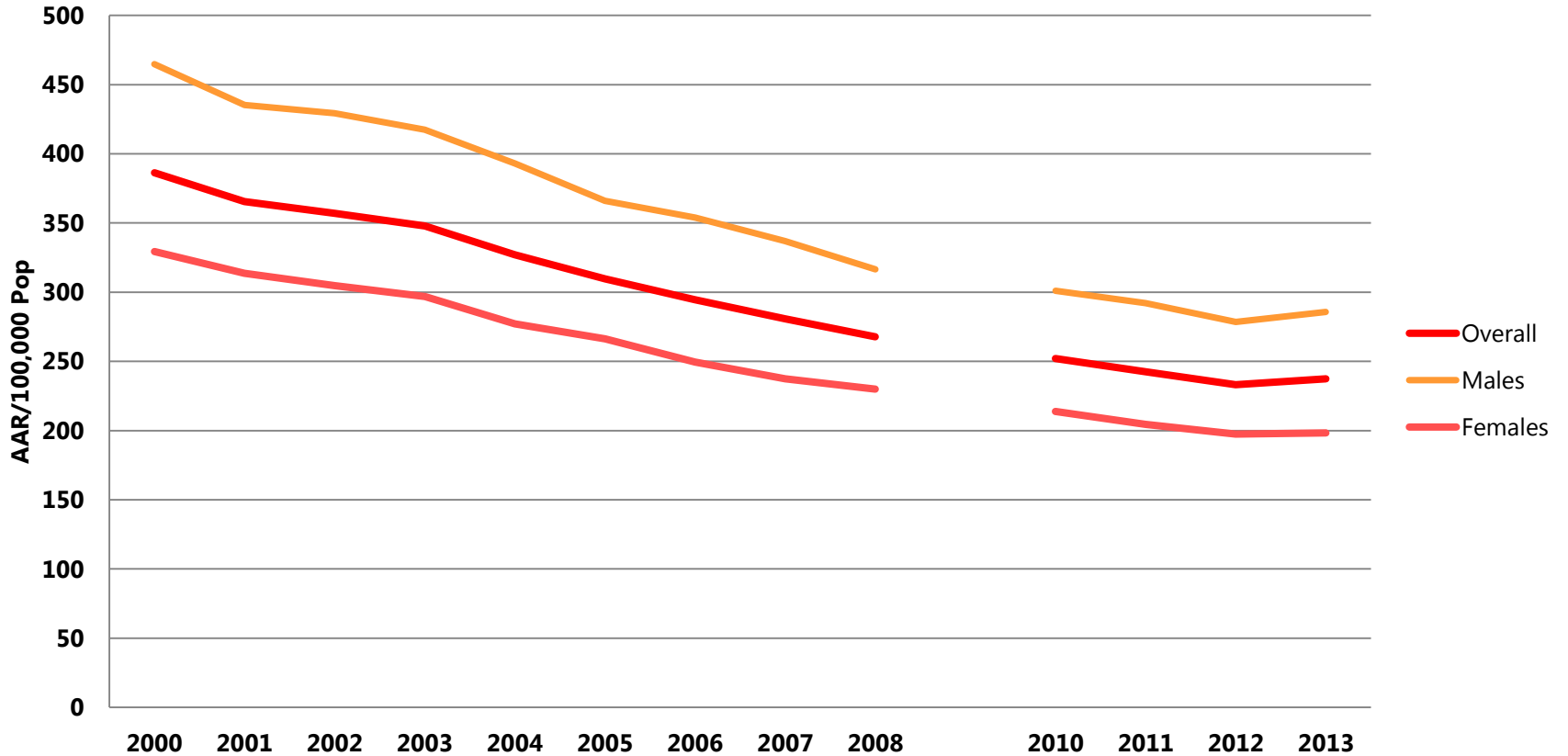


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Note: This is a color map.

Age-Adjusted Cardiovascular Disease Mortality Rate by Gender, Georgia 2000-2013

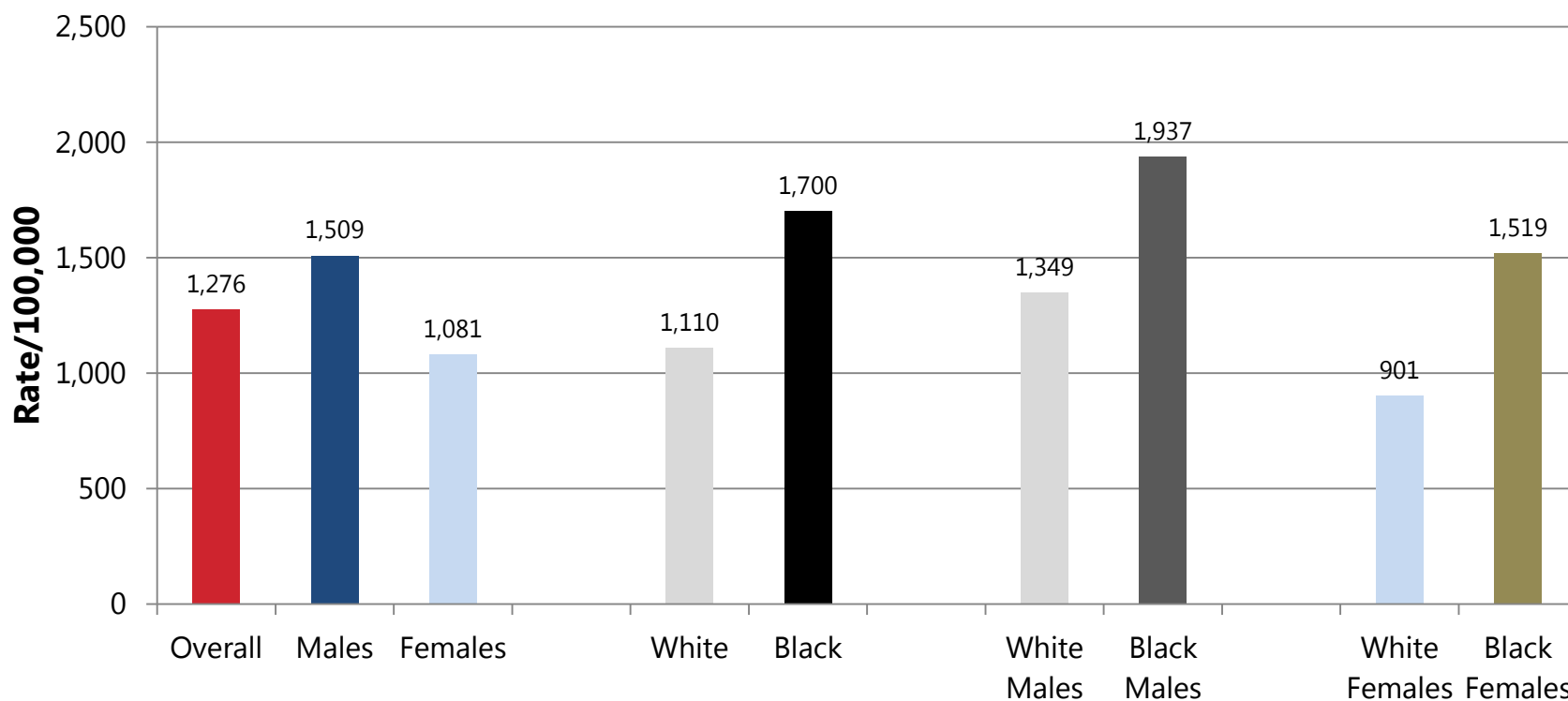


MORBIDITY

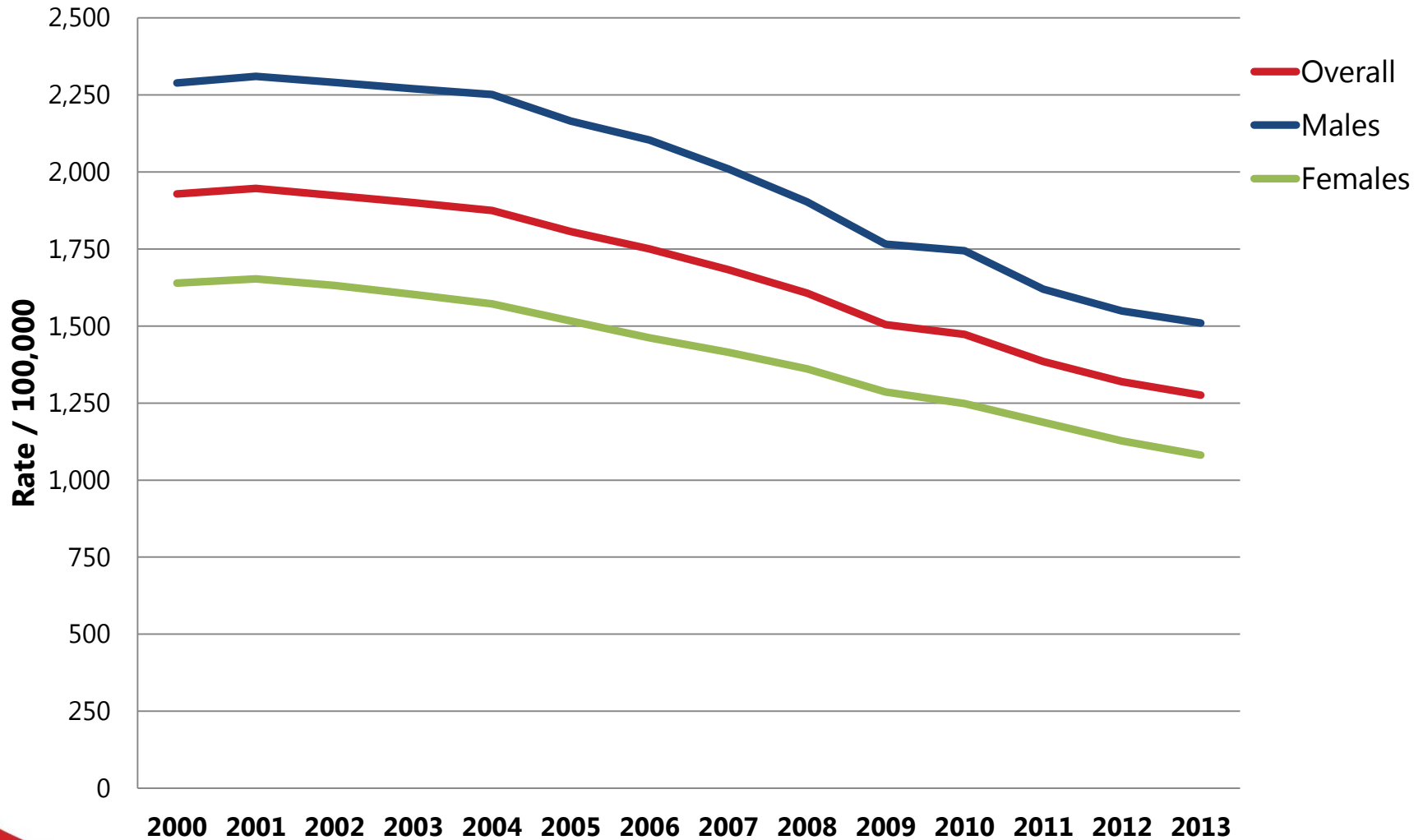
Cardiovascular Disease: Morbidity

- In 2013, approximately **125,783** Discharges occurred among Georgia residents due to CVD.

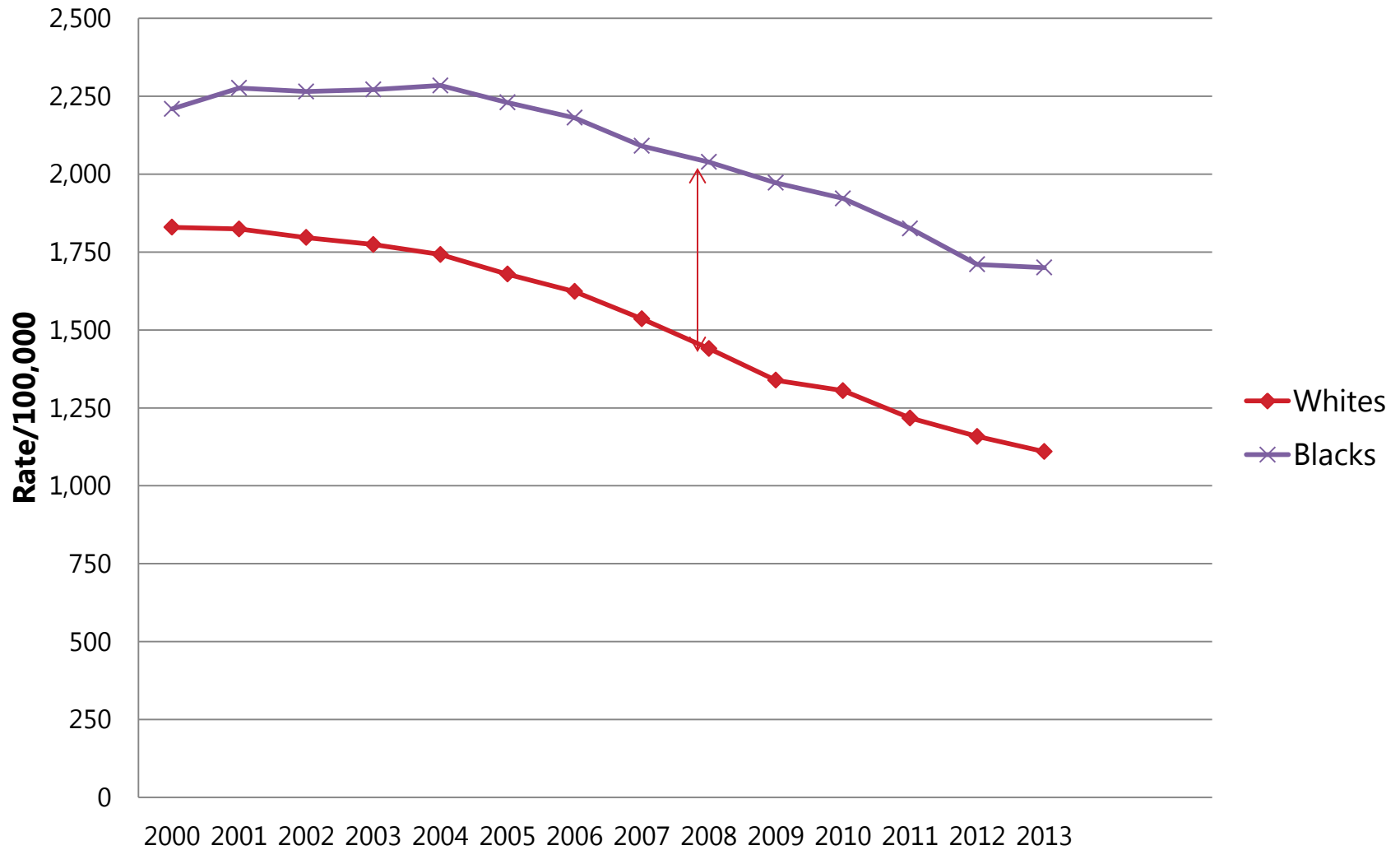
Age-Adjusted CVD Discharge Rate, Georgia Residence, 2013



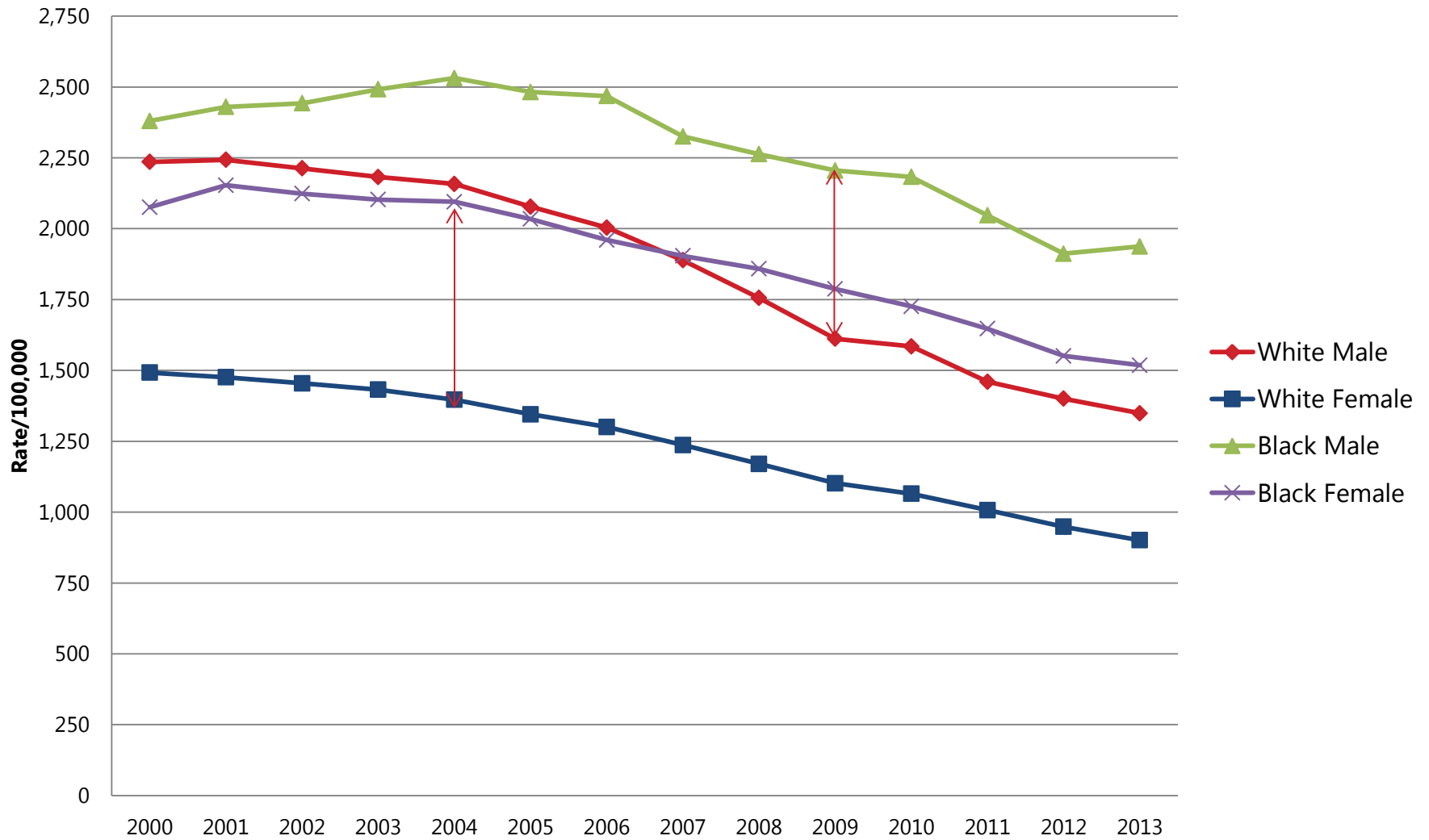
Age-Adjusted Cardiovascular Disease Discharge Rate By Gender, Georgia Residence ,2000-2013



Age-Adjusted Cardiovascular Discharge Rate by Race, Georgia Residence, 2000-2013



Age-Adjusted Cardiovascular Disease Discharge Rate By Gender and Race, Georgia Residence, 2000-2013



HEALTH CONDITIONS

- Several Health Conditions increases the risk of Cardiovascular Disease these are
 - High Cholesterol Level
 - High Blood Pressure
 - Obesity

Health Condition– Cholesterol

- Based on the 2013 Georgia BRFSS 38.1% of adult Georgians were told by a health professional that their cholesterol is high.
- Males (38.9%) are more likely to have been told by a health professional that their cholesterol is high than females (37.5%)

| Race/Ethnicity | Prevalence (Percent %) |
|--------------------|------------------------|
| White Non-Hispanic | 41.5** |
| Black Non-Hispanic | 33.1 |
| Hispanics | 33.9 |

Health Condition– Cholesterol

| Age-Group | Prevalence (%) | Income | Prevalence (%) |
|-----------------------|----------------|--------------------|----------------|
| 18-24 | 6.9 | Less Than \$15,000 | 45.5 |
| 25-34 | 14.1 | \$15,000-\$24,999 | 42.6 |
| 35-44 | 29.7 | \$25,000-\$34,999 | 38.6 |
| 45-54 | 41.3 | \$35,000-\$49,999 | 35.5 |
| 55-64 | 54.9 | \$50,000-+ | 34.8 |
| 65+ | 57.2 | | |
| Education | Prevalence (%) | | |
| Less than High School | 42.6 | | |
| High School Graduate | 41.1 | | |
| College Graduate | 34.8 | | |

Health Condition– High Blood Pressure

- Based on the 2013 Georgia BRFSS 35.1% of adult Georgians were told they have high blood pressure.
- Males (34.9%) have similar prevalence of being told they have high blood pressure as females (35.1%)

| Race/Ethnicity | Prevalence (%) |
|--------------------|----------------|
| White Non-Hispanic | 36.0 |
| Black Non-Hispanic | 40.7** |
| Hispanics | 18.8* |

* Significantly Lower

** Significantly Higher

Health Condition– High Blood Pressure

| Age-Group | Prevalence (%) | Income | Prevalence (%) |
|-----------------------|----------------|--------------------|----------------|
| 18-24 | 11.2 | Less Than \$15,000 | 44.1** |
| 25-34 | 12.9 | \$15,000-\$24,999 | 35.7 |
| 35-44 | 25.9 | \$25,000-\$34,999 | 37.0 |
| 45-54 | 39.7** | \$35,000-\$49,999 | 35.2 |
| 55-64 | 55.6** | \$50,000-+ | 31.6 |
| 65+ | 65.1** | | |
| Education | Prevalence (%) | | |
| Less than High School | 39.7 | | |
| High School Graduate | 38.4 | | |
| College Graduate | 29.1* | | |

* Significantly Lower

** Significantly Higher

Health Condition– Obesity

- Based on the 2014 Georgia BRFSS, 30.5% of adult Georgians are Obese.
- Females (32.4%) are more likely to be obese than males (28.5%)

| Race/Ethnicity | Prevalence |
|--------------------|------------|
| White Non-Hispanic | 28.8% |
| Black Non-Hispanic | 37.9% |
| Hispanics | 23.1% |

Health Condition– Obesity

| Age-Group | Prevalence (%) | Income | Prevalence (%) |
|-----------------------|----------------|---------------------|----------------|
| 18-24 | 17.3 * | Less Than \$15,000 | 40.1** |
| 25-34 | 29.3 | \$15,000-\$24,999 | 31.9 |
| 35-44 | 33.2 | \$25,000-\$34,999 | 33.8 |
| 45-54 | 36.3 | \$35,000-\$49,999 | 34.2 |
| 55-64 | 35.5 | \$50,000-\$74,999 | 30.8 |
| 65+ | 29.5 | \$75,000 or More | 24.0 |
| Education | Prevalence (%) | Employment | Prevalence (%) |
| Less than High School | 37.9 | Employed | 29.4 |
| High School Graduate | 30.7 | Unemployed | 33.4 |
| Some College | 30.8 | Retired | 30.1 |
| College Graduate | 25.5 | Insurance Coverage | Prevalence (%) |
| | 37.9 | Has Health Coverage | 30.8 |
| | | No Health Coverage | 30.8 |

* Significantly Lower

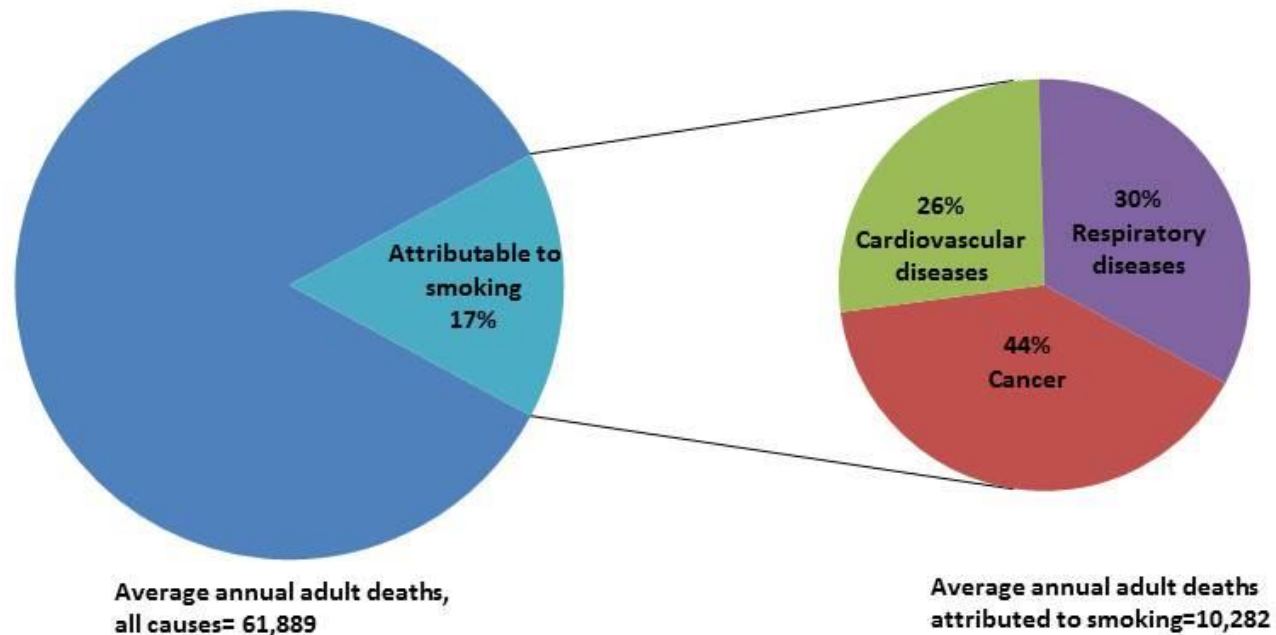
** Significantly Higher

HEALTH RISK BEHAVIORS

Health Risk Behaviors that Cause Cardiovascular Disease

- Health risk behaviors are behaviors that are modifiable. Three health risk behaviors increase the risk of cardiovascular disease—lack of exercise or physical activity, unhealthy diet and tobacco use.
- Nearly 80% of cardiovascular diseases and diabetes are attributable to physical inactivity, tobacco use, and unhealthy diet
- Based on Smoking Attributable Morbidity , Mortality, and Economical Cost (SAMMEC) most recent analysis (2008-2013), smoking contributed to 2,750 cardiovascular disease deaths among Georgians 35 years and older.

Figure 1. Average annual smoking-attributable deaths among adults ages 35 and older, Georgia, 2008-2013*



Sources: Georgia Vital Statistics; CDC SAMMEC

* Because of data quality issues, 2009 mortality data are not used for analysis.

Health Risk Behaviors – Physical Inactivity

- Based on the 2014 Georgia BRFSS, 23.6% of adult Georgians are physically inactive.
- Females (25.8%) are more likely to be physically inactive than males (21.2%)

| Race/Ethnicity | Prevalence |
|--------------------|------------|
| White Non-Hispanic | 22.4% |
| Black Non-Hispanic | 26.9% |
| Hispanics | 23.6% |

Health Risk Behaviors – Physical Inactivity

| Age-Group | Prevalence (%) | Income | Prevalence (%) |
|-----------------------|----------------|---------------------|----------------|
| 18-24 | 14.9 | Less Than \$15,000 | 42.6** |
| 25-34 | 18.6 | \$15,000-\$24,999 | 30.4 |
| 35-44 | 19.7 | \$25,000-\$34,999 | 26.3 |
| 45-54 | 26.2 | \$35,000-\$49,999 | 23.4 |
| 55-64 | 27.1 | \$50,000-\$74,999 | 13.7 |
| 65+ | 34.6 | \$75,000 or More | 9.9 |
| Education | Prevalence (%) | Employment | Prevalence (%) |
| Less than High School | 41.4** | Employed | 18.9 |
| High School Graduate | 27.7 | Unemployed | 31.4** |
| Some College | 20.6 | Retired | 28.6 |
| College Graduate | 10.5 | Insurance Coverage | Prevalence (%) |
| | | Has Health Coverage | 18.5* |
| | | No Health Coverage | 30.4 |

* Significantly Lower

** Significantly Higher

Health Risk Behaviors – Current Smokers

- Based on the 2014 Georgia BRFSS, 17.4% of adult Georgians are current smokers.
- Males (21.4%) are more likely to be current smokers than females (13.6%)

| Race/Ethnicity | Prevalence |
|--------------------|------------|
| White Non-Hispanic | 19.3 %** |
| Black Non-Hispanic | 14.6% |
| Hispanics | 15.6% |

* Significantly Lower

** Significantly Higher

Health Risk Behaviors – Current Smokers

| Age-Group | Prevalence | Income | Prevalence |
|-----------------------|------------|---------------------|------------|
| 18-24 | 16.4 | Less Than \$15,000 | 33.5** |
| 25-34 | 23.5 | \$15,000-\$24,999 | 19.5 |
| 35-44 | 18.3 | \$25,000-\$34,999 | 20.0 |
| 45-54 | 18.9 | \$35,000-\$49,999 | 17.0 |
| 55-64 | 18.9 | \$50,000-\$74,999 | 17.4 |
| 65+ | 8.1* | \$75,000 or More | 8.1* |
| Education | Prevalence | Employment | Prevalence |
| Less than High School | 31.8** | Employed | 17.1 |
| High School Graduate | 20.4 | Unemployed | 22.9** |
| Some College | 16.6 | Retired | 9.7 |
| College Graduate | 5.6 | Insurance Coverage | Prevalence |
| | | Has Health Coverage | 15.4 |
| | | No Health Coverage | 31.4** |

* Significantly Lower

** Significantly Higher

Years of Potential Life Lost



- Years of potential life lost (YPLL), a calculation used to measure premature mortality, is the sum of the years of life lost annually by all persons who die before their expected age of death
- Georgia Adults who died from cardiovascular diseases attributed to smoking lost an average of 20.5 years

| | YPLL attributable to smoking | Deaths attributable to smoking | Average YPLL/death from smoking |
|--------|------------------------------|--------------------------------|---------------------------------|
| Males | 32,530 | 1,764 | 18.4 |
| Female | 23,174 | 949 | 24.4 |

Health Risk Behaviors that Cause Chronic Diseases

- Stroke Patients—Stroke Registry Data Source
 - 81% had high blood pressure
 - 43% had high cholesterol
 - 35% had diabetes
 - and 23% are current smokers



CARDIOVASCULAR DISEASE COST

CVD/Heart Disease/Stroke Cost



- Total hospital charges for CVD in Georgia was **\$6.1 billion**
- In 2012, the average charge per CVD-related hospitalization in Georgia was **\$45,744**
- Total hospital charges for heart disease in Georgia were **\$4.2 billion**
- In 2012, the average charge per heart disease hospitalization in Georgia was **\$45,700**
- Total hospital charges for heart disease (**\$4.2 billion**) accounted for **68%** of all CVD hospital charges (**\$6.1 billion**)
- Total stroke-related hospitalization charges **were \$940 million** in Georgia.
- In 2012, the average cost of stroke per hospitalization was **\$39,453**.

YOUTH RISK BEHAVIORS RELATED TO CARDIOVASCULAR DISEASE

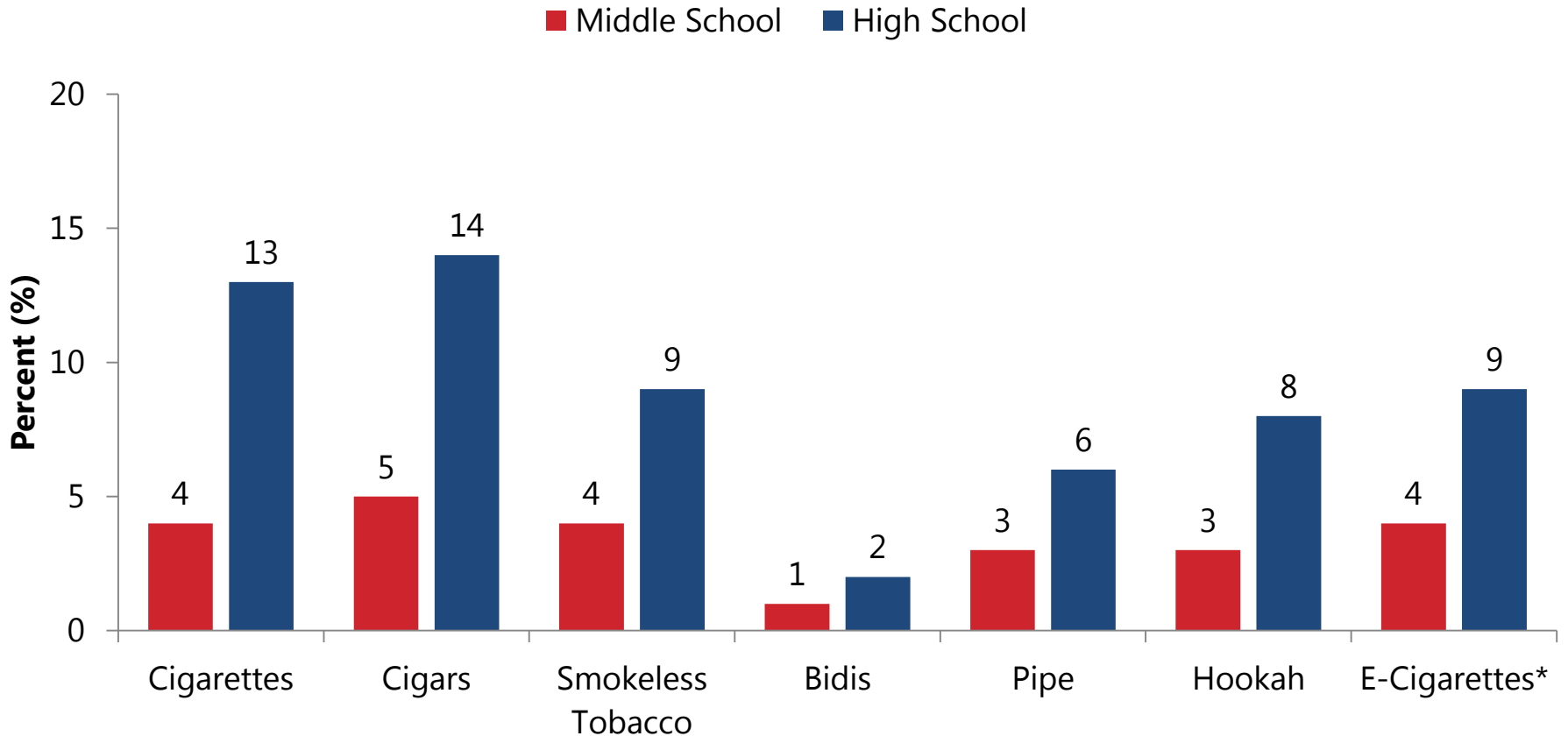
Health Risk Behaviors that Cause Chronic Diseases

- In 2013 and based on the Youth Risk Behavior Survey
 - 30% of High School Students were obese
 - 43% of High School Students met recommended physical activity
 - 60% of High School Students watched TV and/or played video or computer games or used a computer for something that was not schoolwork for three or more hours per day on an average school day.
 - 45% of High School Students ate at least one vegetable daily
 - 86% of High School Students ate at least one fruit daily

Health Risk Behaviors that Cause Chronic Diseases

- In 2013 and based on the Youth Risk Behavior Survey
 - 68% of High School Students did not eat breakfast every day during the past week.
 - 77% drank at least one soda or pop during the past week.
 - 72% drank at least one sugar-sweetened beverage such as lemonade, sweetened tea or coffee drinks, flavored milk, Snapple, or Sunny Delight during the past week.
 - 41% did not drink a bottle or glass of plain water at least one time per day during the past week.

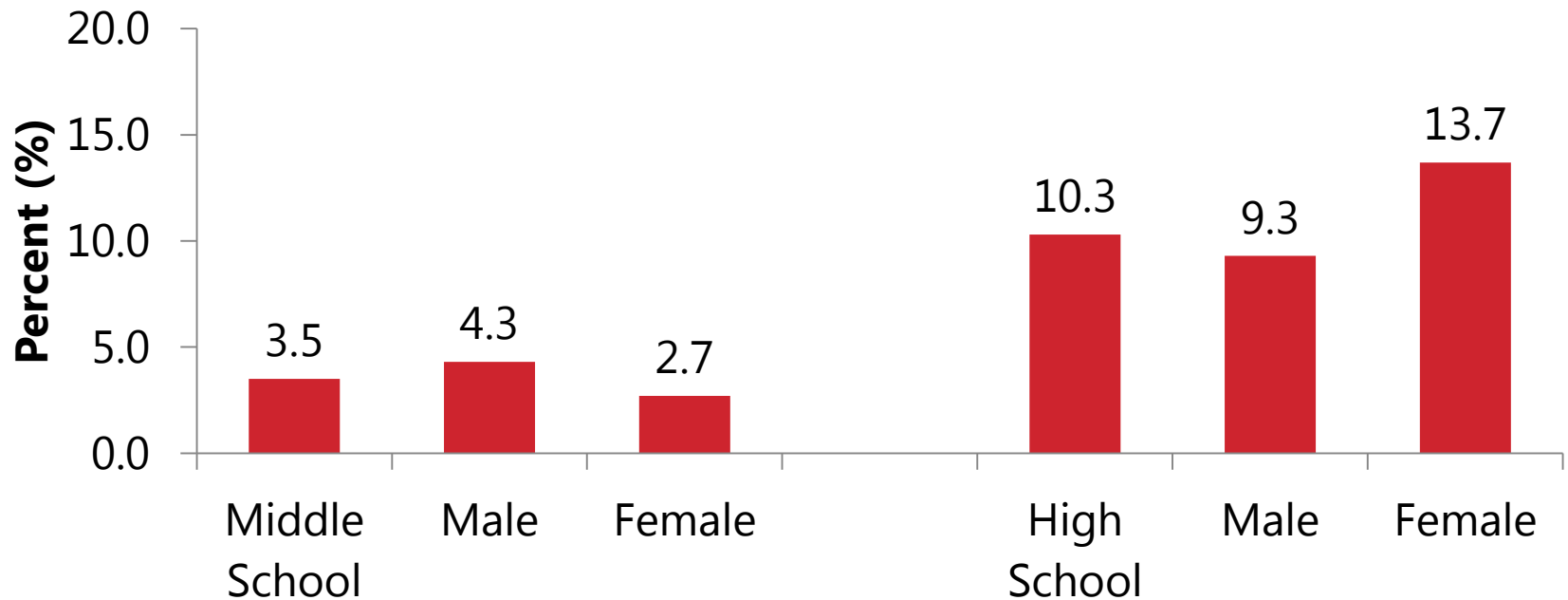
Percent of youth who currently use any tobacco product, GA, 2013



Data Source: Youth Risk Factor Surveillance System (YRBS)

* E-cigarette Data Source: Youth Tobacco Survey (YTS)

Percent of youth who smoked a whole cigarette, Georgia, 2013



Before age
of 11

Before age
of 13

Data Source: Youth Risk Factor Surveillance System (YRBS)

We Protect Lives.

Data Sources

- OASIS and Georgia Vital Records (Death Data)
- OASIS and Direct Access to Georgia Hospital Discharge Data
- Georgia Coverdell Acute Stroke Registry (Stroke)
- Georgia Behavioral Risk Factor Surveillance System (BRFSS)
- Georgia Youth Risk Behavior Survey (YRBS)
- Georgia Youth Tobacco Survey (YTS)
- Centers for Disease Control and Prevention, National Center for Health Statistics. Compressed Mortality File 1999-2013 on CDC WONDER Online Database, released October 2014. Data are from the Compressed Mortality File 1999-2013 Series 20 No. 2S, 2014, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/cmfi-icd10.html> on Oct 20, 2015 3:31:35 PM United States Cancer Statistics (USCS—Published by NPCR)
- SAMMEC—Smoking Attributable Mortality, Morbidity, and Economic Cost

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