



HIDI HealthStats

Statistics and Analysis From the Hospital Industry Data Institute

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A TWO-PART SERIES ON WOMEN'S HEALTH – PART TWO: HEART HEALTH IN MISSOURI



Key Points:

- Since 2004, the number of hospital visits that resulted in a diagnosis of heart disease for uninsured women in Missouri more than doubled, resulting in a 106 percent increase.
- In 2013, 406,000 Missouri women between the ages of 18 and 64 were diagnosed with heart disease, stroke or contributing risk factors. Nearly one in five (19.1 percent) of these women were uninsured.
- Compared to their counterparts with health insurance, uninsured women with heart disease are more likely to have adverse health outcomes, including higher mortality rates.
- Uninsured women in Missouri who experienced a stroke or heart disease during 2013 were significantly more likely to be diagnosed with risk factors that exacerbate heart disease or to die during hospitalization.



HOSPITAL INDUSTRY DATA INSTITUTE
The Data Company of the Missouri Hospital Association

Background

National Wear Red Day is Feb. 6. The event was established on the first Friday of every February by the American Heart Association and the National Heart, Lung and Blood Institute to raise awareness about heart disease — the top cause of death for women. Heart disease is commonly misconstrued as a men's health issue, but for the last 30 years it has killed more women than men in the U.S. In fact, heart disease causes one out of every three deaths among women every year, which is more than all forms of cancer combined. It is estimated that 43 million women in the U.S. (27 percent) are affected by heart disease and 90 percent of all women have at least one risk factor for developing the disease.ⁱ For additional information on heart disease in women and actions you can take to get involved, visit the American Heart Association's [Go Red for Women website](#).ⁱ

The Etiology of Heart Disease

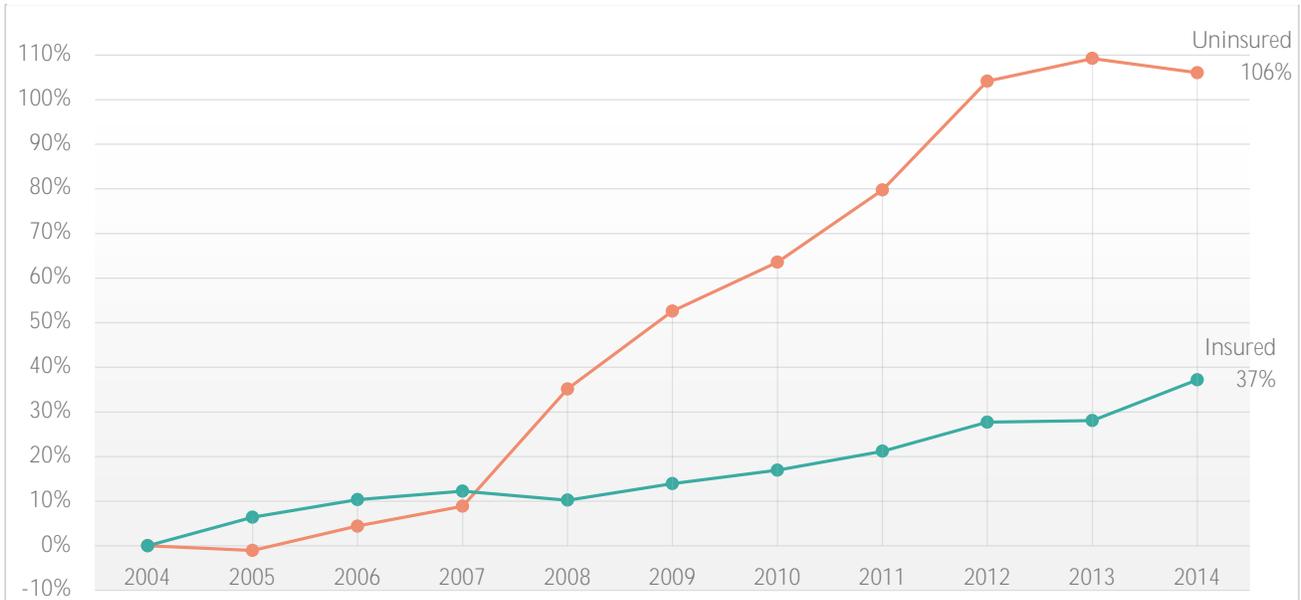
Heart disease typically refers to the broader family of conditions known as cardiovascular disease, which affects the heart and blood vessels. This family of diseases includes heart attack, atherosclerosis, stroke, heart failure, arrhythmia, angina, heart valve problems and congenital heart diseases.ⁱⁱ Research suggests that heart disease is caused by damage to the lining and inner layer of coronary arteries and the subsequent buildup of plaque — or atherosclerosis — in and around the damaged area. This damage can be caused by smoking, high cholesterol, high blood pressure or high blood sugar levels from diabetes.ⁱⁱⁱ Atherosclerosis can begin in childhood. The plaque caused by atherosclerosis can restrict the flow of blood to the heart causing chest pain, or a condition known as angina. The plaque also can burst and form blood clots which can lead to heart attack or stroke if the flow of blood to the heart and brain are significantly restricted.ⁱⁱⁱ

Preventing Heart Disease in Women

A woman's risk for developing heart disease can be influenced by numerous behavioral and inherited factors. The number of risk factors a person has and their severity increases the probability of developing heart disease exponentially. For example, a person with one risk factor is twice as likely to develop heart disease, and a person with two risk factors is four times as likely. Women and men share many of the same risk factors for heart disease; however, some affect women differently. For example, diabetic women are at greater risk of developing heart disease than diabetic men, and women alone are at greater risk of heart disease due to menopause and use of birth control pills.ⁱⁱⁱ

Fortunately, most of the risk factors for heart disease in women are controllable. The single largest risk factor for heart disease is smoking tobacco or long-term

Figure 1: Percent Change in Hospital Visits by Missouri Women With a Heart Disease Diagnosis Since 2004 by Insurance Status



Source: HIDI FY 2004-2014 Hospital Inpatient and Outpatient Discharge Databases.

exposure to second-hand smoke. Smoking introduces carbon monoxide into the bloodstream, triggering plaque buildup in the arteries. Smoking also increases the risk of developing blood clots which, in combination with the atherosclerosis caused by carbon monoxide, greatly increases the risk of heart attack and stroke. Even occasional smokers are at much higher risk of developing heart disease.ⁱⁱⁱ

High cholesterol and high blood pressure — or hypertension — also are risk factors for heart disease that can be controlled with behavioral interventions such as diet and exercise. A healthy diet with low fat and low sodium along with quitting smoking, maintaining a healthy weight and being active help lower both cholesterol and blood pressure.^{iv} Similarly, each condition is detectable with simple, noninvasive tests that are covered by all insurance carriers and can be administered by nearly any health care provider.

Diabetes is another significant risk factor for the development of heart disease. On average, adults with diabetes are two to four times more likely to develop heart disease or suffer from a stroke, and 65 percent of adults with diabetes eventually die from heart disease.^v Diabetes causes high blood sugar through underproduction or misuse of insulin, a hormone that helps the body move sugar into the bloodstream for energy. Over time, consistently high blood sugar from diabetes or prediabetes can increase the risk of atherosclerosis, or plaque buildup in arteries, resulting in cardiovascular disease. Estrogen helps protect women from diabetes before menopause; however, post-menopausal women need to be particularly vigilant in regulating blood sugars.ⁱⁱⁱ The risk of developing the most common types of diabetes — type II diabetes and prediabetes — can be significantly reduced with diet and exercise.^{vi} As with high cholesterol and hypertension, the early detection of diabetes is easily achieved through preventive care measures which

greatly improve the long-term health outcomes of women diagnosed with these conditions.

The Symptoms of Heart Disease in Women

Heart disease commonly manifests as chest pain that is related to a condition known as angina, which is a result of oxygen depletion in the blood. It is usually described as a squeezing sensation or pressure in the chest; however, women with angina also tend to experience sharp pain in the neck, jaw, throat, stomach or back.ⁱⁱⁱ Table 1 compares some common signs and symptoms of heart disease for men and women.

The Incidence of Heart Disease in Missouri Women

The number of heart disease diagnoses in Missouri hospitals has grown throughout the last 10 years at a significantly higher rate than the overall female population in the state. Overall, the incidence of heart disease diagnoses for Missouri women has increased by 37 percent since 2004.

For women without insurance, the number of heart disease diagnoses has more than doubled for a 106 percent increase during the same period (Figure 1).^{vii}

In 2013, nearly 150,000 Missouri women between the ages of 18 and 64 were diagnosed with heart disease in a hospital inpatient, outpatient or emergency department setting. Another 13,000 women experienced a stroke. In total, 406,000 Missouri women treated in a hospital experienced heart disease or were diagnosed with a risk factor including diabetes, hypertension, atherosclerosis, smoking or obesity (Figure 2).

Heart Disease in Uninsured Missouri Women

The importance of health insurance coverage for women is well-documented;^{viii} however, for women diagnosed with heart disease, its importance is compounded.

More than 22,000 uninsured Missouri women between the ages of 18 and 64 experienced a stroke or heart disease during fiscal year 2013 (Table 2). On average, they were less than 44 years old and incurred \$283 million in hospital charges during the year. They also had high rates of clinical and behavioral risk factors, which are more likely to be controlled with health insurance coverage. Uninsured women are far less likely to receive the appropriate preventive care needed to avoid cardiovascular diseases, and uninsured women with heart disease are less likely to receive the timely medical care needed to manage the disease, thus leading to worse health outcomes and higher rates of mortality compared to women with health insurance.^{ix}

Unfortunately, there are no exceptions for this relationship in Missouri. Using data from the 151,501 unique

Table 1: Signs and Symptoms of Heart Disease for Women and Men

	Women	Men
All Coronary Heart Diseases	Chest pain or discomfort, pressure or squeezing; dizziness or fatigue; sharp pain in neck, jaw, throat, abdomen or back.	Chest pain or discomfort, pressure or squeezing; dizziness or fatigue.
Heart Attack	Only 50% experience chest pain; more likely to report back or neck pain, indigestion, heartburn, nausea, extreme fatigue, trouble breathing, light head or dizziness; discomfort in one or both arms.	More likely to experience chest pain; more likely to break out in sweats with pain in left arm.
Heart Failure	Shortness of breath and fatigue that increases with physical activity; swelling or fluid retention in the lower extremities, abdomen and veins in the neck.	

Source: National Institutes of Health, National Heart, Lung, and Blood Institute.

Figure 2: Missouri Women Ages 18-64 Diagnosed With Heart Disease, Stroke or a Risk Factor in 2013

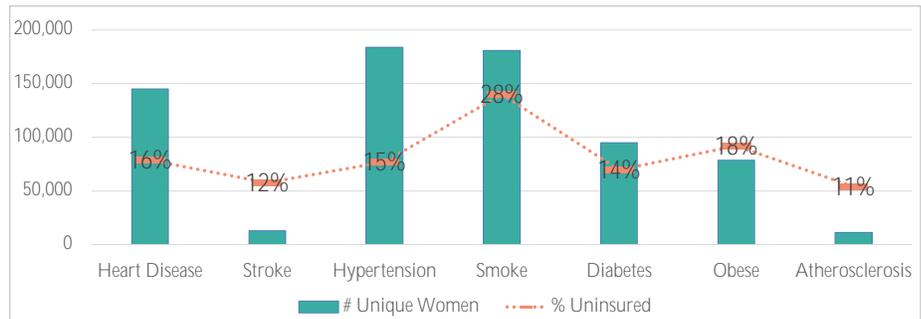


Table 2: Profile of Uninsured Missouri Women Ages 18-64 Diagnosed With Heart Disease or Stroke in 2013

<i>Diagnosed With Heart Disease or Stroke</i>	22,362
Average age	43.7
Number of hospital visits	37,923
Hospital charges	\$282,926,061
Percent with hypertension	35.0%
Percent with diabetes	14.6%
Percent with atherosclerosis	1.7%
Percent who smoke	35.3%
Percent obese	12.3%

Source: HIDI FY 2013 Hospital Inpatient and Outpatient Discharge Databases.

Missouri women between the ages of 18 and 64 who were diagnosed with heart disease or stroke in 2013, HIDI staff investigated the disparate health outcomes for insured and uninsured women with cardiovascular disease.

Six stratified logistic regression models were fit to determine the extent

to which uninsured status influences women's risk of adverse health outcomes and the presence of risk factors after heart disease or stroke were initially diagnosed. In addition to health insurance status, each model was designed to control for the woman's age and socioeconomic status. Age was measured as the maximum age

reported during a hospital visit in FY 2013, a dichotomous variable for Medicaid status was used as a proxy for low socioeconomic status, and uninsured status was coded to one if the woman had any self-pay or charity care hospital visits during the year.

More than 1,600 (1.1 percent) women included in this analysis died during their hospitalization. Similar to national research,^x uninsured women with heart disease in Missouri are 19 percent (OR = 1.19, P<.0001) more likely to die during a hospital visit compared to women with health insurance after controlling for age and socioeconomic status (Table 3). Uninsured women with heart disease in Missouri are also more likely to have each of the risk factors examined in this analysis that are known to exacerbate heart disease, with the exception of atherosclerosis for which no statistical difference was observed between insured and uninsured women (OR = 0.991, P = 0.85).

The following risk factors were present for Missouri women between the ages of 18 and 64 who experienced a stroke or heart disease in 2013.

- 13.3 percent were obese, uninsured women were 47 percent more likely to be obese
- 27 percent smoked, uninsured women were 2.5 times more likely to smoke
- 37.7 percent had hypertension, uninsured women were 59 percent more likely to have hypertension
- 18 percent had diabetes, uninsured women were 19 percent more likely to have diabetes

Discussion

As presented in part one^{viii} of this series, Missouri’s lawmakers are faced with a critical decision on the future of the Medicaid program in the state. The opportunity to reform and expand Medicaid by extending eligibility to 138 percent of the federal poverty level would provide health insurance coverage to 182,000 Missouri women and their families — this is nearly half (48 percent) of all uninsured women in the state.^{xi} This decision would improve physical, emotional and financial health outcomes for women in Missouri. More importantly, as demonstrated by this research, the decision to reform and expand Medicaid in Missouri would save lives.

Table 3: Health Disparities for Uninsured Women With Heart Disease or Stroke in Missouri During FY 2013: Stratified Logistic Regression Model Results

Dependent Variable (n=151, 501)	Percent With Dependent Variable	Parameter Estimates (P-Values)			
		Uninsured	Age	Medicaid	C-Statistic
Expired	1.1%	1.19 (<i><.0001</i>)	1.05 (<i><.0001</i>)	1.84 (<i><.0001</i>)	0.647
Obese	13.3%	1.47 (<i><.0001</i>)	1.03 (<i><.0001</i>)	1.77 (<i><.0001</i>)	0.612
Smoke	27.0%	2.51 (<i><.0001</i>)	2.55 (<i><.0001</i>)	1.02 (<i><.0001</i>)	0.626
Hypertension	37.7%	1.59 (<i><.0001</i>)	1.08 (<i><.0001</i>)	2.01 (<i><.0001</i>)	0.714
Diabetes	18.0%	1.19 (<i><.0001</i>)	1.06 (<i><.0001</i>)	2.07 (<i><.0001</i>)	0.684
Atherosclerosis	3.2%	0.991 (<i><.0001</i>)	1.11 (<i><.0001</i>)	2.06 (<i><.0001</i>)	0.748

Source: Author’s Analysis of Missouri Women Ages 18-64 Experiencing Heart Disease or Stroke in the HIDI FY 2013 Hospital Inpatient and Outpatient Discharge Databases.

Suggested Citation

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Fact sheets on the number of uninsured Missouri women diagnosed with heart disease by Senate District are available at <http://missourihealthmatters.com/research/medicaid-reform-matters-for-womens-heart-health>

