# Healthy Ohio Community Profiles

## Madison County

**2008**

The Ohio Department of Health

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## Acknowledgements

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### For comments and information requests:

**Office of Healthy Ohio**
**Ohio Department of Health**
246 North High Street
Columbus, OH 43215

Phone: (614) 466-1663
Fax: (614) 644-0085
E-mail: HealthyO@odh.ohio.gov
Website: http://www.HealthyOhioProgram.org

## Introduction

Community health profiles can be important tools, useful in improving the health of a community through the information they provide to practitioners, public health officials and community members regarding specific information about their community. These profiles can be used to foster partnerships between physicians and community members and support program development to improve the overall health of the community.

Ohio is made up of 88 counties, each of which share similarities but also have unique characteristics that set them, and the communities within them, apart from each another. In Ohio, the burden of disease and injury is not equally distributed across communities. Factors impacting a community's disease and injury burden include socioeconomic status, access to health care, age distribution and lifestyle behaviors.

The purpose of this Healthy Ohio Community Profile is to assess the critical health issues among Madison County residents and compare them to the health issues facing Ohio's total population. A special focus is placed on the leading causes of death and illness. Information is presented on death rates; prevalence of chronic disease risk factors; prevalence of heart disease, stroke, heart disease and stroke symptom awareness and response; pre-diabetes, diabetes and arthritis; and the incidence and mortality of cancer. Information is also presented on unintentional and intentional injury; the prevalence of cancer screening practices and diabetes care and the prevalence of maternal smoking, overweight children, low birth weight, and infant and childhood deaths. Together, these indices can be used as a resource to set priorities, develop prevention and screening programs, reduce health disparities and improve the health of all Madison County residents.

The Healthy Ohio Community Profiles for Ohio and each of the 88 counties are funded by the Office of Healthy Ohio, Ohio Department of Health.

## Madison County: At a Glance

- Madison County was home to 40,226 residents in 2000, with 8.0 percent of the residents being black, other or Hispanic/Latino.
- In 2000, 6.2 percent of Madison County residents had incomes below the poverty level and 21 percent of the residents over the age of 25 did not graduate from high school or obtain a GED.
- Of the residents living in Madison County in 2004, 9.3 percent of adults 18 years and older and 1.1 percent of children 17 years and younger did not have health insurance.
- Diseases of the heart, cancer, stroke, lower respiratory disease, diabetes mellitus, and unintentional injuries accounted for 67.1 percent of the resident deaths during 2004-2006.
- In Madison County, 23.6 percent of adult residents currently smoke cigarettes, 37.4 percent are overweight and 28.5 percent are obese. Each of these behaviors increase the risk of developing a chronic disease.
- 38.5 percent of Madison County adult residents had been told by their doctors that their cholesterol was high during 2004, 2006 and 2007.
- Heart disease was the leading cause of death for Madison County residents in 2004-2006. 3.4 percent of adult residents reported they previously suffered a heart attack, while 3.6 percent had angina or coronary heart disease during 2004, 2006 and 2007.
- In Madison County, 16 residents died from a stroke annually during 2004-2006. 26.1 percent of the adult residents reported having high blood pressure and 2.2 percent had previously had a stroke during 2004, 2006 and 2007.

## Madison County: At a Glance

- 92.1 percent of Madison County adult residents knew to call 911 in response to someone having a heart attack or a stroke in 2004, 2006 and 2007.
- During 2004-2006, cancer was the second-leading cause of death for residents of Madison County.
- In Madison County during 2004-2007, 49.4 percent of all residents age 50 and older had a colonoscopy/sigmoidoscopy in the past five years, 74.3 percent of females age 40 and older had a mammogram in the past three years and 50.7 percent of males age 50 and older had a prostate-specific antigen test in the past year.
- The estimated prevalence of diabetes among Madison County adult residents was 6.5 percent during 2004-2007. Annually, diabetes killed 16 Madison County residents.
- 28.1 percent of Madison County adult residents reported having arthritis.
- 16 Madison County residents died annually during 2004-2006 as a result of an unintentional injury.
- In Madison County during 2004-2006, an average of one resident died from homicide and 3 residents died from suicide annually.
- In Madison County during 2004-2006, 21.3 percent of mothers reported smoking during their pregnancy, 7.3 percent of babies born were considered to be low birth weight babies, and 3 infants died before their 1st birthday.
- 18 percent of third-grade children were considered to be overweight in Madison County during 2004-2005.
- Annually during 2003-2005, 7 children ages 1 to 19 years died in Madison County. In Ohio, the leading cause of death for Ohio children was unintentional injuries.

## Demographics

Table 1. Population Estimates for Madison County by Age Group, Gender and Race/Ethnicity, 2000.[1, 2]

| Age Group | Gender | | Race/Ethnicity | | | | Total Population |
|---|---|---|---|---|---|---|---|
| | Male | Female | White | Black | Hispanic/ Latino | Other | |
| ≤19 | 5,771 | 5,272 | 10,485 | 477 | 111 | 81 | 11,043 |
| 20-39 | 7,200 | 4,882 | 10,646 | 1,324 | 112 | 112 | 12,082 |
| 40-59 | 6,129 | 4,984 | 10,368 | 674 | 51 | 71 | 11,113 |
| 60-79 | 2,253 | 2,628 | 4,728 | 126 | 11 | 27 | 4,881 |
| 80+ | 343 | 764 | 1,083 | 23 | 9 | 1 | 1,107 |
| All Ages | 21,696 | 18,530 | 37,310 | 2,624 | 294 | 292 | 40,226 |

[1]Vintage 2006 postcensal estimates for July 1, 2000, U.S. Census Bureau, 2007.
[2] The Hispanic/Latino population estimates include individuals of white, black or other race.

- Madison County is the sixty-second most populous county in Ohio. The residents of Madison County account for 0.4 percent of Ohio's total population.
- 92.8 percent of Madison County's residents are white and 7.2 percent of residents are black or other races. 0.7 percent of Madison County residents are Hispanic/Latino ethnicity.
- In Madison County, 14.9 percent of the population is 60 years of age or older.

## Socioeconomic Status

Table 2. Socioeconomic Profile of Madison County with Comparison to Ohio and the United States, 2000.[1]

| Socioeconomic Measure | Madison County | Ohio | U.S. |
|---|---|---|---|
| Median Household Income | $44,212 | $40,956 | $41,994 |
| Families Below Poverty Level | 6.2% | 7.8% | 9.2% |
| Female-headed Households with Children <18 | 6.0% | 7.3% | 7.2% |
| Educational Attainment (Ages 25+) | | | |
| No High School Diploma | 21.0% | 17.0% | 19.6% |
| High School Graduate (incl. equivalency) | 41.7% | 36.1% | 28.6% |
| Some College, No Degree | 18.9% | 19.9% | 21.1% |
| Associate's Degree | 5.4% | 5.9% | 6.3% |
| Bachelor's Degree | 9.3% | 13.7% | 15.5% |
| Master's/Professional Degree or Higher | 3.7% | 7.5% | 8.9% |

[1]Census 2000 Demographic Profiles. U.S. Census Bureau, Summary File 1 (SF1) and Summary File 3 (SF3).

- In 2000, the median household income for residents of Madison County was $44,212, which was $3,256 more than the median household income for Ohio and $2,218 more than that of the United States.
- On average, 6.2 percent of families had incomes below the poverty level and 6.0 percent were headed by females with children less than 18 years of age.
- In Madison County, 21.0 percent of the residents over the age of 25 did not graduate from high school or obtain a GED.

## Access to Health Care

Table 3. Physicians, Registered Hospitals and Beds, 2006, and Percent Uninsured, 2004, in Madison County with Comparison to Ohio.[1, 2]

| Health Care | Madison County | Ohio |
|---|---|---|
| Physicians (M.D.s and D.O.s) | 51 | 28,853 |
| Per 10,000 Population | 12.7 | 25.4 |
| Registered Hospitals | 1 | 207 |
| Number of Beds | 105 | 45,505 |
| Per 10,000 Population | 26.1 | 40.0 |
| Percent Uninsured | | |
| Uninsured Adults ( Ages 18+) | 9.3% | 12.5% |
| Uninsured Children (≤17) | 1.1% | 5.4% |

- In 2000, there were 51 physicians total and 12.7 physicians per 10,000 people living in Madison County.
- There were 1 registered hospitals for Madison County residents.
- In 2004 in Madison County, 9.3 percent of adults age 18 and older and 1.1 percent of children 17 years and younger did not have health insurance.

- One access indicator is the Primary Care Health Professional Shortage Area (PC HPSA) designation. The designation indicates that an area or population is underserved for primary medical care, i.e., there are not a sufficient number of providers serving the area or population. As of June 30, 2008, there were no PC HPSAs designated in Madison County.

[1]Ohio County Profiles: Office of Strategic Research. Ohio Department of Development, 2007.
[2]Health Insurance Coverage in Ohio 2004: The Role of Public and Private Programs in Assuring Access to Health Care: Results from the Ohio Family Health Survey. Ohio Department of Job and Family Services, March 2005.
For description of Primary Care Health Professional Shortage Areas see Technical Note (1).

## Leading Causes of Death

Leading causes of death may differ in a population depending on the age, sex, race and socioeconomic status of individuals within a population. As indicated in Table 4, chronic diseases, particularly heart disease, stroke, diabetes, and cancer, along with unintentional injuries such as poisonings, motor vehicle traffic crashes and falls, accounted for the majority of all the deaths in Madison County during 2004-2006. These leading-causes-of-death may also result in extended pain and suffering for the individuals and a decreased quality of life. The diseases on this list are the primary causes of disability and contribute heavily to the burden of health care costs not only for residents of Madison County but for all Ohioans.

Table 4. Average Annual Number of Deaths and Average Annual Age-adjusted Mortality Rates (per 100,000 Population) among Madison County Residents with Comparison to Ohio, 2004-2006, and to the United States, 2005.[1, 2, 3]

| Causes-of-Death | Madison County | | | Ohio | | U.S. | |
|---|---|---|---|---|---|---|---|
| | Rank | Number of Deaths | Age-adjusted Rate | Number of Deaths | Age-adjusted Rate | Number of Deaths | Age-adjusted Rate |
| All Deaths | - | 337 | 860.1 | 107,217 | 855.0 | 2,447,910 | 798.8 |
| Diseases of the Heart | 1 | 85 | 218.9 | 28,617 | 225.3 | 649,399 | 210.3 |
| Cancer | 2 | 77 | 191.7 | 24,825 | 198.8 | 559,300 | 183.8 |
| Chronic Lower Respiratory Diseases | 3 | 21 | 54.7 | 6,170 | 49.2 | 130,957 | 43.2 |
| Stroke | 4 | 16 | 41.8 | 6,183 | 48.6 | 143,497 | 46.6 |
| Unintentional Injury | 4 | 16 | 38.2 | 4,473 | 37.6 | 114,876 | 38.1 |
| Diabetes Mellitus | 6 | 16 | 39.6 | 3,717 | 29.7 | 74,817 | 24.5 |
| Influenza and Pneumonia | 7 | 11 | 28.7 | 2,191 | 17.2 | 62,804 | 20.3 |
| Nephritis, Nephrotic Syndrome and Nephrosis | 8 | 9 | 24.3 | 1,834 | 14.5 | 43,679 | 14.3 |
| Alzheimer's Disease | 9 | 8 | 21.5 | 3,321 | 25.6 | 71,696 | 22.9 |
| Septicemia | 10 | 4 | 10.3 | 1,399 | 11.2 | 34,142 | 11.2 |

[1]Deaths and rates from Statistical Analyses Unit, Office of Vital Statistics, Ohio Department of Health, 2008.
[2]U.S. Data from National Vital Statistics Reports 2005. CDC, 2008.
[3]Rank based on number of deaths.
For age-adjustment and causes of death definitions, see Technical Note (2).

- In Madison County, an average of 337 residents died each year during 2004-2006.
- The leading cause of death for Madison County residents was heart disease during 2004-2006, causing an average of 85 deaths annually.
- Cancer was the second-leading cause-of-death for Madison County residents resulting in average of 77 deaths each year, while chronic lower respiratory diseases was the third-leading causes of death for Madison County residents during 2004-2006.

Individuals who have high blood pressure, high cholesterol, low fruit and vegetable intake, low levels of physical activity, use tobacco products or drink heavily are at a higher risk of developing at least one of the leading causes-of-death diseases including diseases of the heart, cancer, stroke and diabetes. There is evidence that people can reduce their risk of developing these diseases by increasing their fruit and vegetable consumption, eliminating the use of tobacco products and heavy drinking and increasing their amount of physical activity. Regular doctor visits and screening procedures can also increase a person's chance of survival by aiding in proper chronic disease management.

Together, prevention and early detection may reduce the overall incidence and mortality of certain causes of death by increasing the prevalence of symptom awareness and screening procedures and reducing risk factor behaviors within a population.

## Risk Factor Behaviors

Table 5. Estimated Prevalence (Percent) of Selected Risk Factors among Adult Residents in Madison County with Comparison to Ohio, 2004-2007.[1-7]

| Chronic Disease Risk Factors | Madison County | | | Ohio | | |
|---|---|---|---|---|---|---|
| | Male | Female | All Residents | Male | Female | All Residents |
| Heavy Drinking | 6.9% | 5.2% | 6.1% | 4.0% | 6.2% | 5.4% |
| Current Cigarette Smoking | 25.2% | 21.6% | 23.6% | 22.6% | 29.9% | 23.6% |
| Current Use of Smokeless Tobacco | 5.6% | 0.2% | 3.2% | 0.2% | 2.7% | 2.7% |
| Consuming <5 Fruits/Vegetables Per Day | 81.8% | 74.6% | 78.5% | 73.9% | 80.1% | 78.4% |
| Lack of Physical Activity | 18.1% | 25.9% | 21.6% | 26.8% | 28.4% | 24.2% |
| Overweight | 42.6% | 31.1% | 37.4% | 29.4% | 30.7% | 35.9% |
| Obese | 31.3% | 25.1% | 28.5% | 25.6% | 32.4% | 26.3% |

[1]2004-2007 Ohio Behavioral Risk Factor Surveillance System; Chronic Disease and Behavioral Epidemiology, Bureau of Health Surveillance – Prevention, Ohio Department of Health, April 2008.
[2]Heavy Drinking = Men having more than 2 drinks/day, women having more than 1 drink/day.
[3]Current Cigarette Smoking = Persons who reported smoking at least 100 cigarettes in their lifetime and currently smoke every day or some days.
[4]Current Use of Smokeless Tobacco = Persons who reported using smokeless tobacco at least 100 times in their lifetime and currently use smokeless tobacco every day or some days.
[5]Lack of Physical Activity = Persons who failed to participate in moderate physical activity for 30 or more minutes per day on five or more days per week; or vigorous physical activity for 20 or more minutes per day on three or more days per week.
[6]Overweight = Body Mass Index (BMI) of 25-29.9.
[7]Obese = BMI of 30.0 or greater.
For description of Ohio Behavioral Risk Factor Surveillance System data and analyses, see Technical Note (3).

- 6.1 percent of Madison County adults reported heavy drinking of alcoholic beverages. Heavy drinking is associated with cancers of the oral cavity and gastrointestinal system; heart disease and stroke; unintentional injuries, e.g. motor vehicle crashes, falls; and intentional injuries, e.g. homicide and suicide (Rehm J, Room R, Monteiro M, *et al*, 2004).

- In Madison County, 23.6 percent of adults currently smoke cigarettes. Smoking is the leading preventable cause of disease and premature death in Ohio (Ohio Department of Health, 2006). Cigarette smoking is not only causally associated with lung cancer, but also nine other sites/types of cancer, heart disease, stroke, chronic lower respiratory disease, and numerous adverse reproductive outcomes including low birth-weight and infant death.

- Similar to Ohio as a whole, males are more likely to use smokeless tobacco than females in Madison County. Smokeless tobacco use has been causally associated with cancers of the oral pharynx (Ezzati M and Lopez AD, 2004).

- Of the adults in Madison County, 78.5 percent reported consuming fewer than the minimum recommended five servings of fruits and vegetables daily. Increasing individual fruit and vegetable consumption to five or more servings a day could reduce the burden of heart disease, stroke and cancers of the esophagus, lung, colon and rectum (Lock K, Pomperlean J, Causer L, and McKee M, 2004).

- Physical inactivity is an important risk factor for overweight, obesity and multiple chronic diseases including heart disease, stroke, type II diabetes and cancers of the colon and breast (Bull FC, Armstrong TP, Dixon T, *et al*, 2004). In Madison County, 21.6 percent of adult residents are physically inactive.

- A high body mass index (BMI) is an indicator of being overweight or obese. In Madison County, 37.4 percent of adults are overweight, while 28.5 percent of adults are obese. Being overweight or obese is associated with amplified risk for several chronic diseases, particularly if the excess body fat is deposited within the abdomen (James WPT, Jackson-Leach R, Mhurcha CN, *et al*, 2004). Disease outcomes associated with excess body weight include type II diabetes, heart disease, stroke, osteoarthritis and cancers of the breast, colon, endometrium, and kidney.

## Heart Disease and Stroke

In both the United States and Ohio, heart disease and stroke are the first- and third-leading causes of death respectively (CDC, 2007). The American Heart Association and National Stroke Association have identified several risk factors for heart disease and stroke (American Heart Association, 2008 and National Stroke Association, 2008). Among these are modifiable risk factors that can be managed with lifestyle changes and/or medications. The modifiable risk factors include diabetes, high cholesterol, obesity, smoking, physical inactivity and low fruit and vegetable consumption. Non-modifiable risk factors for heart disease and stroke include increasing age, male gender and a family history of cardiovascular disease.

### *Cholesterol and Blood Pressure Awareness*

Table 6. Estimated Prevalence (Percent) of Having Cholesterol Checked, Elevated Cholesterol and High Blood Pressure, among Adult Madison County Residents with Comparison to Ohio, 2004, 2006, 2007.[1, 2, 3]

| Cholesterol and Blood Pressure Awareness | Madison County/ Central Region | Ohio |
|---|---|---|
| Had Cholesterol Checked within the Past 5 Years | | |
| Males | 68.1% | 71.0% |
| Females | 72.5% | 75.3% |
| All Residents | 70.4% | 73.2% |
| Ever Told Cholesterol was High | | |
| Males | 41.3% | 39.9% |
| Females | 36.1% | 36.2% |
| All Residents | 38.5% | 37.9% |
| Ever Told had High Blood Pressure | | |
| Males | 26.3% | 27.9% |
| Females | 25.9% | 27.4% |
| All Residents | 26.1% | 27.6% |

[1]2004, 2006, 2007 Ohio Behavioral Risk Factor Surveillance System; Chronic Disease and Behavioral Epidemiology, Bureau of Health Surveillance – Prevention, Ohio Department of Health, April, 2008.
[2]Respondents who reported having been told by a health care professional that their cholesterol level was high.
[3]Respondents who reported having been told by a health care professional that their blood pressure was high.
For description of Ohio Behavioral Risk Factor Surveillance System data and analyses, see Technical Note (3).

- 70.4 percent of Madison County adult residents reported having their cholesterol checked in the past five years.
- 38.5 percent of Madison County adult residents reported having ever been told their cholesterol was high.
- In general, black Americans have a higher prevalence of high blood pressure, heart disease, and stroke, compared to white Americans (American Heart Association, 2008).
- In Madison County, 26.1 percent of the adult residents reported having high blood pressure.

## Heart Disease and Stroke, Continued

### *Prevalence of Heart Disease and Stroke*

Table 7. Estimated Prevalence (Percent) of Heart Attacks, Angina or Coronary Heart Disease or Stroke among Madison County Adults with Comparison to Ohio, 2004, 2006, 2007.[1, 2, 3, 4]

| Heart Attack, Coronary Heart Disease or Stroke | Madison County/ Central Region | Ohio |
|---|---|---|
| Ever Told had a Heart Attack | | |
| White | 3.8% | 6.0% |
| Black | 2.9% | 3.6% |
| All Residents | 3.4% | 4.7% |
| Ever Told had Angina or Coronary Heart Disease | | |
| White | 4.0% | 5.5% |
| Black | 3.3% | 4.2% |
| All Residents | 3.6% | 4.8% |
| Ever Told had a Stroke | | |
| White | 1.8% | 2.6% |
| Black | 2.5% | 3.0% |
| All Residents | 2.2% | 2.8% |

[1]2004, 2006, 2007 Ohio Behavioral Risk Factor Surveillance System; Chronic Disease and Behavioral Epidemiology, Bureau of Health Surveillance – Prevention, Ohio Department of Health, April 2008.
[2]Respondents who reported being told by a health care professional they have had a heart attack.
[3]Respondents who reported being told by a health care professional they have angina or coronary heart disease.
[4]Respondents who reported being told by a health care professional they have had a stroke.
For description of Ohio Behavioral Risk Factor Surveillance System data and analyses, see Technical Note (3).

- High cholesterol contributes to the buildup of plaque in a person's arteries known as atherosclerosis. Over time, atherosclerosis reduces the blood flow in the arteries and increases an individual's blood pressure, leading to an increased risk of a heart attack or stroke (American Heart Association, 2007).

- In Madison County during 2004, 2006 and 2007, 3.4 percent of the adult residents reported ever having a heart attack.

- Males have a higher risk of having a heart attack than females and these heart attacks typically occur earlier in life (American Heart Association, 2008).

- Angina is the most common symptom of coronary heart disease, which is the primary type of heart disease (CDC, 2007).

- 3.6 percent of Madison County adult residents have previously been told they have angina or coronary heart disease.

- In Madison County, 2.2 percent of adult residents have been told they have had a stroke.

- Stroke is more common in males; however, at all ages, more women die as a result of a stroke than men (American Heart Association, 2007).

## Heart Disease and Stroke, Continued

### *Heart Attack and Stroke Symptom Awareness and Response*

Recognition of the warning signs of a heart attack or stroke and the need to call 911 are critical to improving outcomes of heart attacks and strokes. A person's chance of surviving a heart attack is increased if emergency treatment is administered as soon as possible. Similarly, the sooner a person is taken to a hospital for emergency care after the onset of stroke symptoms the better the outcome.

Table 8. Estimated Prevalence (Percent) of Heart Attack and Stroke Symptom Awareness and the Response to a Heart Attack or a Stroke among Adult Madison County Residents with Comparison to Ohio, 2004, 2006, 2007.[1, 2]

| Heart Attack and Stroke Symptom Recognition and Response | Madison County/ Central Region | Ohio |
|---|---|---|
| Recognized All Five Symptoms of a Heart Attack | | |
| Males | 34.8% | 31.0% |
| Females | 44.9% | 42.6% |
| All Residents | 40.1% | 37.0% |
| Recognized All Five Symptoms of a Stroke | | |
| Males | 46.9% | 41.1% |
| Females | 47.5% | 48.2% |
| All Residents | 47.2% | 44.6% |
| Know to Call 911 in Response to Someone Having a Heart Attack or Stroke | | |
| Males | 89.3% | 88.4% |
| Females | 94.6% | 91.2% |
| All Residents | 92.1% | 89.9% |

[1]2004, 2006, 2007 Ohio Behavioral Risk Factor Surveillance System; Chronic Disease and Behavioral Epidemiology, Bureau of Health Surveillance – Prevention, Ohio Department of Health, April 2008.
For description of Ohio Behavioral Risk Factor Surveillance System data and analyses, see Technical Note (3).

- 40.1 percent of Madison County adult residents recognized all five symptoms of a heart attack, 47.2 percent recognized all five symptoms of a stroke and 92.1 percent knew to call 911 in response to someone having a heart attack or stroke.

**Heart Attack Warning Signs:**

Some heart attacks may be sudden and intense, while others may start slowly with mild discomfort.

- Pain or discomfort in areas of the upper body such as the shoulder, back, neck, jaw, stomach or in one or both arms.
- Chest discomfort that may or may not be accompanied by lightheadedness, shortness of breath, cold sweats or nausea.
- Pressure or pain in the center of the chest that lasts more than a few minutes.

**Stroke Warning Signs:**

- Sudden weakness or numbness in the face, arm, leg or on one side of the body.
- Sudden trouble seeing in one or both eyes, dimness or loss of vision, particularly in one eye.
- Sudden confusion, trouble speaking or understanding, loss of speech.
- Sudden, severe headache with no apparent cause.
- Sudden dizziness, trouble walking, loss of balance or coordination or sudden falls, especially along with any of the previous symptoms.

# Heart Disease and Stroke, Continued

## *Heart Disease Mortality*

Table 9. Average Annual Number of Deaths and Age-adjusted and Age-specific Mortality Rates (per 100,000 Population) for Heart Disease among Madison County Residents with Comparison to Ohio, 2004-2006.[1]

| Heart Disease Mortality | Madison County | | Ohio | |
|---|---|---|---|---|
| | Number of Deaths | Rates | Number of Deaths | Rates |
| Age-adjusted | | | | |
| Males | 41 | 247.3 | 14,029 | 282.4 |
| Females | 45 | 190.4 | 14,588 | 182.6 |
| All Residents | 85 | 218.9 | 28,617 | 225.3 |
| Age-specific (Years) | | | | |
| ≤ 24 | <1 | 2.5 | 72 | 1.9 |
| 25-49 | 3 | 20.8 | 1,399 | 34.9 |
| 50-64 | 16 | 227.2 | 3,829 | 188.8 |
| 65+ | 66 | 1,374.0 | 23,317 | 1526.4 |

[1]Deaths and rates from Statistical Analyses Unit, Office of Vital Statistics, Ohio Department of Health, 2008. Populations used were from U.S. Census/National Center for Health Statistics bridged population estimates, 2006 vintage.
For description of age-adjusted rates and cause of death definitions, see Technical Note (2).

- Heart disease is the leading cause of death in the United States and Ohio. During 2004-2006, there was an average of 85 heart disease deaths each year in Madison County.
- During 2004-2006, more females died of heart disease than males annually in Madison County.
- At older ages, females are more likely to die from a heart attack within a few weeks of having the attack, compared to males (American Heart Association, 2008).

- The risk of dying from heart disease increases with increasing age (American Heart Association, 2008). During 2004-2006, an average of 66 Madison County residents age 65 and older, died each year from heart disease.

## *Stroke Mortality*

Table 10. Average Annual Number of Deaths and Age-adjusted and Age-specific Mortality Rates for Stroke among Madison County Residents with Comparison to Ohio, 2004-2006.[1]

| Stroke Mortality | Madison County | | Ohio | |
|---|---|---|---|---|
| | Number of Deaths | Rates | Number of Deaths | Rates |
| Age-adjusted | | | | |
| Males | 6 | 36.4 | 2,350 | 48.8 |
| Females | 10 | 43.7 | 3,833 | 47.8 |
| All Residents | 16 | 41.8 | 6,183 | 48.6 |
| Age-specific (Years) | | | | |
| ≤ 24 | 0 | 0.0 | 21 | 0.5 |
| 25-49 | <1 | 2.1 | 208 | 5.2 |
| 50-64 | 2 | 24.2 | 552 | 27.2 |
| 65+ | 14 | 291.5 | 5,403 | 353.7 |

- Stroke is the third-leading cause of death in Ohio. During 2004-2006, an average of 16 Madison County residents died each year from stroke.
- Even though a stroke can occur at any age, an individual's risk of dying from a stroke increases as the individual ages, with the risk of having a stroke doubling every decade after the age of 55 (National Stroke Association, 2008).

[1]Deaths and rates from Statistical Analyses Unit, Office of Vital Statistics, Ohio Department of Health, 2008. Populations used were from U.S. Census/National Center for Health Statistics bridged population estimates, 2006 vintage.
For description of age-adjusted rates and cause of death definitions, see Technical Note (2).

## Cancer

Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells. Cancer can spread throughout various parts of the body and result in death if not controlled. The use of tobacco products, physical inactivity, obesity, poor nutrition and heavy drinking of alcohol are a few behaviors that increase an individual's risk for developing cancer and are lifestyle factors that can be prevented (American Cancer Society, 2008).

During 2001-2005, cancer was a major cause of illness and death in Ohio and all of the 88 counties. There was an average of 174 new invasive cancers and 80 cancer deaths per year among Madison County residents during 2001-2005.

### *Screening Behaviors*

Cancer treatment is often most effective if the cancer is detected at an early stage through screening; thus, early detection is associated with an increased probability of survival (American Cancer Society, 2008). The estimated prevalence of selected cancer screening behaviors: PAP tests for cervical cancer, mammography for breast cancer, colonoscopy/sigmoidoscopy for colorectal cancer and prostate-specific antigen test and digital rectal exam (DRE) for prostate cancer, for the years 2004-2007, are presented in Table 11.

Table 11. Estimated Prevalence (Percent) of Selected Cancer Screening Behaviors among Adult Residents in Madison County with Comparison to Ohio, 2004-2007.[1]

| Cancer Screening Behaviors | Madison County | | | Ohio | | |
|---|---|---|---|---|---|---|
| | Male | Female | All | Male | Female | All |
| PAP Test in Past Three Years (Age 18+, Intact Cervix) | *N/A | 84.5% | *N/A | *N/A | 88.8% | *N/A |
| Mammography in Past Two Years (Age 40+) | *N/A | 74.3% | *N/A | *N/A | 79.1% | *N/A |
| Colonoscopy/Sigmoidoscopy in Past Five Years (Age 50+) | 50.1% | 48.7% | 49.4% | 59.2% | 52.6% | 55.7% |
| Prostate-specific Antigen (PSA) Test in Past Year (Age 50+) | 50.7% | *N/A | *N/A | 57.5% | *N/A | *N/A |
| DRE in Past Year (Age 50+) | 56.6% | *N/A | *N/A | 57.5% | *N/A | *N/A |

[1]Ohio Behavioral Risk Factor Surveillance System; Chronic Disease and Behavioral Epidemiology, Bureau of Health Surveillance – Prevention, Ohio Department of Health, 2008.
For a description of the Ohio Behavioral Risk Factor Surveillance System, sampling, and data analyses, see Technical Note (3).

### *Incidence and Mortality*

- Everyone is at risk of developing cancer. This risk increases with age, with the majority of cancers diagnosed at age 55 and older (National Cancer Institute, 2005). In the United States, men and women have about a one-in-three lifetime risk of developing invasive cancer.

- Cancer of the prostate is the most common site among Ohio males, followed by lung and bronchus and colon and rectum (American Cancer Society, Ohio Division, Ohio Department of Health and The Ohio State University, 2007).

- Of the reportable cancers in Ohio, breast cancer is the most common site among females, followed by lung and bronchus and colorectal cancer (American Cancer Society, Ohio Division, Ohio Department of Health and The Ohio State University, 2007). If detected early, cervical cancer may be one of the most successfully treated cancers with a five-year survival probability of nearly 100 percent (American Cancer Society, 2008).

- Nearly all skin cancers are preventable by avoiding excessive exposure to ultraviolet radiation from sunlight or tanning lamps (American Cancer Society, Ohio Division, Ohio Department of Health and The Ohio State University, 2007). Sunburns especially should be avoided. Most skin cancers, even melanoma, can be treated successfully, if found and treated early.

## Cancer, continued

### *Incidence and Mortality, Continued*

Table 12. Average Annual Number and Age-adjusted Rates (per 100,000 Population) of Invasive Cancer Cases and Cancer Deaths, by Selected Sites/Types, among Madison County Residents with Comparison to Ohio, 2001-2005.[1, 2]

| Cancer Site/Type | Incidence | | | Mortality | | |
|---|---|---|---|---|---|---|
| | Madison County | | Ohio | Madison County | | Ohio |
| | Cases | Rate | Rate | Deaths | Rate | Rate |
| All Sites | 174 | 437.8 | 465.1 | 80 | 207.6 | 203.3 |
| Breast (Female) | 23 | 113.6 | 121.9 | 8 | 40.1 | 27.5 |
| Cervix | 2 | 8.6 | 7.9 | 1 | 6.2 | 2.4 |
| Colon and Rectum | 16 | 40.0 | 52.9 | 7 | 18.1 | 20.6 |
| Lung and Bronchus | 33 | 85.0 | 75.0 | 24 | 61.6 | 60.3 |
| Melanoma of the Skin | 6 | 14.3 | 17.0 | <1 | N.R. | 2.6 |
| Prostate | 24 | 122.0 | 145.7 | 3 | 25.0 | 27.8 |

[1]Ohio Cancer Incidence Surveillance System; Chronic Disease and Behavioral Epidemiology, Bureau of Health Surveillance – Prevention/Statistical Analyses Unit, Office of Vital Statistics, Ohio Department of Health, 2008.
[2]Rates are per 100,000 and are gender specific for cancers of the breast, cervix and prostate.
*N/A = Not applicable.
N.R. = No Rate
*Definitions of the cancer sites/types by ICD coding and description of the calculation of rates are provided in Technical Note (4).

Table 13. Average Annual Number and Age-adjusted Rates (per 100,000 Population) of Invasive Cancer Cases and Cancer Deaths, by Selected Sites/Types, among Madison County Residents, 2001-2005.[1, 2]

| Cancer Incidence | Madison County | | | | | |
|---|---|---|---|---|---|---|
| | Male | | Female | | Total | |
| | Cases | Rate | Cases | Rate | Cases | Rate |
| All Sites | 94 | 504.7 | 81 | 392.4 | 174 | 437.8 |
| Breast | <1 | N.R. | 23 | 113.6 | 23 | *N/A |
| Cervix | *N/A | *N/A | 2 | 8.6 | 2 | *N/A |
| Colon and Rectum | 10 | 56.6 | 6 | 27.4 | 16 | 40.0 |
| Lung and Bronchus | 19 | 109.2 | 14 | 67.8 | 33 | 85.0 |
| Melanoma of the Skin | 4 | 19.4 | 2 | 9.6 | 6 | 14.3 |
| Prostate | 24 | 122.0 | *N/A | *N/A | 24 | *N/A |

| Cancer Mortality | Madison County | | | | | |
|---|---|---|---|---|---|---|
| | Male | | Female | | Total | |
| | Deaths | Rate | Deaths | Rate | Deaths | Rate |
| All Sites | 40 | 247.3 | 40 | 187.7 | 80 | 207.6 |
| Breast | <1 | N.R. | 8 | 40.1 | 9 | *N/A |
| Cervix | *N/A | *N/A | 1 | 6.2 | 1 | *N/A |
| Colon and Rectum | 4 | 24.5 | 3 | 13.8 | 7 | 18.1 |
| Lung and Bronchus | 14 | 81.4 | 10 | 47.1 | 24 | 61.6 |
| Melanoma of the Skin | <1 | N.R. | <1 | N.R. | <1 | N.R. |
| Prostate | 3 | 25.0 | *N/A | *N/A | 3 | *N/A |

[1]Ohio Cancer Incidence Surveillance System; Chronic Disease and Behavioral Epidemiology, Bureau of Health Surveillance – Prevention and the Statistical Analyses Unit, Office of Vital Statistics, Ohio Department of Health, 2008.
N/A = Not applicable
N.R. = No Rate
*Definitions of the cancer sites/types by ICD coding and description of the calculation of rates are provided in Technical Note (4).

## Diabetes

Diabetes is a group of diseases in which blood glucose levels are high as a result of defects in insulin production, insulin inaction or both (Centers for Disease Control and Prevention, 2005). In 2004-2006, diabetes was the sixth-leading cause of death in Ohio and in the United States. Diabetes can cause a number of serious health issues including blindness, kidney failure and heart disease.

There are different types of diabetes with different risk factors for the disease (Centers for Disease Control and Prevention, 2005). Type I diabetes typically strikes children and young adults. Type I diabetes accounts for 5 percent to 10 percent of all diagnosed cases of diabetes. Risk factors for type I diabetes include autoimmune, environmental and genetic factors. Type II diabetes usually strikes adults and accounts for 90 percent to 95 percent of all diagnosed diabetes cases. Risk factors for type II diabetes include older age, obesity, family history of diabetes, impaired glucose metabolism or pre-diabetes, history of gestational diabetes and physical inactivity. Gestational diabetes is a form of glucose intolerance diagnosed during pregnancy in some women. Other types of diabetes account for 1 percent to 5 percent of all diagnosed cases. Risk factors for these other types include infections and other illnesses, malnutrition, specific genetic diseases (such as maturity-onset diabetes of youth), drugs and surgery.

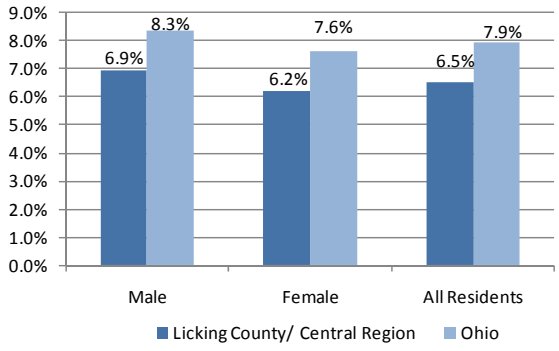
### *Pre-diabetes Prevalence*

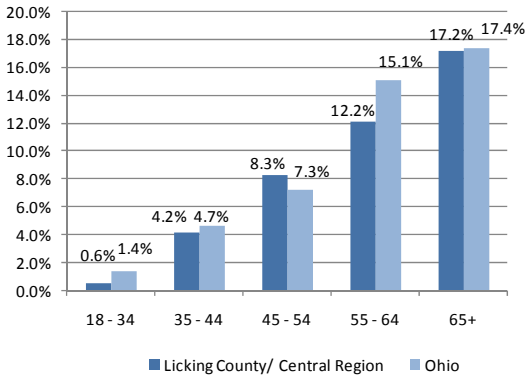
Pre-diabetes is a condition in which blood glucose levels are higher than normal but not high enough to be classified as diabetes (Centers for Disease Control and Prevention, 2005). People with pre-diabetes have increased risk of developing type II diabetes, heart disease and stroke.

There have been no population-based studies of the prevalence of pre-diabetes in Ohio. However, data from the National Health and Nutrition Examination Surveys for 1999-2000 indicate a pre-diabetes prevalence of 6.2 percent for persons aged 20 years and older (Cowie CC, Rust KF, Byrd-Holf D, *et al*, 2003). Among overweight adults age 45-74 years, the prevalence of pre-diabetes increased from 6.2 percent to 22.6 percent (Benjamin SM, Valdez R, Geiss LS, *et al*, 2003).

### *Diabetes Prevalence*

Figure 1 and Figure 2. Estimated Prevalence (Percent) of Diabetes among Madison County Adult Residents, by Gender (Figure 1) and by Age (Figure 2), with Comparison to Ohio, 2004-2007. [1,2]




[1]Ohio Behavioral Risk Factor Surveillance System; Chronic Disease and Behavioral Epidemiology, Bureau of Health Surveillance – Prevention, Ohio Department of Health, 2008.
[2]Respondents who were told by a health care professional they have diabetes.
For a description of the Ohio Behavioral Risk Factor Surveillance System, sampling, and data and analyses, see Technical Note (3).

- In general, adult females have a greater risk of developing diabetes compared to adult males. In Madison County during 2004-2007, 6.2 percent of adult females had diabetes, compared to 6.9 percent of adult males.

# Diabetes, Continued

## *Diabetes Management Practices*

Table 14. Estimated Prevalence (Percent) of Diabetes Management Practices among Madison County Adult Residents with Comparison to Ohio and the United States 2004-2007.[1]

| Diabetes Management Behaviors | Licking County/ Central Region | Ohio | U.S. |
|---|---|---|---|
| Annual Dilated-Eye Exam | 67.7% | 70.3% | 69.4% |
| Daily Self-monitoring of Blood Glucose | 64.6% | 63.0% | 63.0% |
| Annual Foot Exam | 64.6% | 67.4% | 68.7% |
| Annual Doctor Visit | 89.7% | 89.4% | 88.9% |
| Daily Self-exam of Feet | 72.2% | 66.0% | 67.9% |
| 2+ A1c Tests Past Year | 75.3% | 72.9% | 68.7% |
| Attended Diabetes Self-management Class | 50.7% | 55.0% | 53.1% |
| Annual Influenza Vaccine | 58.9% | 57.5% | 49.8% |
| Ever Had Pneumococcal Vaccine | 53.4% | 52.0% | 49.0% |

[1]Ohio Behavioral Risk Factor Surveillance System; Chronic Disease and Behavioral Epidemiology, Bureau of Health Surveillance – Prevention, Ohio Department of Health, 2008.
For a description of the Ohio Behavioral Risk Factor Surveillance System, sampling and data and analyses, see Technical Note (3).

- It is essential for individuals with diabetes to be aware of the health issues associated with diabetes and to properly manage the disease to help avoid disease complications.
- Of the Madison County adult residents with diabetes, 64.6 percent monitor their blood glucose levels daily, 89.7 percent visit a doctor yearly, and 72.2 percent check their feet daily.

## *Diabetes Mortality*

Table 15. Average Annual Number of Deaths and Average Annual Age-adjusted and Age-specific Diabetes Mortality Rates (per 100,000 Population) among Madison County Residents with Comparison to Ohio, 2004-2006.[1]

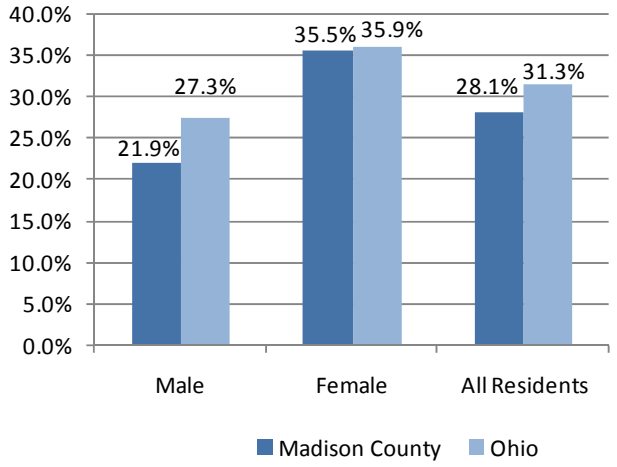
| Diabetes Mortality | Madison County | | Ohio | |
|---|---|---|---|---|
| | Number of Deaths | Rates | Number of Deaths | Rates |
| Age-adjusted | | | | |
| Males | 7 | 42.9 | 1,812 | 35.3 |
| Females | 8 | 38.5 | 1,905 | 25.6 |
| All Residents | 16 | 39.6 | 3,717 | 29.7 |
| Age-specific (Years) | | | | |
| ≤ 24 | 0 | 0.0 | 9 | 0.2 |
| 25-49 | 1 | 8.3 | 222 | 5.5 |
| 50-64 | 4 | 53.2 | 687 | 33.9 |
| 65+ | 11 | 222.1 | 2,799 | 183.2 |

- During 2004-2006, diabetes killed an average of 16 people in Madison County each year.
- The risk of developing type II diabetes increases with age. In Madison County during 2004-2006, individuals age 65 and older, had the highest diabetes mortality rate compared to all other ages groups, with a rate of 222.1 per 100,000.

[1]Deaths and rates from Statistical Analyses Unit, Office of Vital Statistics, Ohio Department of Health, 2008.
For definitions of cause of death by ICD Codes and description of calculation of rates, see Technical Note (2).

## Arthritis

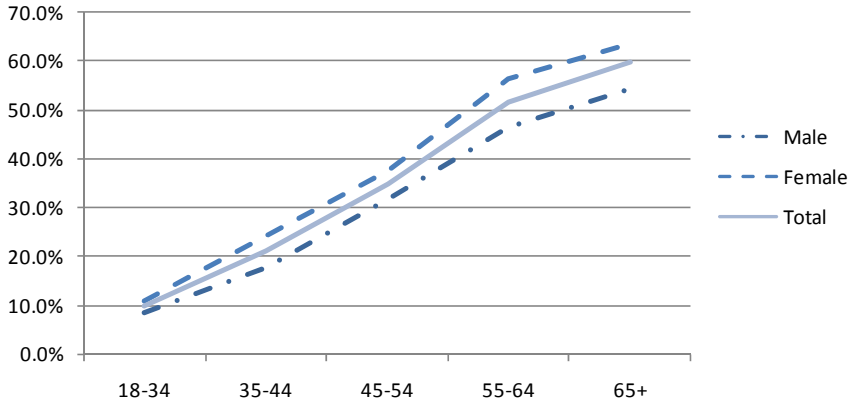
Figure 3. Estimated Prevalence (Percent) of Arthritis among Madison County and Ohio Adult Residents, 2004-2007.[1, 2]




[1]2004-2007 Ohio Behavioral Risk Factor Surveillance System; Chronic Disease and Behavioral Epidemiology, Bureau of Health Surveillance – Prevention, Ohio Department of Health, 2008.
[2]Respondents who were told by a health care professional they have arthritis.
For a description of the Ohio Behavioral Risk Factor Surveillance System, sampling, and data and analyses, see Technical Note (3).

- About 28.1 percent of Madison County adults have arthritis.
- The estimated prevalence of arthritis among Ohio adult residents ranges from a low of 25.6 percent in Athens County to a high of 35.2 percent in Ottawa County.
- Arthritis is not just one disease but more than 100 different diseases and conditions (CDC, 2008). The most frequently occurring is osteoarthritis. Other common forms include rheumatoid arthritis, lupus, fibromyalgia and gout.

Figure 4. Estimated Prevalence (Percent) of Arthritis among Ohio Residents by Age, 2004-2007.[1, 2]




[1]2004-2007 Ohio Behavioral Risk Factor Surveillance System; Chronic Disease and Behavioral Epidemiology, Bureau of Health Surveillance – Prevention, Ohio Department of Health, 2008.
[2]Respondents who were told by a health care professional they have arthritis.
For a description of the Ohio Behavioral Risk Factor Surveillance System, sampling, and data and analyses, see Technical Note (3).

- Arthritis is the nation's most common cause of disability (CDC, 2008).
- The most frequent symptoms of arthritis include aching, pain, stiffness or swelling in or around the joints (CDC, 1999). Some types of arthritis, such as rheumatoid arthritis and lupus, can effect multiple organs and cause widespread symptoms.
- The prevalence of arthritis increases sharply with increasing age.

- Weight control and injury prevention can reduce the risk of developing osteoarthritis (CDC, 2008).
- The disability and pain that accompany arthritis can be avoided or reduced through early diagnosis and appropriate management, including self-management activities such as weight control and physical activity (CDC, 2008).

# Unintentional and Intentional Injuries

On average, 18 Ohioans lose their lives each day as a result of an unintentional or intentional injury. Males are at greater risk than females for intentional and unintentional injury-related death at nearly all ages. For Ohioans of all ages, the leading causes of injury-related death include unintentional motor vehicle traffic crashes, suicide, unintentional poisonings, unintentional falls and homicides.

## *All Fatal Unintentional Injuries*

Table 16. Average Annual Number of Deaths and Average Annual Age-adjusted and Age-specific Mortality Rates (per 100,000 Population) for All Unintentional Fatal Injuries among Madison County Residents with Comparison to Ohio, 2004-2006.[1]

| Unintentional Fatal Injury: All | Madison County | | Ohio | |
|---|---|---|---|---|
| | Number of Deaths | Rates | Number of Deaths | Rates |
| Age-adjusted | | | | |
| Males | 9 | 43.5 | 2,775 | 51.3 |
| Females | 7 | 31.9 | 1,698 | 25.2 |
| All Residents | 16 | 38.2 | 4,473 | 37.6 |
| Age-specific (Years) | | | | |
| ≤ 24 | 2 | 12.3 | 714 | 18.3 |
| 25-49 | 6 | 35.4 | 1,524 | 38.0 |
| 50-64 | 4 | 58.0 | 711 | 35.0 |
| 65+ | 5 | 97.2 | 1,524 | 99.8 |

[1]Deaths and rates from Injury Prevention Program/Statistical Analyses Unit, Office of Vital Statistics, Ohio Department of Health, 2008. Populations used were from U.S. Census/National Center for Health Statistics bridged population estimates, 2006 vintage.
For description of age-adjusted rates and causes of death injury definitions, see Technical Note (5).

- Unintentional injury is the leading cause of death for Ohioans aged 1-34, and the fifth-leading cause of death for all age groups in Ohio.
- During 2004-2006, an average of 16 Madison County residents died each year as a result of an unintentional injury.
- Generally in Ohio, black males have slightly higher fatal unintentional injury rates, compared to white males, while white females' fatal unintentional injury rate is greater than that of black females.

## *Unintentional Fatal Falls*

Table 17. Average Annual Number of Deaths and Average Annual Age-adjusted and Age-specific Mortality Rates (per 100,000 Population) for Unintentional Fatal Falls among Madison County Residents with Comparison to Ohio, 2004-2006.[1]

| Unintentional Injury Mortality: Falls | Madison County | | Ohio | |
|---|---|---|---|---|
| | Number of Deaths | Rates | Number of Deaths | Rates |
| Age-adjusted | | | | |
| Males | 1 | 6.4 | 421 | 8.6 |
| Females | <1 | 1.3 | 400 | 5.0 |
| All Residents | 2 | 4.0 | 821 | 6.5 |
| Age-specific (Years) | | | | |
| ≤ 24 | 0 | 0.0 | 11 | 0.3 |
| 25-49 | <1 | 2.1 | 51 | 1.3 |
| 50-64 | 1 | 9.7 | 99 | 4.9 |
| 65+ | 1 | 13.9 | 661 | 43.3 |

[1]Deaths and rates from Statistical Analyses Unit, Office of Vital Statistics/Injury Prevention Program, Bureau of Health Promotion and Risk Reduction, Office of Healthy Ohio, Ohio Department of Health, May, 2008.
For description of calculation of rates and causes of injury death definitions, see Technical Note (5).

- Fatal fall rates increase directly with age and are greatest for Ohioans aged 65 and older. During 2004-2006, an average of 1 Madison County residents, age 65 and older, died each year as a result of a fall.
- Fatal falls among older adults are expected to rise as Ohio's population continues to age.
- Overall in Ohio, white males are at the greatest risk of dying from a fall, while black females are at the lowest risk.

# Unintentional and Intentional Injuries, Continued

## *Unintentional Fatal Poisonings*

Table 18. Average Annual Number of Deaths and Average Annual Age-adjusted and Age-specific Mortality Rates (per 100,000 Population) for Unintentional Fatal Poisonings among Madison County Residents with Comparison to Ohio, 2004-2006.[1]

| Unintentional Injury Mortality: Poisonings | Madison County | | Ohio | |
|---|---|---|---|---|
| | Number of Deaths | Rates | Number of Deaths | Rates |
| Age-adjusted | | | | |
| Males | <1 | 1.4 | 733 | 13.0 |
| Females | 1 | 3.2 | 379 | 6.5 |
| All Residents | 1 | 2.2 | 1,112 | 9.7 |
| Age-specific (Years) | | | | |
| ≤ 24 | 0 | 0.0 | 115 | 3.0 |
| 25-49 | 1 | 6.3 | 735 | 18.3 |
| 50-64 | 0 | 0.0 | 221 | 10.9 |
| 65+ | 0 | 0.0 | 41 | 2.7 |

[1]Deaths and rates from Statistical Analyses Unit, Office of Vital Statistics/Injury Prevention Program, Bureau of Health Promotion and Risk Reduction, Office of Healthy Ohio, Ohio Department of Health, May 2008.
For description of calculation of rates and causes of injury death definition see Technical Note (5).

- Rates of unintentional fatal poisonings have been increasing at alarming rates in Ohio due largely to unintentional drug overdoses and medication errors. Unintentional fatal poisoning rates have increased approximately ***200 percent*** from 1999–2006.
- During 2004-2006, an average of 1 Madison County resident died annually from an unintentional poisoning.
- In Ohio, black males and individuals aged 25-49 have the highest unintentional fatal poisoning rates.
- Unintentional poisoning death rates for males are at least twice as high as the rates for females in Ohio and in Madison County females had a higher unintentional poisoning rate than males during 2004-2006.

## *Unintentional Motor Vehicle Traffic Crashes*

Table 19. Average Annual Number of Deaths and Average Annual Age-adjusted and Age-specific Mortality Rates (per 100,000 Population) for Unintentional Motor Vehicle Crashes among Madison County Residents with Comparison to Ohio, 2004-2006.[1]

| Unintentional Injury Mortality: Motor Vehicle Traffic Crashes | Madison County | | Ohio | |
|---|---|---|---|---|
| | Number of Deaths | Rates | Number of Deaths | Rates |
| Age-adjusted | | | | |
| Males | 5 | 21.8 | 904 | 16.2 |
| Females | 2 | 11.5 | 416 | 6.8 |
| All Residents | 8 | 17.8 | 1,321 | 11.4 |
| Age-specific (Years) | | | | |
| ≤ 24 | 1 | 9.9 | 370 | 9.5 |
| 25-49 | 3 | 18.8 | 506 | 12.6 |
| 50-64 | 3 | 38.7 | 217 | 10.7 |
| 65+ | 1 | 13.9 | 228 | 14.9 |

[1]Deaths and rates from Statistical Analyses Unit, Office of Vital Statistics/Injury Prevention Program, Bureau of Health Promotion and Risk Reduction, Office of Healthy Ohio, Ohio Department of Health, May 2008.
For description of calculation of rates and causes of injury death definitions, see Technical Note (5).

- In Ohio, males are at greater risk for a fatal motor vehicle traffic crash than females in all age groups.
- An average of 8 Madison County residents died annually between 2004-2006 as a result of a motor vehicle traffic crash.
- Motor vehicle traffic crashes among older adults will continue to be growing concern as Ohio's population ages. During 2004-2006, Ohio residents 65 years of age and older had a motor vehicle traffic crash rate of 14.9 per 100,000, the highest crash rate of all the age groups.

## Unintentional and Intentional Injuries, Continued

### *Homicide*

Table 20. Average Annual Number of Homicides and Average Annual Age-adjusted and Age-specific Rates (per 100,000 Population) among Madison County Residents with Comparison to Ohio, 2004-2006.[1]

| Intentional Fatal Injury: Homicide | Madison County | | Ohio | |
|---|---|---|---|---|
| | Number of Deaths | Rates | Number of Deaths | Rates |
| Age-adjusted | | | | |
| Males | 1 | 2.7 | 1 | 5.5 |
| Females | 0 | 0.0 | 1 | 8.4 |
| All Residents | 1 | 1.6 | 150 | 2.6 |
| Age-specific (Years) | | | | |
| ≤ 24 | 0 | 0.0 | 211 | 5.4 |
| 25-49 | 1 | 4.2 | 315 | 7.8 |
| 50-64 | 0 | 0.0 | 63 | 3.1 |
| 65+ | 0 | 0.0 | 31 | 2.0 |

[1]Deaths and rates from Statistical Analyses Unit, Office of Vital Statistics/Injury Prevention Program, Bureau of Health Promotion and Risk Reduction, Office of Healthy Ohio, Ohio Department of Health, May 2008.
For description of calculation of rates and causes of injury death definitions, see Technical Note (5).

- Homicide is the ***leading cause of death*** for young, black Ohioans.
- During 2004-2006 in Madison County, an average of 1 individuals died each year due to homicide for a homicide death rate of 1.6.
- In Ohio, black males are at the greatest risk for homicide, with rates almost ***12 times*** higher than white males. Young black males are at the greatest risk of being victims of homicide.
- Firearm-related violence plays a large role in homicides in Ohio. Nearly eight out 10 homicides among black males in Ohio involve firearms.

### *Suicide*

Table 21. Average Annual Number of Suicide and Average Annual Age-adjusted and Age-specific Rates (per 100,000 Population) among Madison County Residents with Comparison to Ohio, 2004-2006.[1]

| Intentional Fatal Injury: Suicide | Madison County | | Ohio | |
|---|---|---|---|---|
| | Number of Deaths | Rates | Number of Deaths | Rates |
| Age-adjusted | | | | |
| Males | 3 | 14.7 | 1,053 | 18.8 |
| Females | <1 | 1.5 | 266 | 4.4 |
| All Residents | 3 | 8.0 | 1,319 | 11.3 |
| Age-specific (Years) | | | | |
| ≤ 24 | <1 | 2.5 | 192 | 4.9 |
| 25-49 | 1 | 6.3 | 616 | 15.3 |
| 50-64 | 1 | 14.5 | 312 | 15.4 |
| 65+ | 1 | 20.8 | 200 | 13.1 |

[1] Deaths and rates from Statistical Analyses Unit, Office of Vital Statistics/Injury Prevention Program, Bureau of Health Promotion and Risk Reduction, Office of Healthy Ohio, Ohio Department of Health, May 2008.
For description of calculation of rates and causes of injury death definitions, see Technical Note (5).

- In 2005, more than 32,000 suicides occurred in the United States (CDC, 2007). During 2004-2006, an average of 3 Madison County residents died each year from suicide.
- Although females attempt suicide at higher rates, males take their lives four times more often than females (CDC, 2007) and white adult males are at the greatest risk of committing suicide in Ohio.
- In Ohio, firearms are used in approximately half of the completed suicides and males (54 percent firearm related) are much more likely than females (29 percent firearm related) to commit suicide using a firearm.

## Child Health

### *Maternal Smoking*

- An analysis of Ohio birth certificates for the years 2004-2006, indicated 21.3 percent of mothers living in Madison County smoked cigarettes during their pregnancy. Throughout Ohio during 2004-2006 18.1 percent of mothers reported smoking cigarettes during their pregnancy. Maternal smoking in the individual counties during 2004-2006, ranged from a low of 6.9 percent in Delaware County to a high of 35.9 percent in Paulding County.
- Ohio birth data for the years 1999-2001 indicated 73.0 percent of deaths from sudden infant death syndrome (SIDS) and 55.4 percent of infants who were small for their gestational age were attributable to maternal smoking during pregnancy (Ohio Department of Health, 2006). Maternal smoking was also a risk factor for 38.8 percent of low birth-weight babies (babies weighing less than 2,500 grams), 25.4 percent of preterm low birth-weight babies and 22.4 percent of very low birth-weight (babies weighing less than 1,500 grams) Ohio babies.
- A recent study suggested mothers who smoked any time during the month before pregnancy to the end of the first trimester were more likely to have a baby with a birth defect, particularly congenital heart defects, than mothers who did not smoke during this time frame (March of Dimes, 2008).

### *Low Birth Weight*

- Babies born weighing less than 2,500 grams (5 pounds, 8 ounces) are considered low birth-weight (March of Dimes, 2008). Low birth-weight babies are at increased risk of serious health problems including chronic disabilities and even death.
- An analysis of Ohio birth certificates for the years 2004-2006 indicated 7.3 percent of babies born in Madison County were considered low birth weight babies. The statewide Ohio percentage for low birth-weight was 8.6 percent and the average annual percents for the counties in Ohio ranged from a low of 4.9 percent in Mercer County to a high of 11.9 percent in Lawrence County.
- Factors that increase the risk for low birth-weight babies include: fetal birth defects, maternal chronic health problems, maternal diabetes, maternal cigarette smoking, maternal infections, fetal infections, maternal use of alcohol and illicit drugs, placental problems, and inadequate weight gain (March of Dimes, 2005).

### *Infant Deaths*

- During 2004-2006, 8 Madison County infants died before their first birthday for an annual average of 3 deaths. The Madison County average annual infant death rate for 2004-2006 was 5.7 per 1,000 live births. The infant death rate for the 88 counties ranged from a low of 1.3 per 1,000 live births to a high of 12.6 per 1,000 live births.
- The leading causes of infant death include birth defects, disorders relating to preterm birth and low birth weight, sudden infant death syndrome (SIDS), and respiratory distress syndrome (March of Dimes, 2007).

### *Childhood Overweight*

- A random sample of Ohio public school's third-grade children during the 2004-2005 school year indicated 18 percent of Madison County third-graders were overweight (Ohio Department of Health, 2007; see Technical Note 5). The statewide assessment during the 2004-2005 school year found 18.9 percent of Ohio's public school third-grade students were overweight. Percentage of students who were overweight ranged from 9.5 percent in Butler County to 32.5 percent in Highland County.
- Overweight children are at higher risk of a number of physical and psychological health consequences when compared to children who are not overweight (Ohio Department of Health, 2007): (a) asthma; (b) damage to bones and joints from carrying extra weight on developing skeletons; (c) sleep apnea; (d) high blood pressure that can damage the heart, kidneys and blood vessels, and can lead to heart disease and stroke; (e) type 2 diabetes; (f) high cholesterol levels that can increase risk of heart attacks or strokes; (g) premature onset of puberty; (h) stigmatization and bullying by peers; and (i) becoming an obese adult.

*For description of the Ohio Department of Health's Body Mass Index assessment of Ohio's Third Grade Students, see Technical Note (6).

## Child Health, Continued

### *Childhood Death, Ages 1-19*

Table 22. Leading Causes of Death for Ohio Residents Aged 1-19, 2003-2005. [1]

| Cause of Death | Total Number of Deaths | Average Annual Number of Deaths | Percent |
|---|---|---|---|
| 1. Unintentional Injury | 1,154 | 385 | 41.5% |
| * Motor Vehicle Traffic | 678 | 226 | 58.8% |
| * Drowning | 108 | 36 | 9.4% |
| * Poisoning | 89 | 30 | 7.7% |
| * Fire/Burn | 78 | 26 | 6.8% |
| * Suffocation | 42 | 14 | 3.6% |
| 2. Homicide | 267 | 89 | 9.59% |
| 3. Suicide | 228 | 76 | 8.19% |
| 4. Cancer | 226 | 75 | 8.12% |
| 5. Congenital Anomalies | 139 | 46 | 4.99% |
| 6. Heart Disease | 103 | 34 | 3.70% |
| 7. Influenza & Pneumonia | 36 | 12 | 1.29% |
| 8. Septicemia | 28 | 9 | 1.01% |
| 9. Cerebrovascular | 19 | 6 | 0.68% |
| 10. Benign Neoplasms | 18 | 6 | 0.65% |
| All Others | 566 | 189 | 20.33% |
| **All Deaths** | **2,784** | **928** | |

[1] Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. (2005) [cited 2008-06-02]. Available from URL: http://www.cdc.gov/ncipc/wisqars

- The deaths of children after infancy present a public health concern and an opportunity for prevention. During 2003-2005, an average of 928 Ohio children ages 1 to 19 years died each year. The leading cause of death for Ohio children was unintentional injuries that accounted for 41.5 percent of the deaths. In Ohio, 58.8 percent of these unintentional injury deaths were due to motor vehicle traffic accidents.

- During 2003-2005, homicide and suicide were the second- and third-leading causes of death for Ohio children ages 1 to 19 years.

- For the years 2003-2005, the State of Ohio had an average annual death rate of 31.1 per 100,000 children age 1 to 19. The 88 counties had an average annual death rate ranging from a low of 14.2 deaths per 100,000 children in Ottawa County to a high of 77.5 per 100,000 children in Monroe County.

- In Madison County, during 2003-2005, there were 7 deaths among children ages 1 to 19 years, representing an average annual death rate of 22.7 per 100,000 children.

## Technical Notes

(1) A Primary Care Health Professional Shortage Area (PC HPSA) is a defined service area or population that demonstrates a shortage of primary care physicians (i.e., family practitioners, general practitioners, general internists, obstetrician/gynecologists, and pediatricians). Service areas with a population to physician ratio of 3,500:1 or greater are considered to be PC HPSAs. The PC HPSA is a federal designation which enables certain practice sites and health professionals to apply for recruitment and retention assistance from state and federal programs. In Ohio, the Primary Care and Rural Health Section in the Bureau of Community Health Services and Systems Development (Division of Family and Community Health Services) provides technical assistance to communities in the HPSA process, and develops and submits HPSA applications to the federal Health Resources and Services Administration (HRSA). Authorization and detailed information regarding designation criteria may be found in 42 Code of Federal Regulations (CFR), Chapter 1; Part 5 (October 1, 1993, pp. 34-48) entitled *Designation of Health Professional(s) Shortage Areas*. For further information regarding PC HPSAs, please contact the Bureau of Community Health Services and Systems Development (BCHSSD) at bchssd@odh.ohio.gov.

(2) The 10 leading underlying causes of resident deaths, based on the average annual number of deaths for Ohio and the 88 counties, were obtained from the Statistical Analysis Unit, Office of Vital Statistics, Ohio Department of Health, for the years 2004-2006. The 10 leading causes with the relevant International Classification of Disease (ICD) codes are: Diseases of the Heart (I00-I09), Cancer (C00-C97), Stroke (I60-I69), Chronic Lower Respiratory Disease (J40-J47), Diabetes Mellitus (E10-E14), Unintentional Injuries (V01-V59, Y85-Y86), Influenza and Pneumonia (J10-J18), Alzheimer's Disease (G30), Nephritis, Nephrotic Syndrome, and Nephrosis (N00-N07, N17-N19, N25-N27), and Septicemia (A40-A41). The rates are age adjusted using 11 age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+, and are age-adjusted to the U.S. 2000 standard population.

(3) The Ohio Behavioral Risk Factor Surveillance System self-reported data are collected from telephone surveys of randomly selected non-institutional residents age 18 years and older. Direct prevalence estimates were made for Ohio and for the eight counties where a sample of 400 or more residents was available: Cuyahoga, Franklin, Hamilton, Lucas, Mahoning, Montgomery, Stark and Summit. For Ohio and these eight counties the weighted percentages were adjusted to: 1) probability of selection, i.e. number of phone numbers per household, adults per household, and completed interviews; and 2) demographic distribution, i.e. age and gender. "Don't know" and "Refused" responses were excluded from the analyses. The prevalence estimates for overweight and obesity were made using the self-reported height and weight to calculate a Body Mass Index (BMI) for each respondent using the formula: BMI = weight (pounds) divided by height$^2$ (inches) x 703, Overweight = BMI of 25.0 to 29.9; Obese = BMI of 30.0 or greater. Synthetic estimates were made for the remaining 80 counties using age- and gender specific estimates for five regions, i.e. Central (Delaware, Fairfield, Franklin, Knox, Licking, Madison, Marion, Morrow, Pickaway and Union counties); Northeast (Ashland, Ashtabula, Columbiana, Cuyahoga, Geauga, Holmes, Lake, Lorain, Mahoning, Medina, Portage, Stark, Summit and Trumbull counties); Southeast (Athens, Belmont, Carroll, Coshocton, Gallia, Guernsey, Harrison, Hocking, Jackson, Jefferson, Lawrence, Meigs, Monroe, Morgan, Muskingum, Noble, Perry, Tuscarawas, Vinton and Washington counties); Southwest (Adams, Brown, Butler, Champaign, Clark, Clermont, Clinton, Darke, Fayette, Greene, Hamilton, Highland, Logan, Miami, Montgomery, Pike, Preble, Ross, Scioto, Shelby and Warren counties) and Northwest (Allen, Auglaize, Crawford, Defiance, Erie, Fulton, Hancock, Hardin, Henry, Huron, Lucas, Mercer, Ottawa, Paulding, Putnam, Richland, Sandusky, Seneca, Van Wert, Williams, Wood and Wyandot counties). Because the sample has been drawn from the non-institutionalized population and includes only those persons well enough to engage in a telephone conversation, the prevalence of diabetes, history of high blood pressure, elevated cholesterol, heart attack and coronary heart disease are most likely underestimated.

(4) Cancer Incidence = newly diagnosed cases of invasive cancer among Ohio and county residents for diagnosis years 2001-2005 for all cancer sites and types combined, breast, cervix, colon and rectum, lung and bronchus, melanoma of the skin and prostate. Cases identified through the Ohio

## Technical Notes, Continued

Cancer Incidence Surveillance System were classified using the following International Classification of Diseases for Oncology, Third Edition (World Health Organization, Geneva, Switzerland, 2000) codes: all cancer sites and types (C000-C809), breast (C500-C509), cervix (C530-C539), colon and rectum (C180-189; C199; C209; C260), lung and bronchus (C340-C349), melanoma of the skin (C440-C449, histology types 8720-8790), and prostate (C619), excluding histology types 9590-9989 for breast, cervix, colon and rectum, lung and bronchus, melanoma of the skin, and prostate.
*Cancer Mortality = Ohio and county resident deaths for the years 2001-2005 when the underlying cause of death was determined to be cancer. Cancer deaths were categorized using the following International Classification of Diseases, Tenth Edition (ICD-10) codes: all cancer sites and types (ICD C000-C979), breast (C500-C509), cervix (C530-C539), colon and rectum (C180-C209;C260), lung and bronchus (C340-C349), melanoma of the skin (C430-C439), and prostate (C610-C619). Deaths were identified through the Office of Vital Statistics, Ohio Department of Health, 2008.
*The 2001-2005 rates per 100,000 were calculated using vintage 2006 postcensal estimates for July 1, 2001-2005, (U.S. Census Bureau, 2007). Rates are direct age adjusted to the U.S. 2000 standard population.

(5) Injury deaths were identified from Ohio certificates of death collected by the Statistical Analysis Unit, Office of Vital Statistics at the Ohio Department of Health when the underlying-cause-of-death was any unintentional injury, International Classification of Disease Codes (ICD), [10$^{th}$ Revision, World Health Organization, 2000] Vol. – Y59, Y85-Y86; unintentional falls, ICD W00-W19; unintentional poisonings, ICD X40-X49; unintentional motor vehicle crashes, V02-V04 (.9, .9), V09.2, V12-V14 (.3-.9), (V19 (.4-.6), V20-V28 (.3-.9), V29 (.4-.9), V30-V39, (.4-.9), V40-V49 (.4-.9), V50-V59 (.4-.9), V60-V69 (.4-.9), V70-V79 (.4-.9), V80 (.3-.5), V81.1, V82.1, V83-V86 (.0-.3), V87 (.0-.8), V89.2; suicide X60-X84, Y87.0, U03; and homicide, X85-Y09, Y87.1, U01, U02 with death occurring in the years 2004-2006. The age adjusted rates used 18 age groups: <5, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84 and 85+. Rates are age adjusted to the U.S. 2000 standard population. The 2004-2006 rates used the population from the U.S. Census/National Center for Health Statistics bridged population estimates, 2006 vintage. Rate calculations from Injury Prevention Program, Bureau of Health Promotion and Risk Reduction, Office of Healthy Ohio, Ohio Department of Health, May 2008.

(6) The Ohio Department of Health invited a random sample of public elementary schools, within each Ohio county (Union County choose not to participate), to participate in a BMI and oral health assessment in the 2004-2005 school year. From 387 participating schools, 14,543 children, whose parents provided written permission, were weighed and measured by volunteer trained local health professionals, resulting in valid BMI estimates for 14,451 students. BMI is a measure that compares weight to height and is interpreted differently for children than adults. For children, BMI is compared to other children of the same age and sex to give a "BMI-for-age" percentile. In this assessment, the third-grade children were classified as overweight that had a BMI-for-age $\geq$ 95$^{th}$ percentile.

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