Michigan Five County CVD Disparity Study
Description of Analysis and Exploration of Issues

Overview:

In 2008 the *Impact of Heart Disease and Stroke in Michigan* was published and the data within that report showed a higher rate of hospitalization for CVD, heart disease, coronary heart disease and heart failure in a 5 contiguous county region in Michigan. Mortality maps showed similar higher rates. Surprisingly, stroke rates are not higher. (See initial mapping of hospitalization data in Appendix A). At a cardiovascular partnership meeting, clinical experts explored the possible factors contributing to these rates. It was decided that further analysis should be done including a repeat analysis of newer hospitalization data to see if the pattern persists. Other analysis such as risk factors, medical resources and program resources will also be done.

The five counties in the identified region are Bay, Gladwin, Clare, Arenac and Ogemaw. These counties are located in the following three local health departments: Bay, Central Michigan and DHD 2. There are 5 hospitals in those counties: Bay Regional in Bay City; St. Mary's Standish in Standish; West Branch Regional, W. Branch; Mid Michigan, Gladwin; and Mid Michigan, Clare.

Additional exploration of this "hot spot region" has been done since the first discovery. Further analysis has shown that the higher risk status has persisted. (See Appendix B). Plans were made to develop a background summary, power point and discussion questions to present to regional local leaders in a town hall format. MDCH leaders and experts will be solicited to guide the study and inform the town hall discussion. Michigan Public Health Institute Center for Data Management and Translational Research (MPHI-CDMTR) was contracted to assist in the development of the report, town hall sessions and evaluation. The goal of the town halls will be to learn from local leaders some probable causes or contributors and obtain suggestions for reducing this disparity.

Proposed Project:

5 County Study Team:

Core team members include
MDCH: Adrienne Nickles, Heart Disease and Stroke Epidemiologist, Henry Miller; Heart Disease and Stroke Statistician and Evaluator; the Manager of the Chronic Disease Epidemiology Unit, Christi Demitz and Velma Theisen, Manager Heart Disease and Stroke Unit.
MPHI CDMTR: Clare Tanner, Program Director; Stephanie Thompson, Research Associate; Mary Zack Thompson, Project Manager; Char Huffine, Financial Liaison.

This 5 County Study Team has met over several months to review data, discuss additional data needed and identify a plan to further explore these disparities. Action

steps include discussions with senior leadership at MDCH and other experts, developing the background material (power point, fact sheet and maps), organizing the town halls and contacts in those locations to promote the meetings and development of key questions for discussion at the town hall.

Town Halls :

A power point with background information and a summary fact sheet of the problem will be developed and distributed at a series of town halls. The power point will include maps showing hospitalization rates, mortality rates, CVD risk factors, demographics including socio-economic status, CVD programs and resources such as LHDs, hospitals. Questions are being developed by MPHI and the 5 County Study Team.

Community members invited to the town halls will include hospital representatives; LHDs in the region; MDCH project staff when relevant such as WISEWOMAN, FQHC-Sterling, MiSQRIP, etc; community-based organizations such as churches, business leaders, professional organizations, schools and general public.

Data Used for Discussion of Disparities in the 5 County Region:
1. Hospitalization Data (2004-2008):
    CVD, Heart Disease, Coronary Heart Disease, Heart Failure and Stroke Rates
     Consider side by side time maps with counties highlighted like MN
2. Mortality Data   (2004-2008)
    CVD, Heart Disease, Coronary Heart Disease, Heart Failure and Stroke Rates
    Consider side by side time maps with counties highlighted like MN
3. CVD Risk Factor Data by LHD (2007-2009)
        High blood pressure (told high and treated), High blood cholesterol (told high), current
        smoker, overweight, obese, diabetes, lack of physical activity, inadequate
        fruits/vegetables, access to care, insured.
        May consider side by side maps
4. Demographics
        Racial/ethnic, age, education, employment, population
5. Medical Resources
        Hospitals, health departments, FQHCs, other
6. Programs
         FQHC, MiSRQIP, MSN, PSC, D2B, WW, CAH, SPLASH, DM, PATH, EMS
          Region
         None with BHC, MSCVPR, HF
7. Other relevant published reports
     CHRT, Health Facilities, Rural Health Center, Hospitals compare, County Health
          Rankings, etc.
8. Other data
      YPLL, environmental issues, businesses, etc.

Location of Town Halls:
At most 3 town halls will be organized. Possible locations will be Bay Regional Hospital, West Branch and Mid Michigan. It is anticipated that the town halls will be implemented in June.   Updated :53/18/2011
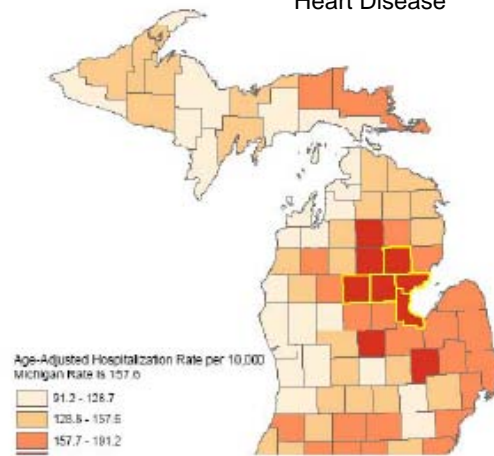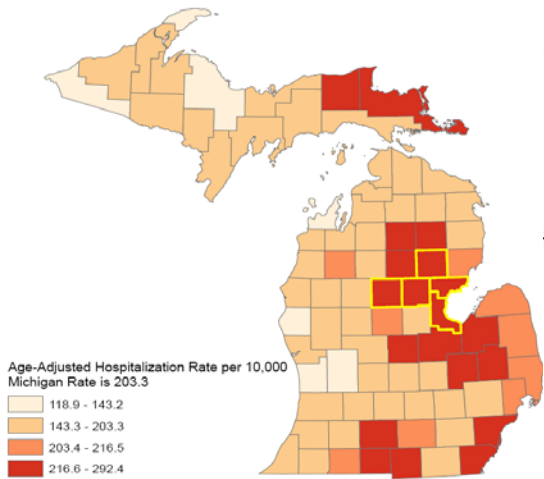
Appendix A:

Heart Disease

Hospitalization Maps for Heart Disease,
Coronary Heart Disease, Heart Failure and
Stroke, 2002-2006 Highlighting Higher Five
County Areas

Data Source: Michigan Resident Inpatient Files,
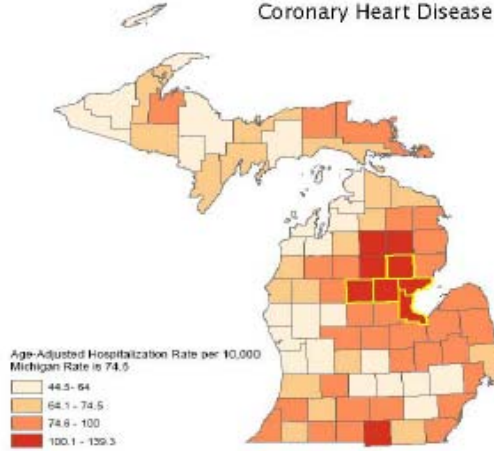Division fro Vital Records & Health Statistics, MDCH,
2002-2006

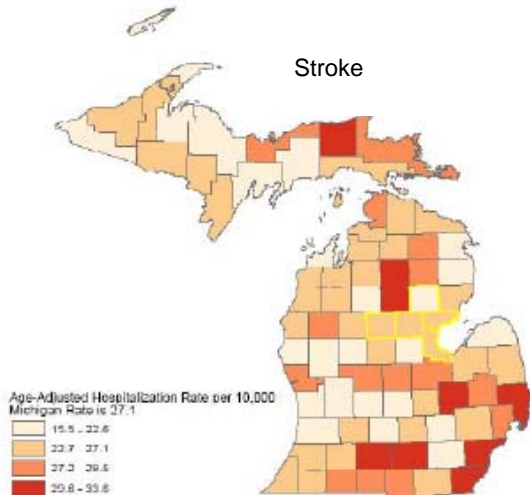Cardiovascular Disease

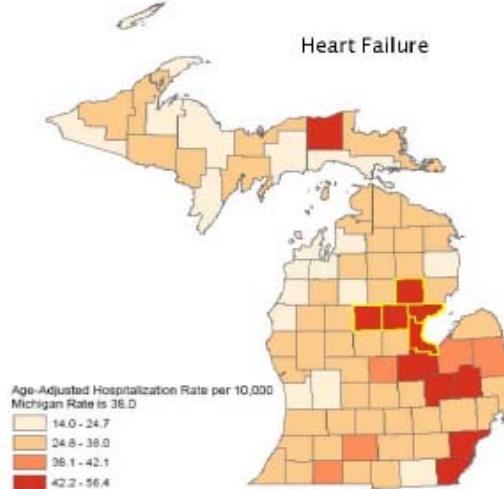Age-Adjusted Hospitalization Rate per 10,000
Michigan Rate is 157.6
- 91.2 - 128.7
- 128.6 - 157.6
- 157.7 - 181.2

Coronary Heart Disease

Age-Adjusted Hospitalization Rate per 10,000
Michigan Rate is 203.3
- 118.9 - 143.2
- 143.3 - 203.3
- 203.4 - 216.5
- 216.6 - 292.4

Age-Adjusted Hospitalization Rate per 10,000
Michigan Rate is 74.6
- 44.5 - 64
- 64.1 - 74.6
- 74.6 - 100
- 100.1 - 159.3

Stroke

Age-Adjusted Hospitalization Rate per 10,000
Michigan Rate is 27.1
- 15.5 - 22.6
- 22.7 - 27.1
- 27.2 - 29.6
- 29.8 - 33.6

Heart Failure

Age-Adjusted Hospitalization Rate per 10,000
Michigan Rate is 38.0
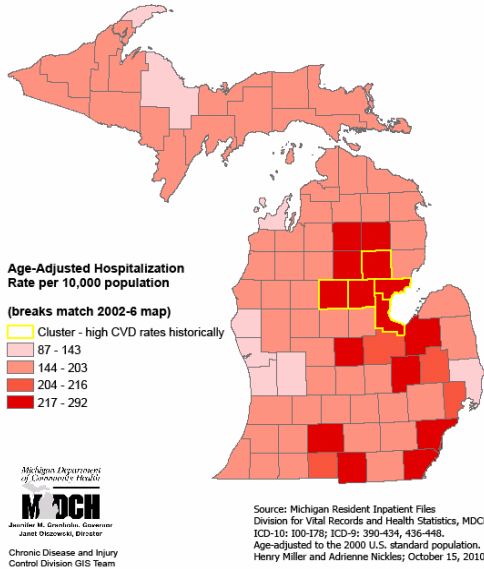- 14.0 - 24.7
- 24.8 - 38.0
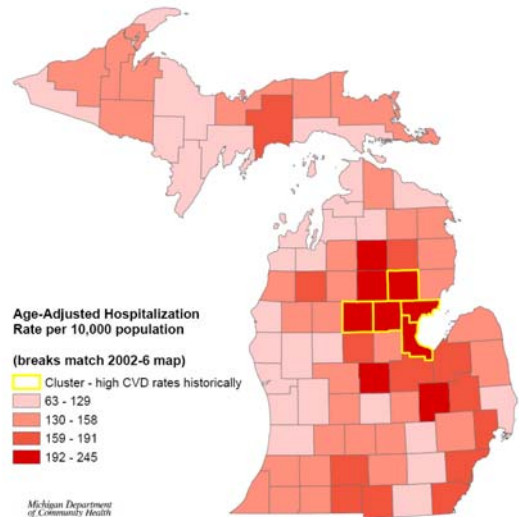- 38.1 - 42.1
- 42.2 - 56.4

Appendix B: 2004-2008

Hospitalization Maps for Cardiovasular Disease, **Heart Disease, Coronary Heart Disease, Heart Failure and Stroke.**   2004-2008
Highlighting 5 County Region.

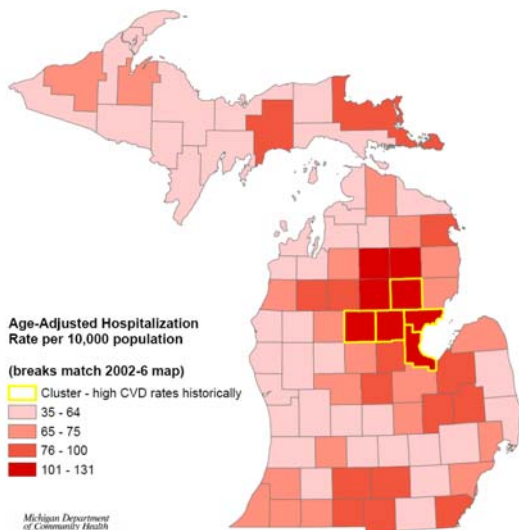**Cardiovascular Disease Hospitalization Rates 2004-2008**

State Average: 196.7 (per 10,000)
Arenac: 291.5
Bay: 257.7
Clare: 256.1
Gladwin: 236.1
Ogemaw: 257.3

Age-adjusted five-year hospitalization rates for heart disease patients, by county of residence, Michigan, 2004 to 2008

Age-adjusted five-year hospitalization rates for coronary heart disease patients, by county of residence, Michigan, 2004 to 2008

**Heart Failure
Hospitalization Rates
2004-2008**

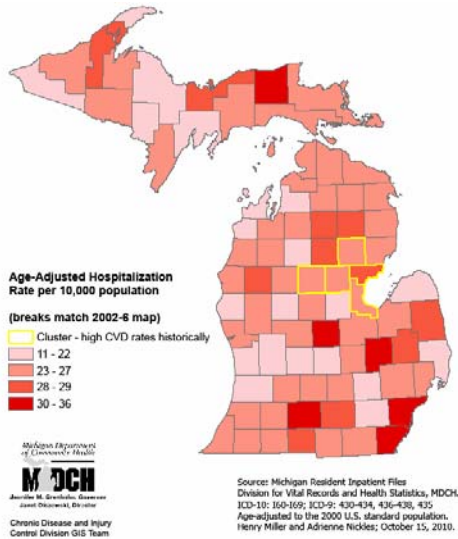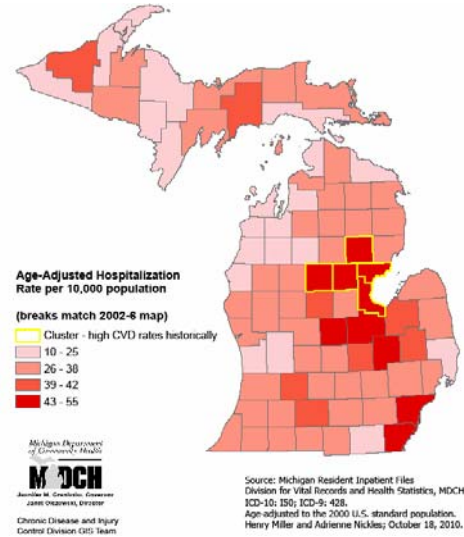State Average: 41 (per 10,000)
Arenac: 55.2*
Bay: 47
Clare: 47.2
Gladwin: 48.3
Ogemaw: 52.3
*Tied for highest hospitalization rate with Wayne County

Age-Adjusted Hospitalization
Rate per 10,000 population

(breaks match 2002-6 map)

Cluster - high CVD rates historically
10 - 25
26 - 38
39 - 42
43 - 55

Michigan Department
of Community Health

M DCH

Jennifer M. Granholm, 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: I50; ICD-9: 428.
Age-adjusted to the 2000 U.S. standard population.
Henry Miller and Adrienne Nickles; October 18, 2010.

Age-Adjusted Hospitalization
Rate per 10,000 population

(breaks match 2002-6 map)

Cluster - high CVD rates historically
11 - 22
23 - 27
28 - 29
30 - 36

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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.

**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