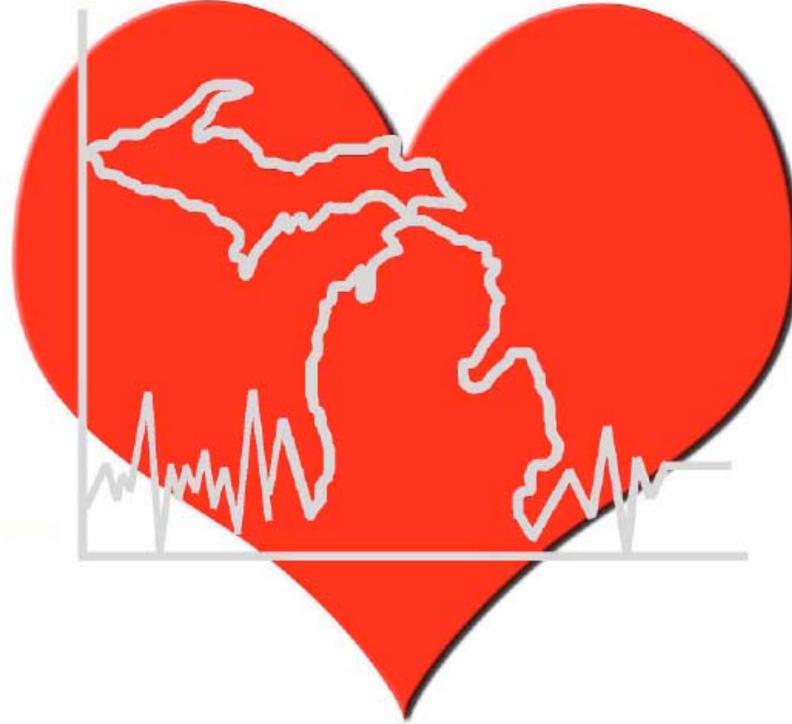


The Impact of Heart Disease and Stroke in Michigan: 2008 Report on Surveillance



*Michigan Department
of Community Health*



November 3, 2008



Outline

- Introduction to Cardiovascular Disease
- Diseases and Risk Factors in the Report
- Comparison of CVD in Michigan and U.S.
- Racial Disparities of CVD in Michigan
- Geography of CVD in Michigan
- Risk Factors of CVD
- Future of CVD in Michigan



Introduction

- Cardiovascular disease (CVD) refers to diseases of the heart and diseases of the blood vessels
- 1 in 3 Americans report they have CVD
- \$448.5 billion will be spent on CVD in the United States in 2008
- Heart disease is the number 1 cause of death
- Stroke is the number 3 cause of death



Diseases and their corresponding ICD codes discussed in the report

Cardiovascular Disease

ICD-10: I00-I78

ICD-9: 390-434, 436-448

Diseases of the Heart

ICD-10: I00-I09, I11, I13, I20-I51

ICD-9: 390-398, 402, 404, 410-429

Coronary Heart Disease

ICD-10: I20-I25

ICD-9: 410-414, 429.2

Heart Failure

ICD-10: I50

ICD-9: 428

Diseases of the Blood Vessels

Stroke

ICD-10: I60-I69

ICD-9: 430-434, 436-438, 435

Ischemic

ICD-10: I63-I65

ICD-9: 433-434,
436

Hemorrhagic

ICD-10: I60-I62

ICD-9: 430-431

Transient Ischemic Attack

ICD-9: 435



Cardiovascular Disease Risk Factors



Smoking

Physical Inactivity

High Blood Pressure

Dietary Behavior

High Blood Cholesterol

Overweight and Obesity

Diabetes

Risk Factor Clustering



Methods

Age-Adjusted Rates: Populations often differ in their distribution of age, which may in turn affect the overall rate of events in that population. Therefore, when comparing rates of events in populations of different age distributions, it is important to account for those differences. 2000 US standard population was used to age-adjust.

Prevalence: the proportion of individuals in a population who have the disease at a point in time or during a given time period. It is often used to describe the health burden on a given population. It is often multiplied by 100 and expressed as a percent.

Data Suppression: Less than 20 events were suppressed

Data Mapping: ArcGIS Map was used to create the maps seen in the report

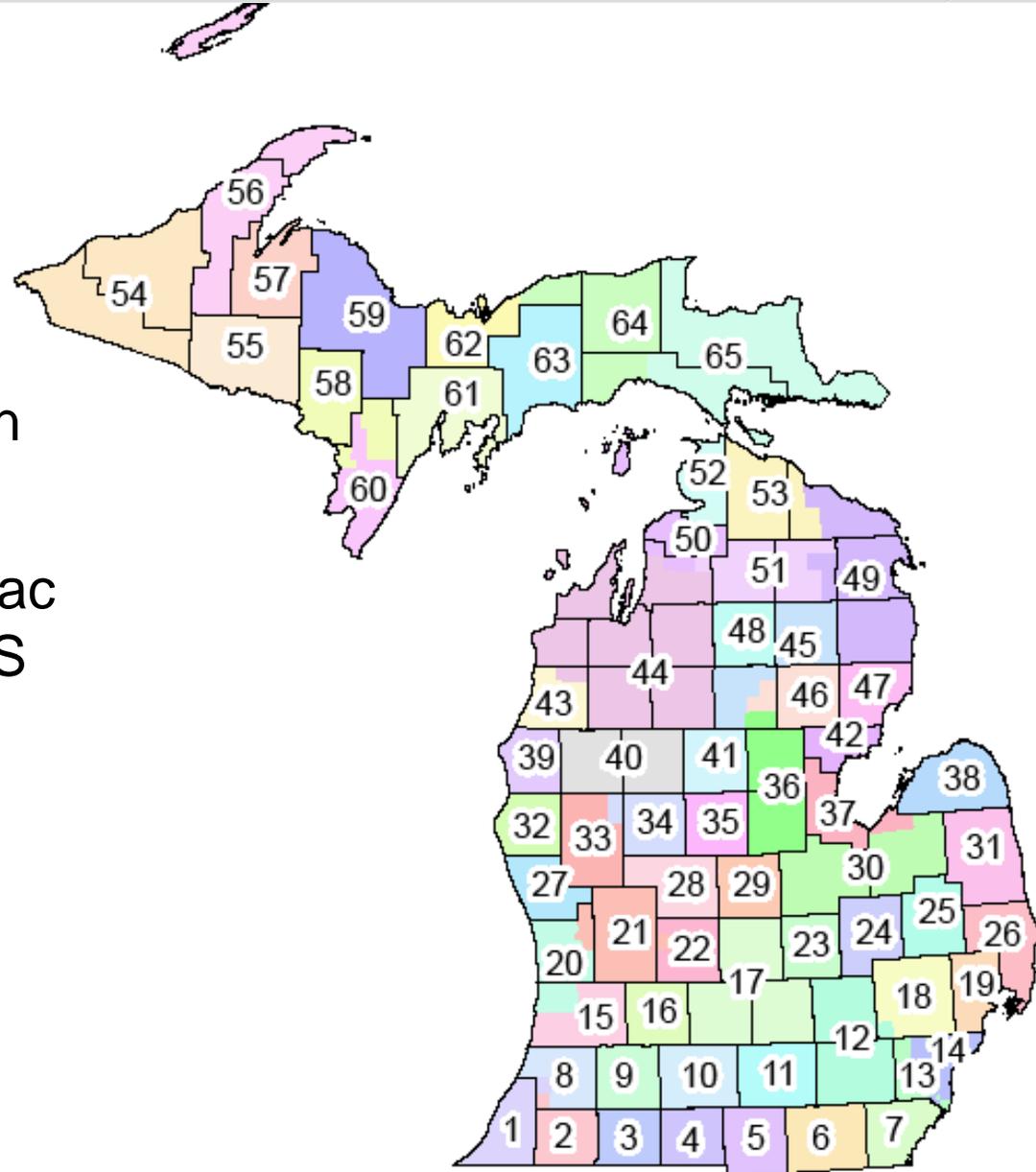


Medical Resources **in Michigan**



Medical Control Authorities

- 82,000 EMS responses in Michigan in 2006
- 60% of unexpected cardiac deaths are treated by EMS
- 65 Medical Control Authorities in Michigan
- Michigan is 1 of 4 states without a Trauma System



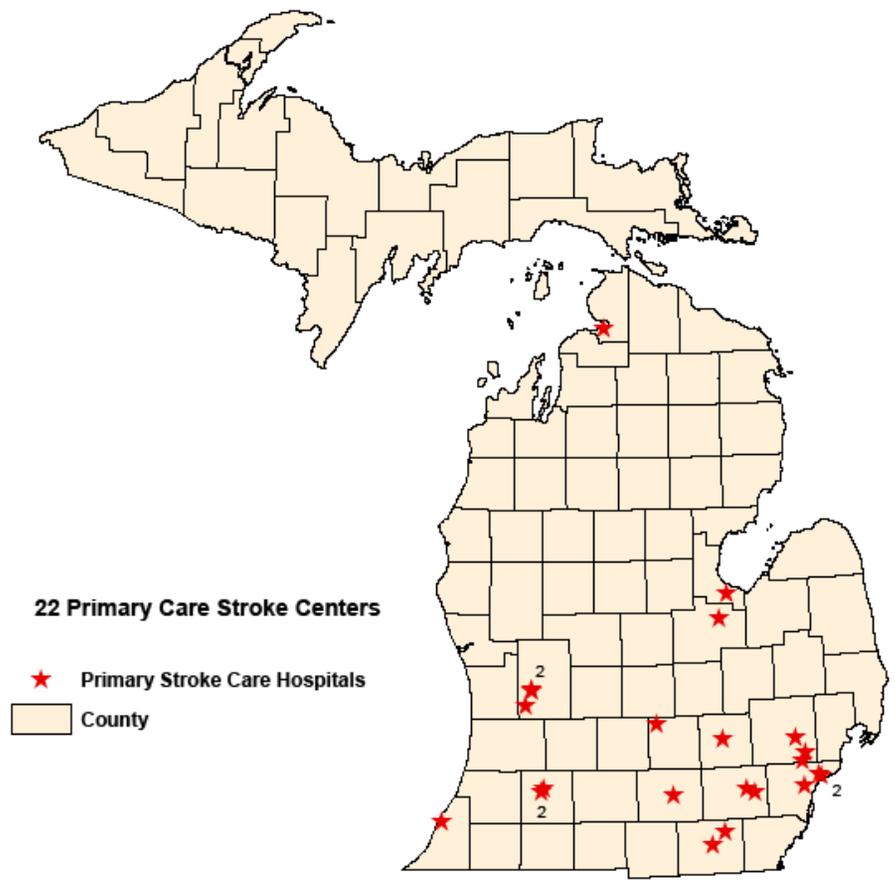


Hospitals

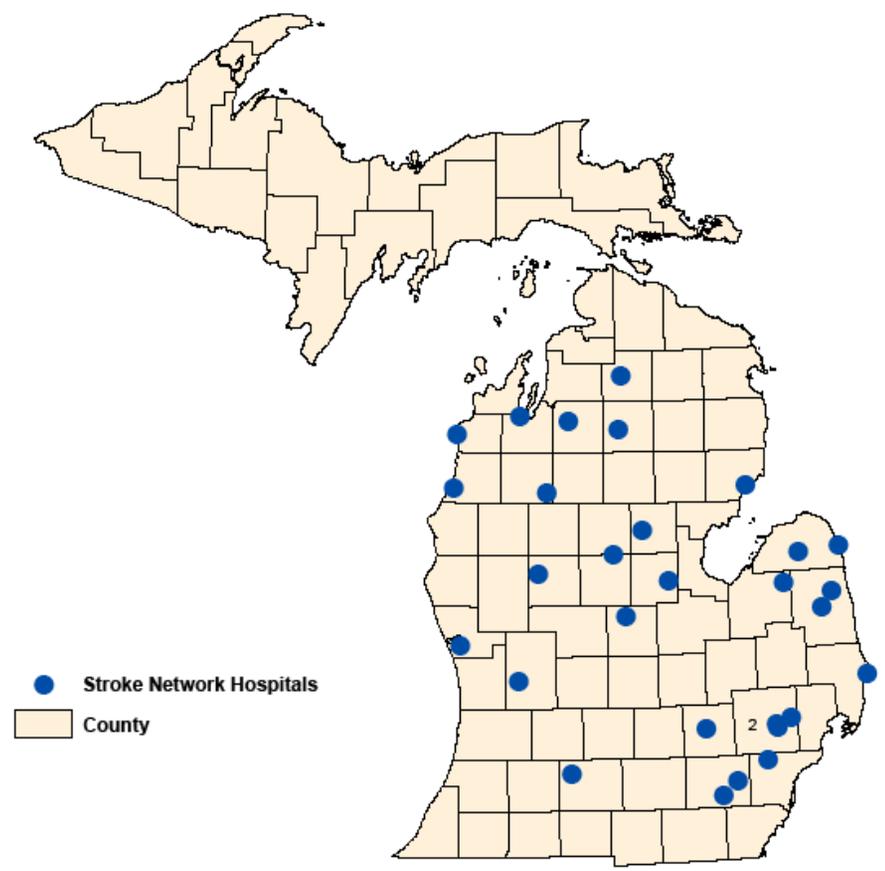
- non-profit organizations that serve the community 24 hours a day, seven days a week
- 147 Acute Care Hospitals in Michigan
- 34 Critical Access Hospitals in Michigan's rural communities



Primary Stroke Centers



Michigan Stroke Network



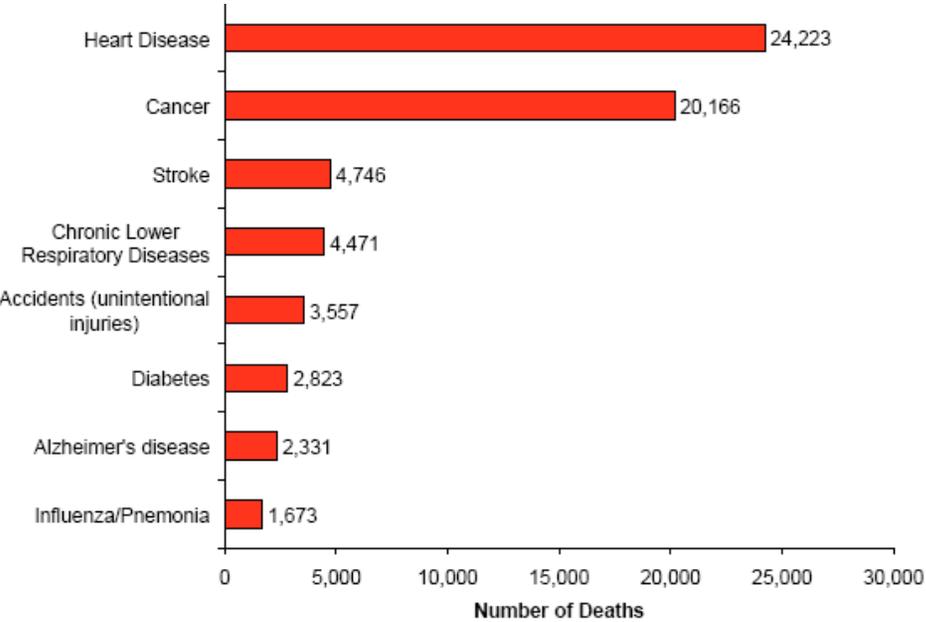


Comparison of CVD in Michigan and U.S.

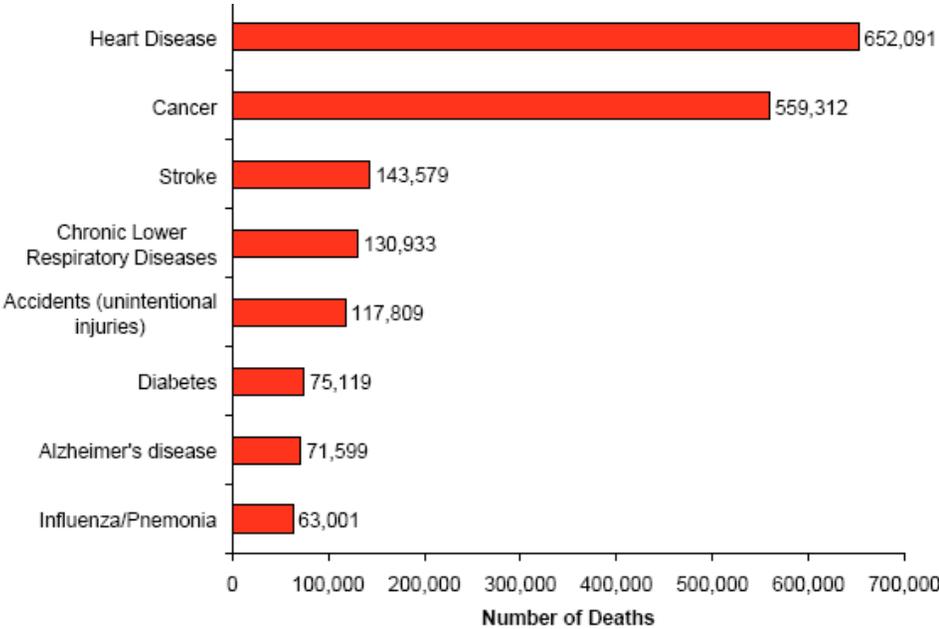


Leading Causes of Death in Michigan and the United States

Michigan, 2006



United States, 2005

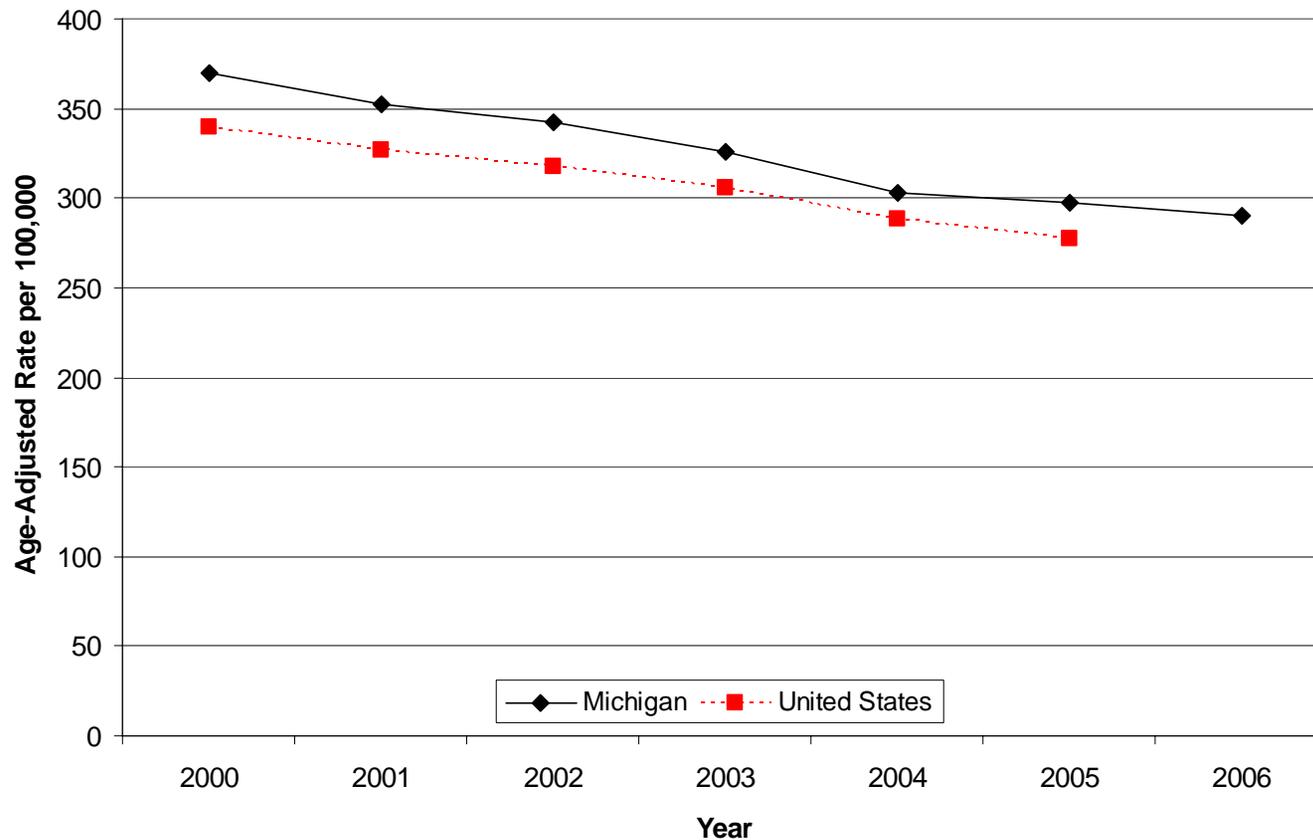


Source: MDCH Division of Vital Records and Health Statistics, 2006

National Center of Health Statistics, Centers for Disease Control and Prevention, 2005



Age-Adjusted Mortality Rates for Cardiovascular Disease for Michigan and United States, 2000-2006



2005

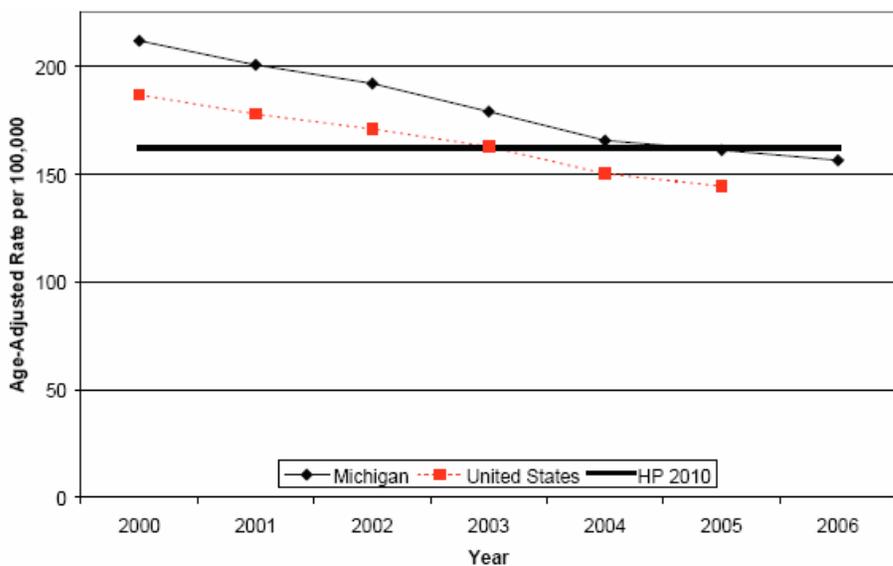
Michigan: 297.2

United States: 277.3



Age-Adjusted Mortality Rates for Michigan and United States compared to *Healthy People 2010*, 2000-2006

Coronary Heart Disease

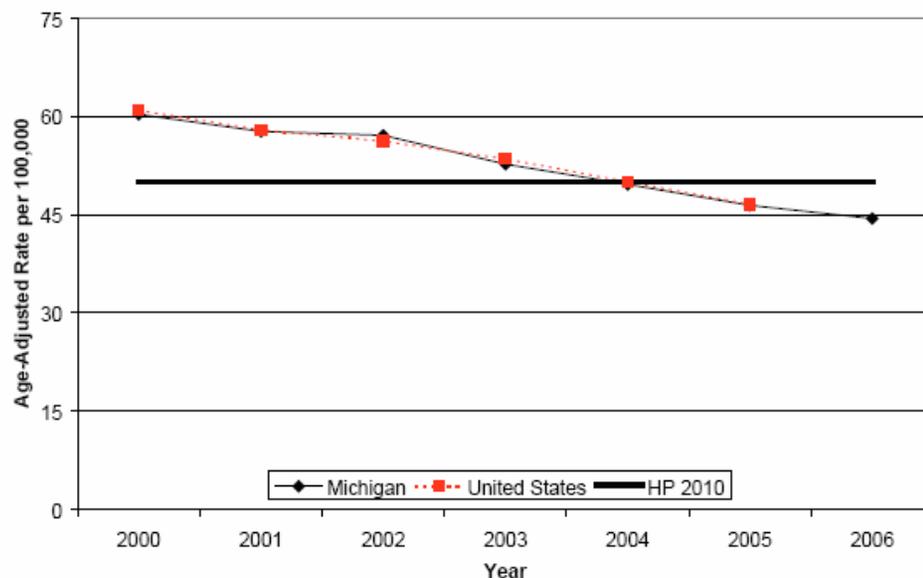


HP 2010: 162 (per 100,000)

2006 Michigan: 161.1

2005 United States: 144.4

Stroke



HP 2010: 50 (per 100,000)

2006 Michigan: 46.4

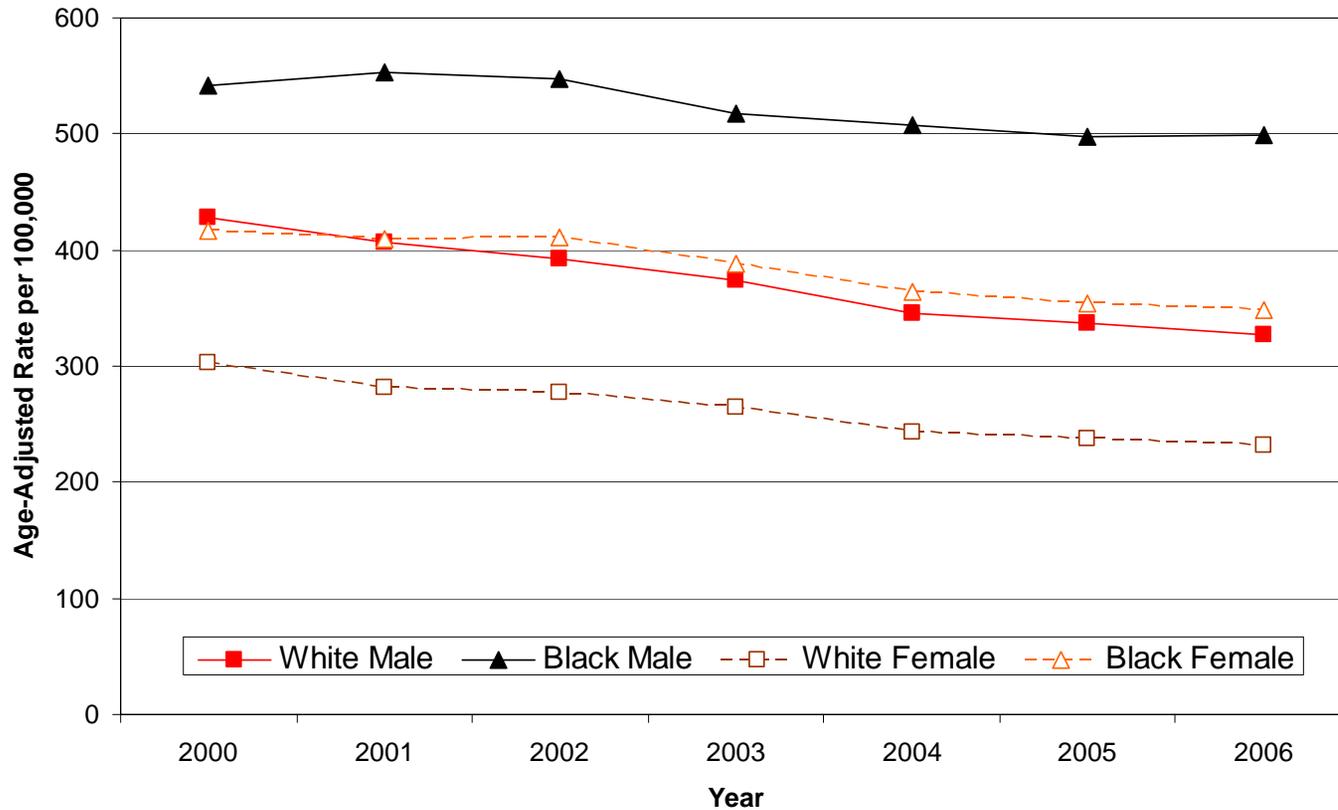
2005 United States: 46.6



Racial Disparities of CVD in Michigan



Age-Adjusted Mortality Rates by Race and Gender for Cardiovascular Disease for Michigan, 2000-2006

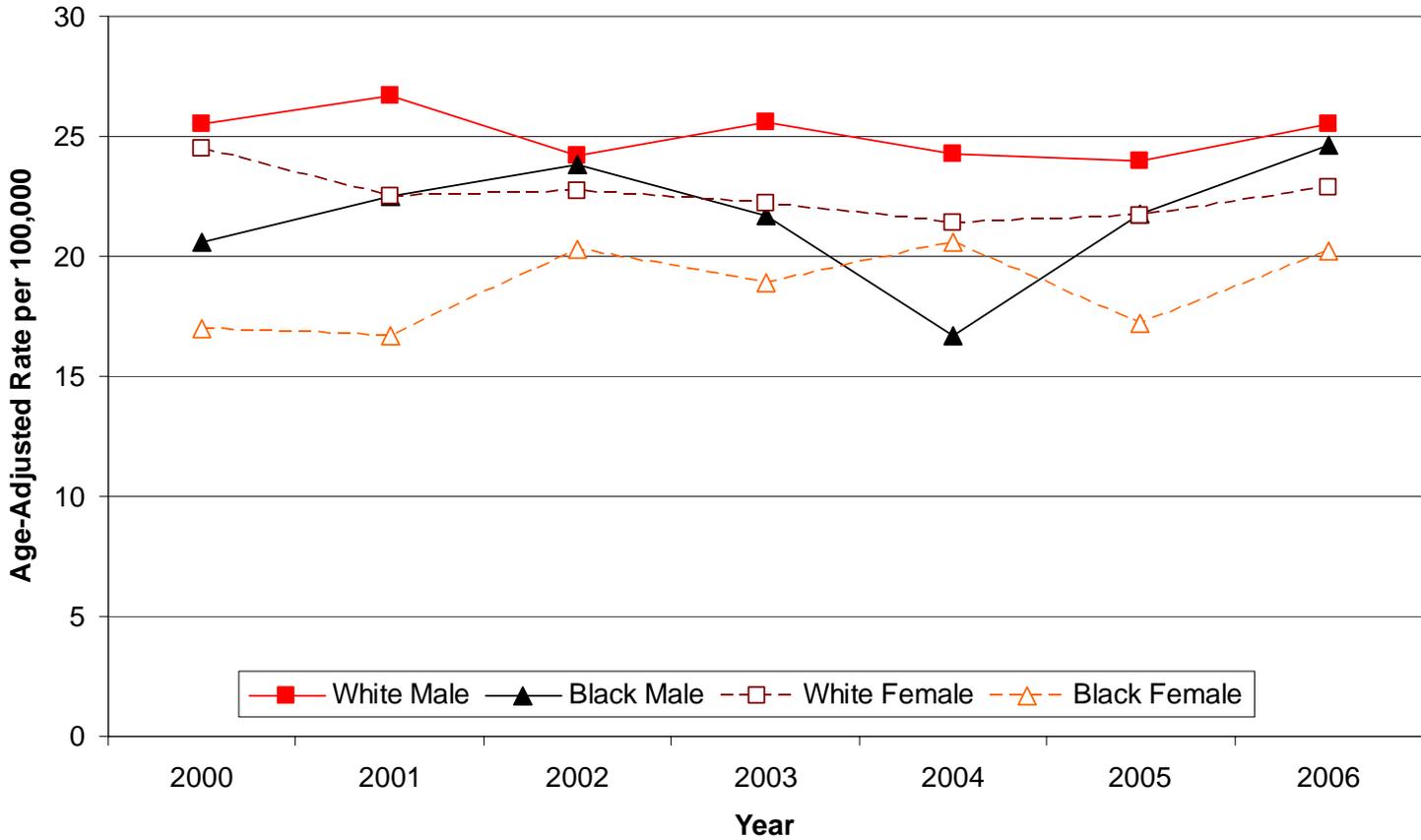


Source: MDCH Vital Statistics

Age-adjusted to the 2000 U.S. standard population



Age-Adjusted Mortality Rates by Race and Gender for Heart Failure for Michigan, 2000-2006



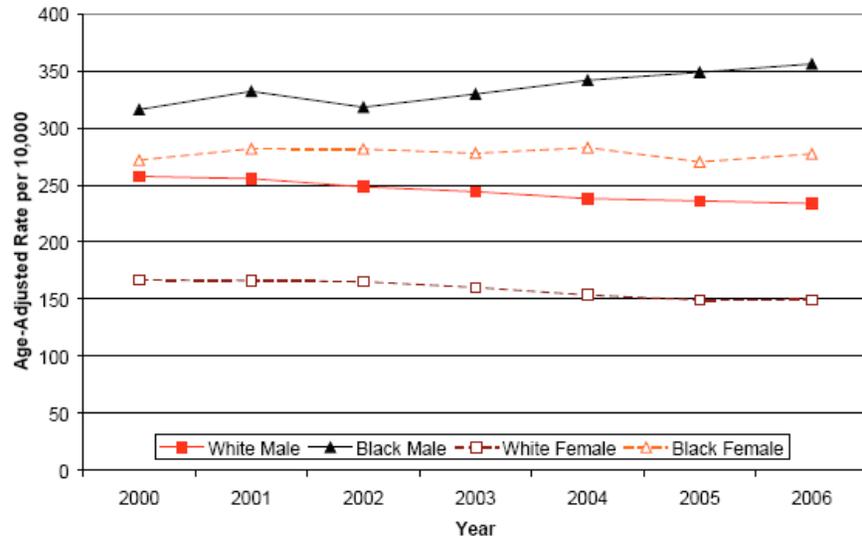
Source: MDCH Vital Statistics

Age-adjusted to the 2000 U.S. standard population



Age-Adjusted Hospitalization Rates by Race and Gender for Michigan, 2000-2006

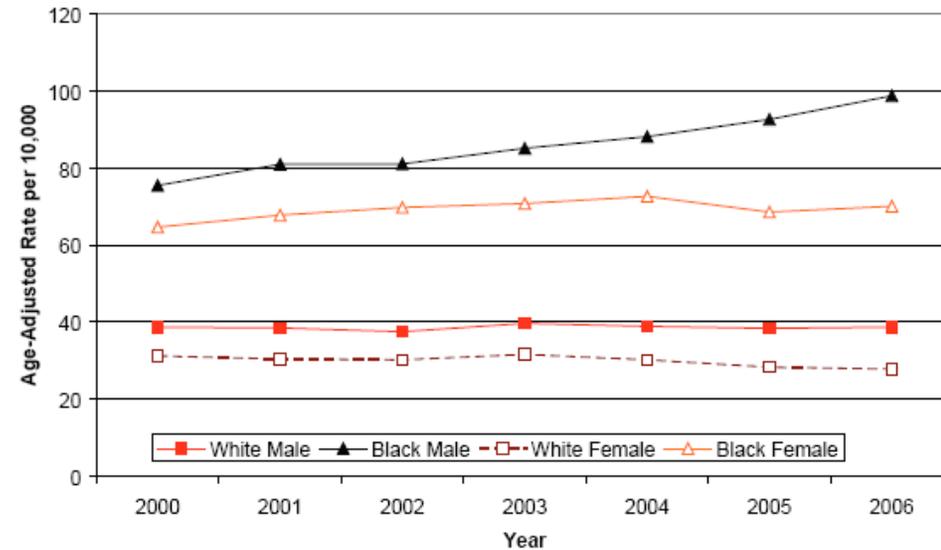
Cardiovascular Disease



2006 Black Males: 356.1 (per 10,000)

2006 White Females: 149.3

Heart Failure

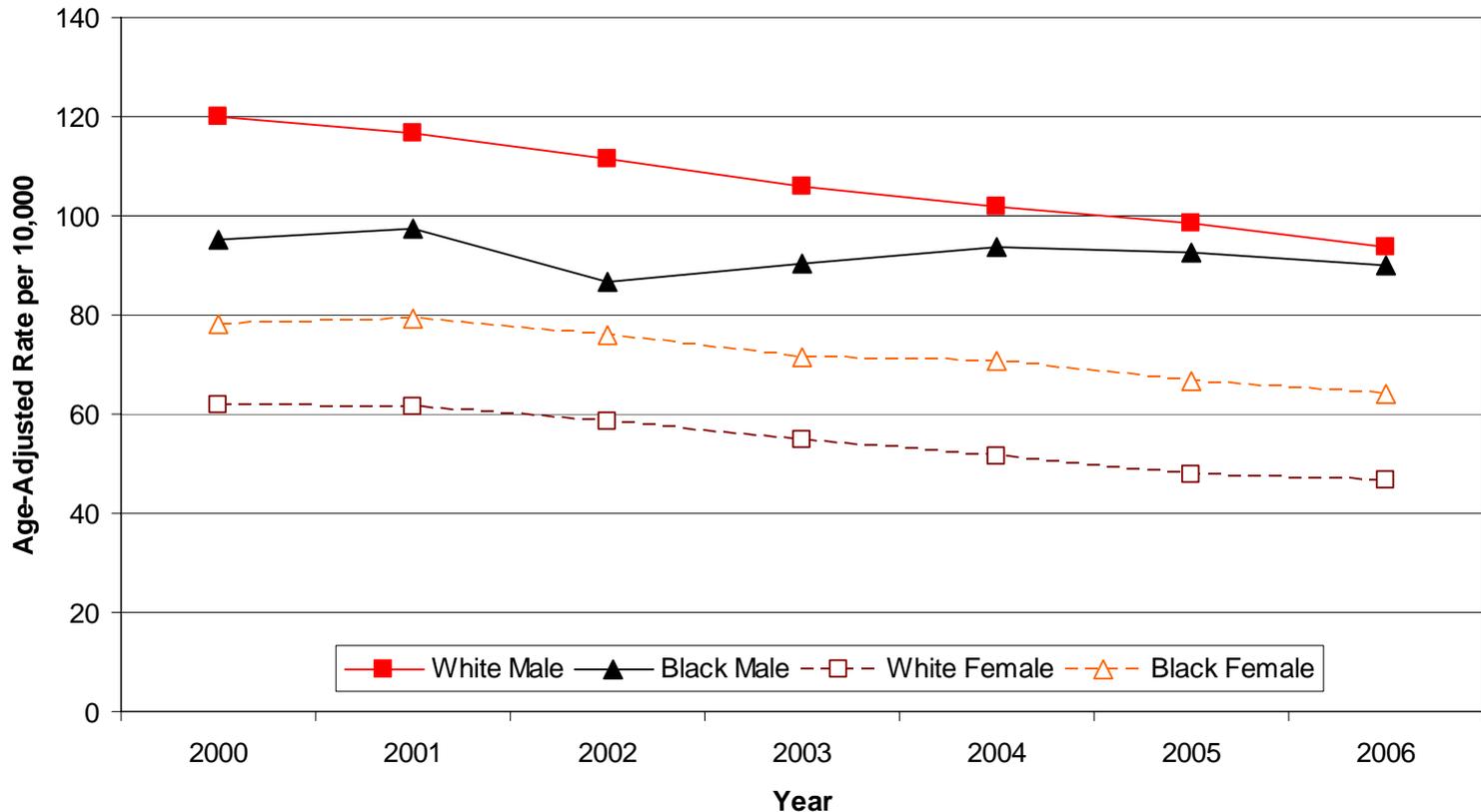


2006 Black Males: 98.8 (per 10,000)

2006 White Females: 27.8



Age-Adjusted Hospitalization Rates by Race and Gender for Coronary Heart Disease for Michigan, 2000-2006



Source: Michigan Resident Inpatient Files, Division for Vital Records and Health Statistics, MDCH

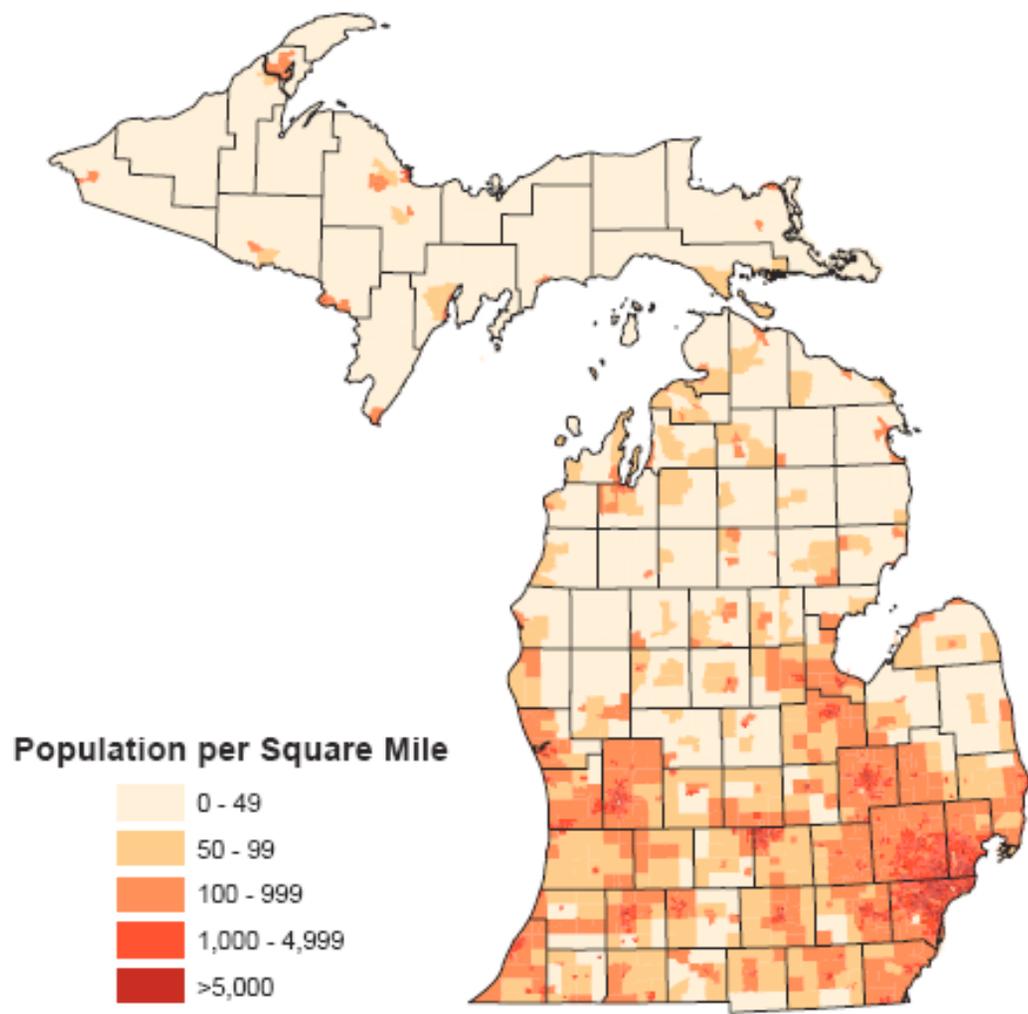
Age-adjusted to the 2000 U.S. standard population



Geography Of CVD in Michigan



Population Density Map





Cardiovascular Disease Hospitalization Rates 2002-2006

State Average: 203.3 (per 10,000)

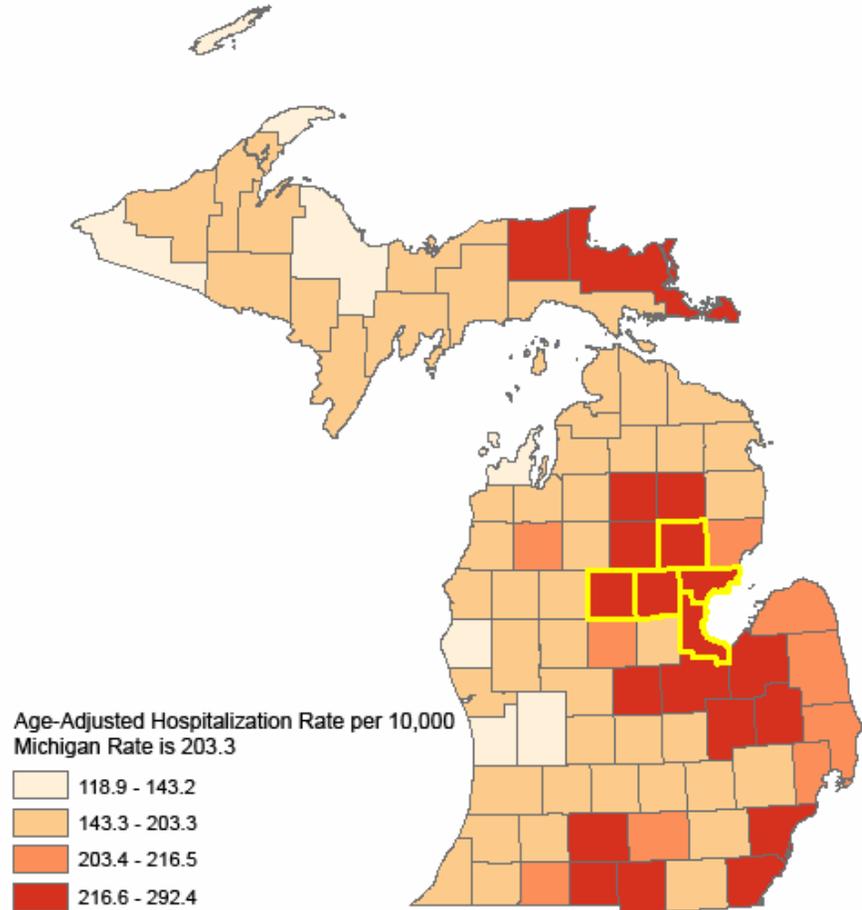
Arenac: 292.4

Bay: 266.2

Clare: 261.7

Gladwin: 263.2

Ogemaw: 250.0





Heart Disease Hospitalization Rates 2002-2006

State Average: 157.6 (per 10,000)

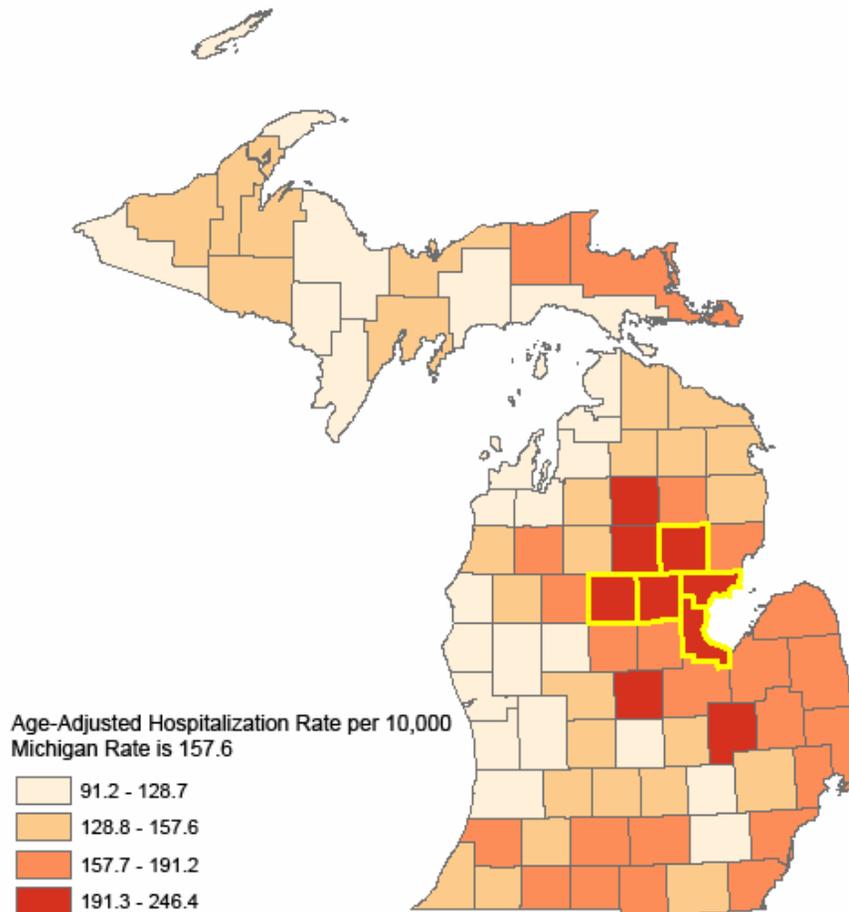
Arenac: 246.4

Bay: 223.4

Clare: 217.7

Gladwin: 221.0

Ogemaw: 210.1





Coronary Heart Disease Hospitalization Rates 2002-2006

State Average: 74.5 (per 10,000)

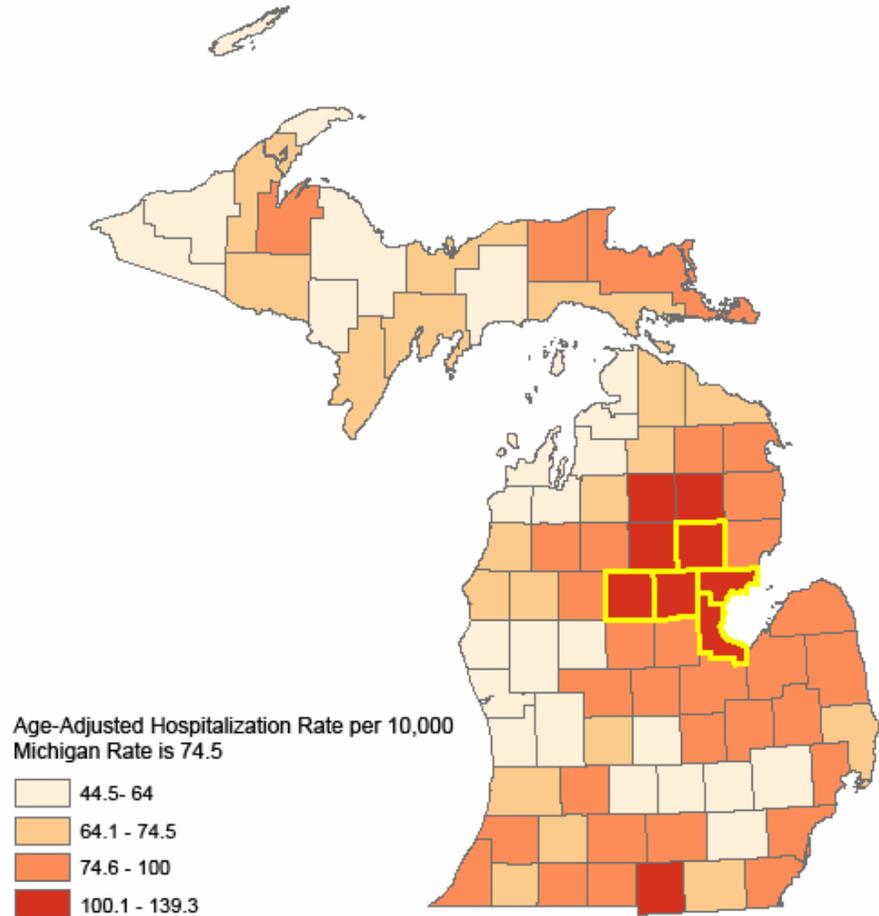
Arenac: 139.3

Bay: 120.5

Clare: 124.9

Gladwin: 121.0

Ogemaw: 117.6





Heart Failure Hospitalization Rates 2002-2006

State Average: 38.0 (per 10,000)

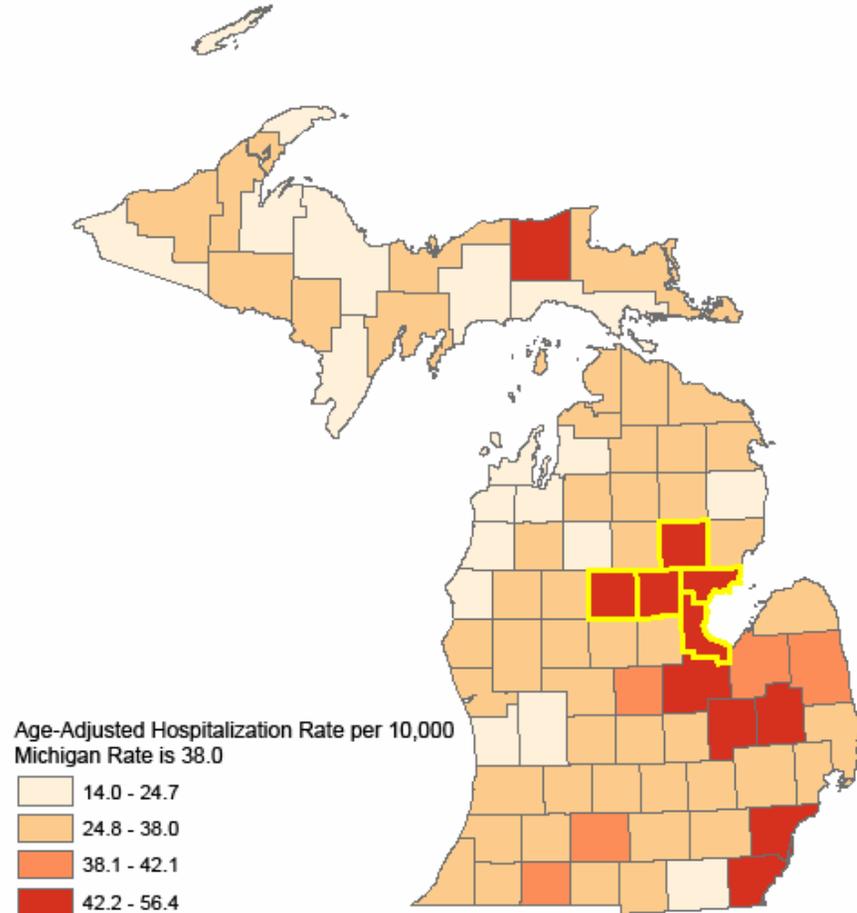
Arenac: 53.8

Bay: 46.6

Clare: 45.6

Gladwin: 53.7

Ogemaw: 46.2





Stroke Hospitalization Rates

State Average: 27.1 (per 10,000)

Arenac: 26.6

Bay: 25.9

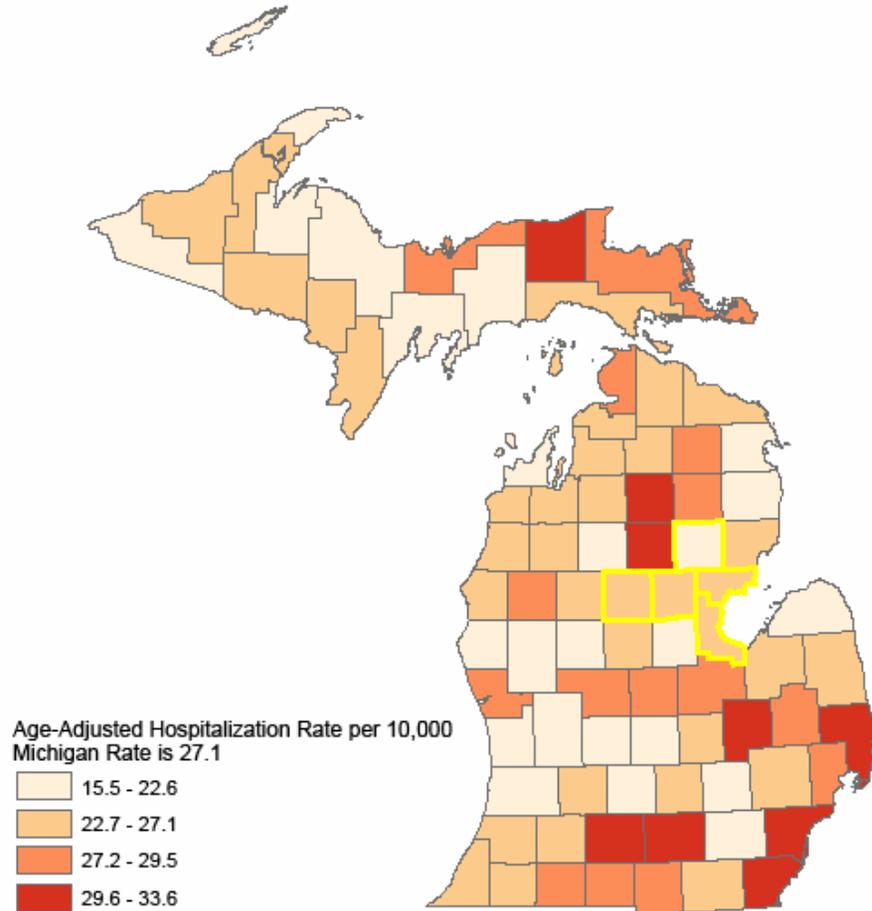
Clare: 26.6

Gladwin: 26.8

Ogemaw: 21.9

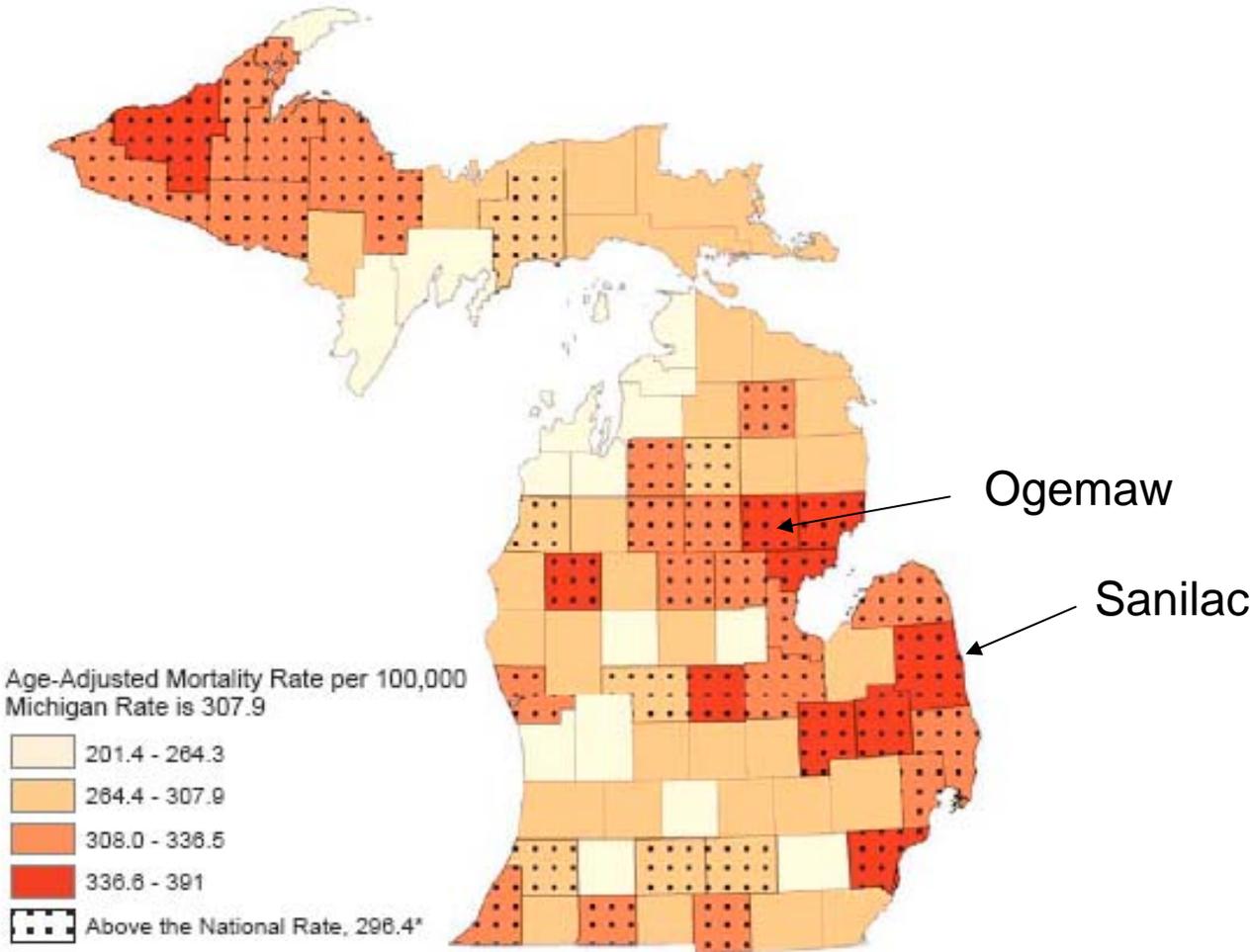
Monroe: 33.2

Wayne: 33.6





Cardiovascular Disease Mortality Rates



Source: MDCH Vital Statistics and CDC Wonder

Age-adjusted to the 2000 U.S. standard population



Risk Factors of CVD in Michigan



Prevalence of Cardiovascular Disease Risk Factors, Michigan and United States, 1990-2007

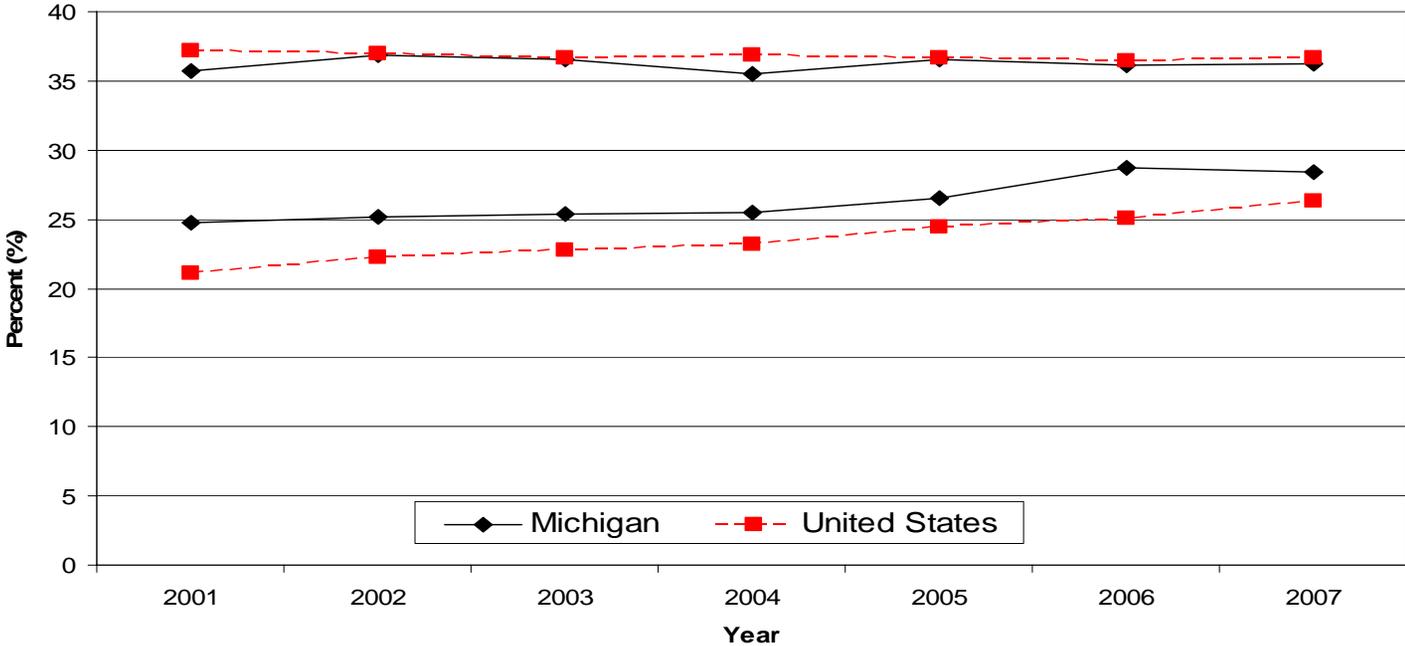
Risk Factor	1990	1994	1998	2001	2005	2007	US 2007
Smoking	29.2	25.4	27.5	26.1	21.9	21.1	19.7
Blood Pressure: Ever told high	23.3	NA	NA	27.1	27.8	28.6	27.5
Cholesterol: Ever told high (of tested)	27.0	NA	NA	33.0	38.9	39.9	37.5
Overweight (BMI \geq 25, includes obesity)	47.4	54.0	57.8	60.4	63.1	64.3	63.0
Obese	14.1	17.1	21.5	24.7	26.5	28.2	26.3
Fruits and Vegetables: Less than 5 servings/day	NA	70.2	73.6	NA	77.2	78.7	75.7
No Leisure Time Physical Activity	NA	23.4	21.7	23.5	22.6	20.8	23.0
Diabetes	4.9	4.6	7.0	7.2	8.1	8.8	8.1

Local Health Department data can be found at www.michigan.gov/brfs



Obesity in Michigan

Prevalence of overweight and obese adults, 18 and over, Michigan and United States, 2001-2007.

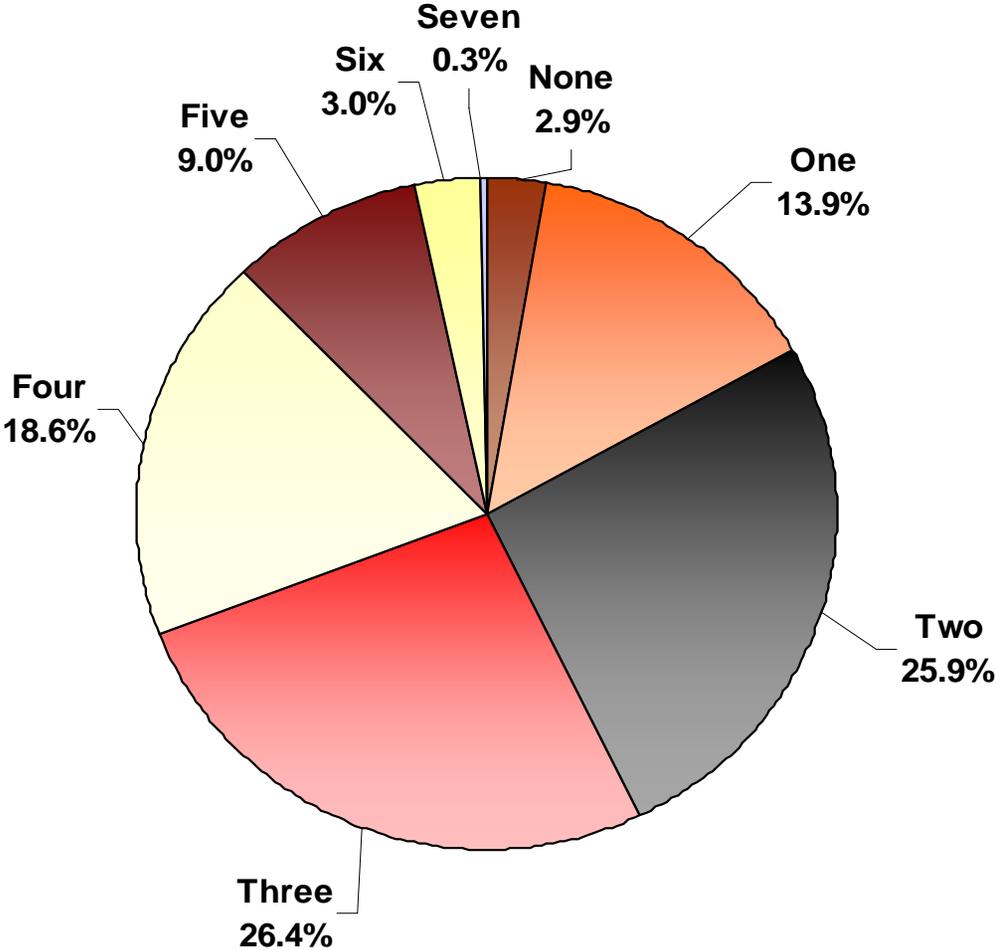


2007	Overweight (%)	Obese (%)
Michigan	36.2	28.4
United States	36.7	26.3

Source: Michigan BRFS and CDC BRFS



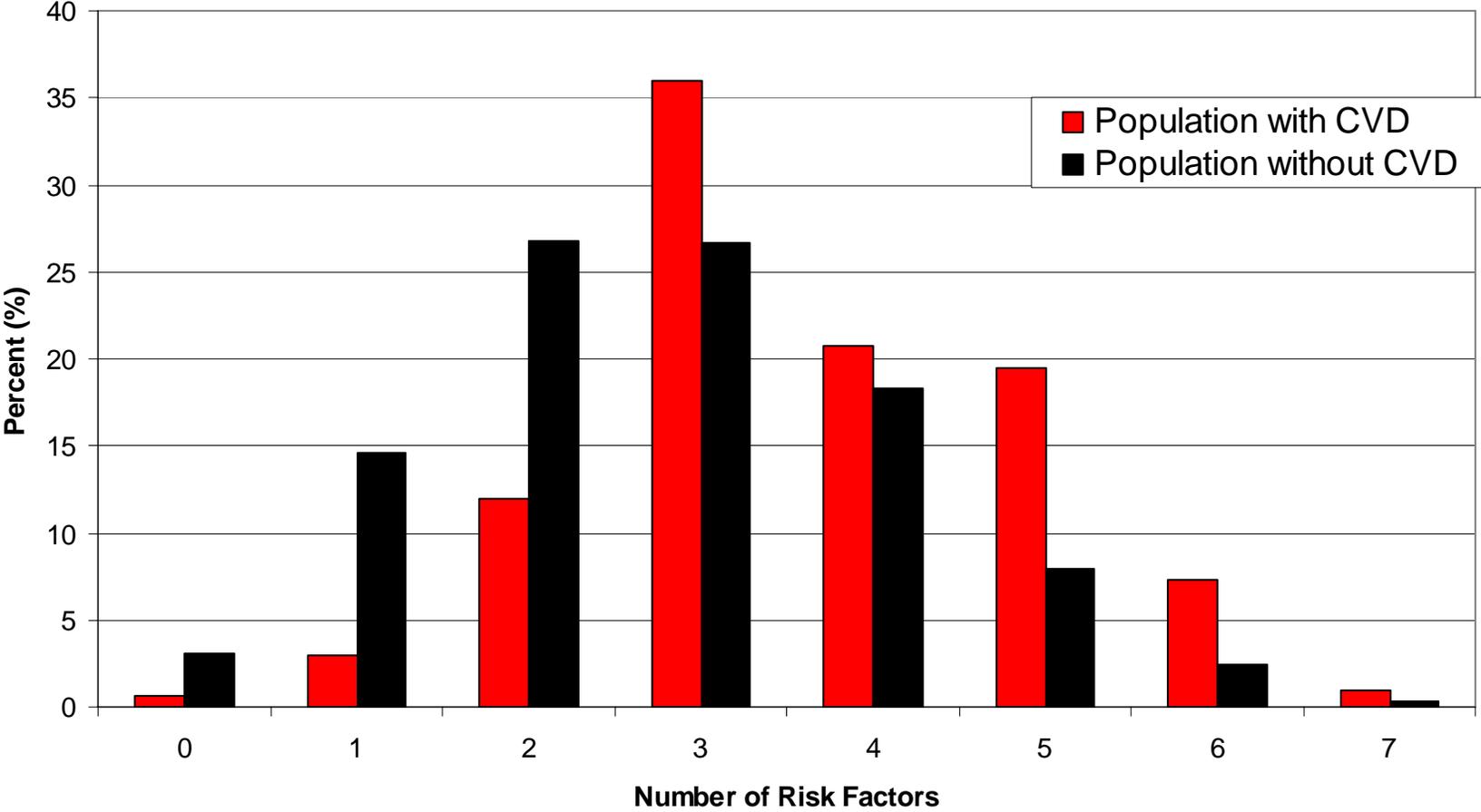
Risk Factor Clustering



- 2.9% reported having no risk factors
- Over 57% reported 3 or more
- Only 4.0% of Michigan adults had all four healthy lifestyle characteristics (healthy weight, adequate fruit and vegetable intake, not smoking and engaging in adequate physical activity)



Risk Factor Clustering

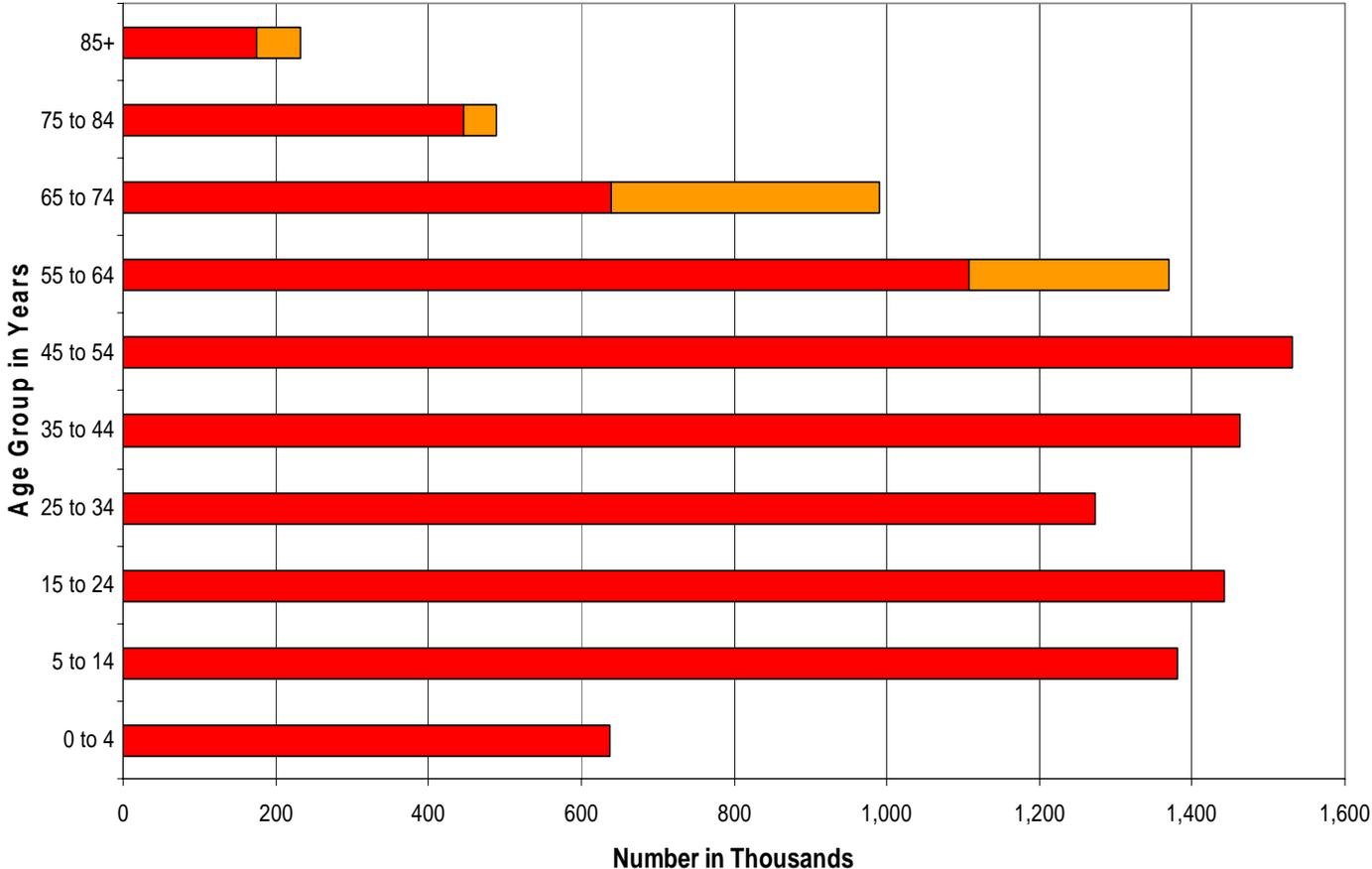




Future of CVD in Michigan



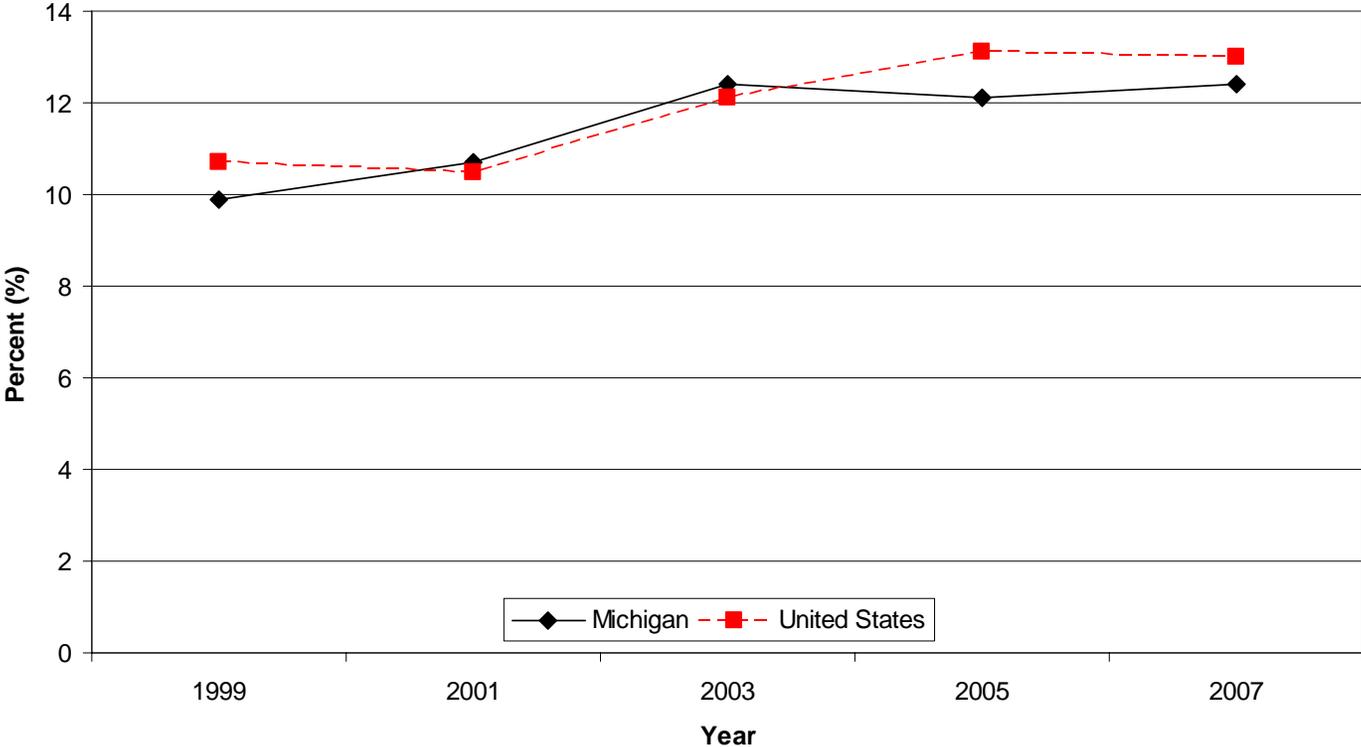
Current Age Distribution of Michigan Residents, 2006



Source: MDCH Division of Vital Records and Health Statistics, 2006



Prevalence of Obese Youth, Grades 9 through 12, in Michigan, 1997-2007



2007	Obese (%)
Michigan	12.4
United States	13.0

Source: Michigan YRBS, CDC YRBS



Summary of Findings

- The burden of CVD is higher in Michigan (297.2 deaths per 100,000) than the U.S. (277.3 deaths per 100,000)
- Black males have the highest hospitalization rates for all diseases but coronary heart disease and the highest morality rate for all but heart failure
- There is a 5 county contiguous region in Michigan that has high hospitalization rates for all CV diseases except for stroke

Next Steps

- Look closer at the 5 counties that have high hospitalization rates
- Examine co-morbidities with CVD
- Work with partners to examine rehabilitation data
- Perform a geographic analysis of out-of-hospital deaths, to observe proximity of the place of occurrence to hospitals.
- Look at risk factor data in more detail and environmental design
 - A surveillance report on obesity will be coming out next year



Questions?

- Contact:
 - Beth Anderson
 - AndersonB@michigan.gov
- The *Impact of Heart Disease and Stroke in Michigan: 2008 Report on Surveillance* is available electronically at:
 - www.michigan.gov/cvh
 - www.michigan.gov/cvhepi

Impact of
Heart Disease and
Stroke in Michigan:
2008 Report on Surveillance





Resources

- American Heart Association 2008 Statistical Update

http://www.americanheart.org/downloadable/heart/1200078608862HS_Stats%202008.final.pdf

- Michigan Community Health Information from Vital Statistics

<http://www.mdch.state.mi.us/pha/osr/chi/index.asp>

- Risk Factor Data by Community

www.michigan.gov/brfs