

Heart Disease and Stroke in Michigan: 2010 Surveillance Update



*Michigan Department
of Community Health*



October 19, 2010



Outline

- Cardiovascular Disease Overview
- Cardiovascular Disease Risk Factors
- Comparison of CVD in Michigan and U.S.
- Racial Disparities in Michigan
- Geography in Michigan



Introduction

- One out of every three deaths in Michigan is due to CVD
- \$503.2 billion will be spent on CVD in the United States in 2010
- \$16.8 billion will be spent on CVD in Michigan in 2010*
- Heart disease is the number 1 cause of death
- Stroke is now the number 4 cause of death in Michigan



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

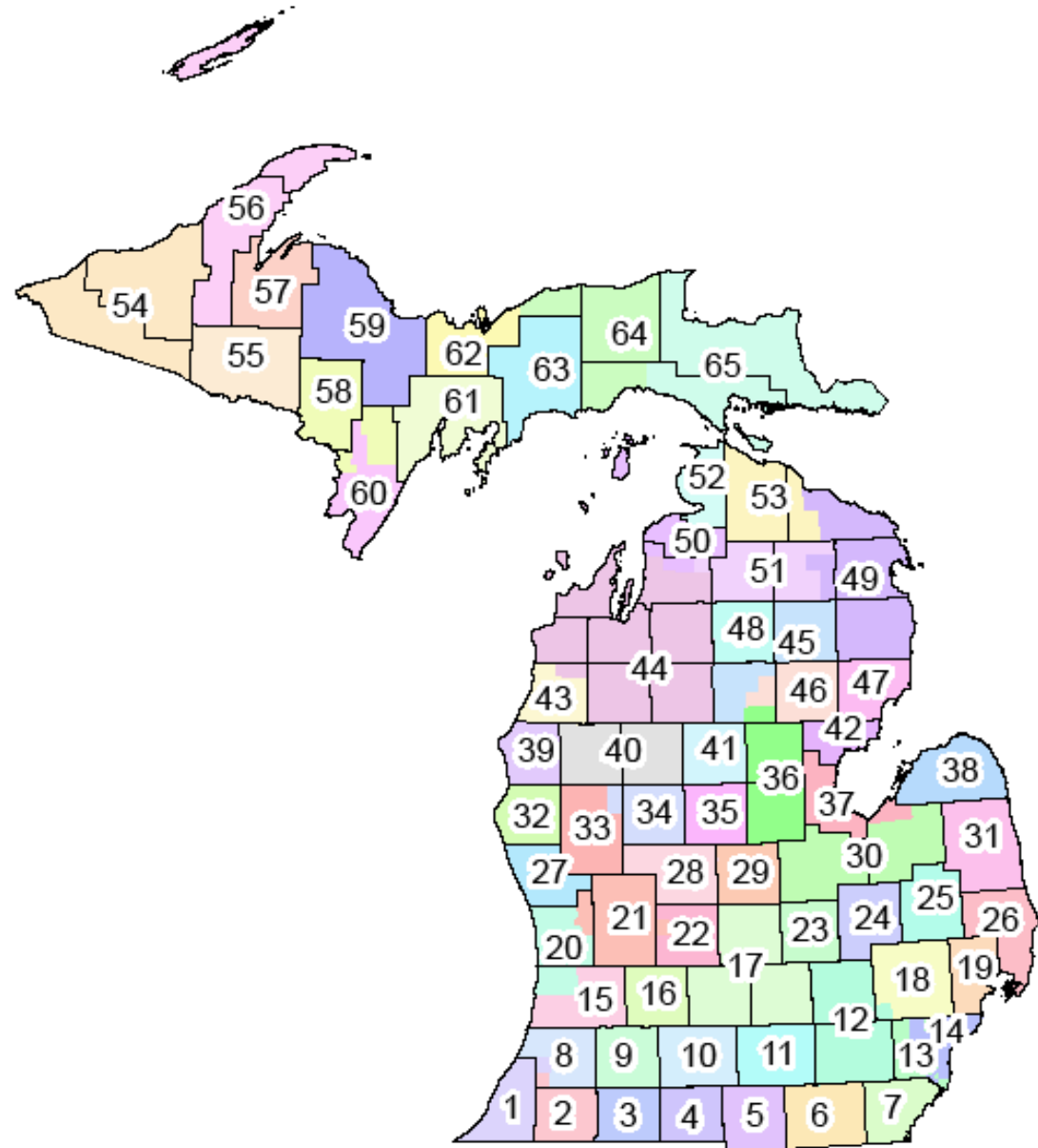


Medical Resources **in Michigan**



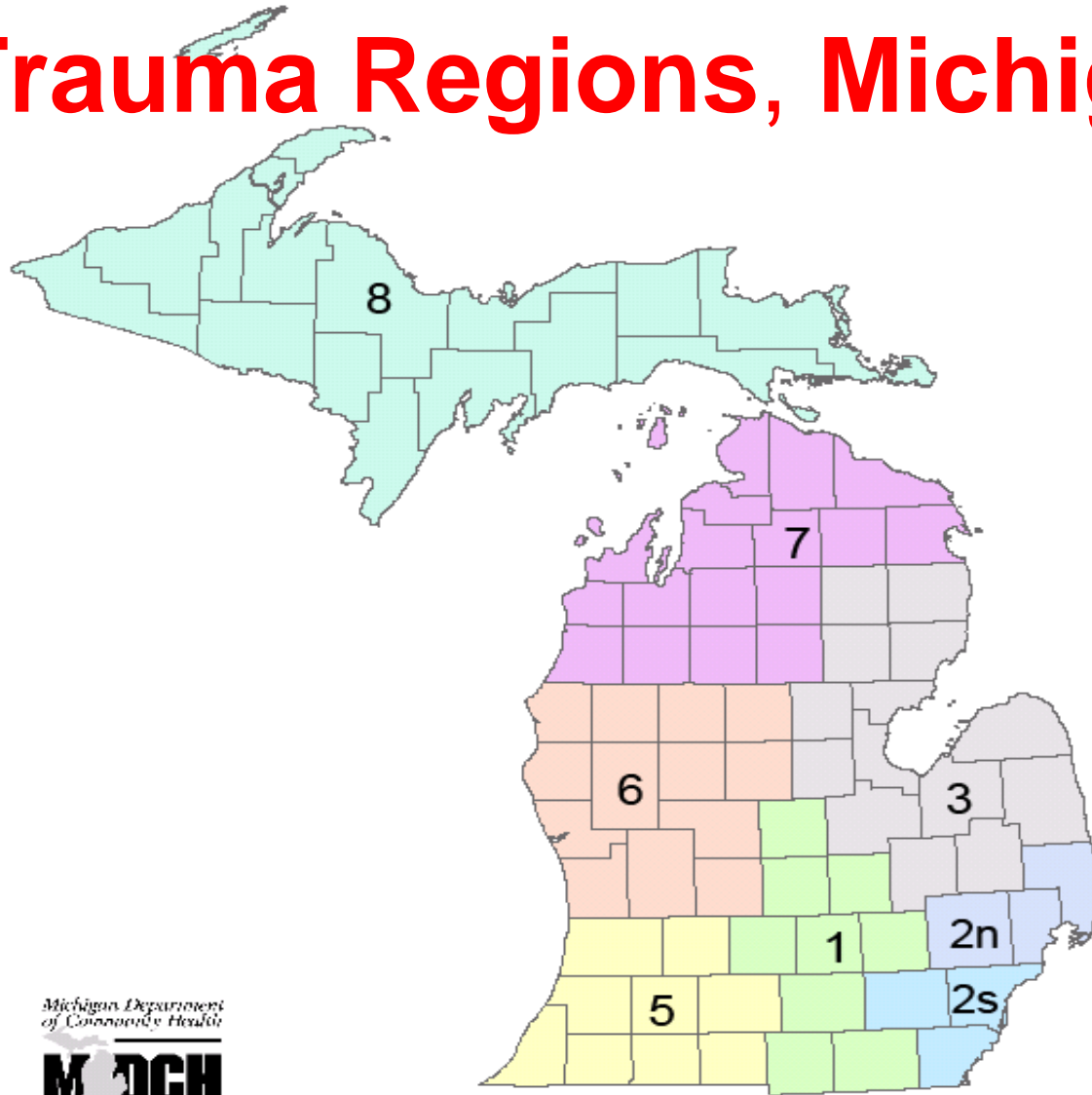
Medical Control Authorities

- 65 Medical Control Authorities in Michigan
- Michigan is 1 of 3 states without a funded Trauma System





Trauma Regions, Michigan 2009



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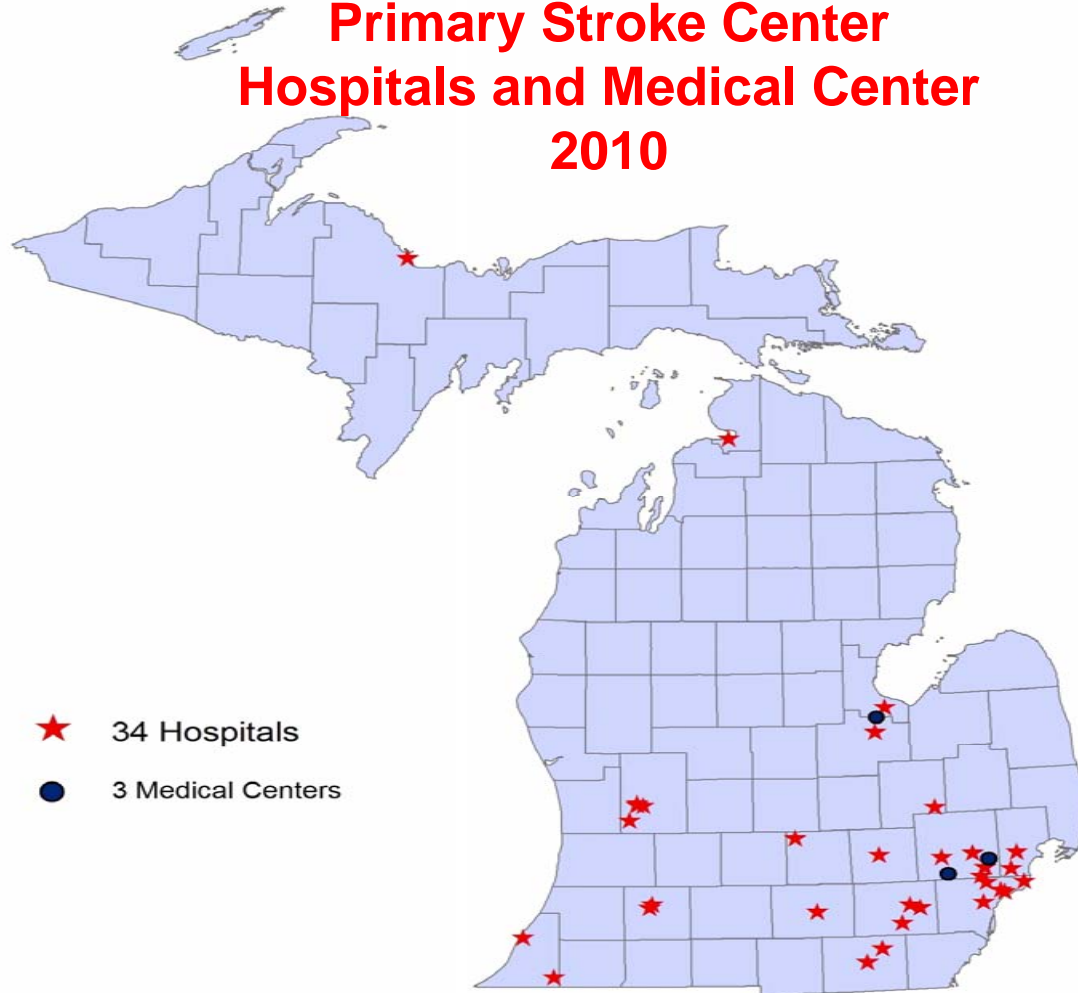
Jennifer M. Granholm, Governor
Janet Olszowski, Director

Chronic Disease and Injury
Control Division GIS Team

Henry Miller, July 14, 2009



The Joint Commissions Primary Stroke Center Hospitals and Medical Center 2010



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Jennifer M. Granholm, Governor
Janet Olszewski, Director

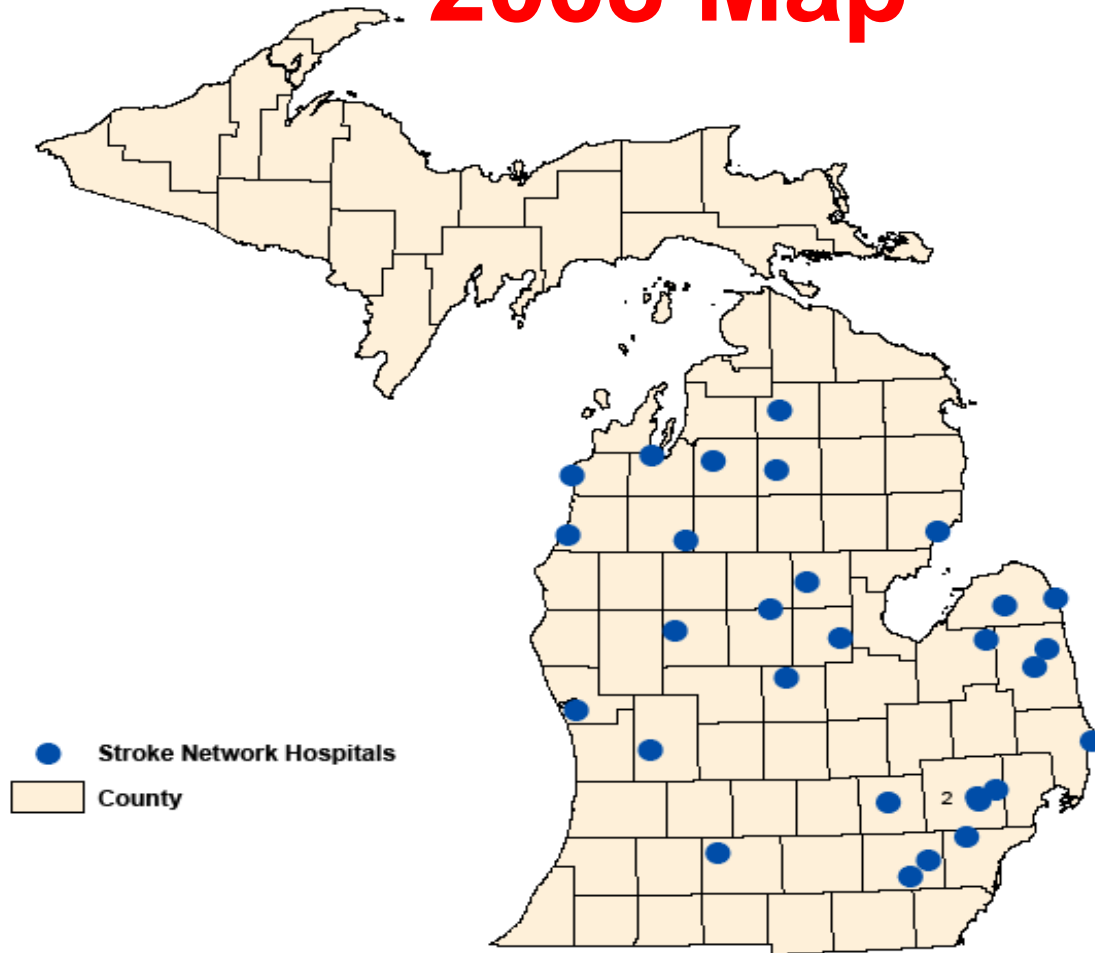
Chronic Disease and Injury
Control Division GIS Team

Source: The Joint Commission, 2010

Henry Miller, March 15, 2010

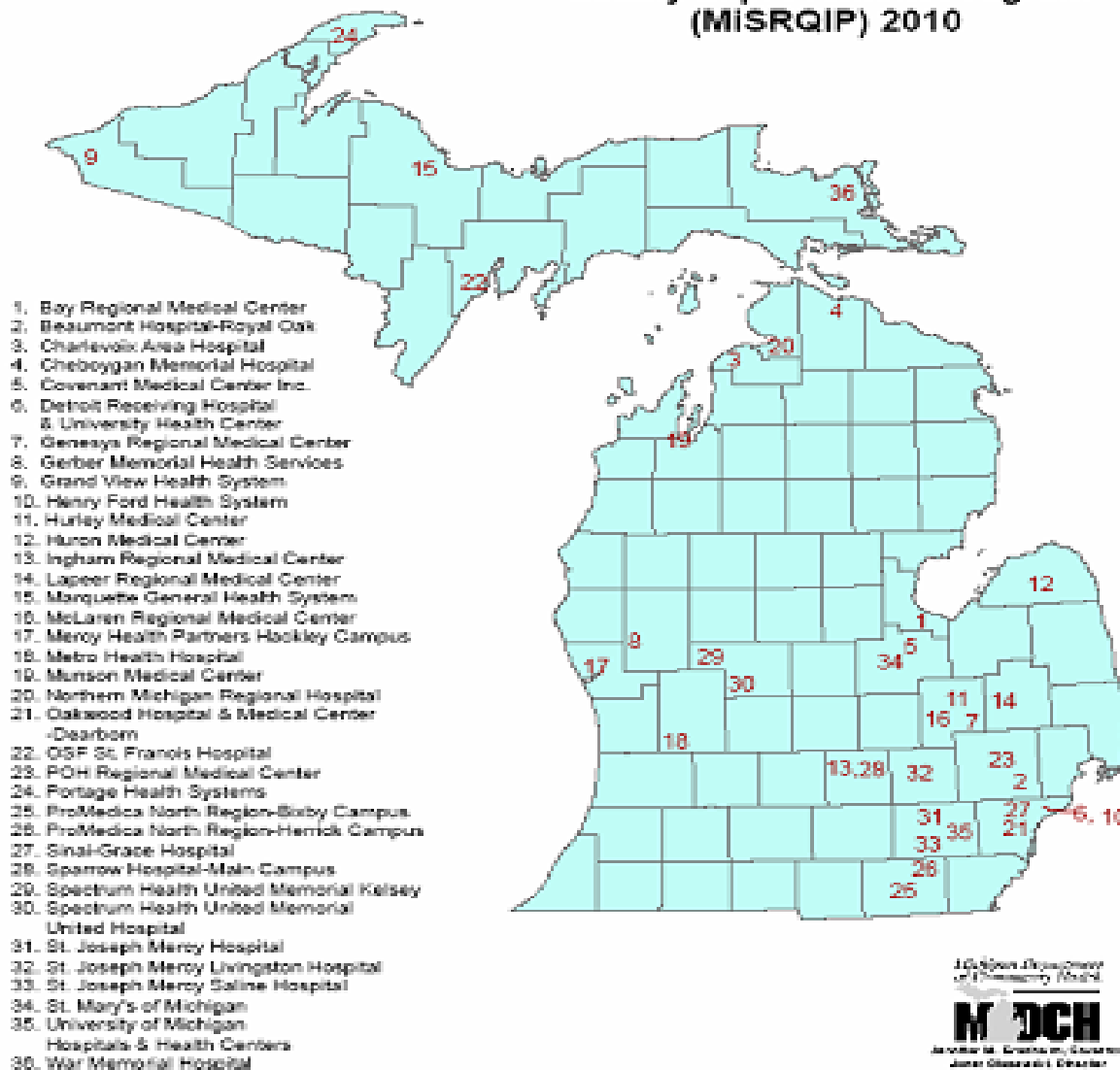


Michigan Stroke Network, 2008 Map





Michigan Stroke Registry Quality Improvement Program (MISRQIP) 2010



Henry Miller, July 28, 2010



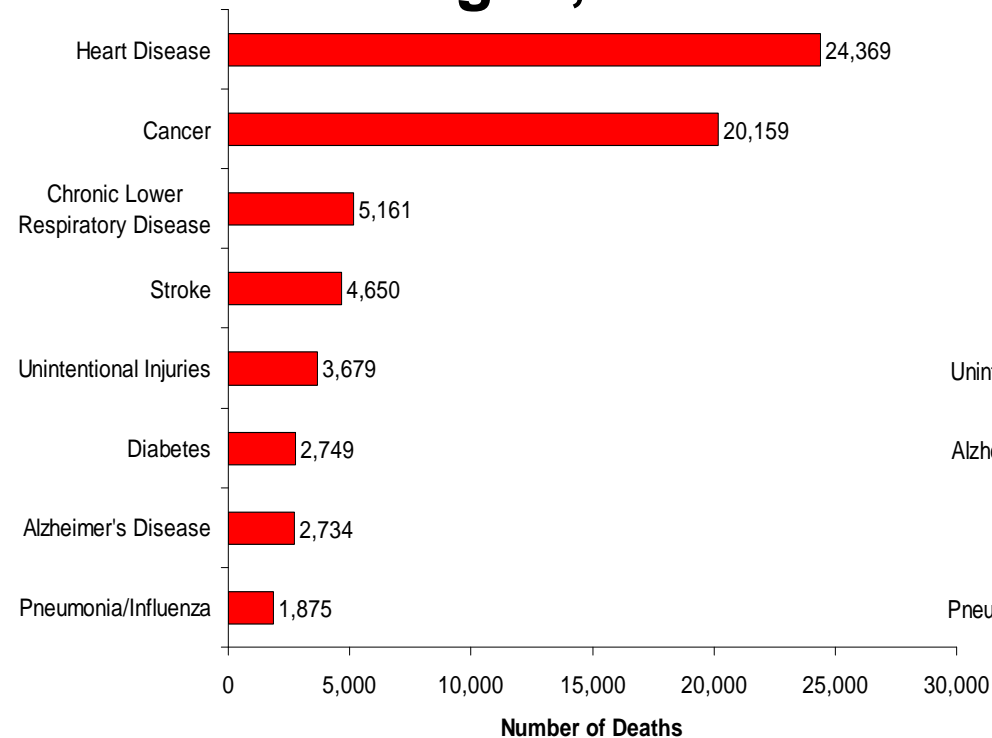
Comparison

of CVD in Michigan and U.S.

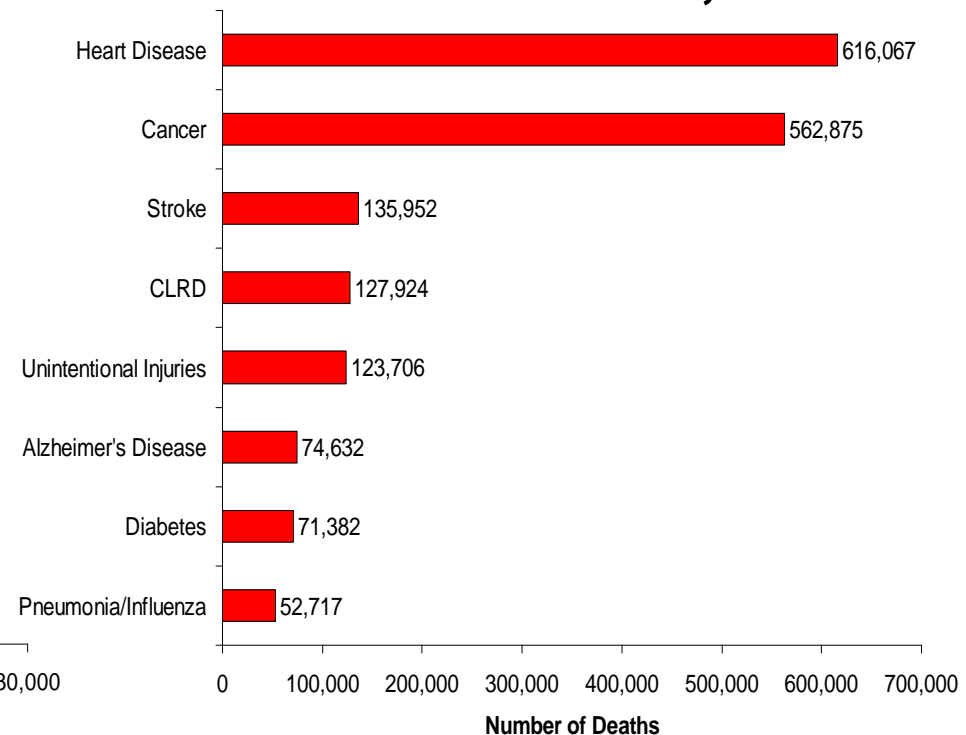


Leading Causes of Death in Michigan and the United States

Michigan, 2008



United States, 2007

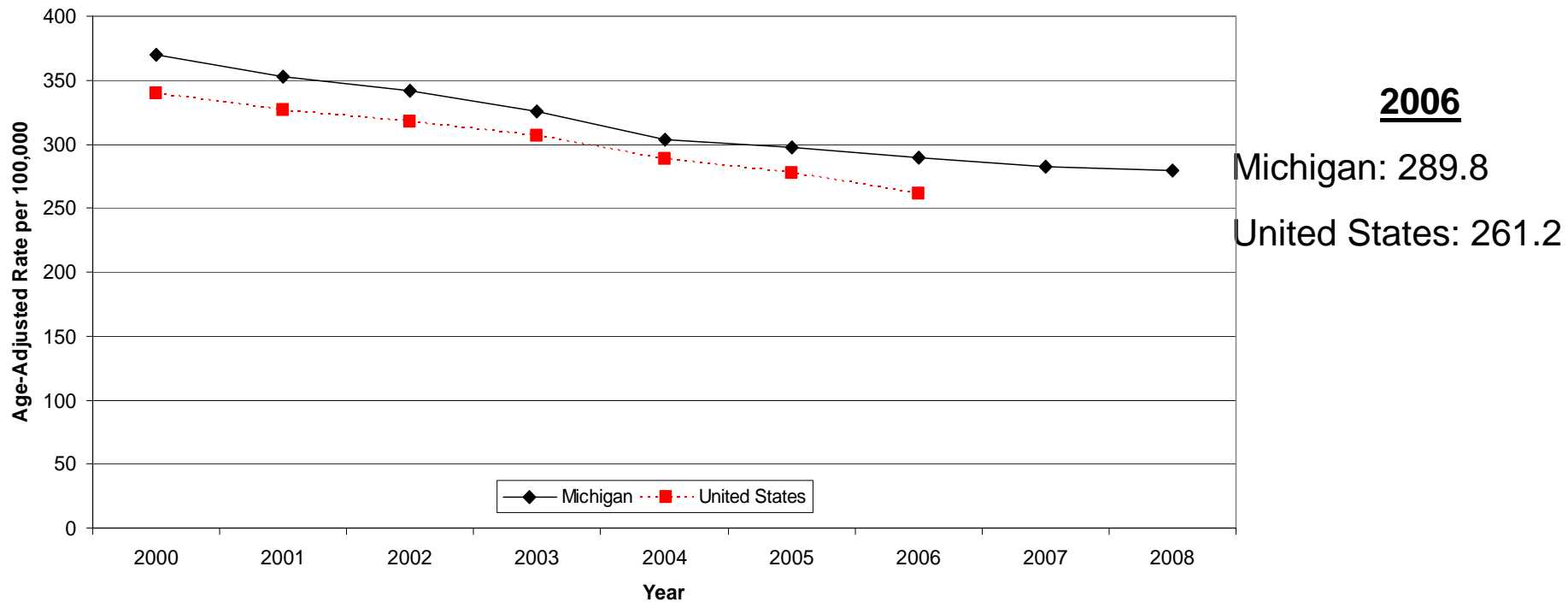


Source: MDCH Division of Vital Records and Health Statistics, 2008

National Center of Health Statistics, Centers for Disease Control and Prevention, 2007



Age-Adjusted Mortality Rates for Cardiovascular Disease for Michigan and United States, 2000-2008



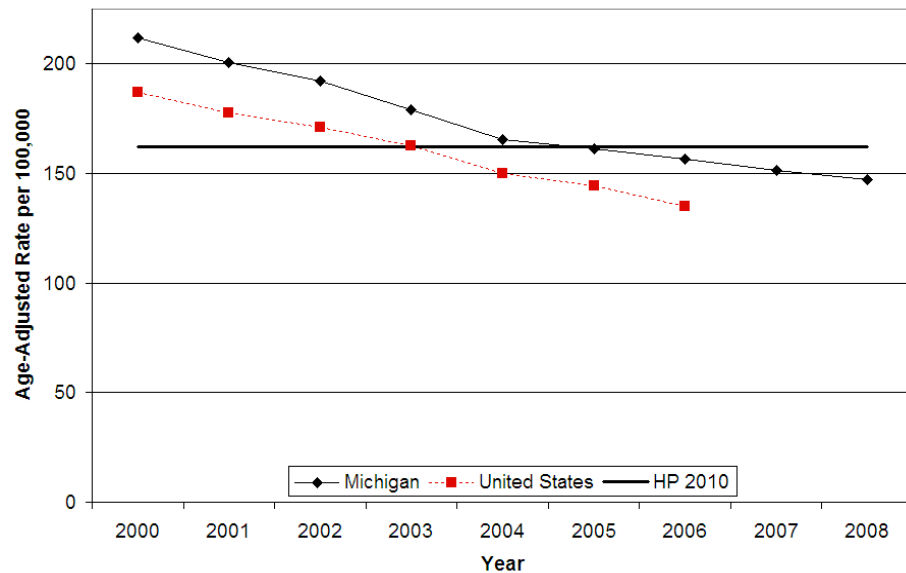
Source: MDCH Vital Statistics

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



Age-Adjusted Mortality Rates for Michigan and United States compared to *Healthy People 2010*, 2000-2008

Coronary Heart Disease

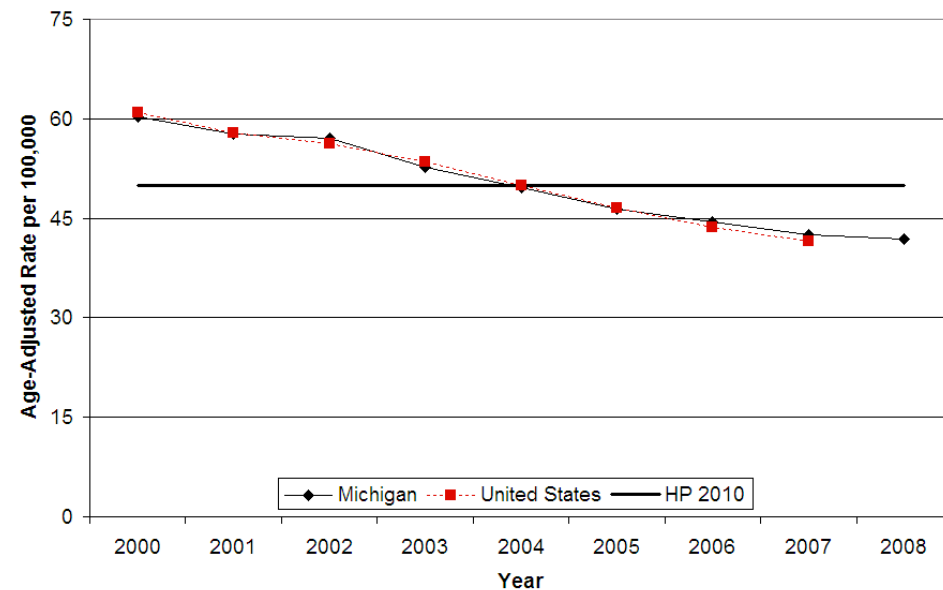


HP 2010: 162 (per 100,000)

2008 Michigan: 147.2

2006 United States: 135

Stroke



HP 2010: 50 (per 100,000)

2008 Michigan: 41.9

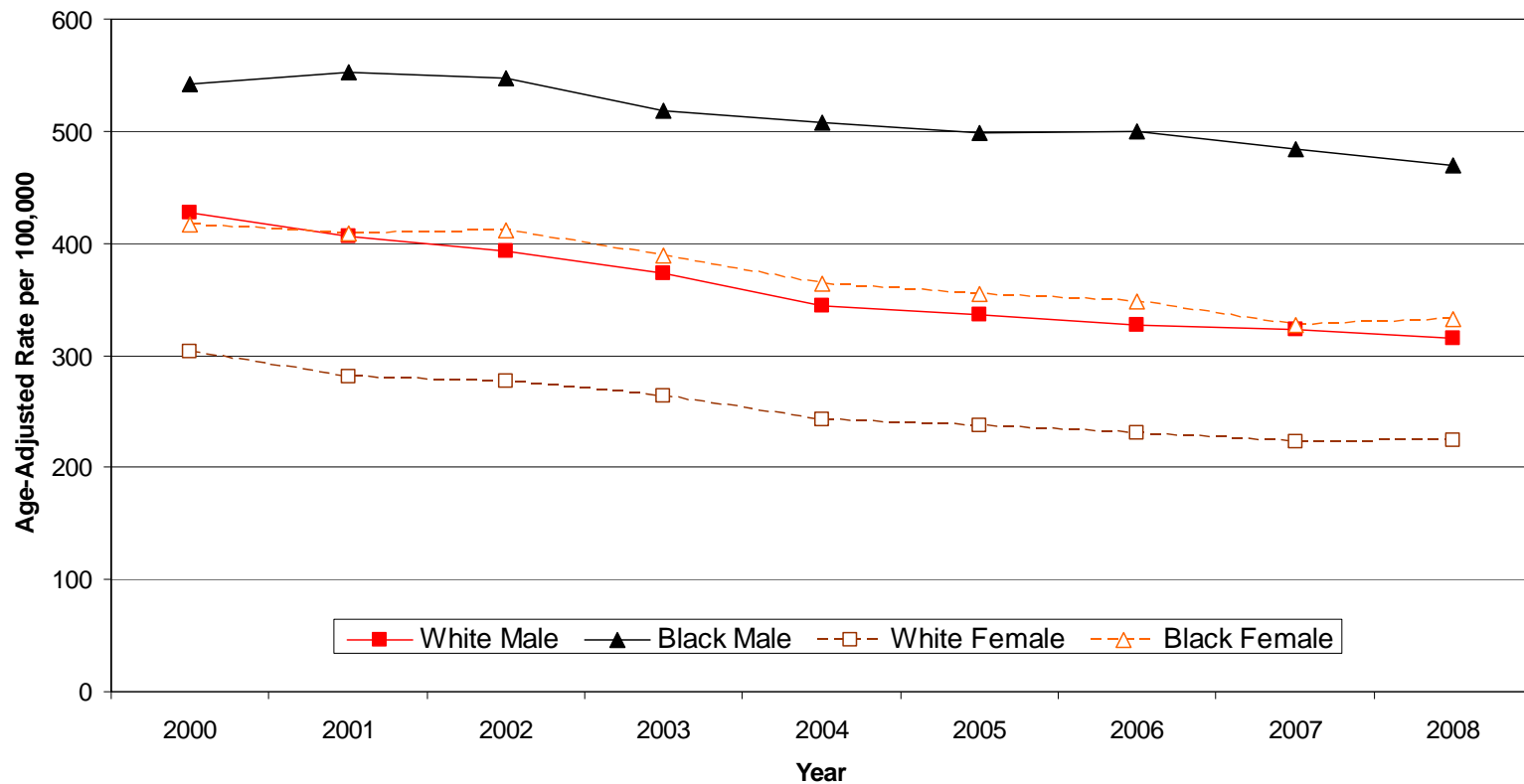
2007 United States: 41.6



Racial Disparities of CVD in Michigan



Age-Adjusted Mortality Rates by Race and Gender for Cardiovascular Disease for Michigan, 2000-2008

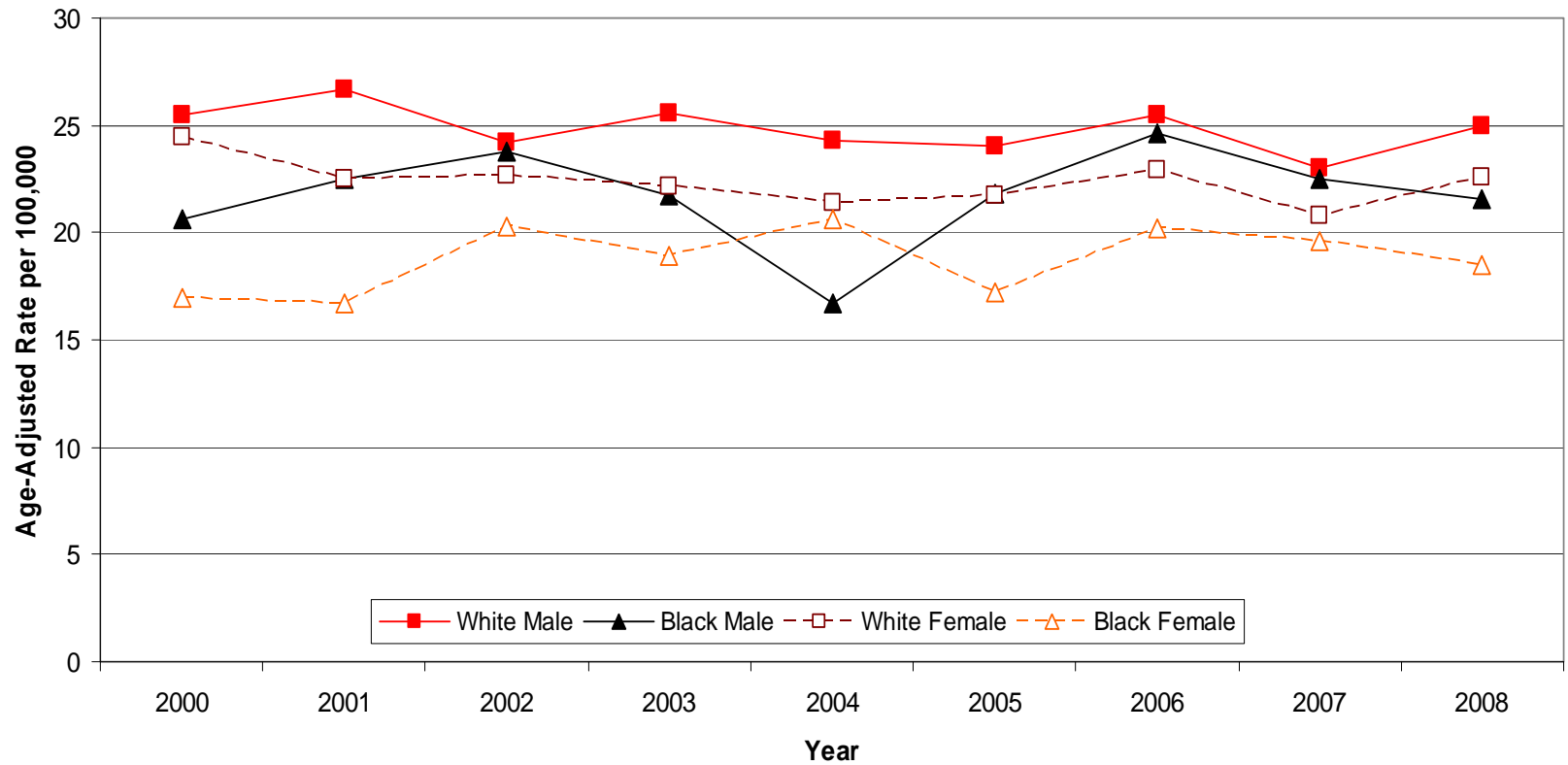


Source: MDCH Vital Statistics

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



Age-Adjusted Mortality Rates by Race and Gender for Heart Failure for Michigan, 2000-2008



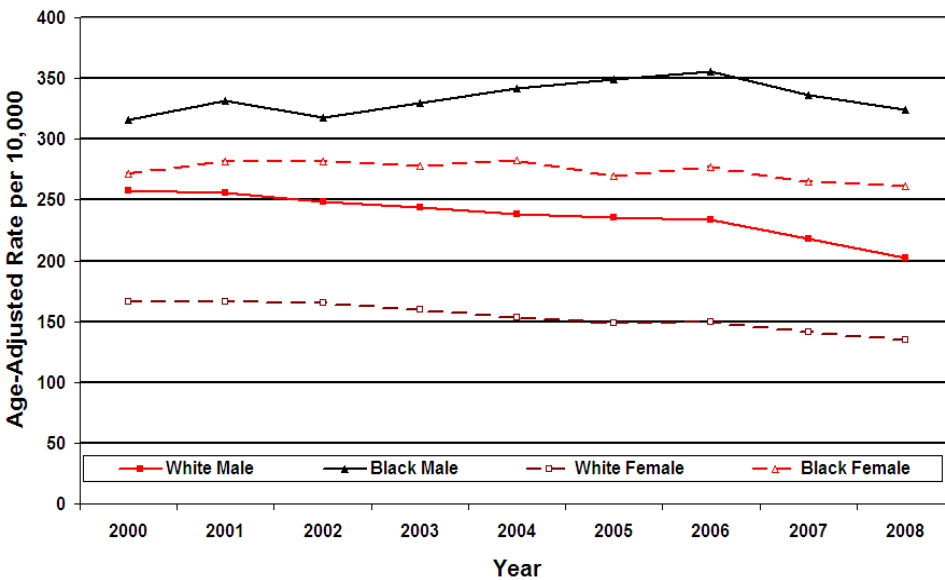
Source: MDCH Vital Statistics

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



Age-Adjusted Hospitalization Rates by Race and Gender for Michigan, 2000-2008

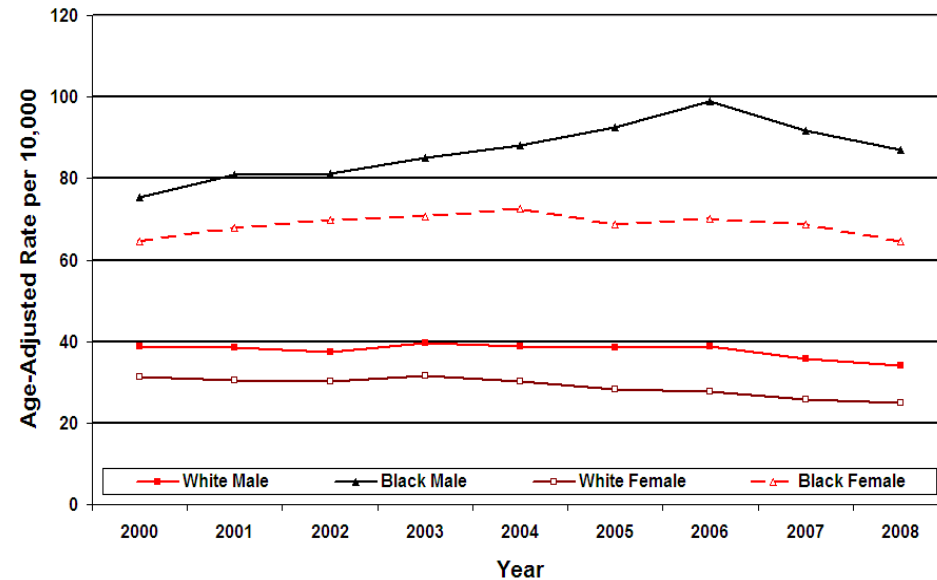
Cardiovascular Disease



2008 Black Males: 323.9 (per 10,000)

2008 White Females: 134.7

Heart Failure

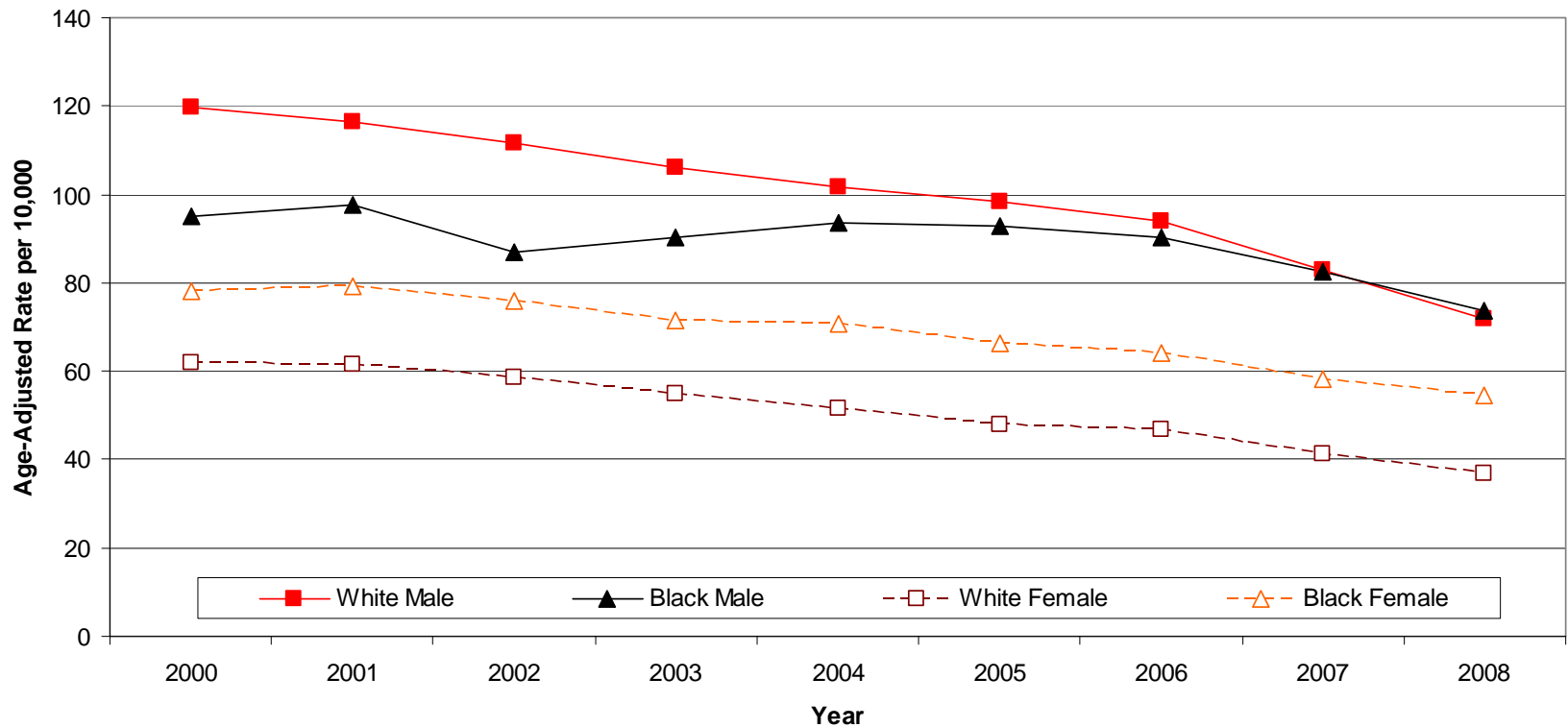


2008 Black Males: 86.9 (per 10,000)

2008 White Females: 24.9



Age-Adjusted Hospitalization Rates by Race and Gender for Coronary Heart Disease for Michigan, 2000-2008



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

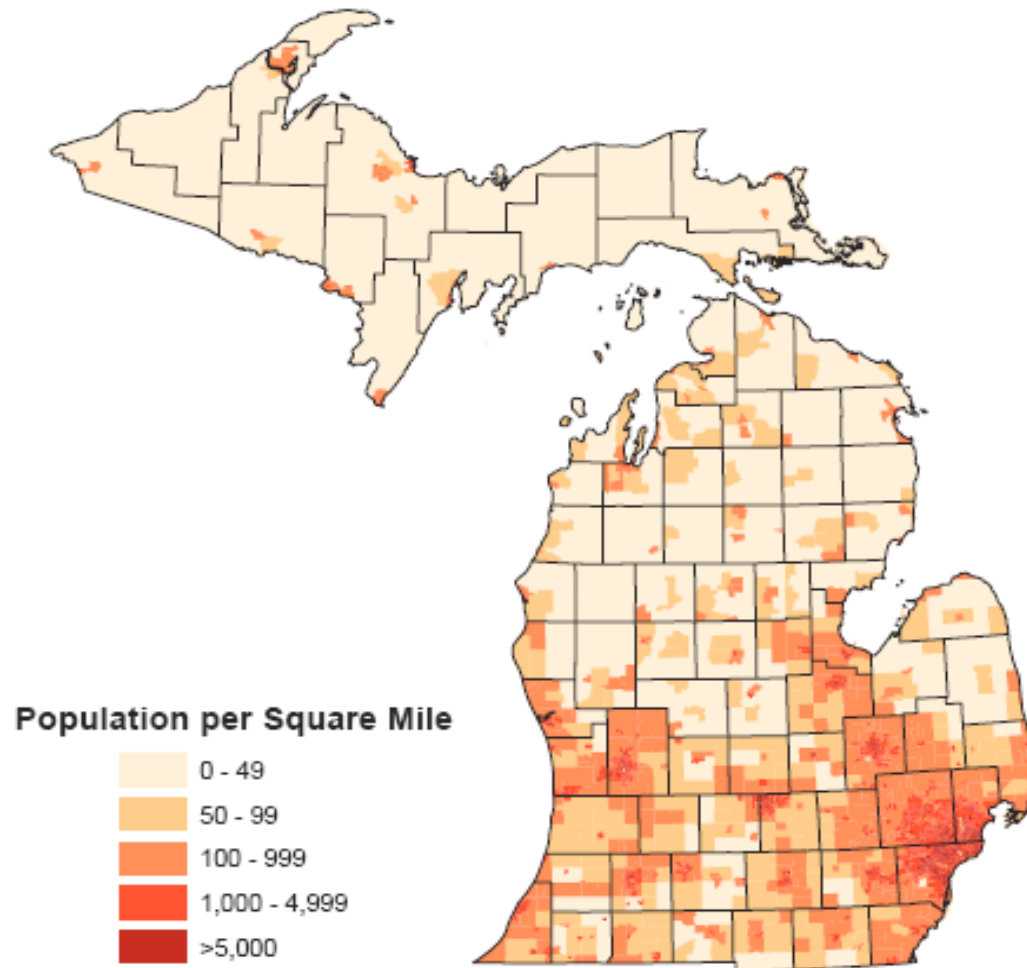
Age-adjusted to the 2000 U.S. standard population



Geography Of CVD in Michigan



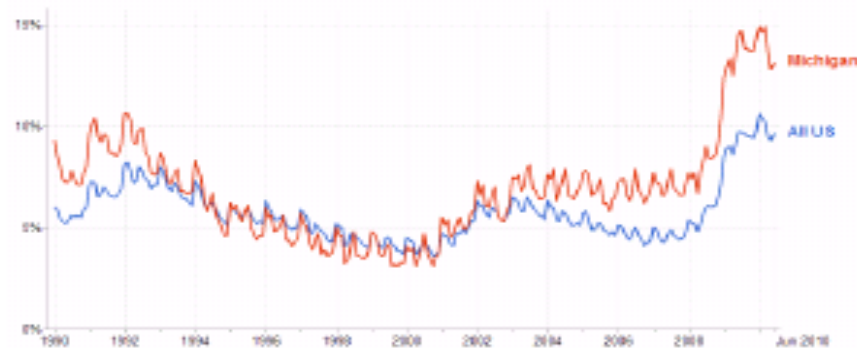
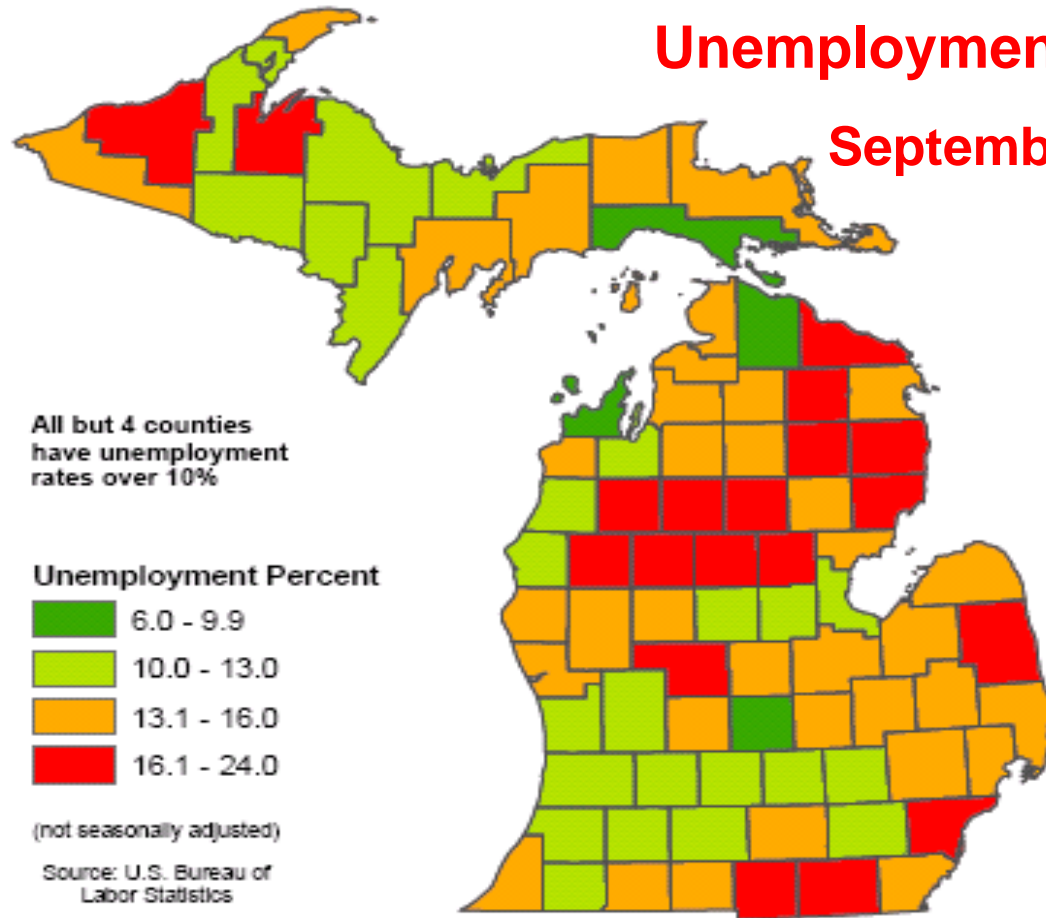
Population Density Map





Unemployment Rates by County

September 2010





Cardiovascular Disease Hospitalization Rates 2002-2006

State Average: 203.3 (per 10,000)

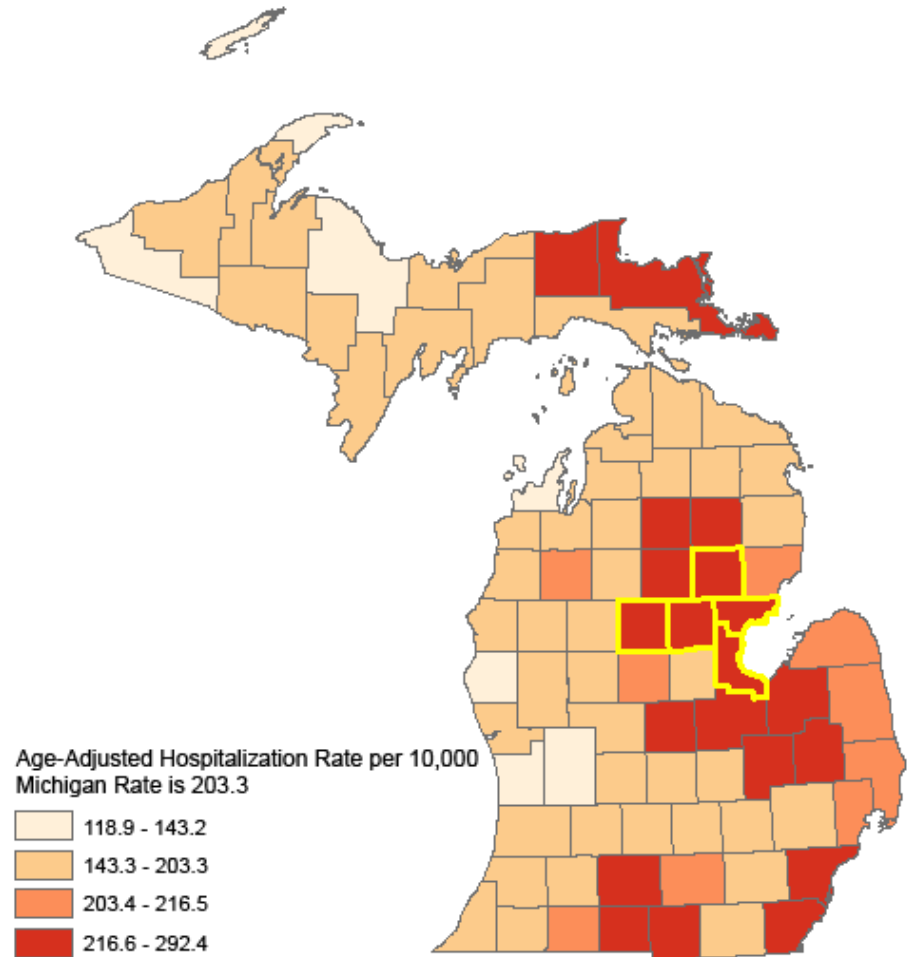
Arenac: 292.4

Bay: 266.2

Clare: 261.7

Gladwin: 263.2

Ogemaw: 250.0





Cardiovascular Disease Hospitalization Rates 2004-2008

State Average: 196.7 (per 10,000)

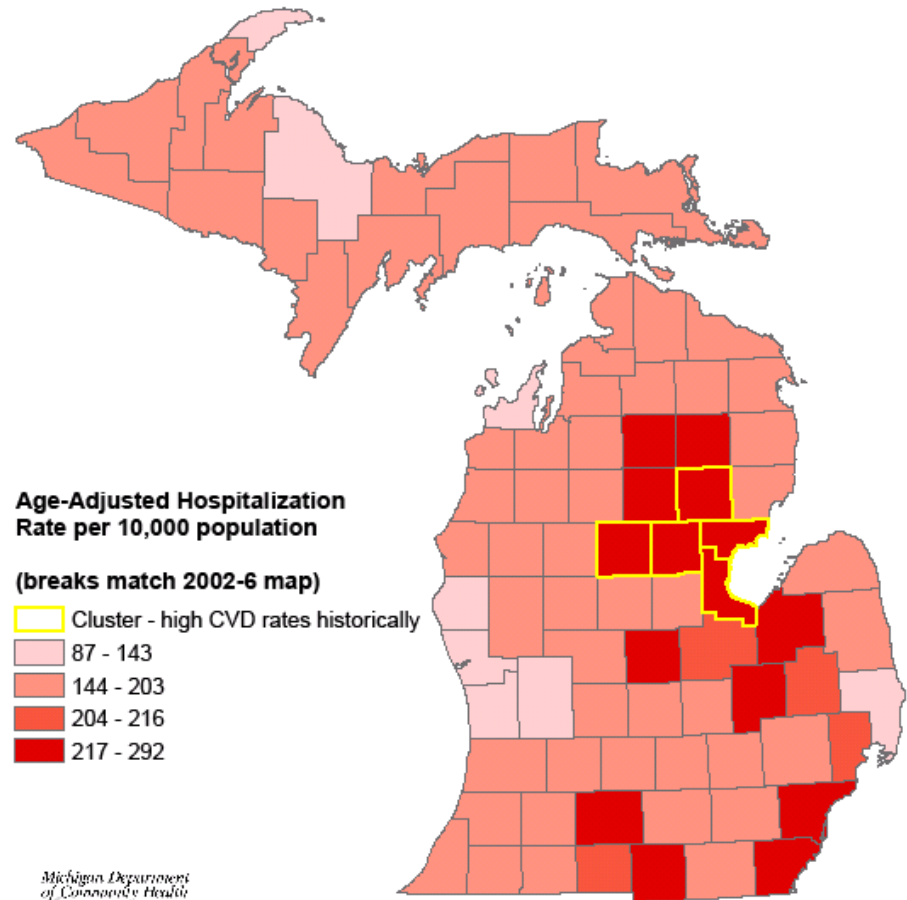
Arenac: 291.5

Bay: 257.7

Clare: 256.1

Gladwin: 236.1

Ogemaw: 257.3



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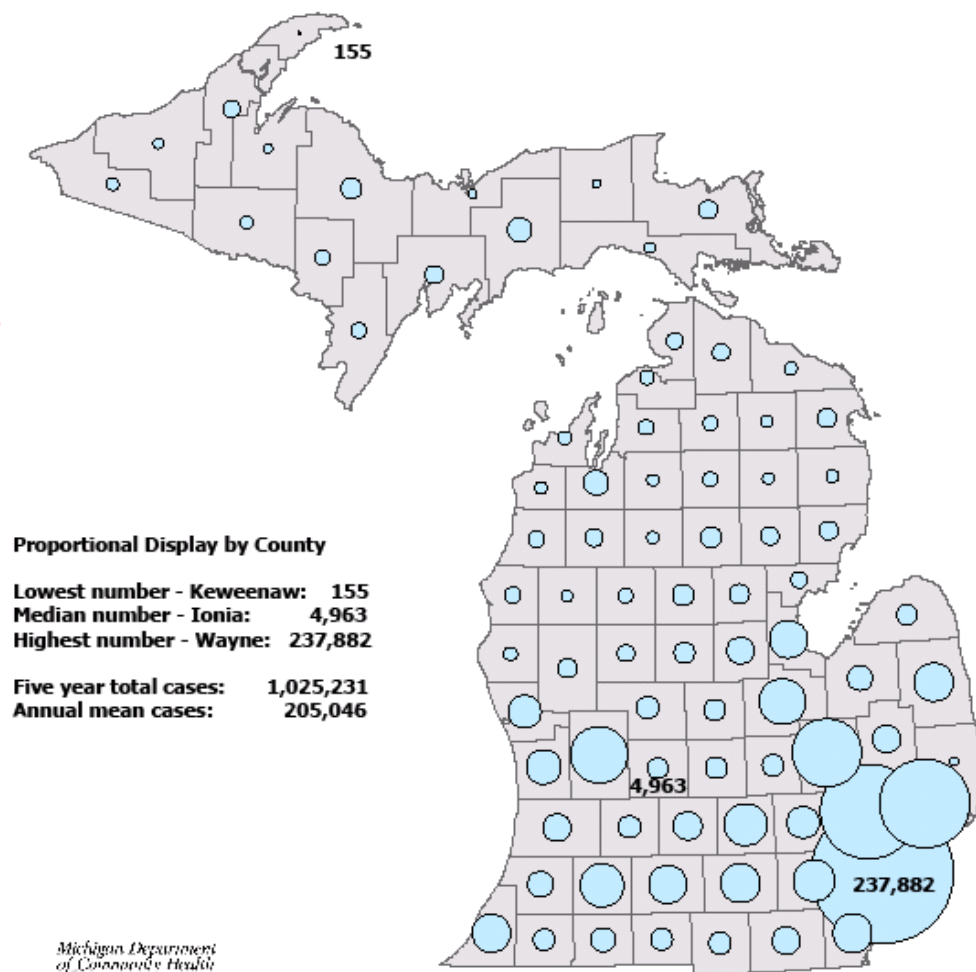
Jennifer M. Grantham, Governor
Janet Olszewski, Director

Chronic Disease and Injury
Control Division GIS Team

Source: Michigan Resident Inpatient Files
Division for Vital Records and Health Statistics, MDCH.
ICD-10: I00-I78; ICD-9: 390-434, 436-448.
Age-adjusted to the 2000 U.S. standard population.
Henry Miller and Adrienne Nickles; October 15, 2010.



Five-year hospitalization total cases For CVD patients by county of residence 2004 to 2008



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Source: Michigan Resident Inpatient Files
Division for Vital Records and Health Statistics, MDCH.
ICD-10: I00-I78; ICD-9: 390-434, 436-448.

Henry Miller and Adrienne Nickles; October 15, 2010.



Heart Disease Hospitalization Rates 2002-2006

State Average: 157.6 (per 10,000)

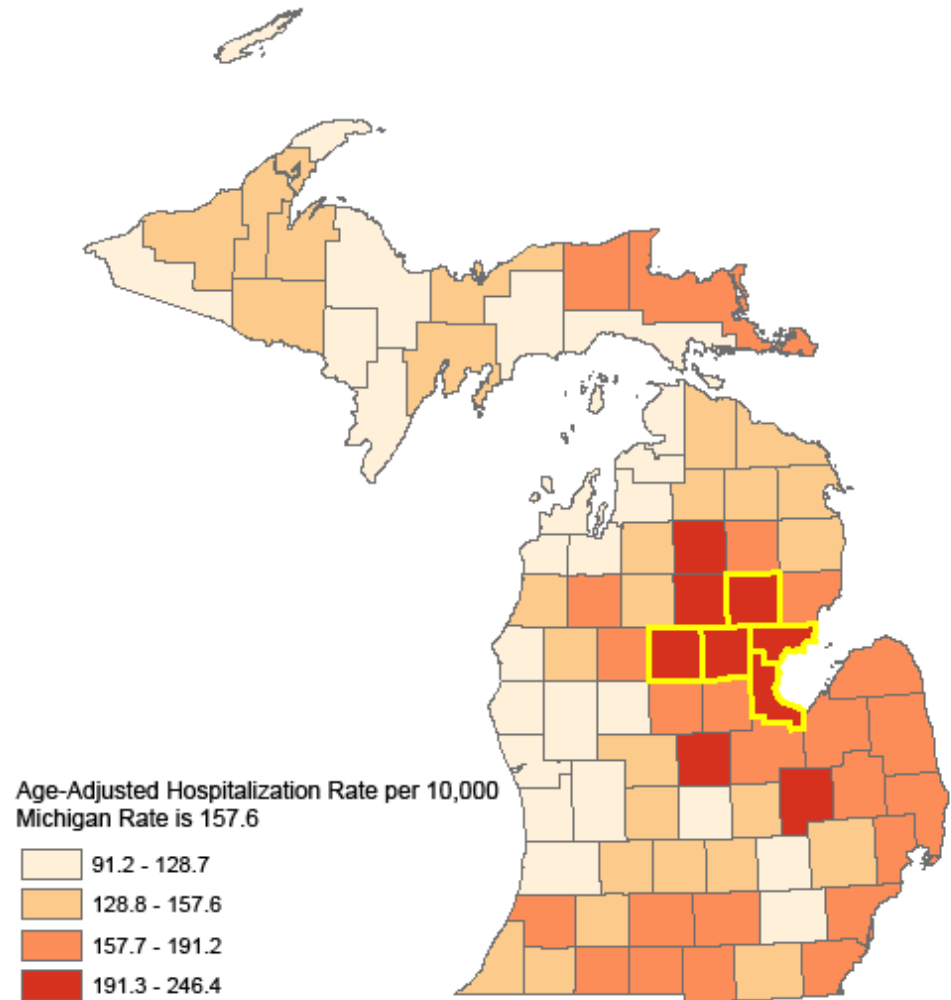
Arenac: 246.4

Bay: 223.4

Clare: 217.7

Gladwin: 221.0

Ogemaw: 210.1





Heart Disease Hospitalization Rates 2004-2008

State Average: 150.8 (per 10,000)

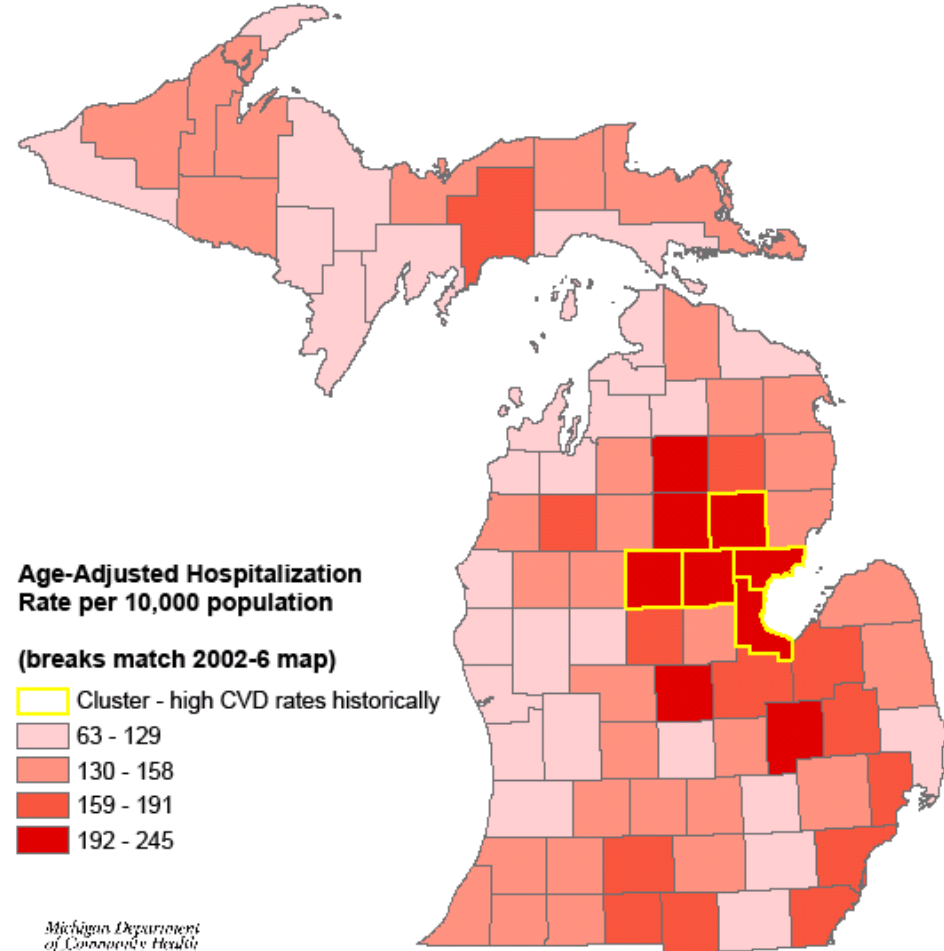
Arenac: 244.8

Bay: 214.3

Clare: 212.1

Gladwin: 197.1

Ogemaw: 216.5



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Control Division GIS Team

Source: Michigan Resident Inpatient Files
Division for Vital Records and Health Statistics, MDCH.
ICD-10: I00-I09, I11, I13, I20-I51.
ICD-9: 390-398, 402, 404, 410-429.
Age-adjusted to the 2000 U.S. standard population.
Henry Miller and Adrienne Nickles; October 15, 2010.



Coronary Heart Disease Hospitalization Rates 2002-2006

State Average: 74.5 (per 10,000)

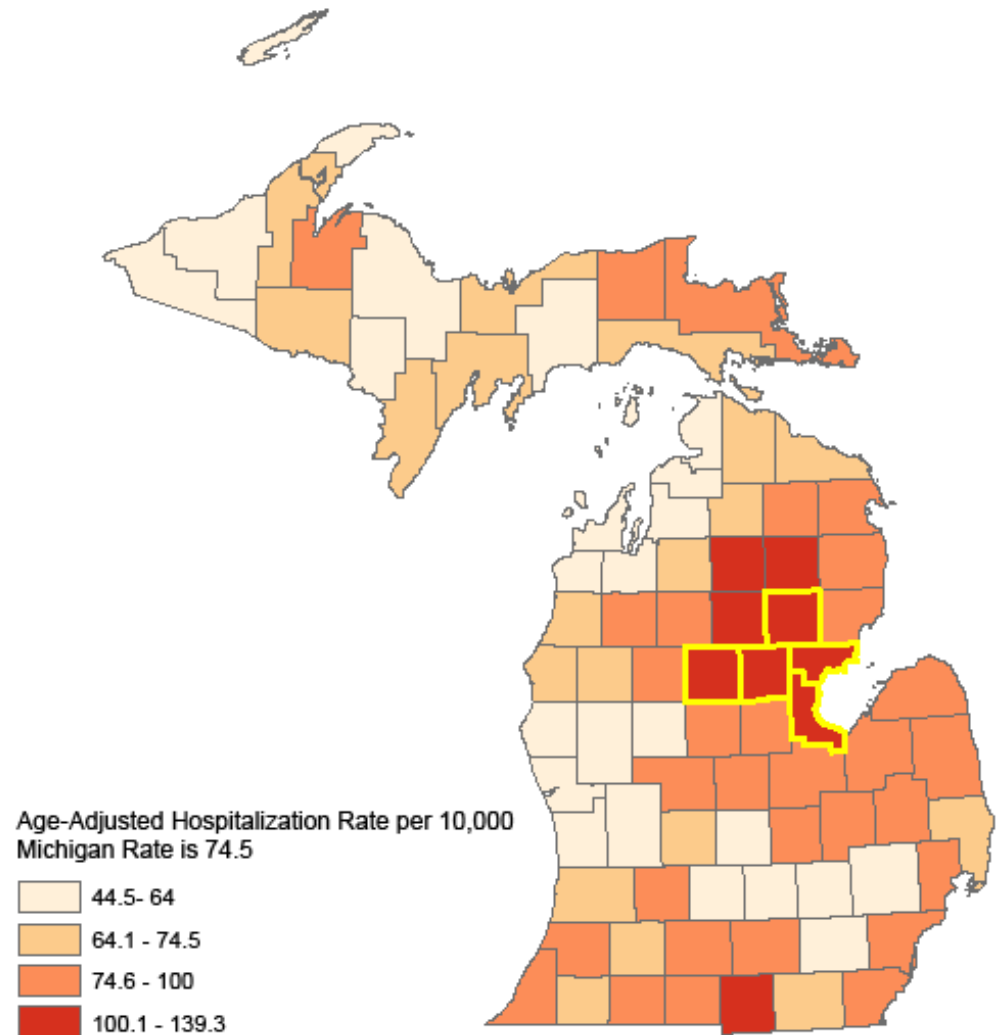
Arenac: 139.3

Bay: 120.5

Clare: 124.9

Gladwin: 121.0

Ogemaw: 117.6





Coronary Heart Disease Hospitalization Rates 2004-2008

State Average: 66.5 (per 10,000)

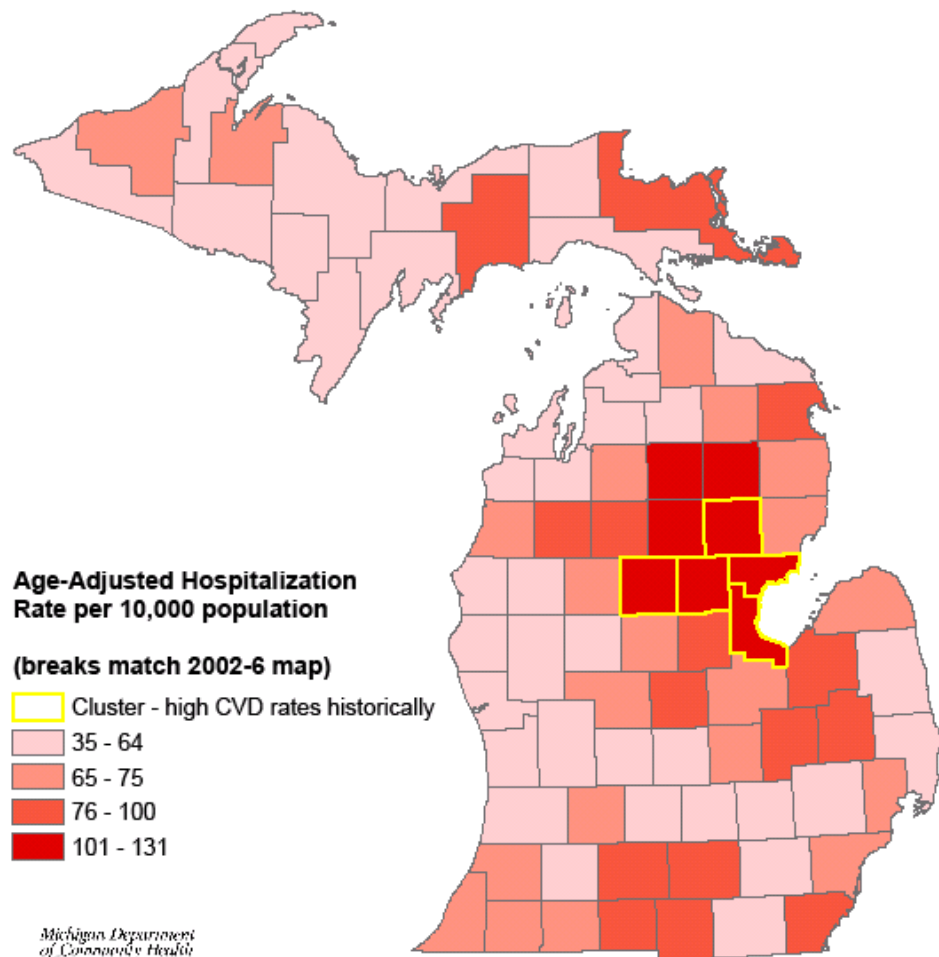
Arenac: 130.7

Bay: 109.7

Clare: 114.6

Gladwin: 102

Ogemaw: 112.8



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Chronic Disease and Injury Control Division GIS Team

Source: Michigan Resident Inpatient Files Division for Vital Records and Health Statistics, MDCH
ICD-10: I20-I25; ICD-9: 410-414, 429.2.
Age-adjusted to the 2000 U.S. standard population.
Henry Miller and Adrienne Nickles; October 15, 2010.



Heart Failure Hospitalization Rates 2002-2006

State Average: 38.0 (per 10,000)

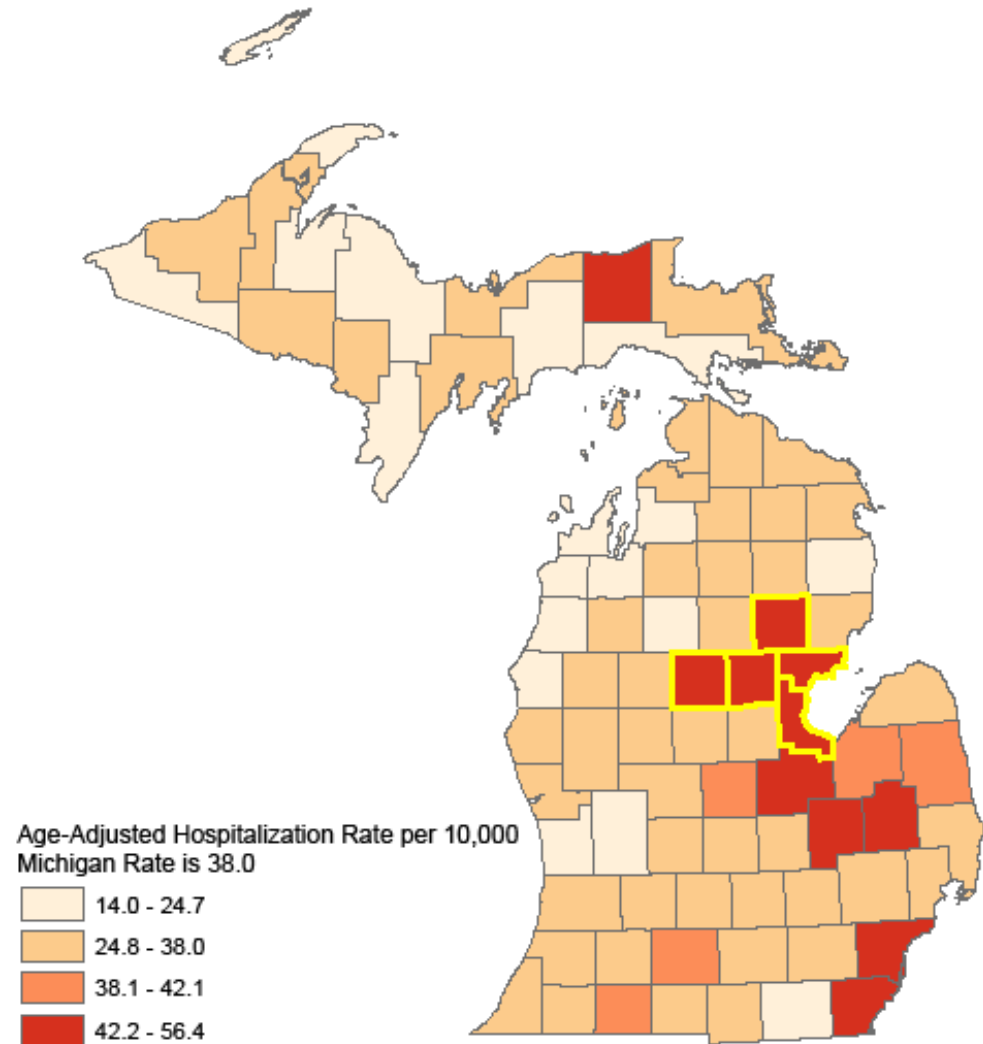
Arenac: 53.8

Bay: 46.6

Clare: 45.6

Gladwin: 53.7

Ogemaw: 46.2





Heart Failure Hospitalization Rates 2004-2008

State Average: 41 (per 10,000)

Arenac: 55.2*

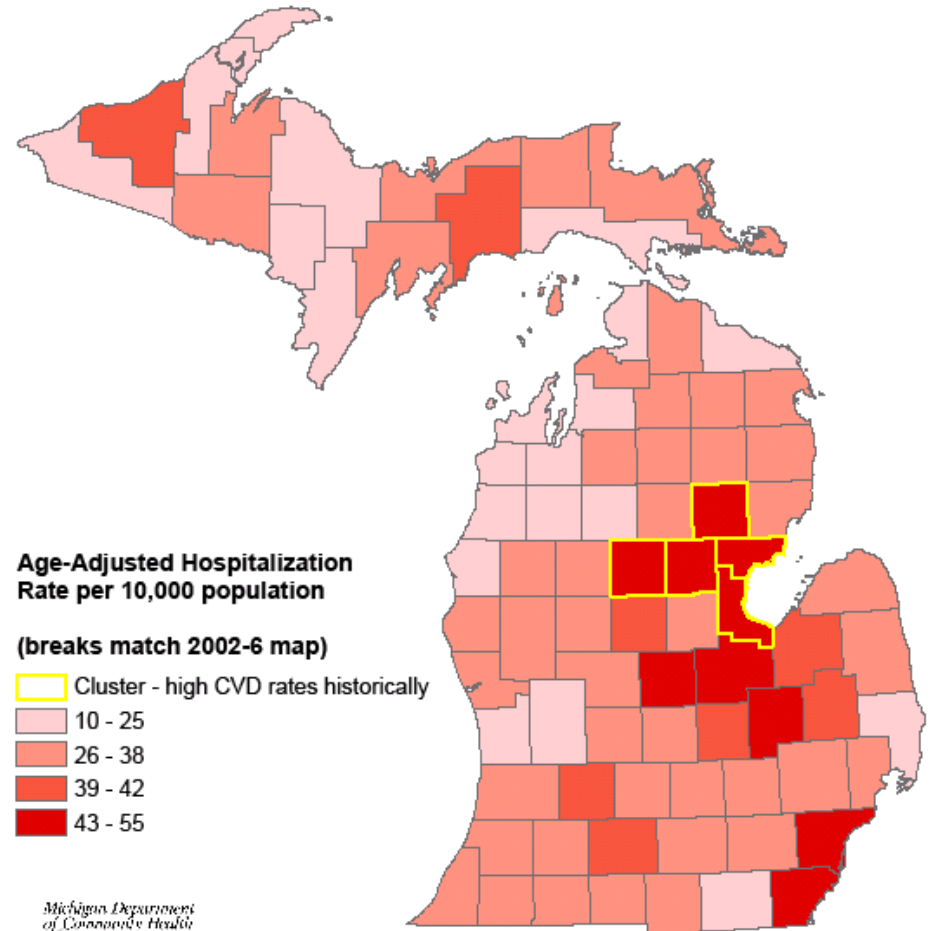
Bay: 47

Clare: 47.2

Gladwin: 48.3

Ogemaw: 52.3

*Tied for highest hospitalization rate with
Wayne County



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Janet Oleszowski, Director
Chronic Disease and Injury
Control Division GIS Team

Source: Michigan Resident Inpatient Files
Division for Vital Records and Health Statistics, MDCH.
ICD-10: I50; ICD-9: 428.
Age-adjusted to the 2000 U.S. standard population.
Henry Miller and Adrienne Nickles; October 18, 2010.



Stroke Hospitalization Rates

State Average: 27.1 (per 10,000)

Arenac: 26.6

Bay: 25.9

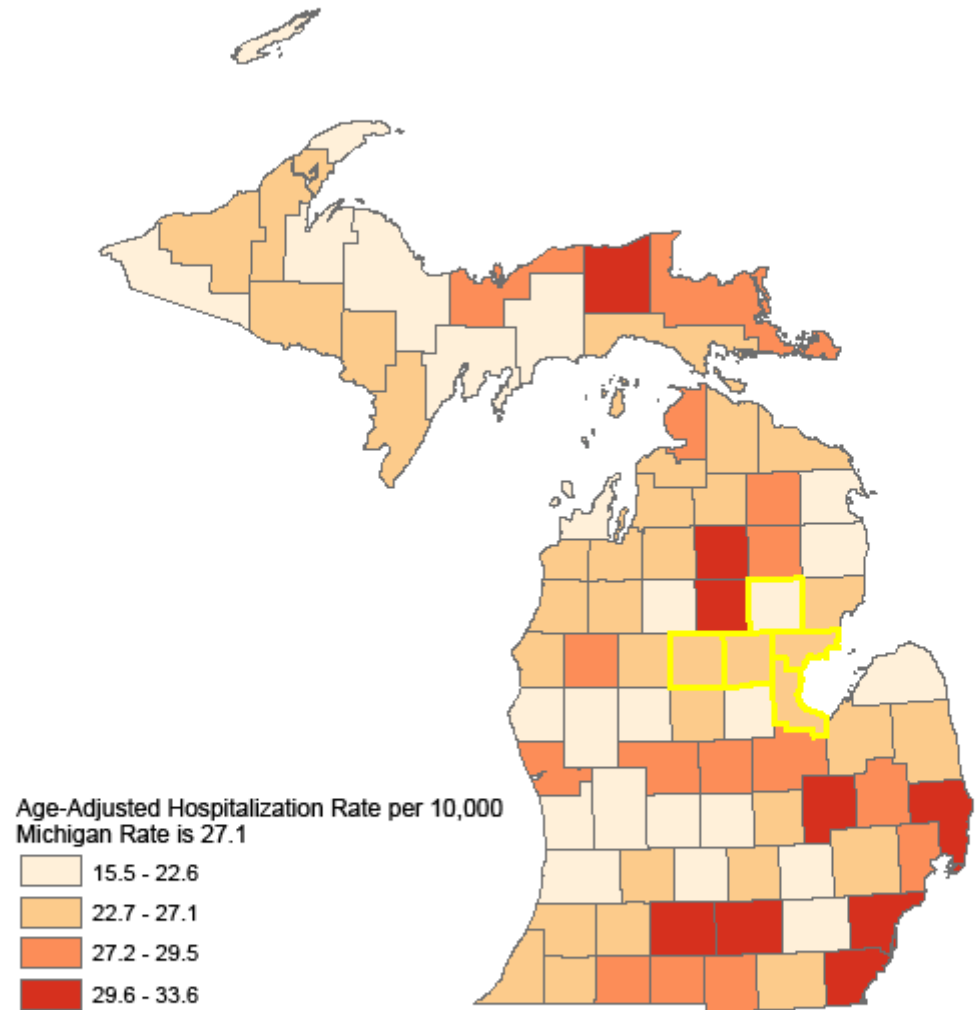
Clare: 26.6

Gladwin: 26.8

Ogemaw: 21.9

Monroe: 33.2

Wayne: 33.6





Stroke Hospitalization Rates 2004-2008

State Average: 23.4 (per 10,000)

Arenac: 28.0

Bay: 25.6

Clare: 25.5

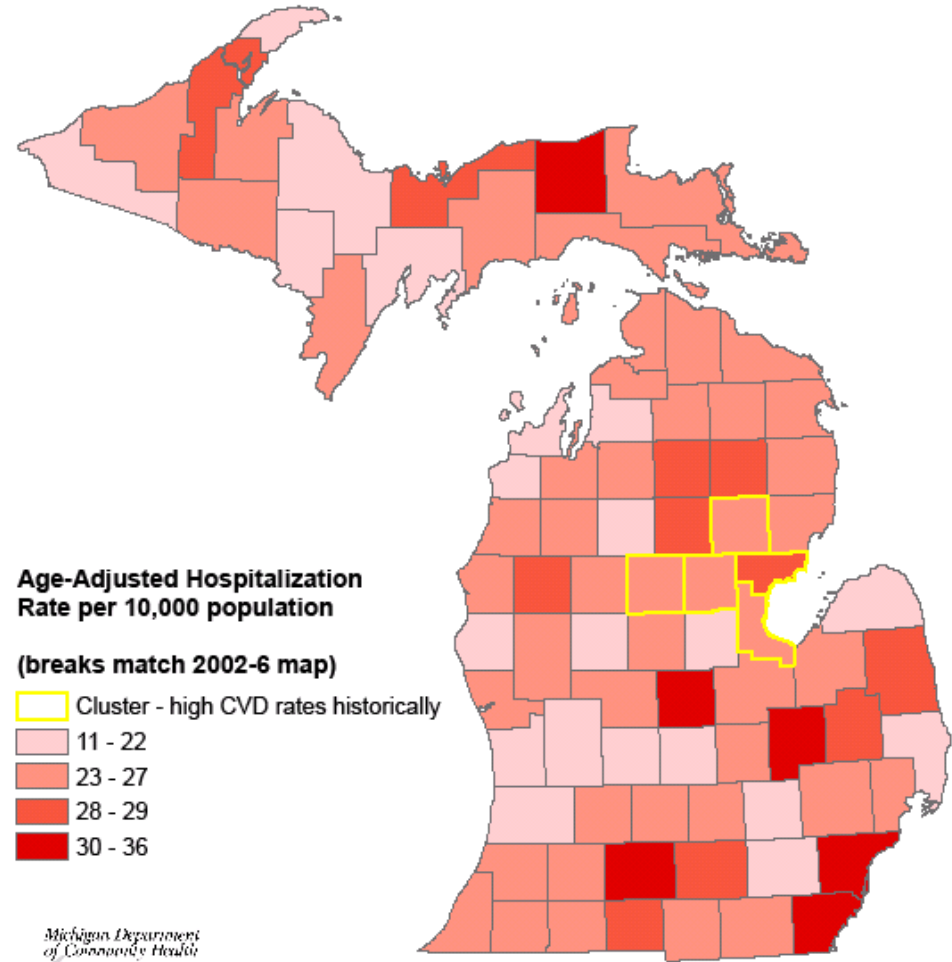
Gladwin: 24.8

Ogemaw: 24.1

Monroe: 31.7

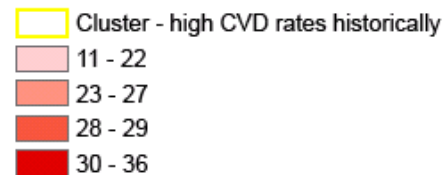
Wayne: 32.4

Luce 36.4



Age-Adjusted Hospitalization
Rate per 10,000 population

(breaks match 2002-6 map)



Michigan Department
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MDCH
Jennifer M. Granholm, Governor
Janet Diczowcki, Director

Chronic Disease and Injury
Control Division GIS Team

Source: Michigan Resident Inpatient Files
Division for Vital Records and Health Statistics, MDCH.
ICD-10: I60-I69; ICD-9: 430-434, 436-438, 435
Age-adjusted to the 2000 U.S. standard population.
Henry Miller and Adrienne Nickles; October 15, 2010.



Risk Factors of CVD in Michigan

Prevalence of CVD Risk Factors, Michigan Adults 1990-2009

Compared to 2009 National Prevalence

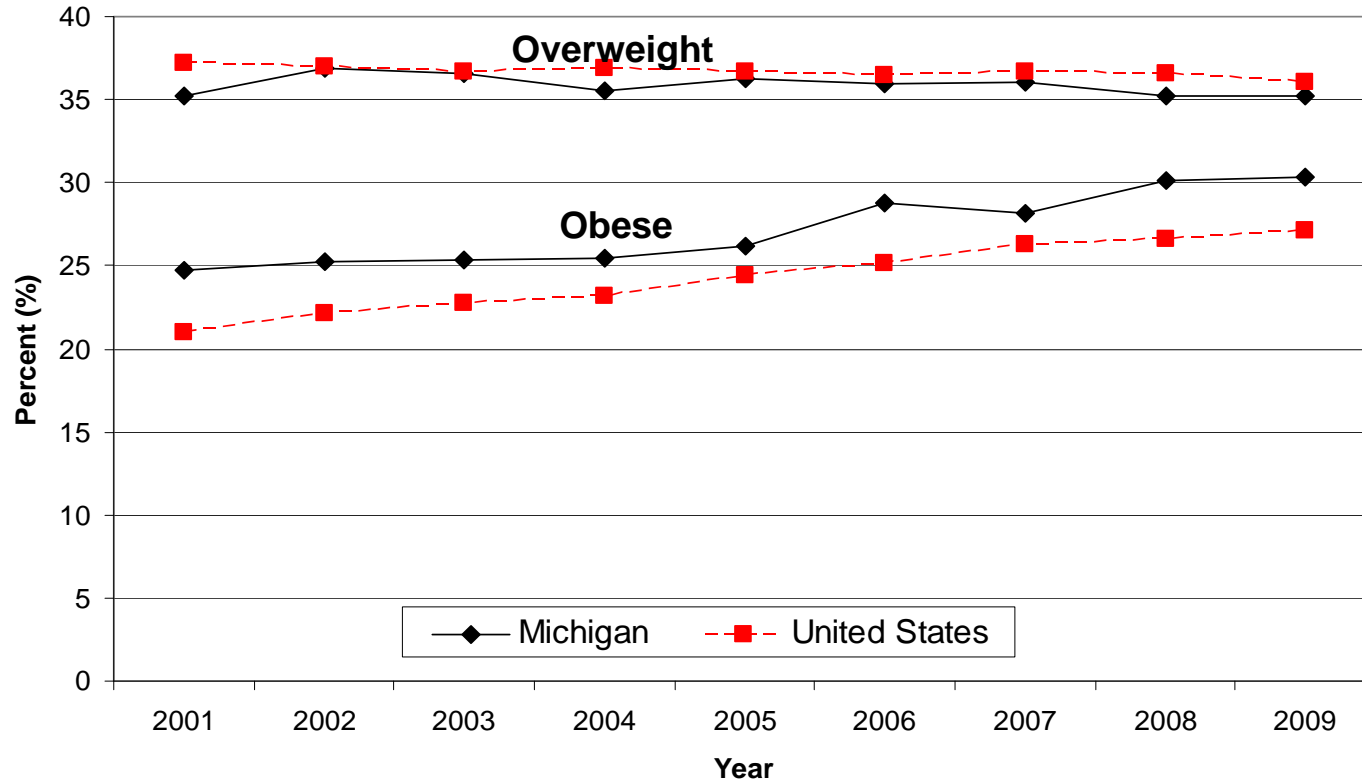
RISK FACTOR	1990	2001	2005	2009	US 2009	2008 NATIONAL RANKING
Current Smoking	29.2	26.1	21.9	19.8	17.9	18
Blood Pressure: Ever Told High	23.3	27.1	27.8	30.4	28.6	22
Cholesterol: Ever Told High	27	33.0	38.9	38.9	37.4	18 tied
Overweight (BMI>25)	47.4	60.4	63.1	66.6	63.2	17
Obese (BMI>30)	14.1	24.7	26.5	30.9	27.1	10
Fruits & Vegetables: <5 servings/day	NA	NA	77.2	77.8	76.5	20
No Leisure Time Physical Activity	NA	23.5	22.6	24.1	23.9	28
Diabetes	4.9	7.2	8.1	9.4	8.24	15

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, 2001-2009.



2009	Overweight (%)	Obese (%)
Michigan	35.2	30.3
United States	36.1	27.1



Summary



Summary of Findings

- Stroke is now the fourth leading cause of death in Michigan, surpassed by Chronic Lower Respiratory Disease
- The burden of CVD is higher in Michigan (289.8 deaths per 100,000) than the U.S. (261.2 deaths per 100,000)
- Black males have the highest hospitalization rates for all diseases and the highest mortality rate for all but heart failure
- Although smoking continues to decrease, all other major risk factors continue to increase, especially obesity and diabetes
- Five-county contiguous area continues to be high for hospitalization rates for CVD, heart disease, coronary heart disease and heart failure
- Michigan met the HP 2010 objectives for coronary heart disease and stroke in 2008.

Annual CVD Fact Sheet at www.michigan.gov/cvh



2010 Michigan CVD Fact Sheet

Cardiovascular Disease (CVD) - Heart Disease, Stroke & Other Categories

- ♥ CVD is the number one cause of death in Michigan and has been nationally since 1919. ^(1,2)
- ♥ In 2008, heart disease and stroke killed 29,019 Michigianians. ⁽¹⁾
- ♥ Michigan ranks 10th worst of the fifty U.S. states for CVD age-adjusted mortality (291.7 per 100,000), based on 2006 death rates. ⁽²⁾
- ♥ One out of every three deaths in Michigan is due to CVD. ⁽¹⁾
- ♥ The Michigan CVD economic burden (direct & indirect costs) for 2010 is estimated at \$16.8 billion. ^{(2)*}
- ♥ More than one in three American adults have some form of CVD and growth in the number of people over 65 years of age, increasing obesity and diabetes will increase the prevalence of CVD. ⁽²⁾
- ♥ 74.5 million American adults have high blood pressure; 17.6 million have coronary heart disease; 5.8 million have congestive heart failure; about 6.4 million have had a stroke. ⁽²⁾
- ♥ The Michigan Behavioral Risk Factor Surveillance System (MI BRFSS) has consistently shown that CVD risk factors are often more common among those with a lower socio-economic status. ⁽³⁾

Heart Disease

- ♥ Most CVD deaths are due to heart disease. Heart disease has been the leading cause of death for decades and killed 24,369 Michigianians in 2008. On average, someone dies about every 20 minutes of heart disease in Michigan. ⁽¹⁾



Resources

- American Heart Association 2010 Statistical Update
http://americanheart.org/downloadable/heart/1265665152970DS-3241%20HeartStrokeUpdate_2010.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
- Michigan Community Health 2010 Cardiovascular Disease Fact Sheet
http://www.michigan.gov/documents/mdch/CVDFactsheet_2010_hearts_9.23.10_333503_7.pdf