



Coronary Heart Disease in Iowa

What is Coronary Heart Disease (CHD)?

Coronary Heart Disease (CHD) is a condition that reduces blood flow through the coronary arteries to the heart muscles.

Iowa Ranking Nationally in CHD Mortality Rate in 2016

39 out of 50 States with higher numbers representing higher death rates.

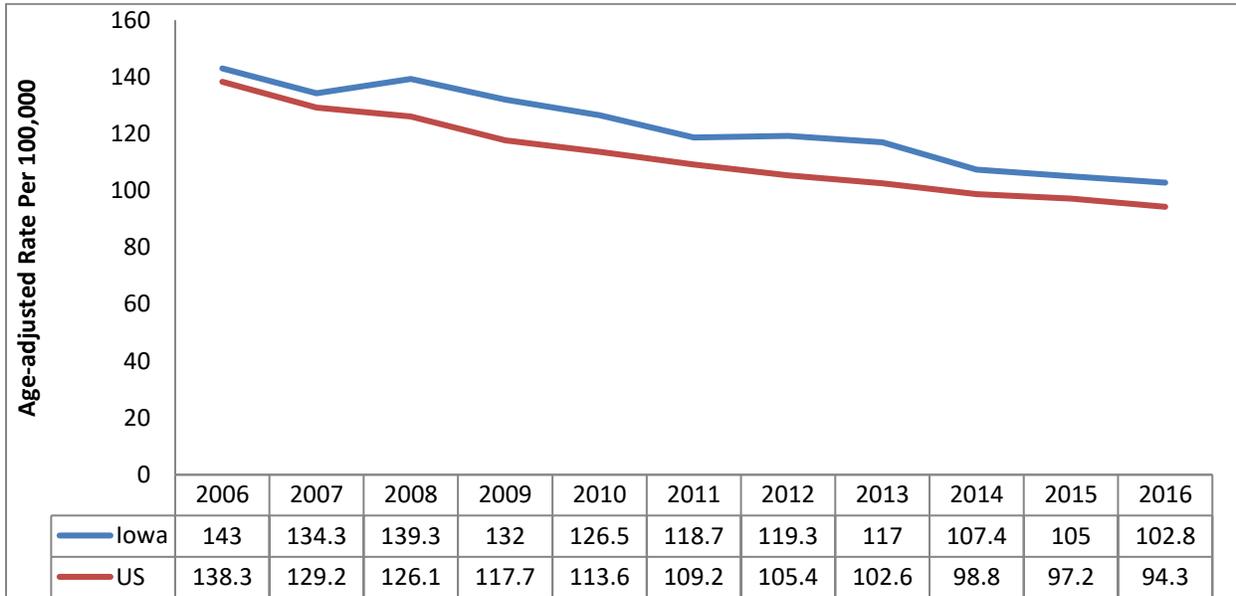
Trends in CHD deaths:

Despite the overall decrease in CHD deaths in Iowa, death rates for males and females younger than 65 show no decrease in the past 10 years.

Quick Facts

- 6,862 Iowans died of heart disease in 2016, the leading cause of death in Iowa since 1920. Among heart disease deaths, 4,268 (65%) were due to CHD¹
- CHD includes heart attack (acute myocardial infarction) and chest pain (angina pectoris). The male CHD death rate has always exceeded the female rate.² The male (146 deaths/100,000) to female (70/100,000) ratio is 2.0.
- In Iowa, male CHD death rate was generally higher than the national male average; since 2006, the Iowa female CHD death rate has exceeded the national female average, however the difference has become smaller in recent years.
- CHD is an age-related disease; however 1,123 (44%) males vs. 437 (25%) females that died from CHD were younger than age 75.¹
- CHD is a leading cause of premature, permanent disability among the Iowa workforce. It is estimated that approximately 90,000 Iowans have had a heart attack or coronary heart disease, about 3% of the total Iowa population.
- Iowa has had a 28% reduction in the CHD death rate since 2006, from 143/100,000 in 2006 to 103/100,000 in 2016.² Iowa has met the national *Healthy People 2020* objective of reducing the CHD death rate to 103.4 per 100,000.
- Like mortality data, CHD hospitalization rates have declined overtime; however, the average hospitalization charges for CHD have increased.⁴
- More than two-thirds (70%) of CHD hospitalizations were covered by government funds (i.e., Medicaid or Medicare) as the first source of payment⁴.

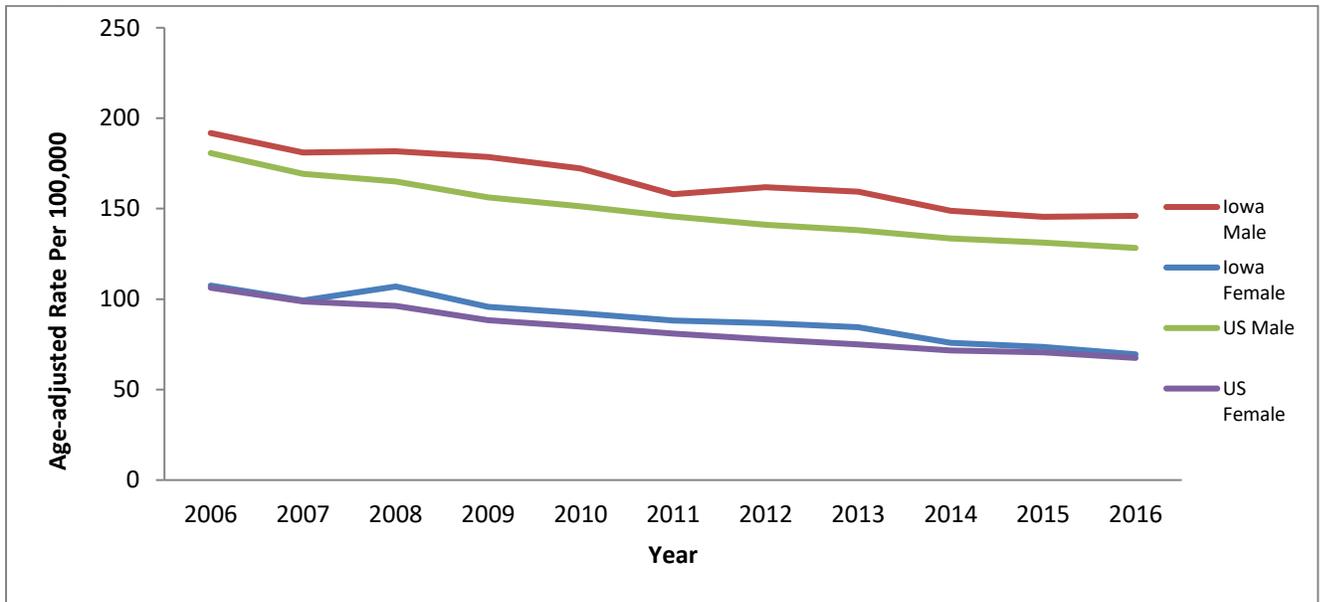
Fig. 1 Coronary Heart Disease Age-adjusted Mortality Rate, Iowa vs US, 2006-2016



Source: <http://wonder.cdc.gov/cmfi-icd10.htm>³, icd10 I20-I25.

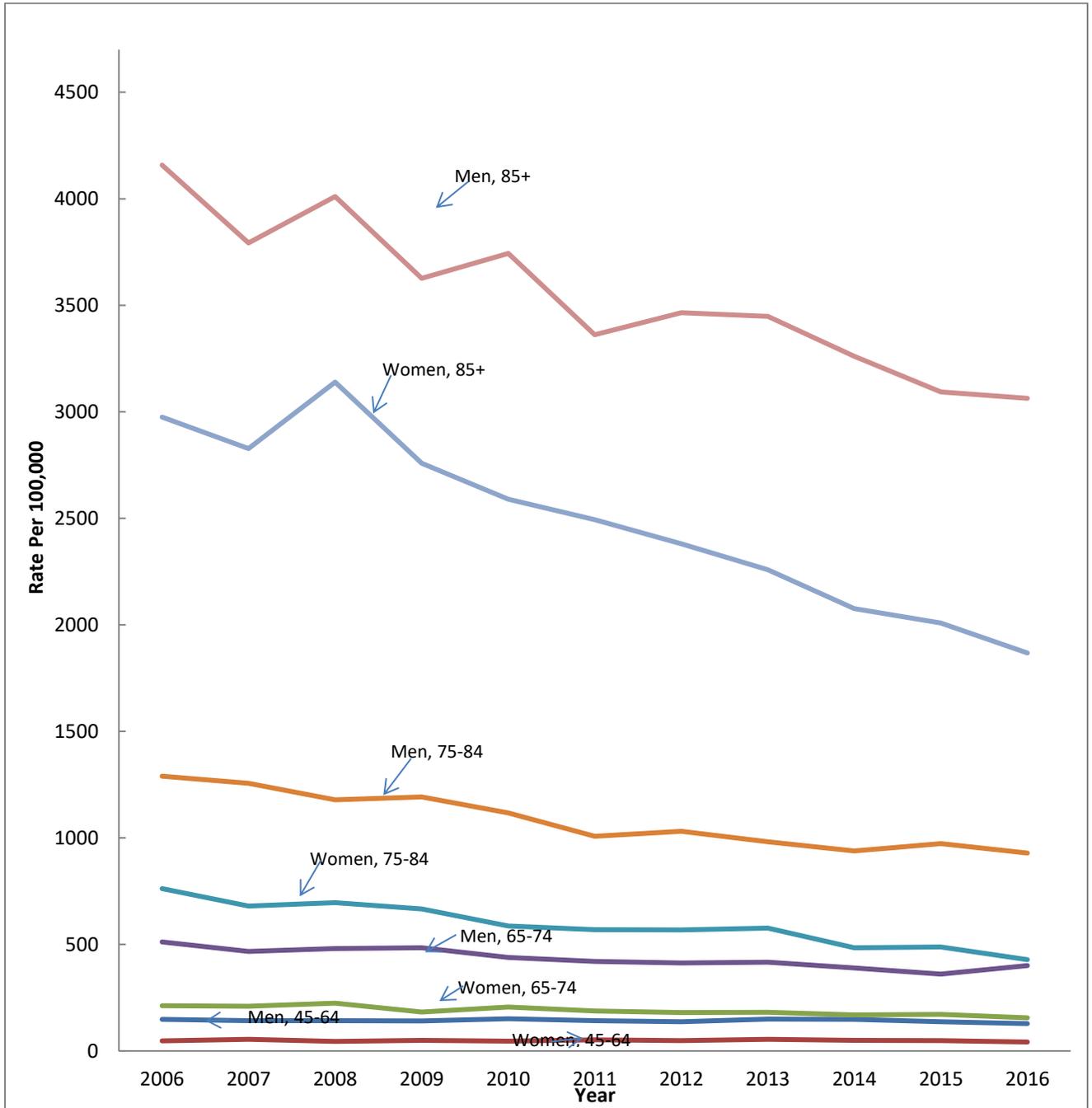
Between 2006 and 2016, Iowa CHD mortality rate decreased by 28%, but was higher than the national average. This was the case for both males and females since 2006 (see Figure 2). Iowa males had a higher CHD mortality rate than females.

Fig. 2 Coronary Heart Disease Mortality Rate by Gender, Iowa vs US, 2006-2016



Source: <http://wonder.cdc.gov/cmfi-icd10.htm>, icd10 I20-I25.

Fig. 3 Coronary Heart Disease Mortality Rate by Specific Age Group, Iowa



Source: <http://wonder.cdc.gov/cmfi-icd10.htm>, icd10 I20-I25.

Gender and Race/Ethnic Disparities

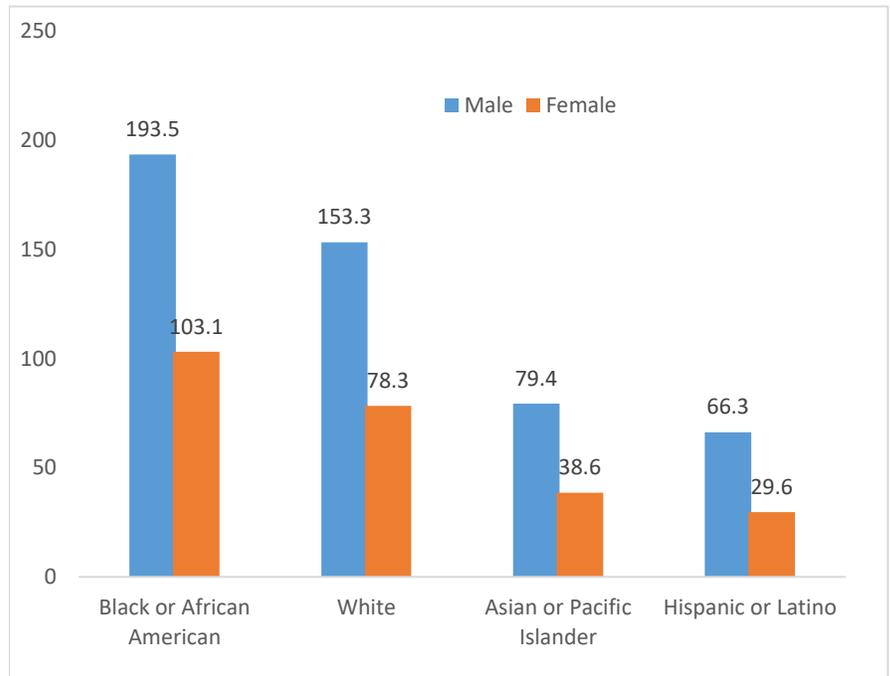
Table 1. CHD Mortality Rate/100,000 by Age Group and Gender, 2016 Iowa

Age group	Male		Female		Ratio between M/F
	Number	Rate	Number	Rate	
<45	33	3.6	16	1.8	2.0
45-54	141	72.1	50	25.7	2.8
55-64	412	199.8	148	70.6	2.8
65-74	537	397.5	223	152.8	2.6
75-84	616	919.9	370	422.8	2.2
85+	803	3,048.0	973	1,858.5	1.6

Source: Iowa Vital Statistics, 2016¹

Males had higher premature CHD death rates than females (Table 1). Forty-four percent males vs. 25% females that died from CHD were younger than age 75

Fig. 4 Coronary Heart Disease Mortality Rate by Gender & Race/Ethnicity, Iowa

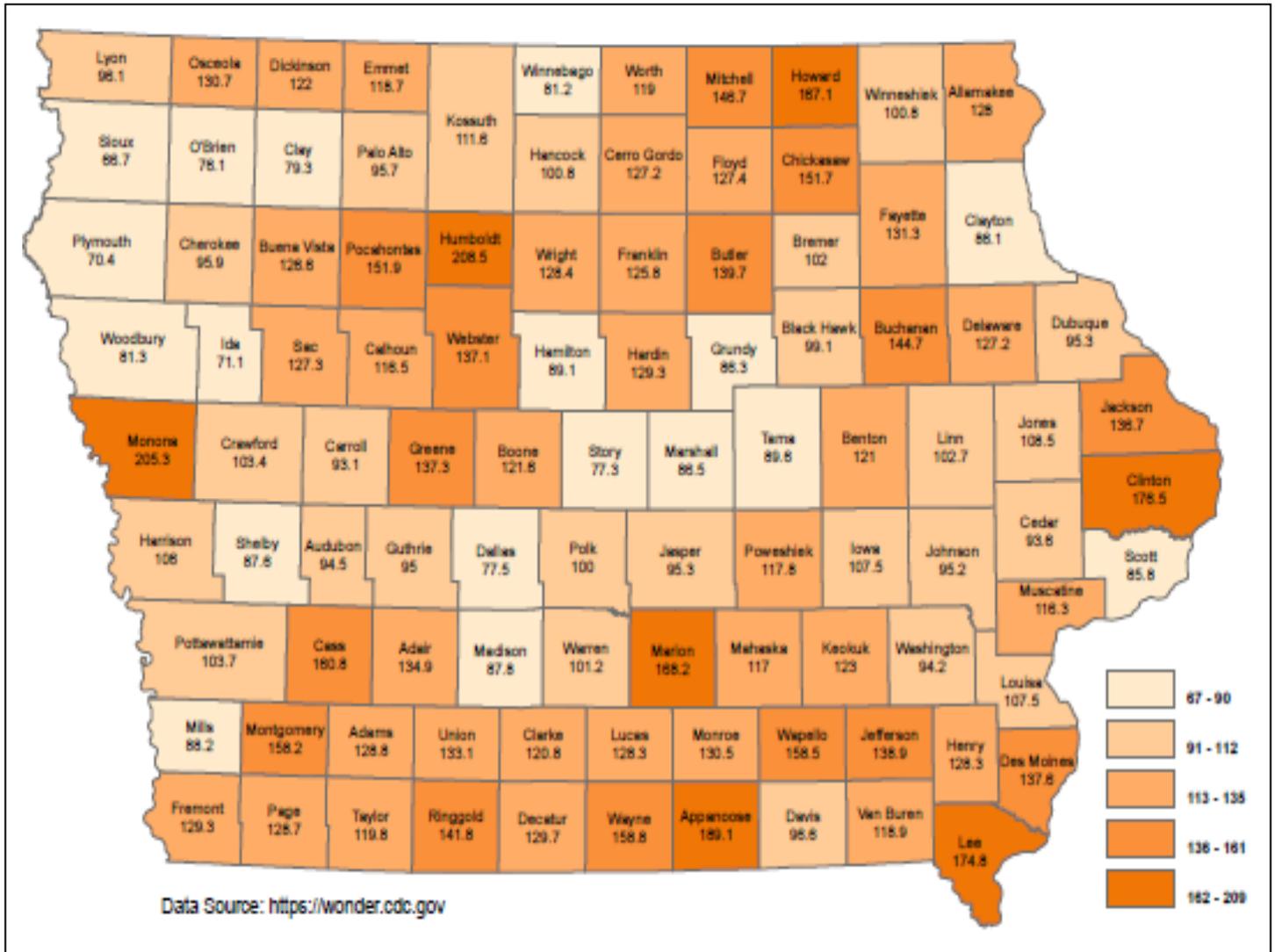


Both Black males and females had the highest death rates (2012-2016 combined) compared with all other racial/ethnic groups; Hispanic males and females had lower CHD death rates than their Non-Hispanic counterparts.

Source: <http://wonder.cdc.gov/cmfi10.htm>, icd10 I20-I25.

Mortality by Geographic Variation

Fig. 5 County-level Age-adjusted Mortality Rate (2012-2016 data combined) for CHD



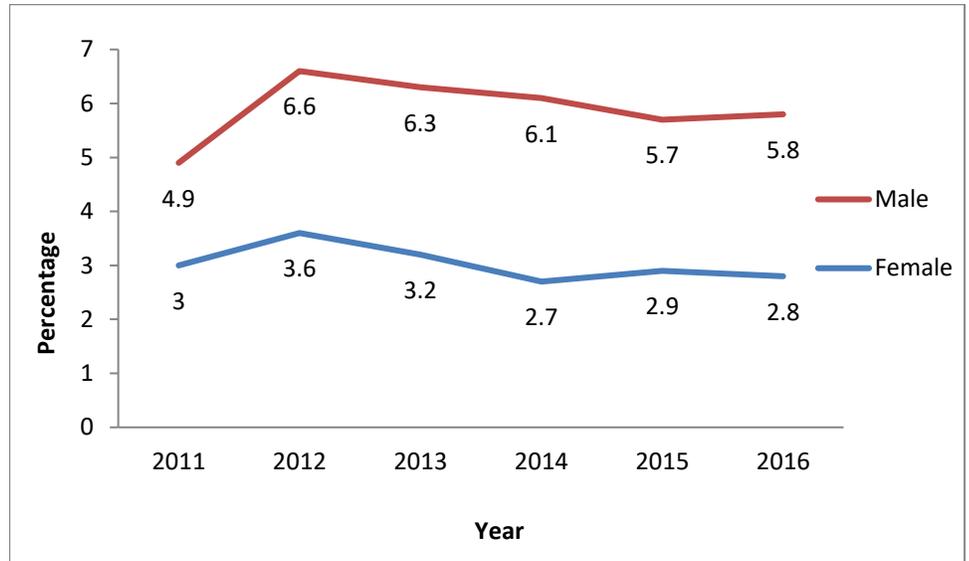
- In 2012-2016 combined, CHD mortality rates ranged from 66.7/100,000 in Sioux County to 208.5/100,000 in Humboldt County.
- 39 counties met the 2020 goal of 103.4 deaths/100,000.

CHD Prevalence

Prevalence data for heart disease- is collected through the Behavioral Risk Factor Surveillance System (BRFSS).

Similar to the mortality data, Iowa males had a higher prevalence rate than females. In 2016, Iowa males (5.8%) had about two times the prevalence rate among Iowa females for Acute Myocardial Infarction (2.8%).

Fig. 6 Prevalence of Acute Myocardial Infarction (heart attack) among Iowa adults

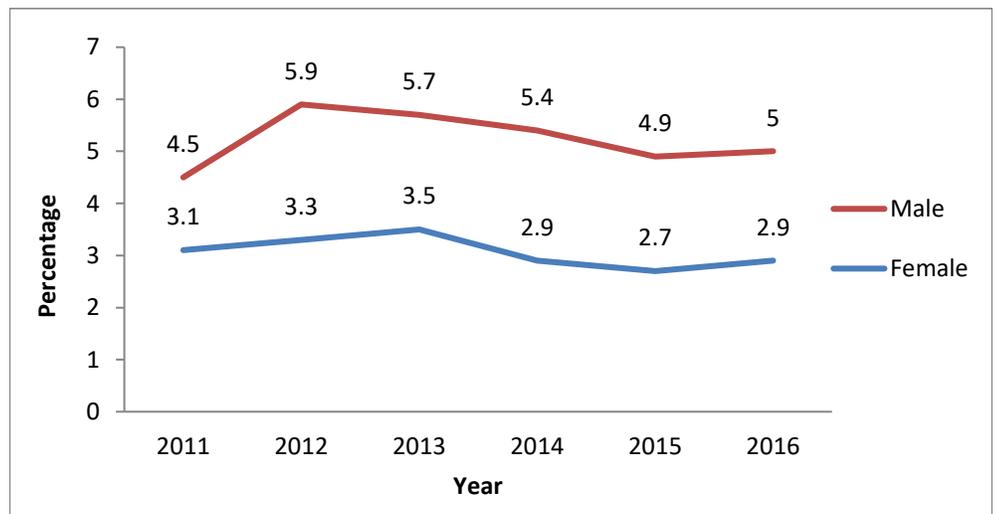


Sources: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online] http://www.cdc.gov/brfss/data_tools.htm

Among Iowa adults, 5.0% males vs. 2.9% females were told they had CHD (Iowa BRFSS, 2016). The ratio of males to females is similar to that of the heart attack prevalence rate.

In 2016, about 6.3% of Iowans reported being told they either had an Acute Myocardial Infarction or CHD. The percentage represented about 90,000 Iowans (Iowa BRFSS, 2016).

Fig. 7 Prevalence of Coronary Heart Disease among Iowa Adults



Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. http://www.cdc.gov/brfss/data_tools.htm

CHD Hospitalization

- In 2016, there were more than 8,600 coronary heart disease (CHD) hospitalizations in Iowa with an average hospital stay of four days. Among these CHD hospitalizations, 64% were males: of them, 45% were under age 65 vs. 31% for women.
- Similar to mortality data, CHD hospitalization rates have declined overtime. The overall rates of hospitalization decreased by 54% from 50 per 10,000 in 2006 to 23 per 10,000 in 2016 and similar decline trend was shown for both males and females. Males had twice the rate compared to females.
- Despite decreases in hospitalization rates, the average hospitalization charges for CHD have increased from \$34,000 in 2004 to \$65,000 in 2016.
- In 2016, the total Iowa hospital charges for CHD (primary diagnosis) were approximately \$565 million.
- More than two-thirds (71%) of CHD hospitalizations were covered by government funds (i.e., Medicare or Medicaid) as the first source of payment.

Note: CHD: ICD-10 code I20-I25 for Iowa residents only.

Fig 8. Age-adjusted Hospital Inpatient Rate for CHD, 2006-2016

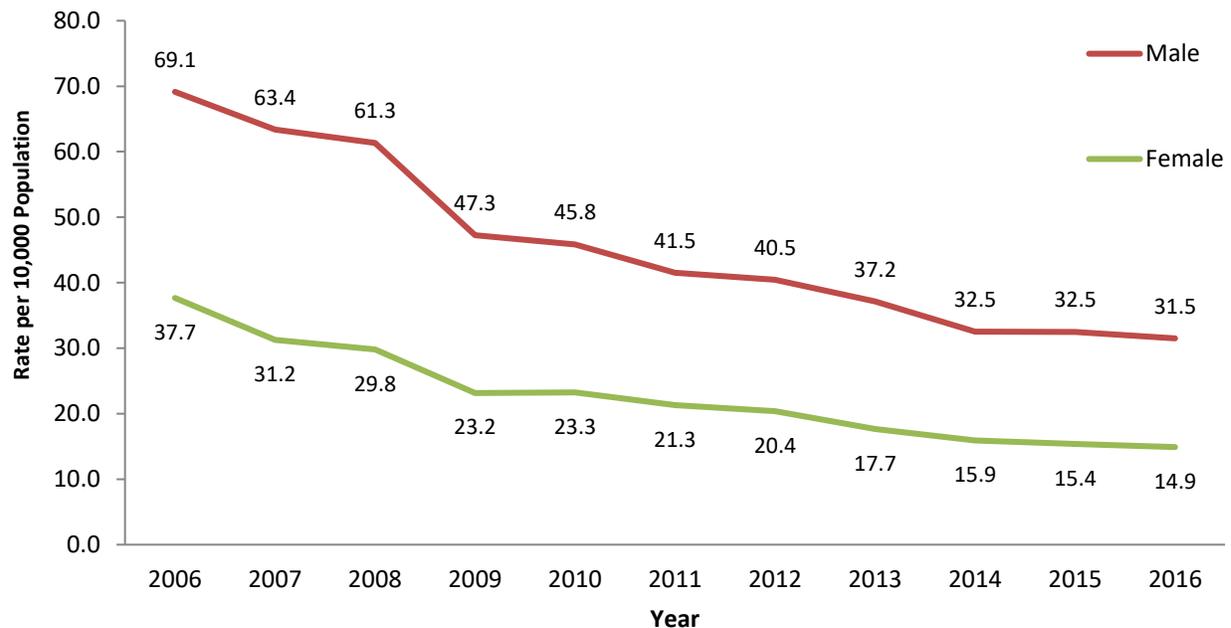


Fig 9. Average Hospital Inpatient Charge for CHD, 2006-2016

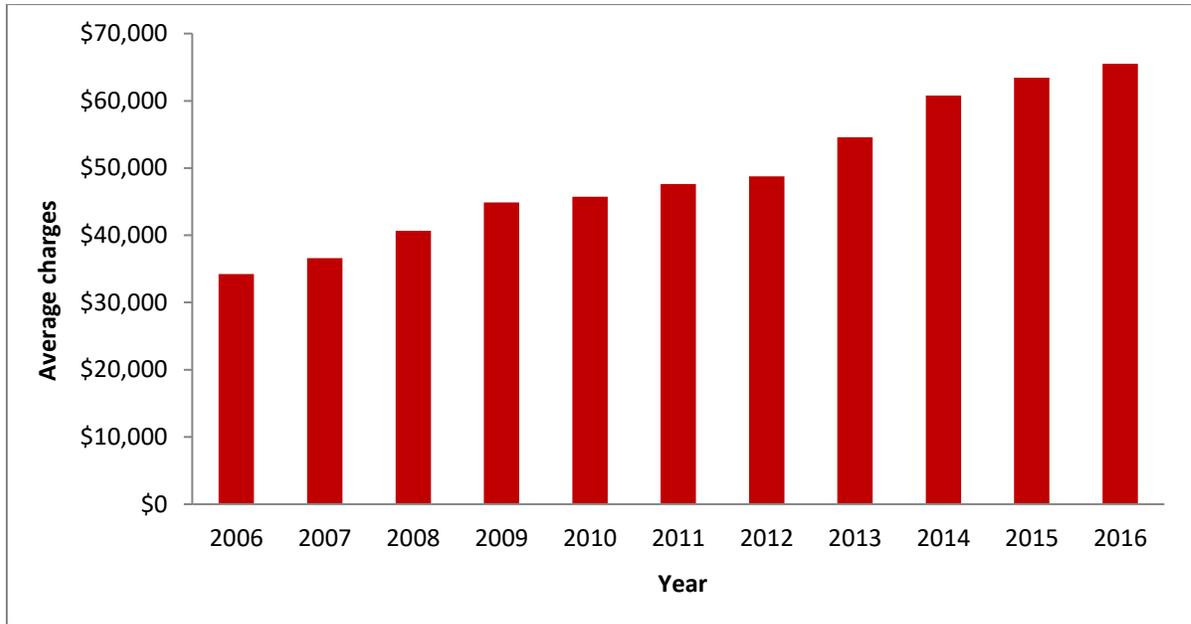
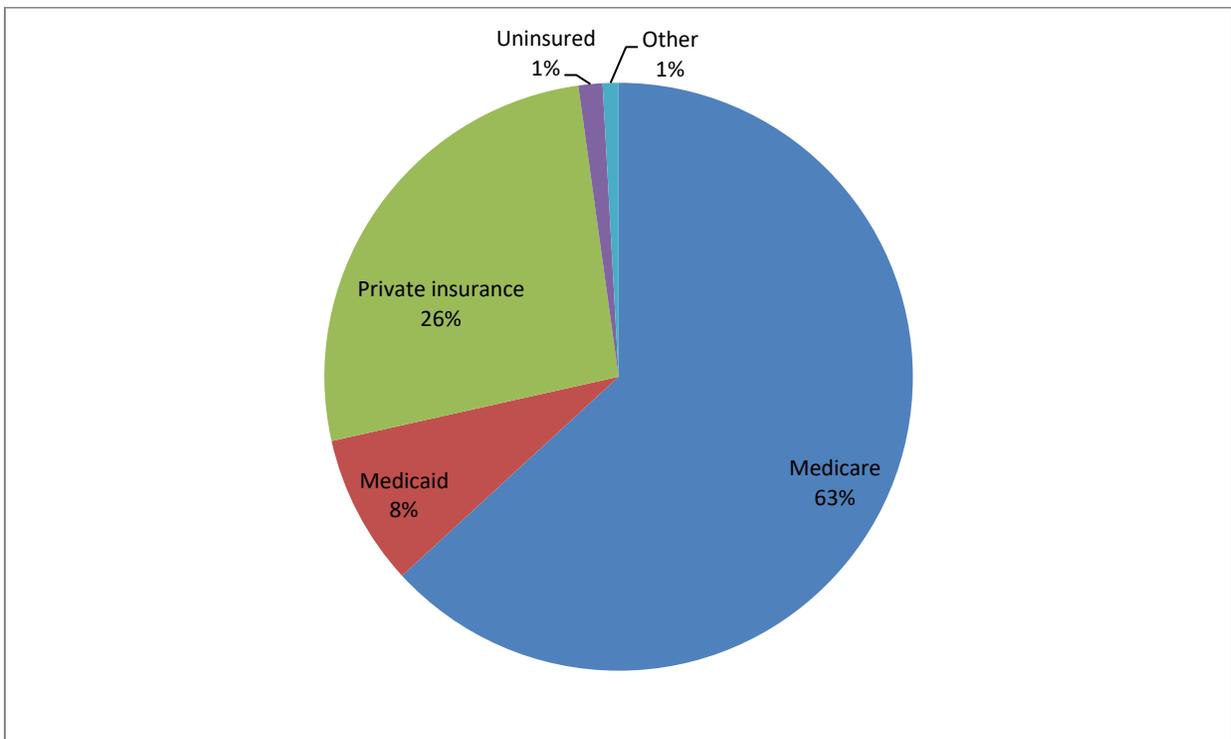


Fig 10. CHD Inpatient Charges by Principal Source of Payment, 2016



Making Use of this Information

Prevention and Control Strategies

The Iowa Department of Public Health (IDPH) received funding for the Heart Disease and Stroke Prevention (HDSP) program for four years beginning 2009 from the Centers for Disease Control and Prevention (CDC).

IDPH continues its work through its current CDC grant program, *State Public Actions to Prevent and Control Diabetes, Heart Disease, Obesity and Associated Risk Factors and Promote School Health*, which will continue through 2018. This source provides funding for contacts and projects in clinical health systems and community organizations throughout the state of Iowa that will lead to quality improvement in the areas of hypertension control and diabetes A1c level management. These efforts will assist in the future reduction of stroke and heart disease in Iowa's population.

Healthy People 2020 Goal: Reduce coronary heart disease deaths to 103.4/100,000

In 2016, the Iowa CHD death rate was lower than the new national *Health People 2020* objective (102.8/100,000 vs. 103.4/100,000). Iowa has reached the goal for the first time.

What are the implications of these findings?

- Iowa's CHD mortality rate was higher than the national average among both males and females. There is a statewide need to implement evidence-based awareness, screening and risk factor reduction to reduce CHD deaths.
- Currently, IDPH receives funding to screen women for heart disease and stroke and risk reduction. However, there is an urgent need for funding to target men, especially younger men, to eliminate premature CHD deaths.

Who works on heart disease prevention and control in Iowa besides IDPH?

- Iowa Healthcare Collaborative
<http://www.ihconline.org/>
- American Heart/Stroke Association
- University of Iowa, College of Public Health

References:

1. 2016 Vital Statistics of Iowa:
<http://idph.iowa.gov/health-statistics/data>
2. CDC WONDER: <http://wonder.cdc.gov/>
3. Iowa BRFSS Annual Report:
<http://www.idph.iowa.gov/brfss>
4. CDC WONDER: <https://wonder.cdc.gov/>
5. State Statistics on Hospitalization: Iowa Inpatient Databases collected by the Iowa Hospital Association.