



# HIDI HealthStats

Statistics and Analysis From the Hospital Industry Data Institute

## JUNE 2014 ■ MEN'S HEALTH MONTH

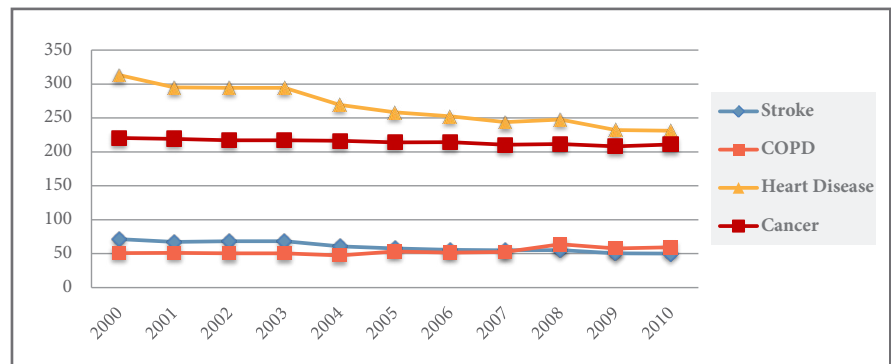


Men's Health Month was established in 1994 to raise awareness of health conditions commonly affecting men and to promote preventive measures that foster early detection and treatment.<sup>1</sup> The national designation of June as Men's Health Month sheds light on health conditions that impose a disproportionate burden on males in terms of increased morbidity and premature mortality.

According to the Centers for Disease Control and Prevention, the top four causes of death in the United States are heart disease, cancer, chronic lower respiratory disease and stroke. These diseases also are the top four leading causes of death in Missouri, however, chronic lower respiratory disease overtook stroke as the third leading cause of death in Missouri in 2008, possibly because the state has the lowest excise tax in the nation on cigarettes (Figure 1).<sup>2</sup>

Although life expectancy at birth has been gradually improving during the past 20 years, a significant gender gap still exists. According to the most recent CDC life tables, men born in the U.S. can expect to live nearly five years less than females.<sup>3</sup> Men often take a more cavalier approach to their health than females, particularly when the health concern isn't necessarily urgent. Research shows that males visit doctors less often and sense their individual productivity is linked to their physical health. This often results in men neglecting routine checkups and preventive maintenance care until their conditions affect their work, at which point the condition may have become exacerbated and no longer preventable.<sup>4</sup>

**Figure 1: Age-Adjusted Death Rate per 100,000 in Missouri for the Top Four Causes of Death: 2000 - 2010**



Source: 2000 - 2012 U.S. Centers for Disease Control and Prevention

### Diagnoses for the Top Four Causes of Death in Missouri Hospitals in 2013

Nearly 12 million hospital inpatient, outpatient and emergency department discharge records during fiscal year 2013<sup>5</sup> were evaluated to determine the prevalence of the top four leading causes of death in Missouri and to observe differences in hospital diagnoses for these conditions between males and females.<sup>6</sup> The discharges were grouped by ICD-9-CM diagnosis codes into the Agency for Healthcare Research and Quality's Clinical Classification Software<sup>7</sup> and assigned

to heart disease, cancer, chronic obstructive pulmonary disease and stroke, according to the methodology employed by the Missouri Department of Health and Senior Services.<sup>8</sup> The data included Missouri residents of any age treated in 2013 at Missouri hospitals and out-of-state hospitals that participate in the HIDI nonresident data exchange program.<sup>9</sup> Of the records evaluated:

- 808,314 (7 percent) were inpatients, including 380,000 inpatients admitted through the emergency department
- 2.7 million (22 percent) were nonadmitted ED patients
- 8.5 million (71 percent) were outpatients

**Table 1: 2013 Hospital Visits With a Diagnosis of Heart-Disease, Cancer, COPD or Stroke**

	All Visits	% All Visits
Male	4,699,714	39.3%
Female	7,263,059	60.7%
Total	11,962,773	100.0%

On average, a man died from heart disease in a Missouri hospital every 66 minutes during 2013.

	Visits	Avg. Age	Prevalence	Deaths	% Deaths
<b>Visits With a Heart Disease Diagnosis</b>					
Male	702,808	63.9	15.0%	7,940	52.9%
Female	709,233	64.0	9.8%	7,073	47.1%
Total	1,412,041	63.9	11.8%	15,013	100.0%
<b>Visits With a Cancer Diagnosis</b>					
Male	330,197	64.5	7.0%	2,625	52.8%
Female	461,135	62.3	6.3%	2,344	47.2%
Total	791,332	63.2	6.6%	4,969	100.0%
<b>Visits With a COPD Diagnosis</b>					
Male	180,501	63.3	3.8%	2,477	52.9%
Female	214,190	62.4	2.9%	2,209	47.1%
Total	394,691	62.8	3.3%	4,686	100.0%
<b>Visits With a Stroke Diagnosis</b>					
Male	68,679	67.9	1.5%	1,188	48.6%
Female	74,935	69.2	1.0%	1,258	51.4%
Total	143,614	68.6	1.2%	2,446	100.0%

**Heart Disease: The Leading Cause of Death in Missouri**

More than 1.4 million (11.8 percent) hospital visits by Missourians were accompanied by a diagnosis of heart disease during 2013. This number includes both initial and subsequent diagnoses for the leading cause of death in Missouri. The average age of patients with a diagnosis of heart disease was nearly 64, and more than 15,000 hospital visits with this diagnosis resulted in death last year (Table 1).

The prevalence of heart disease in male patients is significantly higher in Missouri compared to female

hospital patients (Table 1). Although male patients accounted for less than 40 percent of total hospital visits in 2013, they made up nearly half of all visits with a corresponding diagnosis of heart disease. Men with heart disease also have a higher burden of mortality compared to their female counterparts. On average, a man died from heart disease in a Missouri hospital every 66 minutes during 2013. Nearly 53 percent of all hospital visits with a diagnosis of heart disease that resulted in the patient dying were male (Figure 2 top-left panel).

**Cancer: The Second-Leading Cause of Death in Missouri**

More than 791,000 (6.6 percent) hospital visits by Missourians were accompanied by a diagnosis of cancer during 2013. This number includes both initial and subsequent diagnoses. The average age of patients with a cancer diagnosis was 63.2, and nearly 5,000 hospital visits with this diagnosis resulted in death (Table 1). The number of deaths included in this report is limited to those occurring in hospitals. This diminishes the actual number of deaths for patients with these diagnoses by precluding deaths occurring at home, under hospice care and in other palliative settings.

Last year, male patients accounted for slightly more visits with a cancer diagnosis than their portion of visits with any diagnosis. Males did, however, account for significantly more hospital visits with a cancer diagnosis that resulted in a death. Men were over-represented in cancer-related deaths by more than 13 percentage points compared to their portion of total hospital visits during 2013 (Figure 2 top-right panel).

### Chronic Lower Respiratory Disease: The Third-Leading Cause of Death in Missouri

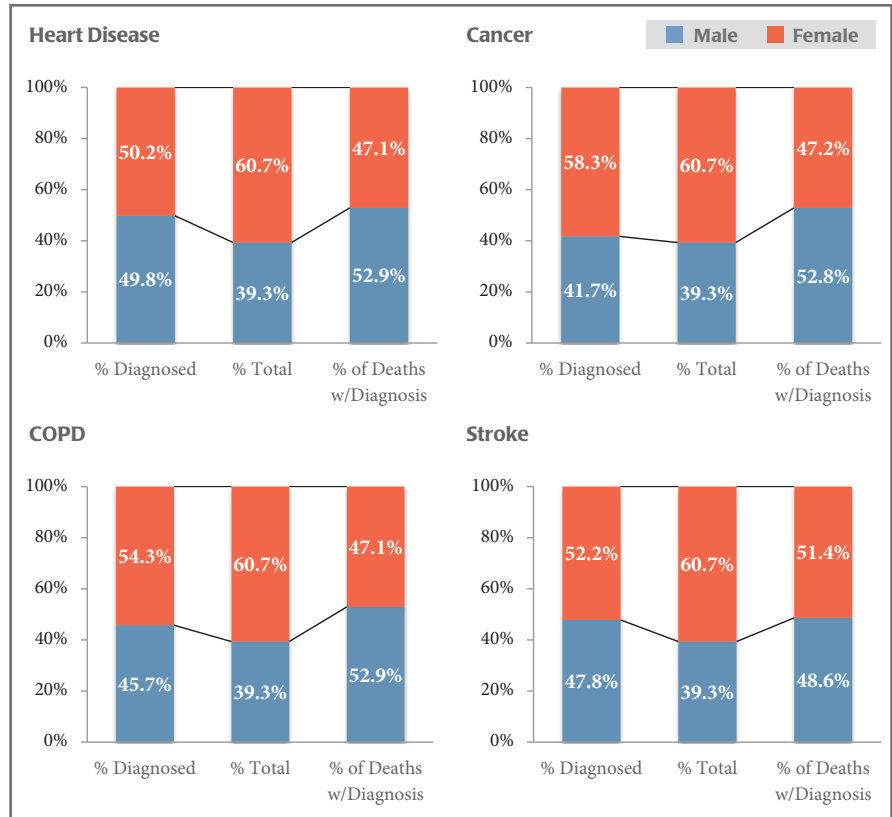
Chronic lower respiratory disease is the only one of the top four causes of death in Missouri that has been trending slightly upward since 2000 (Figure 1). Chronic obstructive pulmonary disease is a large member of the chronic lower respiratory disease family. More than 390,000 (3.3 percent) hospital visits in Missouri last year ended with the patient being diagnosed with COPD. The average age of patients diagnosed with COPD was nearly 63, and 4,686 of these hospital visits resulted in the patient dying (Table 1).

In 2013, male patients accounted for 39 percent of all hospital visits, 46 percent of visits with a COPD diagnosis and 53 percent of visits with a COPD diagnosis that resulted in death (Figure 2 bottom-left panel). According to the National Institutes of Health, smoking is the leading cause of COPD. NIH states that anyone with the disease either currently smokes or was a smoker at some time.<sup>10</sup> Although the overall smoking rate has been declining in recent years, it is estimated that 25.5 percent of adult males and 20.8 percent of adult females in Missouri currently smoke cigarettes.<sup>11</sup>

### Stroke: The Fourth-Leading Cause of Death in Missouri

In 2013, more than 143,000 (1.2 percent) hospital visits occurred because

**Figure 2: Distribution of 2013 Hospital Visits with a Diagnosis of Heart Disease, Cancer, COPD or Stroke by Gender**



of stroke. Nearly 2,500 of these visits resulted in the patient dying (Table 1). According to the American Heart and Stroke Association, a stroke death occurs every four minutes in the U.S. Mortality rates for stroke patients vary widely for different demographic groups. At 41.7 per 100,000, the rate of deaths from stroke among white males is slightly higher than for white females. With a rate of 67.7, African-American males are at significantly higher risk of death following a stroke.<sup>12</sup>

Last year in Missouri, male patients accounted for more hospital visits with a stroke diagnosis than their portion of overall visits. However, their number of stroke visits that resulted in death was approximately equal to their portion of all visits, with a stroke diagnosis at 47.8 percent and those resulting in death at 48.6 percent (Figure 2 bottom-right panel).

### Disparities in Men's Health

Men in Missouri face a significantly higher risk of mortality for heart disease, cancer, COPD and stroke. To calculate the mortality disparities men face with these conditions, logistic regression models were fit to 808,000 inpatient hospital records in 2013. Three individual models were fit to the inpatient data to estimate variation in the risk of mortality for African-American males, white males and females admitted to hospitals with diagnoses for heart disease, cancer, COPD or stroke. African-American males faced the highest risk of mortality for all of the leading causes of death except COPD, for which white males were at the highest risk (Table 2).

**Table 2: 2013 Inpatient Mortality Logistic Regression Model Results**

	African-American Male Model		White Male Model		Female Model	
	Odds Ratio	P-Value	Odds Ratio	P-Value	Odds Ratio	P-Value
Age	1.041	<.0001	1.039	<.0001	1.038	<.0001
With Heart Disease	1.484	<.0001	1.388	<.0001	1.304	<.0001
With Cancer	1.642	<.0001	1.421	<.0001	1.343	<.0001
With COPD	1.024	0.7757	1.176	<.0001	1.041	0.1175
With Stroke	1.440	<.0001	1.355	<.0001	1.432	<.0001

**Table 3: 2013 Inpatient Mortality Calculated Disparities**

	African-American Males		White Males
	Compared to Females	Compared to White Males	Compared to Females
With Heart Disease	18.0%	9.6%	8.4%
With Cancer	29.9%	22.1%	7.8%
With COPD	-1.7%	-15.2%	13.5%
With Stroke	0.8%	8.5%	-7.7%

Differences in the estimated odds ratios for each model were calculated to quantify health disparities for African-American males compared to females, African-American males compared to white males and white males compared to females (Table 3).

**Findings:**

- **Heart Disease:** African-American males diagnosed with heart disease are 18 percent more likely to die during a hospitalization than females and 9.6 percent more likely than white males.
- **Cancer:** African-American males diagnosed with cancer face a 29.9 percent higher risk of mortality compared to females and a 22.1 percent higher risk compared to white males.
- **COPD:** White males face the highest risk of death during a hospitalization with a corresponding COPD diagnosis. African-American males face the lowest risk of death for COPD. However, the statistical relationship was not significant (p = 0.78).

- **Stroke:** African-American males admitted with a stroke diagnosis face a marginally increased risk of death compared to females and an 8.5 percent higher risk than white males.

**Men and Hospital Visits for Gun-Related Violence, Accidents and Self-Inflicted Injuries**

Gun-related accidents and violence are another cause of hospital visits

that are disproportionately represented by males. Last year, Missouri patients were treated at a hospital 2,729 times for injuries caused by firearms. Although men represented 49 percent of the overall population, they accounted for 86 percent of all gun-related hospital visits. The gender-adjusted rate of gun-related hospital visits was eight for every 10,000 males in Missouri. Conversely, the rate for women in Missouri was 1.2 hospital visits for gun-related injuries per 10,000 females (Table 4).

**Table 4: 2013 Hospital Visits for Gun-Related Injuries**

	Males	Females	African-American Males Ages 15-34	All Other Males
Population	2,951,036	3,070,952	109,107	2,841,929
Gun-Related Hospital Visits	2,353	376	909	1,444
% Population	49.0%	51.0%	1.8%	47.2%
% Gun-Related Hospital Visits	86.2%	13.8%	33.3%	52.9%
Ratio of Gun % to Pop. %	1.8	0.3	18.4	1.1
Adjusted Rate per 10,000 Pop.	8.0	1.2	83.3	5.1

Sources: 2012 U.S. Census Bureau Intercensal Population Estimates and 2013 HID I Inpatient and Outpatient Hospital Discharge Databases

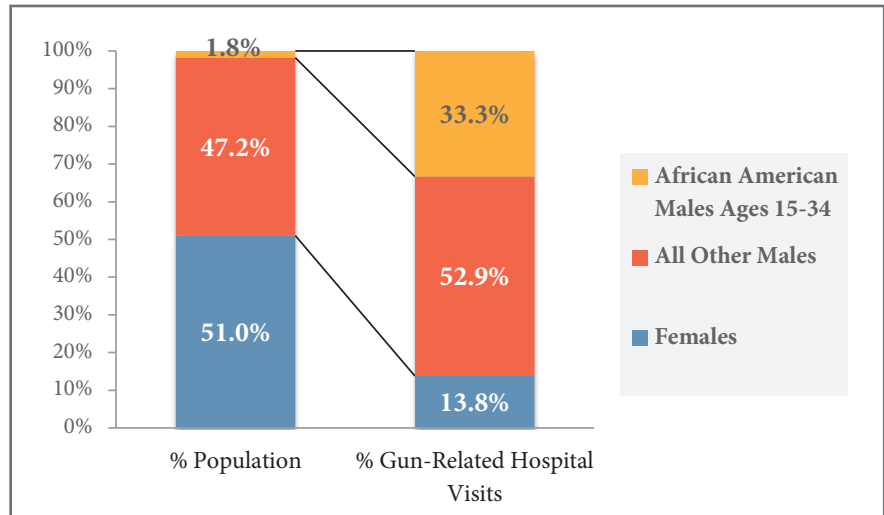
Although men represented 49 percent of the overall population, they accounted for 86 percent of all gun-related hospital visits.

Among all males, African-American men between the ages of 15 and 34 are disproportionately affected by gun-related injuries in Missouri. Last year, this demographic cohort accounted for just 1.8 percent of the total population but for one out of every three hospital visits for gun-related injuries (Figure 3). After adjusting for age, race and gender, this amounted to a rate of 83 gun-related hospital visits per 10,000 for African-American males between the ages of 15 and 34 in Missouri. This is 10 times the rate for all males and 18.4 times the expected amount considering their portion of the overall population.

### Suggested Citation

Reidhead, M. *HIDI HealthStats*, June 2014: Men's Health Month. Missouri Hospital Association, Hospital Industry Data Institute. Available at [www.mhanet.com](http://www.mhanet.com).

**Figure 3: 2013 Gun-Related Hospital Visits Compared to the Total Population for Selected Demographic Cohorts**



- 1 Men's Health Network. 2014 June is Men's Health Month! Available at <http://www.menshealthmonth.org/>.
- 2 Centers for Disease Control and Prevention. Deaths, Percent of Total Deaths, and Death Rates for the 15 Leading Causes of Death: United States and Each State, 1999-2010. (LCWK9). Available at <http://www.cdc.gov/nchs/nvss/mortality/lcwk9.htm>.
- 3 Murphy, S.L., Xu, J., Kochanek, K. Deaths: Final Data for 2010. U.S. Centers for Disease Control and Prevention, National Vital Statistics Reports. 2013; 61(4). Available at [http://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61\\_04.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_04.pdf).
- 4 Hoffman M. 6 Top Health Threats to Men, What puts a man's health at risk when he gets older? WebMD Feature. Available at <http://www.webmd.com/men/features/6-top-health-threats-men?page=3>.
- 5 October 1, 2012 through September 30, 2013.
- 6 Missouri Hospital Association, Hospital Industry Data Institute. 2013 Inpatient and Outpatient Discharge Databases.
- 7 Agency for Healthcare Research and Quality. Clinical Classification Software (CCS) for ICD-9. Available at <http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp>.
- 8 Missouri Department of Health and Senior Services. Chronic Disease MICAs. Available at <http://health.mo.gov/data/mica/ChronicDiseaseMICAs/>.
- 9 The HIDI nonresident data exchange program includes all geographically-contiguous states except Oklahoma.
- 10 National Institutes of Health, National Heart, Lung, and Blood Institute. Available at <https://www.nhlbi.nih.gov/health/health-topics/topics/copd/>.
- 11 Missouri Department of Health and Senior Services. 2011 County-Level Study. Available at [http://health.mo.gov/data/mica/County\\_Level\\_Study\\_12/header.php?cnty=929&profile\\_type=4&chkBox=C#](http://health.mo.gov/data/mica/County_Level_Study_12/header.php?cnty=929&profile_type=4&chkBox=C#).
- 12 American Stroke Association. Impact of Stroke (Stroke Statistics). Available at [http://www.strokeassociation.org/STROKEORG/AboutStroke/Impact-of-Stroke-Stroke-statistics\\_UCM\\_310728\\_Article.jsp](http://www.strokeassociation.org/STROKEORG/AboutStroke/Impact-of-Stroke-Stroke-statistics_UCM_310728_Article.jsp).



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

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P.O. Box 60  
Jefferson City, MO 65102-0060