Maricopa County
Health Status Report
1998 - 2002

Prepared by the Maricopa County Department of Public Health
Division of Epidemiology and Data Services
June 2004

Maricopa County

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The authors wish to thank the following individuals and organizations for contributing numeric data and other information used in this report. Their assistance is much appreciated.

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For additional copies of this report and/or the *Maricopa County Health Status Report 1998-2002 Figures and Reference Tables*, please call the Maricopa County Department of Public Health, Division of Epidemiology and Data Services 372-2604. Both reports are also available online at www.maricopa.gov/public_health/epi/hsr.asp.

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Introduction

In 2002, the population of Maricopa County reached 3.3 million after many years of rapid growth. On the public health front, heart disease and cancer were the leading causes of death, killing over 11,000 people in Maricopa County in 2002. One hundred and fifty-five Maricopa County residents were newly diagnosed with syphilis and 395 learned they had salmonellosis that year. In addition, the West Nile virus epidemic was working its way westward toward Arizona, although the virus was not yet present in the county.

Two disease outbreaks stunned county residents and prompted significant public health responses. In the summer, one boy died and at least 70 other people became ill after playing golf at a Phoenix area course. The public health investigation led to a permanent change in water handling practices at golf courses. Later in the year, two five year-old boys died of primary amebic meningoencephalitis after exposure to untreated water in one neighborhood in Peoria. Following a public health investigation, the private company supplying water to the area altered water delivery standards.

The year 2002 also brought a new role for public health in Maricopa County and across the nation. In the light of the events of Fall 2001, public health professionals were on the alert for both

naturally occurring diseases and diseases that may have been intentionally released by humans. Potential bioterrorism events and actual anthrax exposures were being seriously considered for the first time.

Highlights of the Health Status Report

The *Maricopa County Health Status Report 1998-2002* paints a picture of the health status of the community in 2002 – as it stood in 2002 and in the five-year period leading up to 2002. It covers information on disease, death, and births in Maricopa County between 1998 and 2002. It includes analyses by gender, race/ethnicity and age as well as comparisons to national and state data. The following are just a few of the noteworthy findings:

- While deaths from AIDS decreased over the years, new cases of HIV were added consistently each year.
- Syphilis rates among both adults and children were high compared to other

geographic areas and the nation.

- Tuberculosis case rates were highest among Asian and American Indian residents of Maricopa County.

- There were three cases of hantavirus in Maricopa County. Two were the first ever reported cases of hantavirus most likely acquired within the county.

- African Americans had the highest rates of heart disease and cancer.

- The unintentional injury death rate in Maricopa County was higher than the U.S. rate.

- Almost 6% of Maricopa County residents had been told by a doctor that they had diabetes.

- Almost 1 in 5 residents were obese.

- Both the homicide death rate and the suicide death rates in Maricopa County were higher than the U.S. rates.

- Asthma death rates decreased between 1998 and 2002.

- Heart disease and cancer were the leading causes of death in Maricopa County.

- Cancer and unintentional injuries (accidents) accounted for the highest numbers of years of potential life lost.

- Infant mortality decreased between 1998 and 2002.

- One in four mothers did not receive adequate prenatal care.

- African American and Asian infants were most likely to be born at low birthweights.

- Twelve percent of mothers giving birth in 2002 were aged 10-19.

New to the Health Status Report

This year, there are several new features of the health status report. First, the report consists of two volumes. This document, entitled *Maricopa County Health Status Report 1998-2002* is the first volume - a narrative that provides an interpretation of health and disease data. It highlights some of the available data for selected diseases and conditions. The second volume consists of data tables and figures for many diseases and conditions. The second volume is called the *Maricopa County Health Status Report 1998-2002 Figures and Reference Tables*. Readers who need detailed data should consult the second volume. Both are available at the Maricopa County Department of Public Health website at www.maricopa.gov/public_health/epi/hsr.asp or by calling 602.372.2604.

Second, the report includes age-adjusted death rates for the first time. Age adjusted death rates allow for unbiased comparing of death rates between various ethnic groups in Maricopa County and between Maricopa County and the U.S., Arizona, and Healthy People 2010 rates. Age adjusted death rates may be found throughout this report and in the *Maricopa County Health Status Report 1998-2002 Figures and Reference Tables*.

Third, the Technical Notes in this year's report are more detailed than in previous health status reports. The Technical Notes section describes methods used to calculate statistics, provides sources of data, and supplies other technical

information. For example, it includes a table showing how various causes of deaths were classified. Additional technical notes may be found at the end of the second volume.

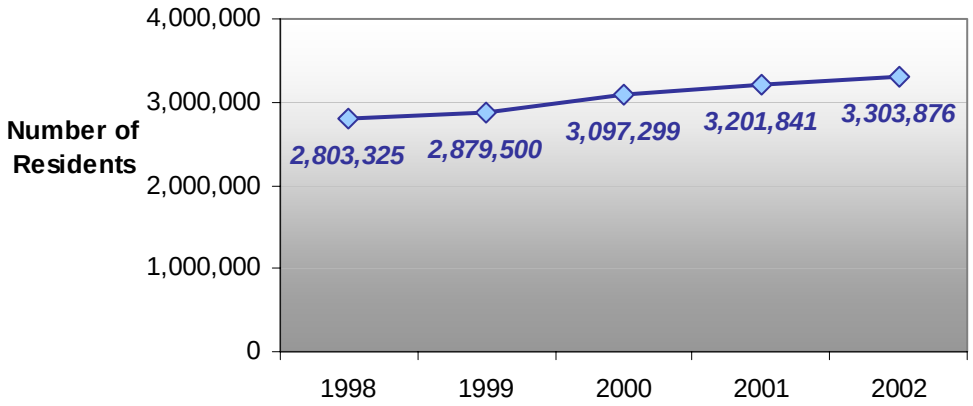
A Call to Action

While the status of Maricopa County's health had many positive aspects in 2002, there was plenty of room for improvement. Maricopa County exceeded the national death and disease rates for many diseases, such as homicide and unintentional injuries. In addition, Maricopa County was far from reaching many of the Healthy People 2010 goals, such as the goals for new HIV cases and infant mortality. These goals, set by the Centers for Disease Control and Prevention, are targets to be reached by the year 2010.

Many actions could be taken to improve the health status of Maricopa County. The quantity and effects of chronic diseases could be lessened with adequate exercise, good nutrition, and a reduction in smoking. Some communicable diseases could be prevented with simple practices such as hand washing or wearing protective clothing in areas with mosquitoes. Infant mortality and low birthweight births could be reduced through education and improved access to services for pregnant women. Surveillance of infectious diseases could be expanded so that all naturally occurring or manmade disease outbreaks could be detected and controlled more quickly. Education and interventions aimed at prevention practices and healthy behaviors could also be expanded to include adults, children, seniors, and other groups. All in all, there is a need for continuation, expansion, and improvement of efforts toward a healthier community.

If you have comments or questions about the *Maricopa County Health Status Report 1998-2002*, please call the Division of Epidemiology at 602.372.2602.

Figure 1-1. Total Population
Maricopa County 1998-2002



Population

Key Findings

- Between 1998 and 2002, the total population of Maricopa County grew rapidly.
- The largest increases in population occurred among Hispanics and Asians.

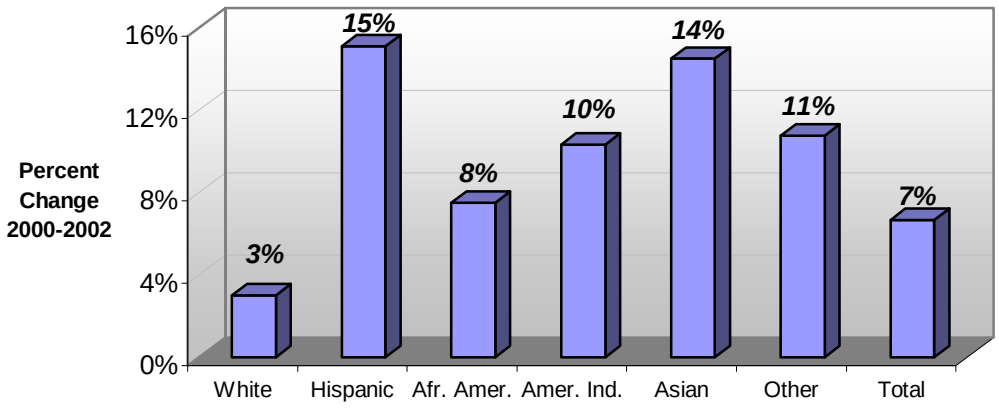
Rapid Growth in Maricopa County

As shown in Figure 1-1, the population of Maricopa County has been increasing each year between 1998 and 2002. Over this five year period, the population grew by approximately 18% from 2.8 million to 3.3 million.

Largest Growth Among Hispanics, Asians

Hispanics had the largest percent increase in population between 2000 and 2002 (15%), followed by Asians (14%), American Indians (10%), African Americans (8%) and whites (3%). See Figure 1-2 below. For information on titles used for each ethnic group, please see the Technical Notes section at the end of this report.

Figure 1-2. Percent Population Change by Race/Ethnicity
Maricopa County 2000, 2002 Compared



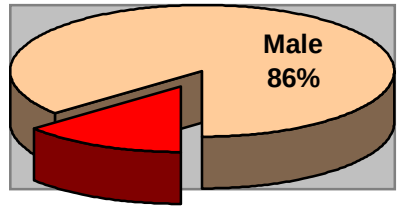
Communicable Diseases

HIV and AIDS

Key Findings

- Between 1998 and 2002, new cases of HIV were diagnosed in Maricopa County at about the same rate each year.
- HIV/AIDS affected more men than women in 2002.
- Newly diagnosed cases and deaths were more common among African-Americans than among any other ethnic group in 2002.
- Deaths from HIV/AIDS have decreased significantly over the past ten years. Yet, Maricopa County was far from reaching the Healthy People goals for HIV/AIDS deaths in 2002.

Figure 2-2. HIV and AIDS Cases by Gender
Maricopa County 2002



New Cases Added Each Year

In 2002, 321 people were newly diagnosed with HIV and 332 were newly diagnosed with AIDS in Maricopa County. These were rates of 9.7 HIV cases (persons) per 100,000 residents and 10.0 AIDS cases (persons) per 100,000 residents. This was below the U.S. rate of 15.0 AIDS cases reported per 100,000, but above the Arizona rate of 8.1. Maricopa County, like the nation as a whole, must lower its rate significantly in order to meet the Healthy People goal of 1.0 new case per 100,000 people by the target year of 2010.

As shown in Figure 2-1, the rate of newly diagnosed HIV cases continued at a steady pace between 1998 and 2002, ranging from a low of 8.9 new cases per 100,000 residents to a high of 10.2 cases per 100,000. The rate of new AIDS cases dropped somewhat from a high of 13.2 in 1998 to 10.0 in 2002. The high level in 1998 may be due, in part, to changes in how AIDS was classified in 1998. The decline between 1999 and 2002 may be due to improved

Figure 2-1. HIV and AIDS Cases by Year
Maricopa County 1998 - 2002

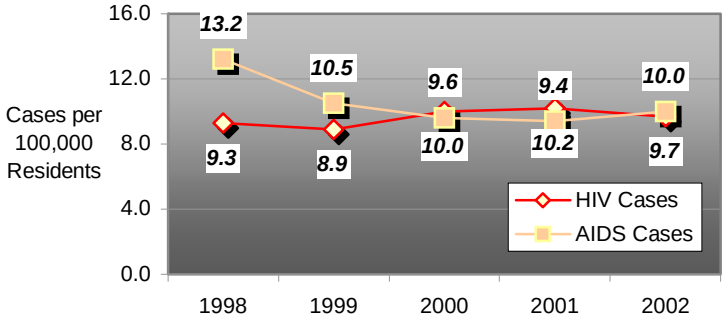
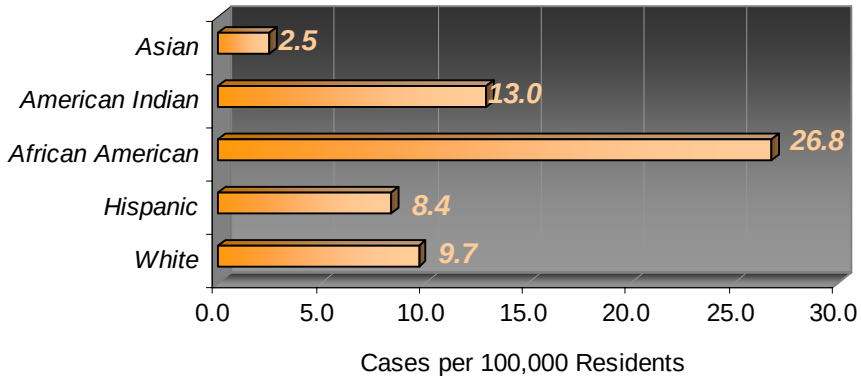


Figure 2-3. HIV Rates by Race/Ethnicity
Maricopa County 2002



medications to treat HIV, which kept people with HIV from progressing to AIDS.

Men Affected More Than Women

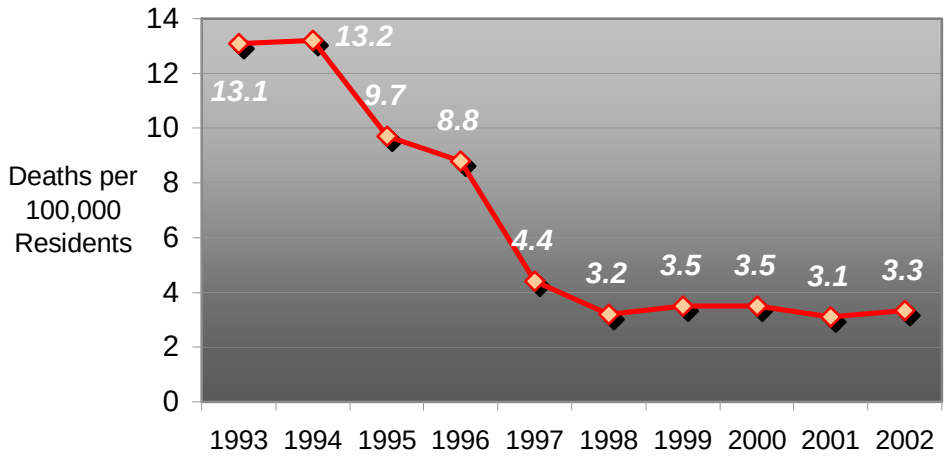
In Maricopa County, as in the U.S. overall, men were more likely to contract HIV and AIDS than were women. As shown in Figure 2-2 on the previous page, 86% of individuals newly diagnosed with HIV in 2002 were male while only 14% were female.

Risk behaviors for new HIV cases in 2002 were consistent with this finding. Male-to-male sex accounted for 67% of the new HIV cases and injecting drug use was associated with another 10%. Both male-to-male sex and injecting drug use were present in 7% of the cases. Heterosexual sex accounted for 12% of the new cases, with the remaining 4% from other or unknown risk behaviors.

Differences Between Ethnic Groups

As is the case for many of the diseases discussed in this report, African-Americans were relatively more likely to be diagnosed with HIV in 2002 than were whites, Hispanics, or individuals in other ethnic groups. Approximately 27 of every 100,000 African Americans in Maricopa County were diagnosed with HIV in 2002. In contrast, approximately 10 of every 100,000 whites were diagnosed with HIV during the same period, as shown in Figure 2-3. The same pattern exists for AIDS cases (not shown).

Figure 2-4. HIV/AIDS Death Rates
Maricopa County 1993-2002



AIDS Deaths Decreased, but Not to Healthy People 2010 Goal

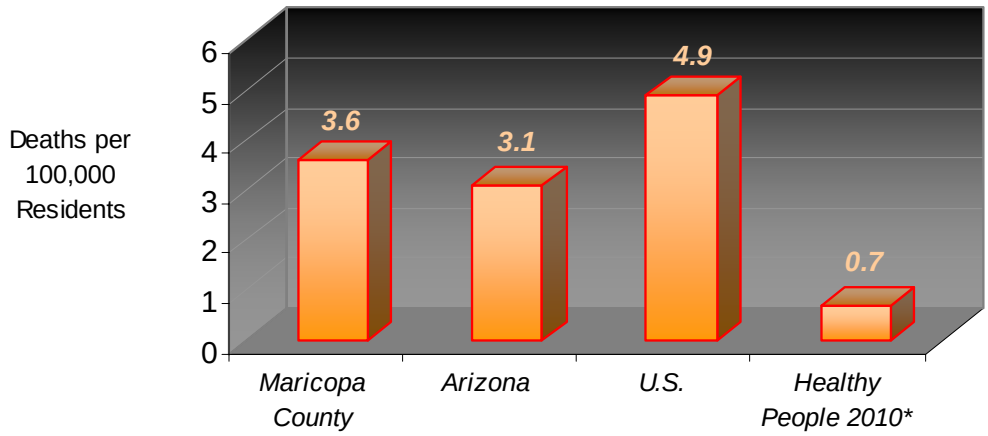
Figure 2-4 on the previous page, shows the HIV/AIDS death rates for Maricopa County between 1993 and 2002. With the advent of effective drug treatments, the rate of deaths from HIV/AIDS dropped significantly in the mid-1990s. Between 1998 and 2002, the rate was slightly over 3 deaths per 100,000 residents per year.

Despite the significant improvement over time, the rate of deaths from HIV and AIDS in Maricopa County in 2002 was not at the Healthy People 2010 goal. As shown below, Maricopa County's HIV/AIDS death rate in 2002 compared well to the U.S rate, but was higher than the Arizona rate. However, the Healthy People goal of 0.7 deaths per 100,000 residents wasn't reached in 2002. As noted in Figure 2-5 below, the Maricopa County rate was slightly inflated when compared to the Healthy People goal, but if adjusted, it would still be well above the goal.

As with case rates, African Americans had higher death rates from AIDS than any other group. The rate (age adjusted) for African Americans was 14.6 deaths per 100,000 residents, compared to 12.0 for American Indians, 4.1 for Hispanics, 2.8 for whites and no deaths for Asians.

Figure 2-5. AIDS Death Rate Comparisons

Age Adjusted, 2002



*When compared directly to the HP 2010 goals, the Maricopa County HIV/AIDS death rate is inflated by approximately 15-20%. See Technical Notes.

Syphilis

Key Findings

- The rate of new syphilis cases in Maricopa County reached a low point in 1994, but increased steadily through 1999.
- Although this rate declined between 1998 and 2002, it was still higher than the U.S. rate and the Healthy People 2010 goal.
- Syphilis disproportionately affected African Americans and Hispanics in Maricopa County.
- Maricopa County has a high rate of syphilis among newborns (congenital syphilis).

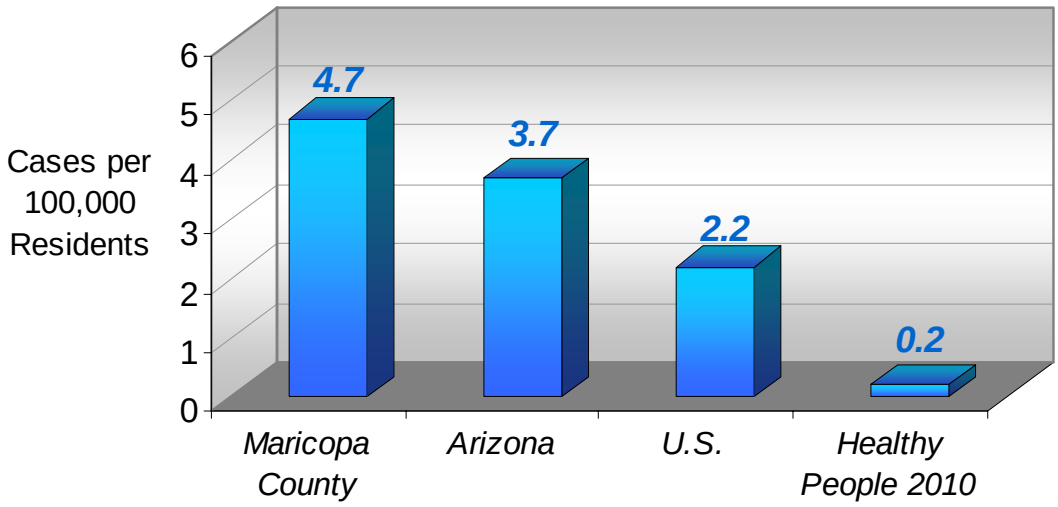
Types of Syphilis

There are three classifications of syphilis among adults – primary, secondary and late syphilis. According to the Centers for Disease Control and Prevention, primary syphilis can last from about 1 to 9 weeks and includes formation of an ulcer (chancre). Secondary syphilis lasts from weeks to 12 months and starts with the development of a rash and can include a number of symptoms such as hair loss, sore throat and others. When the symptoms from secondary syphilis disappear, the late (latent) stage of syphilis begins. At this point, the infection may cause damage to organs, paralysis, dementia, and other conditions.

If a pregnant woman has syphilis, she can pass the disease on to her unborn child. In babies, this is called congenital syphilis. Congenital syphilis, left untreated, can

Figure 3-1. Syphilis Rate Comparisons

Primary and Secondary 2002



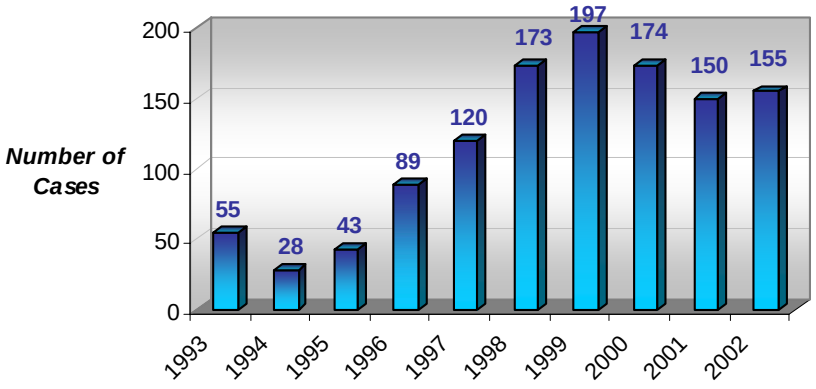
cause developmental delays, seizures, or death.

Maricopa County Syphilis Rate High

The rate for primary and secondary syphilis in Maricopa County in 2002 was 4.7 cases per 100,000 residents. This was higher than the rate for Arizona (3.7) and the rate for the United States (2.2). (See Figure 3-1.) In 2002, Phoenix had the ninth highest rate of syphilis (5.0 per 100,000 residents) among major American cities – higher than Los Angeles (3.0) and close to that of New York City (5.5).

Figure 3-2. Adult Syphilis Cases

Primary and Secondary, Maricopa County 1998-2002

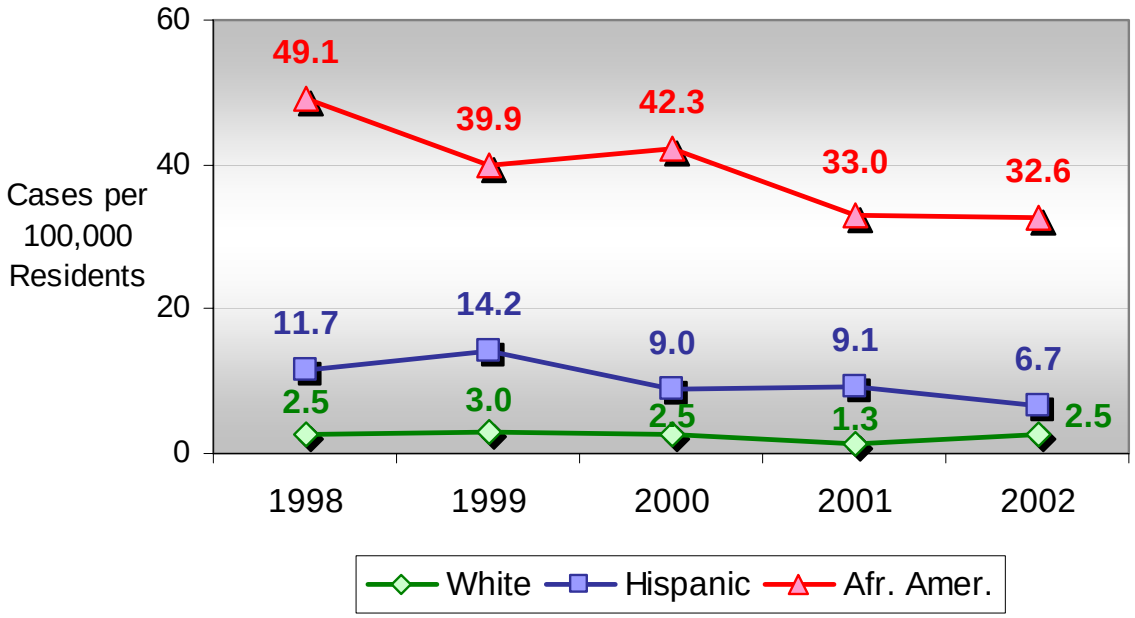


Syphilis Decreasing Over 5 Years

As shown in Figure 3-2, the number of new syphilis cases (primary and secondary) increased steadily for several years beginning in 1995 through 1999. Then, the number of syphilis cases decreased from 197 cases in 1999 to 155

Figure 3-3. Syphilis Rates by Race/Ethnicity

Primary and Secondary Syphilis, Maricopa County



cases in 2002. Despite the decrease, however, the number of cases in 2002 had not returned to 1994 levels.

African Americans, Hispanics at Higher Risk

African-Americans had a much higher rate of syphilis than either Hispanics or whites in 2002. At 32.6 per 100,000 African American residents, the African-American rate exceeds a rate of 6.7 for Hispanics, which in turn exceeds the rate of 2.5 for whites. This rate for African-Americans was 13 times higher than the rate for whites. However, because of the relatively small African American population, African Americans were only 25% of primary and secondary syphilis cases in 2002.

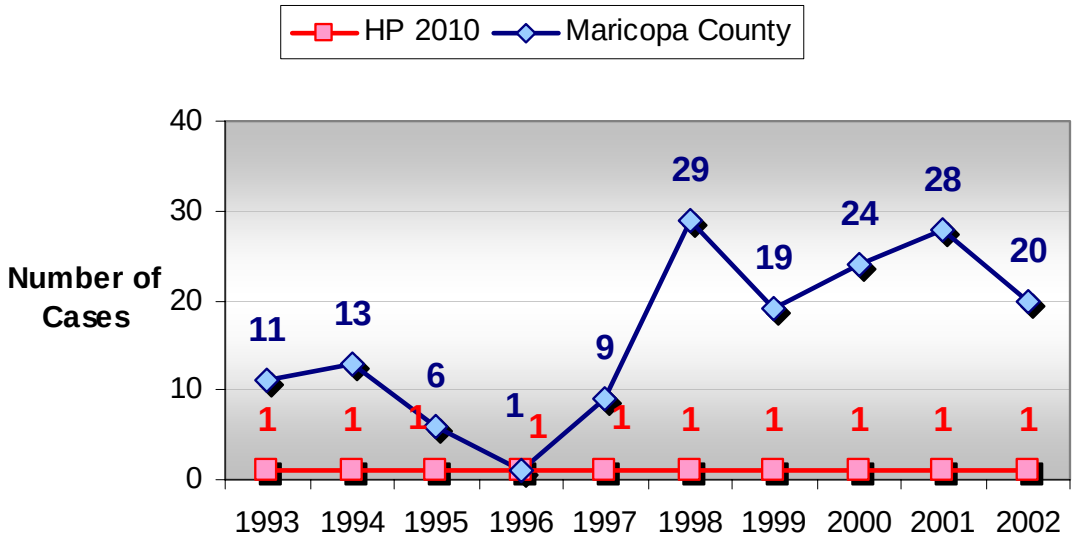
Although the 2002 rate for African-Americans was significantly higher than the rate for other ethnic groups, it has improved over previous years, as shown in Figure 3-3 on the previous page. The rate has decreased from 49.1 in 1998 to 32.6 in 2002.

Congenital Syphilis Rate High

Congenital syphilis in Maricopa County increased to high levels between 1996 and 2002. As shown in Figure 3-4 below, there was only one case of congenital syphilis in 1996. By 1998, there were 29 infants with congenital syphilis. In 2002, the number decreased to 20. This represents a rate of 35.3 congenital syphilis cases per 100,000 live births in Maricopa County in 2002. However, one reason for the increase in 1998 is that the definition of congenital syphilis cases was broadened that year.

The rate of 35.3 cases well exceeds the Health People 2010 goal of 1 case per 100,000 births and was higher than the Arizona rate of 21.7 in 2002. Arizona had the second highest rate of congenital syphilis in the country, with only New Jersey having a higher rate. Arizona's high rate was driven by Maricopa County -- about 90% of the congenital syphilis cases between 1998 and 2001 were from Maricopa County.

Figure 3-4. Congenital Syphilis Cases
Maricopa County 1993 - 2002



A number of factors, such as lack of prenatal care and testing, may contribute to high congenital syphilis rates. Of the 72 babies born with congenital syphilis between 2000 and 2002, 53% had no health insurance coverage, 46% had no prenatal care during the mother's pregnancy, 78% were not diagnosed with congenital syphilis until delivery, and 69% of the mothers did not receive a first trimester blood test for syphilis.

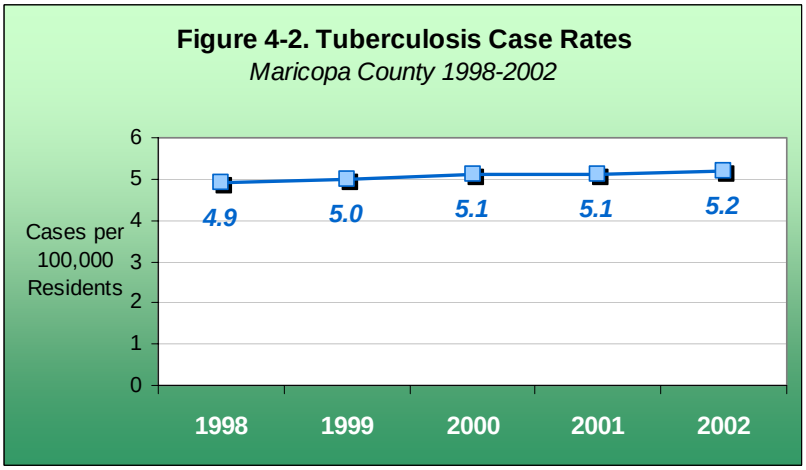
As was the case for syphilis among adults, congenital syphilis disproportionately affected African Americans, American Indians and Hispanics. As shown in Table 3-1 below, American Indians and African Americans in Maricopa County had the highest rates in 2002. The rate for Hispanics was lower (48.0), but was still above the rate for whites (7.6).

Table 3-1. Congenital Syphilis Cases by Race/Ethnicity
Maricopa County 2002

	Number	*Rate*
American Indian	3	191.7
African American	3	151.7
Hispanic	12	48.0
White	2	7.6
Total	20	35.3

How to Read: For every 100,000 births to American Indians in Maricopa County in 2002, there were 191.7 infants with congenital syphilis.

Tuberculosis

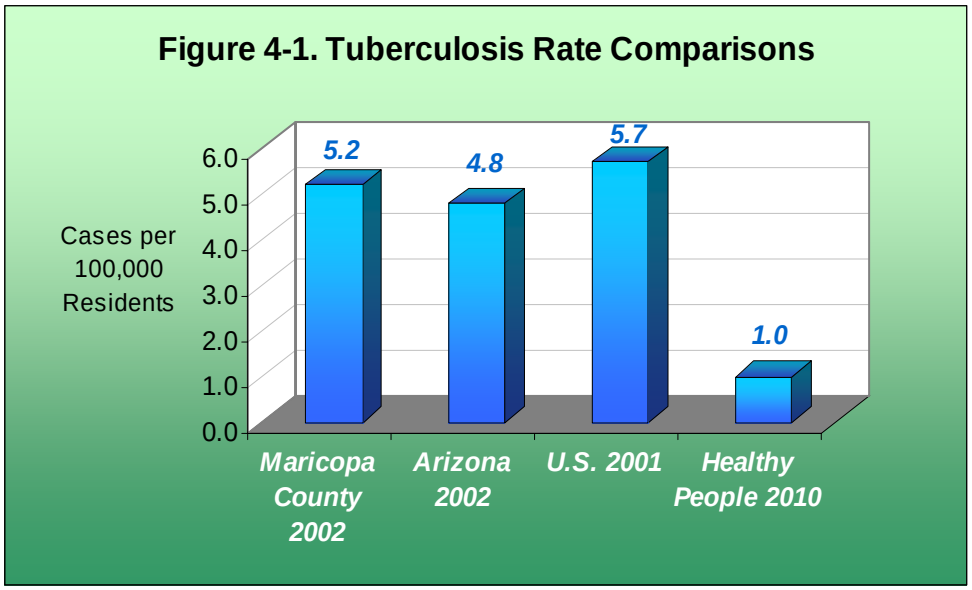


Key Findings

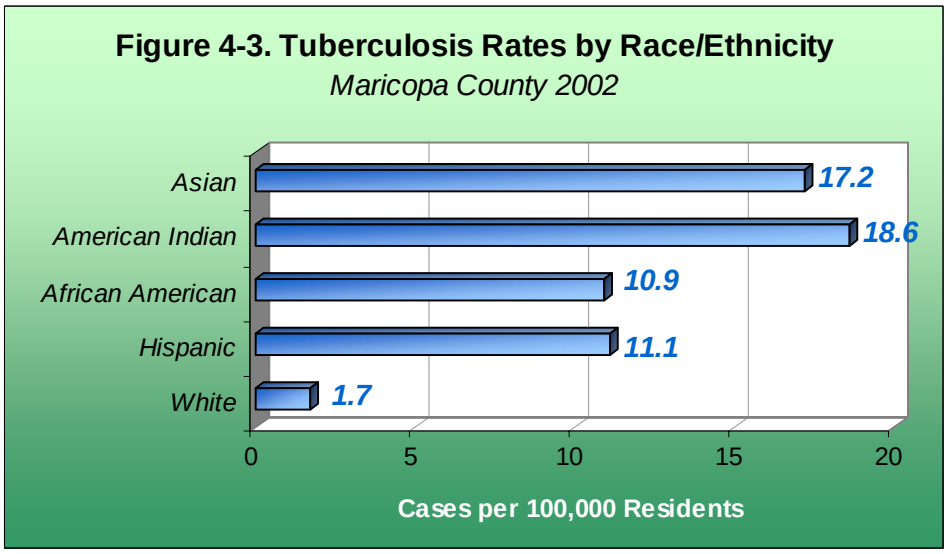
- The rate of tuberculosis cases in Maricopa County in 2002 was above the Healthy People 2010 goal and below the U.S. rate.
- The rate of new tuberculosis cases increased slowly between 1998 and 2002.
- Tuberculosis disproportionately affected American Indians, Asians, African Americans, Hispanics and men.
- In 2002, the death rate from tuberculosis in Maricopa County was the same as the U.S. rate.

TB Rate Not at Healthy People Goal

As shown in Figure 4-1 below, the rate of tuberculosis in Maricopa County in 2002 was 5.2 new cases per 100,000 residents. This was slightly higher than the Arizona rate (4.8) and slightly lower than the United States rate for 2001 (5.7). All of these tuberculosis rates were higher than the Healthy People goal of 1.0 new case per 100,000 residents by the year 2010.



In 1998, there were 4.9 new tuberculosis cases per 100,000 residents in Maricopa County. Between 1998 and 2002, this rose to 5.2 cases per 100,000 residents, as shown in Figure 4-2.



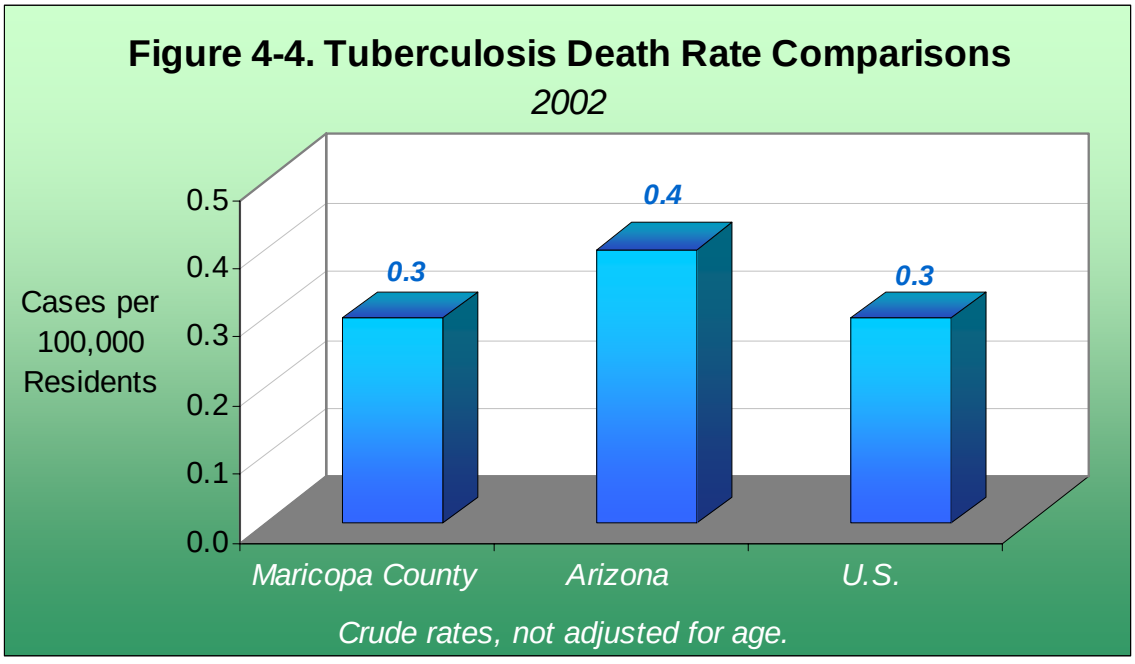
11.1 respectively. All of these rates were much higher than the rates for whites (1.7).

Men were more likely to be reported with tuberculosis in Maricopa County in 2002 than were women. Men made up 61% of the new tuberculosis cases while women made up 39%.

Asians, African Americans, Hispanics, and American Indians Most at Risk

In 2002 in Maricopa County, all race/ethnic groups other than whites had higher rates of new tuberculosis cases than did whites. As shown in Figure 4-3, American Indians had the highest rate of new tuberculosis cases at 18.6 cases per 100,000. Asians had the next highest rate (17.2). African Americans and Hispanics had tuberculosis case rates of 10.9 and

Many people with tuberculosis acquire it in another country. Fifty-three percent of the new tuberculosis cases in Maricopa County in 2002 were foreign born residents. Because tuberculosis is more common in countries outside of the United States, some of these new cases may have been infected with tuberculosis elsewhere.



TB Death Rate Close to U.S. and State Rates

In 2002 in Maricopa County, eleven persons died of tuberculosis. As shown in Figure 4-4 on the previous page, there were 0.3 deaths per 100,000 residents in Maricopa County in 2002. This was the same as the rate for the United States – 0.3 deaths per 100,000 U.S. residents. The Arizona rate was very close at 0.4 per 100,000 residents. (There is no Healthy People 2010 goal for tuberculosis deaths.)

Vectorborne Diseases

Key Findings

- In 2002, there were 12 confirmed cases of viral encephalitis in Maricopa County.
- In 2002, there were two human cases of West Nile virus in Maricopa County. However, these cases acquired the disease outside of the county.
- Over the course of the year, five people were infected with brucellosis after eating homemade dairy products.
- Three Maricopa County residents were diagnosed with hantavirus in 2002.
- In 2002, two humans were exposed to rabid animals, but these exposures did not result in any cases or fatalities.
- All 15 people with malaria acquired the disease outside of the country.
- There were no infections or deaths from anthrax, but many residents were concerned about "suspicious powders."

According to the Centers for Disease Control and Prevention, vectors are "any living creature that transmits an infectious agent to humans." Therefore, vectorborne diseases are those that a human may acquire from exposure to an infected animal such as a mosquito, rodent, bat, or other mammals, insects or birds.

Evidence of Mosquitoborne Diseases in Maricopa County

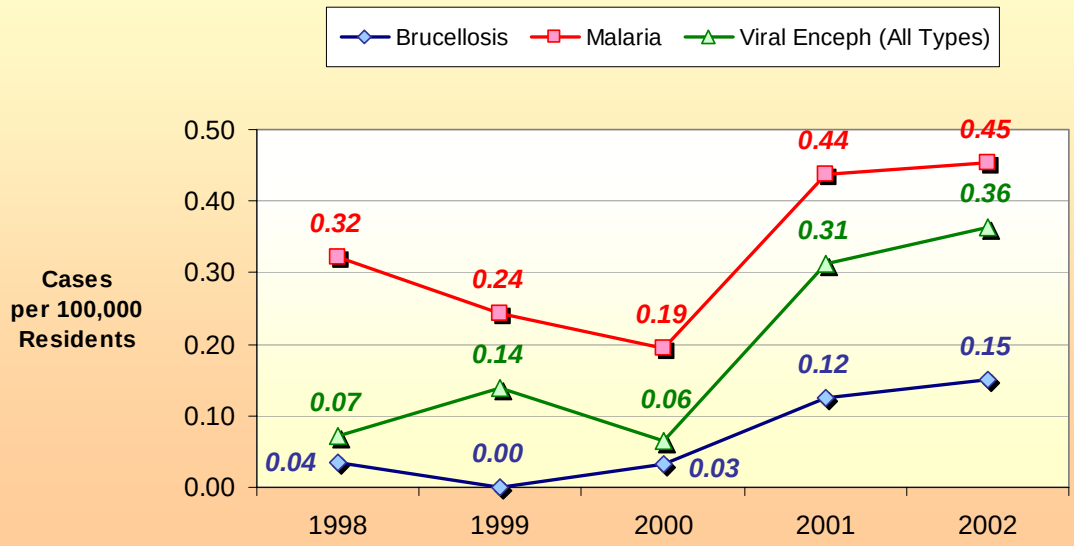
In 2002, there was evidence of arbovirus caused diseases in Maricopa County. "Arbovirus" is short for "arthropod-borne viruses", which are transmitted by blood feeding arthropods such as mosquitoes and ticks. One arbovirus, St. Louis encephalitis, was found in two humans and two mosquito pools. It was also found in chicken flocks that are used to detect the presence of arboviruses in the community. Another arbovirus, western equine encephalitis, was found in 83 mosquito pools. In total, there were 12 cases of viral encephalitis of all types.

As shown in Figure 5-1 on the next page, the rate of viral encephalitis cases increased between 1998 and 2002. This is due, in part, to increased efforts to identify and report encephalitis as well as an actual increase in disease. There were also cases of viral meningitis in 2002. Some of these cases may have been vectorborne, but were not identified as such.

No West Nile Virus Acquired in Maricopa County

In 2002, there were two humans and one horse that tested positive for West Nile virus (WNV) in Maricopa County. In all three cases, the virus was acquired outside of the county. More than 60 possible WNV cases investigated by the Maricopa

Figure 5-1. Selected Vectorborne Diseases
Maricopa County 1998-2002



County Department of Public Health were determined not to be WNV.

In 2002, Arizona was one of the six states that had no documented cases of West Nile virus. (Nevada, Oregon, Utah, Alaska and Hawaii were the other states without WNV activity.) During 2002, the Arizona Department of Health Services (ADHS) tested over 700 mosquito pools, over 1,500 sentinel chicken blood samples, over 100 human specimens, and 200 dead birds. All were negative for WNV.

Five People Infected with Brucellosis from Homemade Dairy Products

There were five cases of brucellosis, a systemic bacterial infection, in 2002 in Maricopa County. Brucellosis is usually associated with exposure to infected animals in farm settings. In Maricopa County, however, most cases in 2002 were related to leisure travel to Mexico and eating unpasteurized, "homemade" dairy products.

As shown in Figure 5-1, there was an increase in the brucellosis case rate over time, from .04 cases in 1998 to .15 cases per 100,000 residents in 2002. However, because there have been only a few cases each year, this is not a significant change.

Three Cases of Hantavirus in 2002

According to the Centers for Disease Control and Prevention, "Hantavirus pulmonary syndrome (HPS) is a deadly disease transmitted by infected rodents through urine, droppings, or saliva. Humans can contract the disease when they breathe in aerosolized virus." Hantavirus was first identified in the Four Corners region of the Southwest, where Arizona meets Utah, Colorado, and New Mexico, but has now been identified throughout the United States.

In Maricopa County in 2002, there were three people with hantavirus pulmonary

syndrome (HPS). The first case was most likely exposed while visiting relatives in another state. One of the relatives had recently died of HPS. The second case likely acquired HPS in Maricopa County. The third person lived in a rodent infested home in a rural part of Maricopa County and presumably was exposed there. All three of the people survived the disease.

Two Humans Exposed to Rabid Bats with No Fatalities

In Arizona in 2002, 143 animals tested positive for rabies. These animals included foxes, bobcats, skunks, llamas, coyotes, dogs, javelinas and bats. According to the ADHS, "this is the highest number of animal rabies cases ever reported in Arizona and represents a 11% increase compared to the previous year..."

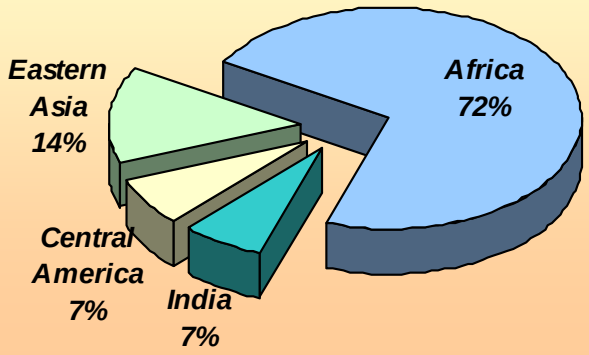
Maricopa County accounted for only 10 of these rabid animals, which were all bats. Contact with rabid bats resulted in two human, five dog and two cat exposures, all of which required post exposure treatment. There were no fatalities from rabies in 2002.

Malaria Increasing, But Not Acquired Locally

The rate of reported malaria cases increased in Maricopa County between 1998 and 2002 as shown in Figure 5-1 on the previous page. In 2002, there were 15 cases of malaria in Maricopa County. However, none of the cases were infected with malaria while in Maricopa County. As shown in Figure 5-2**,** most of these cases were people who had recently traveled to Africa, India, Eastern Asia, or Central America.

Figure 5-2. Malaria Cases by Region of Transmission

Diagnosed in Maricopa County 2002



According to the CDC, Malaria transmission occurs when a person is bitten by a mosquito that has malaria parasites. The most dangerous of these parasites is *Plasmodium falciparum* which causes most of the malaria deaths. In Maricopa County in 2002, about one half of the malaria cases were associated with *P. falciparum.* All of the Maricopa County *P. falciparum* patients survived, but several had extended hospital stays with serious symptoms that required transfusions and assisted ventilation.

Anthrax Scare Prompted Testing But No Actual Cases

In the Fall of 2001, five people in the U.S. died from pulmonary anthrax after breathing spores enclosed in letters. During this time, there were 22 infections in all, marking the only pulmonary anthrax cases reported in the U.S. in many years. In Maricopa County, there were no infections and no deaths from anthrax in 2002. However, concerned residents requested tests for powdery substances found in mailings or other locations. In

2002, 83 suspect specimens were tested by the Arizona State Health Laboratory.

Note: Excerpts from *Vectorborne and Zoonotic Disease Newsletter 2002 Highlights,* published by ADHS in March 2003 and *Vectorborne and Zoonotic Diseases Maricopa County 2002,* published by MCDPH in March 2003 were used for this chapter.

Foodborne and Waterborne Diseases

Key Findings

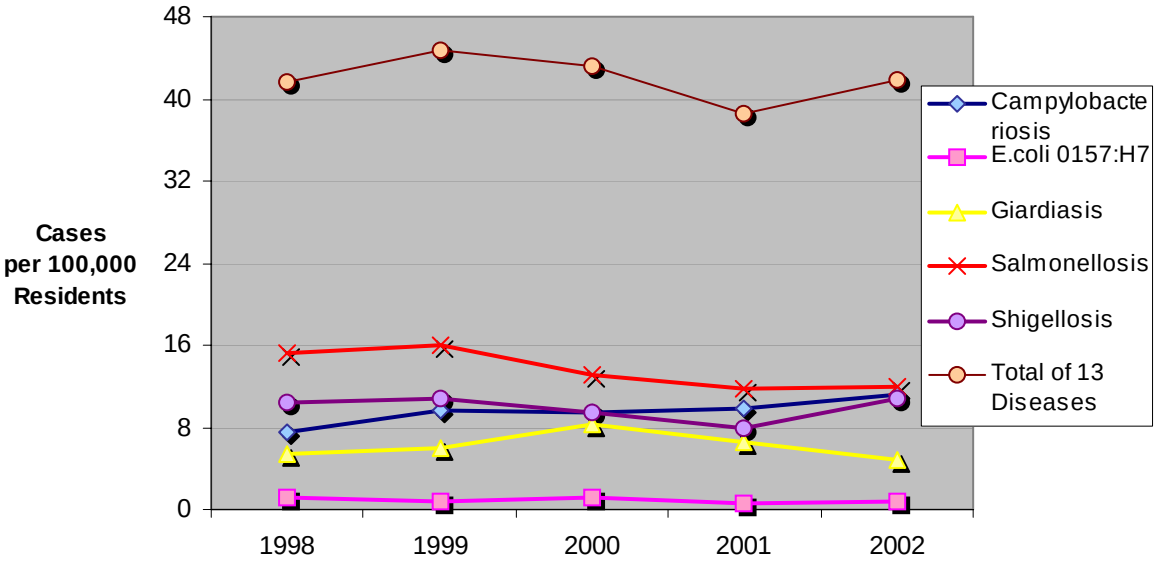
- Between 1998 and 2002, illnesses transmitted by food and water occurred at about the same rate each year in Maricopa County.
- Many Maricopa County residents had norovirus, including one boy who died and 70 people who became ill after playing golf at a Phoenix course.
- Two boys died of primary amebic meningoencephalitis after being exposed to untreated water.
- In 2002, Maricopa County's rates for several food/waterborne illnesses met the Healthy People 2010 goals, but the rate for salmonellosis was much higher than the goal.
- American Indians and children under 15 years old were disproportionately affected by salmonellosis.

Food/Waterborne Illnesses Steady Over Five Years

According to the Centers for Disease Control and Prevention, over 250 foodborne diseases and numerous waterborne diseases have been identified, caused by bacteria, viruses, and parasites. A microbe or toxin enters through the gastro-intestinal tract and causes symptoms such as nausea, fever, vomiting, abdominal cramps and/or diarrhea.

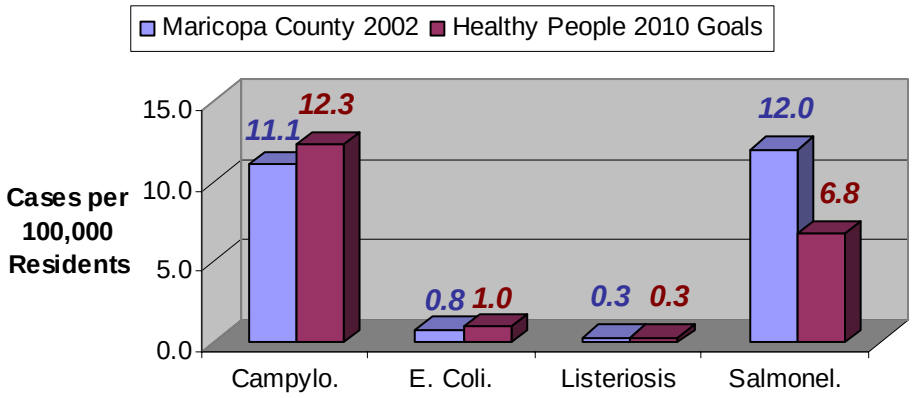
Food and waterborne diseases most commonly recorded in Maricopa County

Figure 6-1. Selected Food/Waterborne Case Rates
Maricopa County 1998-2002



include campylobacteriosis, giardiasis, salmonellosis, and shigellosis. As shown in Figure 6-1, there was a slight decrease in salmonellosis cases between 1998 and 2002 and a slight increase in campylobacteriosis over the same time period. Overall, however, the total of the 13 most common food and waterborne diseases reported in Maricopa County remained about the same between 1998 and 2002. These 13 diseases include shigellosis, salmonellosis, giardiasis, E. coli 0157:H7, campylobacteriosis, amebiasis, cryptosporidiosis, listeriosis, vibrio infection, typhoid fever, botulism, cholera, and yersiniosis.

Figure 6-2. Food/Waterborne Case Rate Comparisons



Norovirus Common in Maricopa County

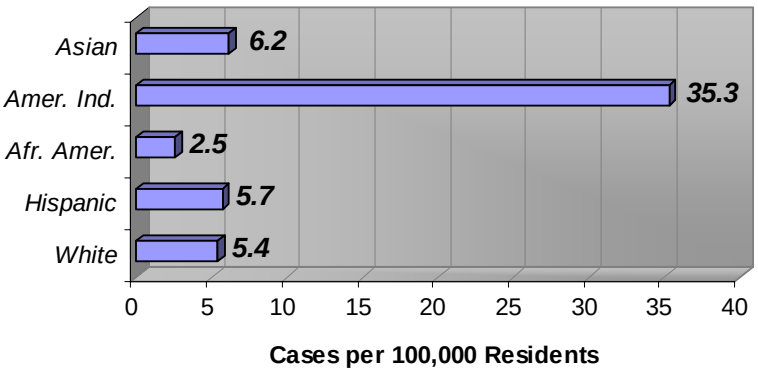
Missing from the list of foodborne and waterborne diseases above is norovirus (formerly known as Norwalk virus), a virus that made headlines in Maricopa County in 2002. One boy died and 70 people became ill after drinking contaminated water at a teen golf tournament in July of that year. Specimens from several people present at the golf course tested positive for norovirus, the likely cause of all of the illnesses. Following this outbreak, water handling practices at golf courses were changed throughout Maricopa County.

The Centers for Disease Control estimates that there are 23 million cases of norovirus annually – roughly one case for every 12 people in the U.S. However, because norovirus is not a disease that medical providers are required to report in Arizona, it is impossible to know the exact number of norovirus cases. In addition, many people who are infected with the norovirus suffer through the symptoms (erroneously called "stomach flu") and never seek professional medical help.

Primary Amebic Meningo-encephalitis Responsible for Two Deaths

In 2002, there were two children who died from the rare disease primary amebic meningoencephalitis (PAM). PAM results when ameba-contaminated water enters the nose during swimming or other aquatic activity and rapidly invades the central nervous system, often leading to death. Both children lived in the same area in Peoria -- one child swam in an untreated swimming pool and the other was frequently immersed in water in a whirlpool bath. The common water exposure was untreated water from a single private water company in Peoria. Following a public health investigation of the company's practices, new water delivery standards were set.

Figure 6-3. Salmonellosis Case Rates by Race Ethnicity
Maricopa County 2002



Salmonellosis Rate Above Healthy People 2010 Goal

As shown in Figure 6-2, the 2002 rates for campylobacteriosis, E. coli, and listeriosis in Maricopa County were at or below the Healthy People 2010 goal. There were 367 cases of campylobacteriosis in Maricopa County in 2002, which was a rate of 11.1 cases per 100,000 residents. This compares favorably to the goal of 12.3 cases per 100,000 set by Healthy People 2010. E.coli 0157:H7 was diagnosed 25 times in Maricopa County in 2002 – a rate of 0.8 cases per 100,000 residents. This was slightly below the goal of 1.0 cases per 100,000. The Maricopa County listeriosis case rate matched the Healthy People 2010 goal of 0.3 cases per 100,000 residents. This represents 10 cases of listeriosis in the county in 2002.

The salmonellosis rate in Maricopa County in 2002 did not meet the Healthy People 2010 goal. There were 395 cases of salmonellosis, which was a rate of 12.0 cases per 100,000 residents. This was about twice the goal of 6.8 cases per 100,000.

Salmonellosis Disproportionately Affects American Indians and Young

Salmonellosis affected race/ethnic groups differently in 2002. The rates for salmonellosis were particularly high for American Indians (35.3 cases per 100,000 residents). All other groups had lower case rates with African Americans at the lowest rate (2.5). Rates are shown in Figure 6-3.

Even though the majority of salmonellosis cases occurred among adults, children were disproportionately affected by salmonellosis in 2002. As shown in Table 6-1, salmonellosis was more common among children under the age of 15 (19.9 cases per 100,000). The next highest case rate was among the 65 and older age group. At 12.0 per 100,000 residents, their rate was higher than the rates for the other age groups.

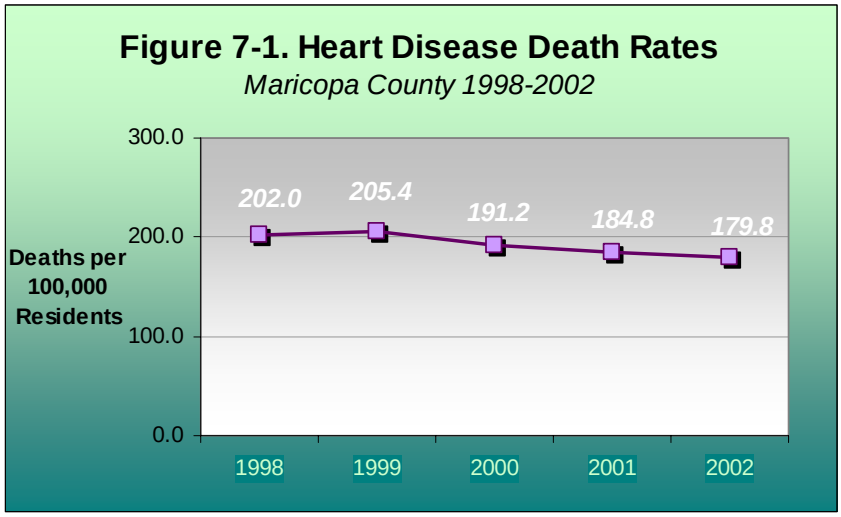
Table 6-1. Salmonellosis Cases and Case Rates by Age
Maricopa County, 2002

	No. of Cases	Rate per 100,000
0-14 years old	154	19.9
15-19 years old	16	7.2
20-44 years old	124	9.9
45-64 years old	54	8.0
65 years old and older	45	12.0
Unknown age	2	-
Total	395	12.0

How to read: There were 152 children under the age of 15 diagnosed with salmonellosis in Maricopa County in 2002. This is 19.6 children per 100,000 children in that age group.

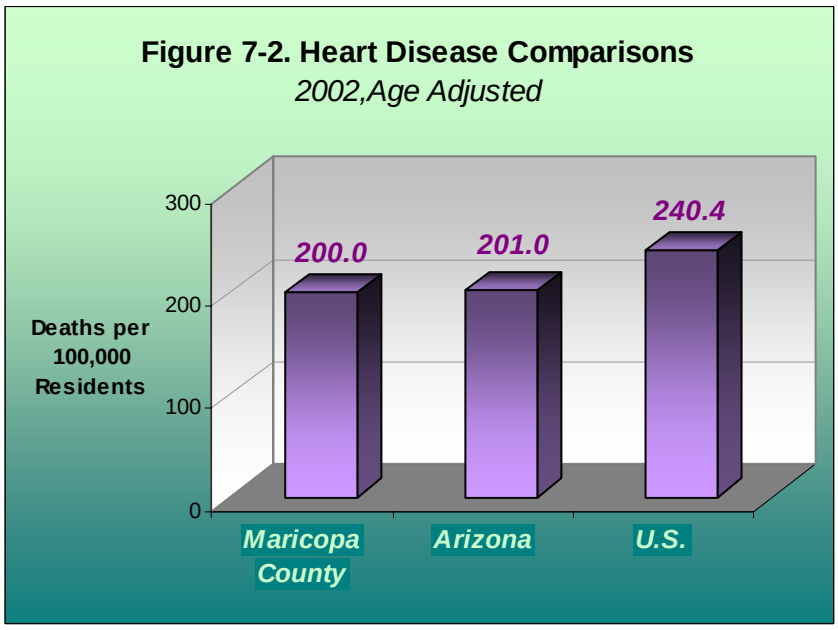
Chronic Diseases and Other Conditions

Heart Disease



Key Findings

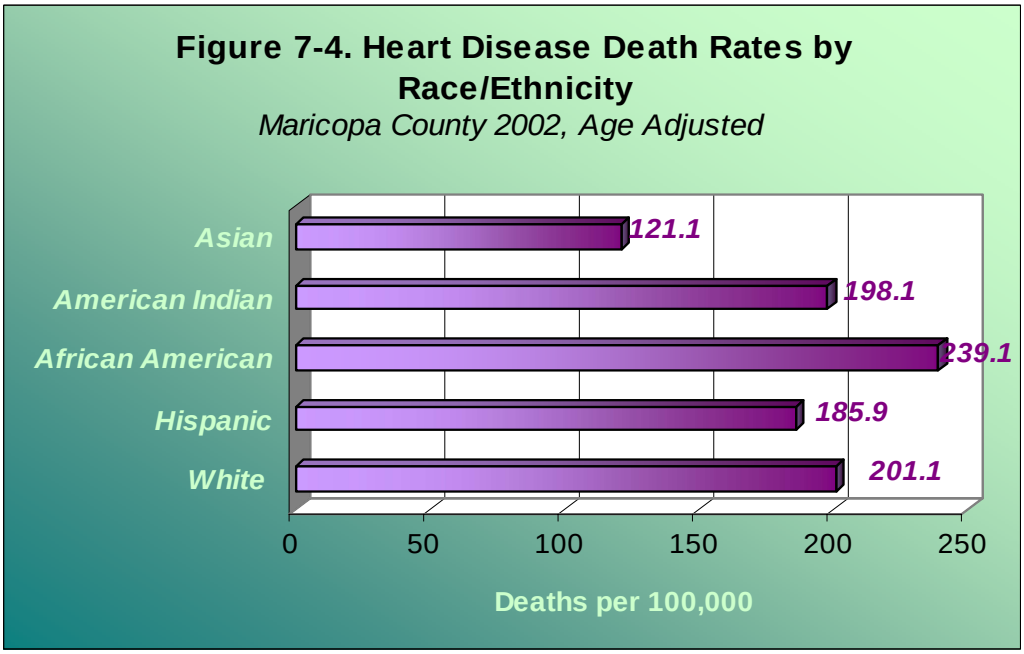
- Heart disease was the leading cause of death among Maricopa County residents in 2002.
- The death rate from heart disease in Maricopa County decreased between 1998 and 2002.
- Maricopa County's death rate for heart disease was favorable compared to the U.S. rate and Healthy People 2010 goal.
- In Maricopa County in 2002, men were more likely to die from heart disease than were women. However, heart disease was still the leading cause of death for both genders.
- Deaths from heart disease in Maricopa County in 2002 disproportionately affected African American residents.
- Estimates show that many Maricopa County residents have been diagnosed with high blood pressure, heart failure, and other conditions related to heart disease.



Heart Disease #1 Cause of Death

In 2002, 5,942 Maricopa County residents died of heart disease. This was the largest figure for any single cause of death.

The rate of death from heart disease has decreased slightly each year since 1999. In 1999 the rate was 205.4 deaths per



100,000 residents compared to 179.8 in 2002, as shown Figure 7-1.

When adjusted for age, there were 200.0 heart disease deaths per 100,000 residents in Maricopa County in 2002. This was close to the Arizona rate and well below the U.S. rate, as shown in Figure 7-2 on the previous page. (For an explanation of age adjusted rates, please see Technical Notes.)

In Maricopa County in 2002, African Americans were the race/ethnic group most at risk for death from heart disease. As shown Figure 7-4 above, the rate for African American Maricopa County residents was the highest (239.1 deaths per 100,000 African American residents). This was higher than the rate for whites (201.1), American Indians (198.1) and Hispanics (185.9). The rate for Asians was the lowest (121.1).

Men, African Americans More at Risk

As shown in Figure 7-3, men in Maricopa County have a higher rate of death from heart disease than do women. The rate for men was 185.7 deaths per 100,000 men as compared to 173.8 per 100,000 women. However, heart disease was still the leading cause of death for both men and women.

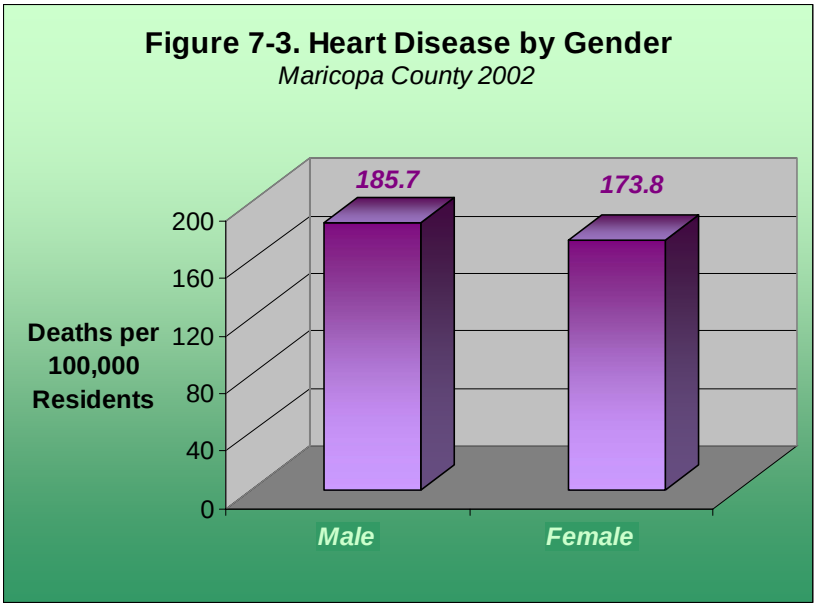
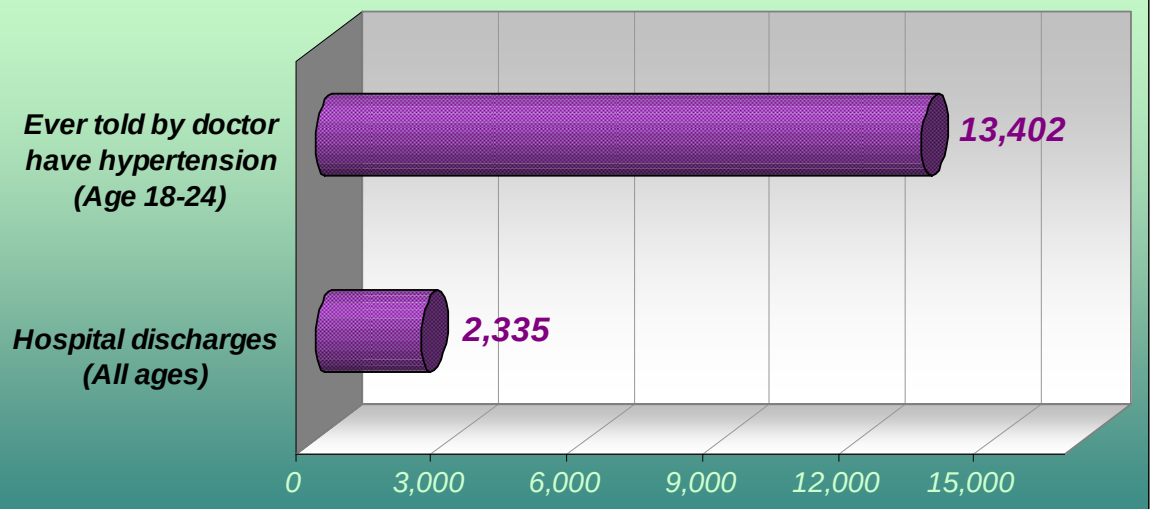


Figure 7-5.
Hypertension Estimated Cases, Hospital Discharge
Maricopa County 2002



Source: ADHS Hospital Discharge Data and National Health information Survey

Many at Risk for Heart Disease

According to the American Heart Association, there are approximately 5 million Americans currently living with heart failure. This is approximately 1.7% of the population. The association also estimates that about 25% of U.S. adults have high blood pressure, but many (about one-third) aren't aware of their conditions. Both heart failure and high blood pressure (hypertension) are indicators for heart disease.

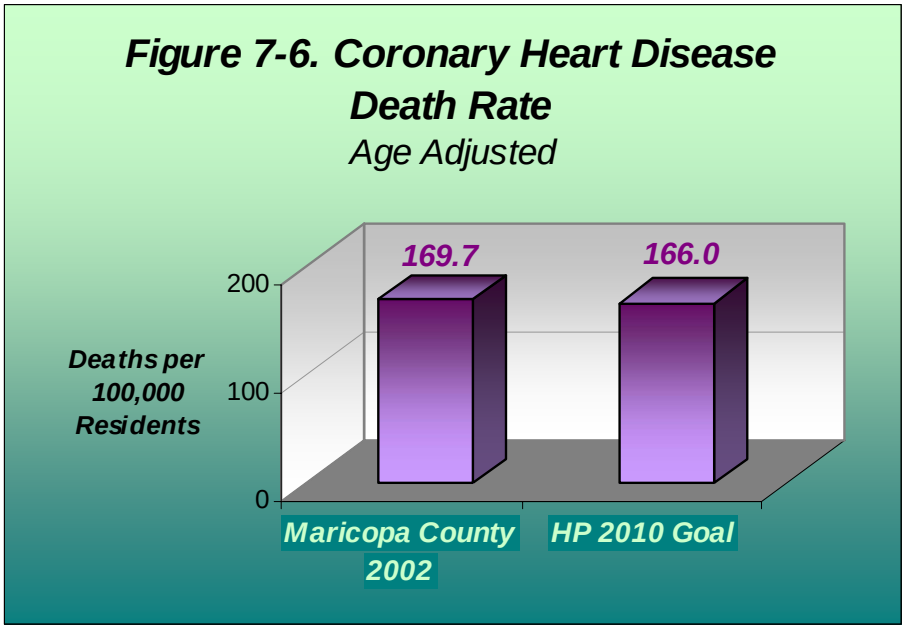
If Maricopa County patterns in 2002 were similar to the national patterns, many residents were or are living with high blood pressure and/or heart failure. In Maricopa County, this represents as many as 56,166 residents with heart failure and 576,986 people (aged 20 and older) with high blood pressure, 190,405 of whom may not know they are hypertensive.

Data and estimates from hospital discharge records and the National Health Information Survey show that some Maricopa County residents were aware of their heart conditions in 2002. According to data from area hospitals, there were 2,335 hospital admissions for hypertension in 2002. In 2002, the National Health Information Survey found that approximately 4% of Americans between the ages of 18 and 24 said they had been told by a doctor that they had hypertension. Applying that proportion to Maricopa County, there may be 13,402 Maricopa County residents aged 18-24 with hypertension. See Figure 7-5.

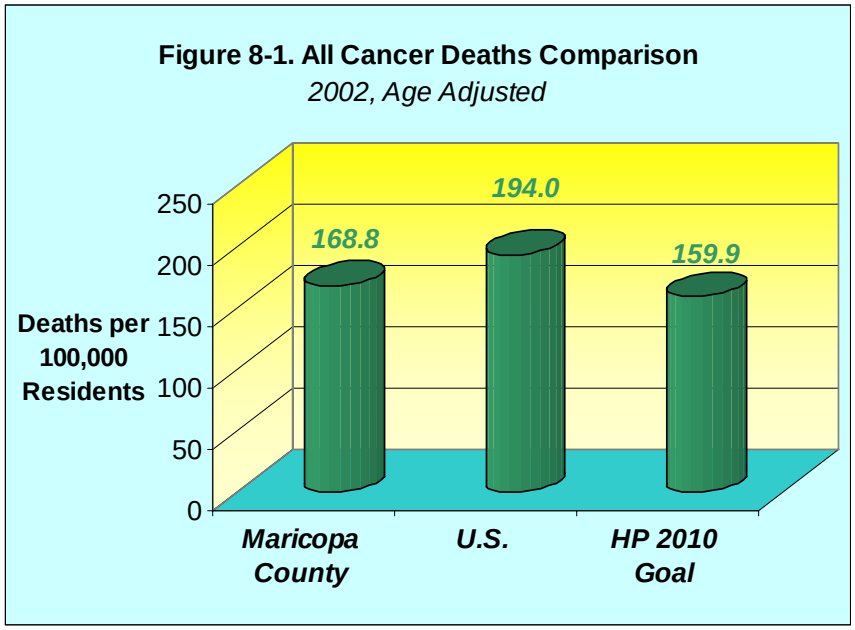
Maricopa County Deaths from Coronary Heart Disease Near 2010 Goal

The most common type of heart disease is coronary heart disease, or heart disease

involving the arteries. Maricopa County's death rate for coronary heart disease in 2002 was favorable when compared to the Healthy People 2010 goal. Maricopa County's age adjusted death rate for coronary heart disease was 169.7, which was slightly higher than the goal of 166.0, as shown in Figure 7-6 below.



Cancer

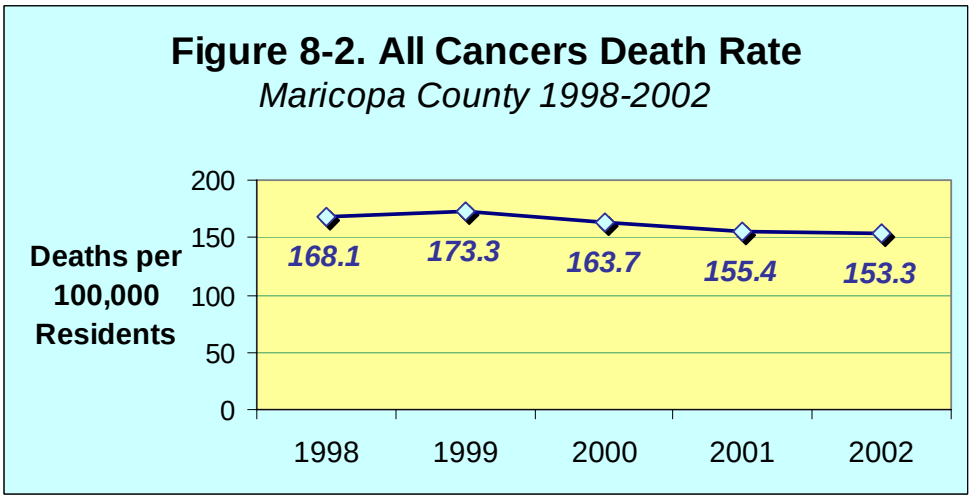


Key Findings

- Cancer was the second leading cause of death in Maricopa County in 2002.
- The cancer death rate in Maricopa County was lower than the U.S. rate and almost met the Healthy People 2010 goal.
- The cancer death rate decreased slightly between 1998 and 2002.
- Lung cancer accounted for the largest proportion of cancer deaths in Maricopa County in 2002, followed by lymphoid/hematopoietic, colon, breast, and prostate cancers.
- African American Maricopa County residents had a cancer death rate higher than that of other residents.

One of the Leading Causes of Death

In 2002, 5,066 Maricopa County residents died of cancer, the second leading cause of death after heart disease. The age adjusted rate of cancer deaths in 2002 was 168.8. This was below both the U.S. rate of 194.0 and near the Healthy People 2010 goal of 159.9, as shown in Figure 8-1, above.



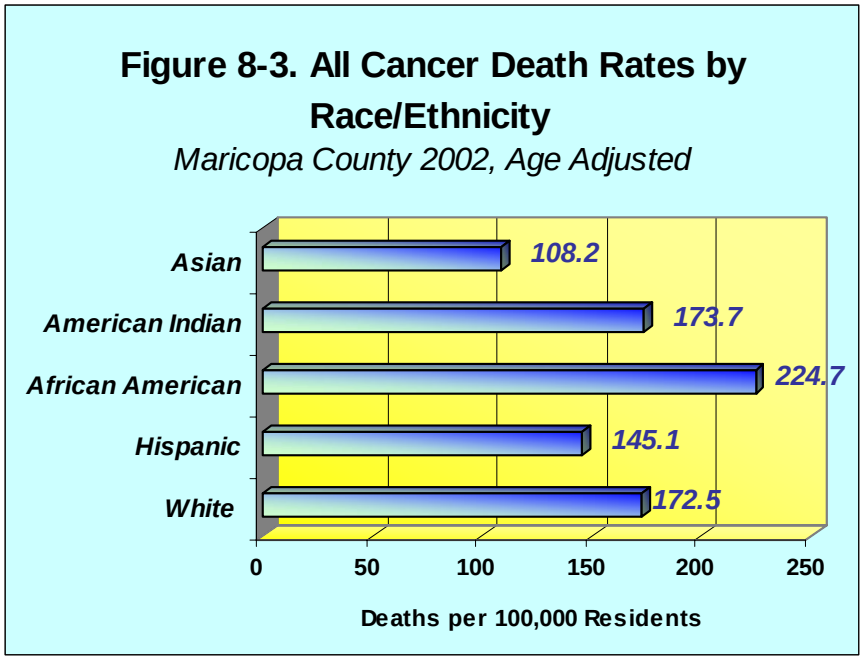
Slight Decrease in Rate Over Time

As shown in Figure 8-2 at left, the death rate from all cancers has decreased slightly in the period

between 1999 and 2002.

Lung Cancer Most Common

More than 1,400 of the people who died of cancer in Maricopa County died of lung cancer – 28% of all cancer deaths. The next highest number of cancer deaths – 571 deaths --was due to lymphoid, hematopoietic and related cancers such as leukemia or non-Hodgkins lymphoma. There were 502 colon, rectum, and anal cancer deaths, 389 deaths from breast cancer among females and 300 deaths from prostate cancer. (See Table 8-1 below.)



Lung cancer deaths are highly associated with cigarette smoking. According to the National Institutes of Health, "cigarette smoking causes 87 percent of lung cancer deaths." In 2002, the Behavioral Risk Factor Surveillance System (BRFSS) survey, a national survey of risk behaviors, showed that approximately one in every 4 (24%) of Maricopa County residents "smoke cigarettes now". Similarly, 23% of United States residents currently smoke.

Table 8.1 Cancer Deaths by Type
Maricopa County 2002

	Number of Deaths	Rate
All cancers - total	**5066**	**153.3**
Lung, trachea, bronchus	1417	42.9
Lymphoid, hematopoietic, etc.	571	17.3
Colon, rectum, anus	502	15.2
Breast (female only)*	389	23.6
Prostate (male only)*	300	18.1
Pancreas	279	8.4
Melanoma of the skin	78	2.4
All others	1530	46.3

Note: Breast cancer rate is calculated among females only. Prostate cancer rate among males only.

African Americans Most at Risk

In Maricopa County in 2002, African Americans had the greatest risk of dying from cancer. As shown in Figure 8-3, African Americans had the highest rate of cancer deaths (224.7). American Indians and whites had the next highest rates at (173.7 and 172.5 respectively).

Unintentional Injuries

Key Findings

- The rate of unintentional injury deaths in Maricopa County was high compared to the United States and Healthy People 2010 Goal.
- In 2002, motor vehicle deaths made up the largest proportion of the total unintentional injury deaths.
- Unintentional injury deaths occur disproportionately more among American Indians than any other ethnic group and were more common among men than women.

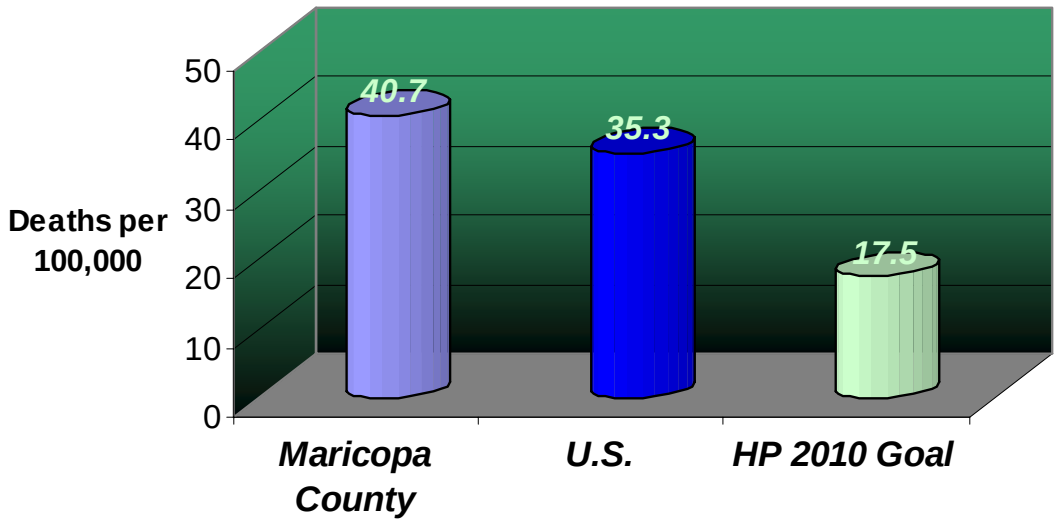
Unintentional Injury Rate High

Maricopa County has a much higher rate of unintentional injuries than both the national rate and the Healthy People goal for 2010. In Maricopa County, 40.7 people per 100,000 residents died from an unintentional injury in 2002. The U.S. rate was 35.3. Both the Maricopa and the U.S. rates must decrease dramatically in the upcoming years in order to meet the Healthy People goal in 2010: 17.5 deaths per 100,000 residents. (See Figure 9-1 below.)

Motor Vehicle Deaths Major Contributor

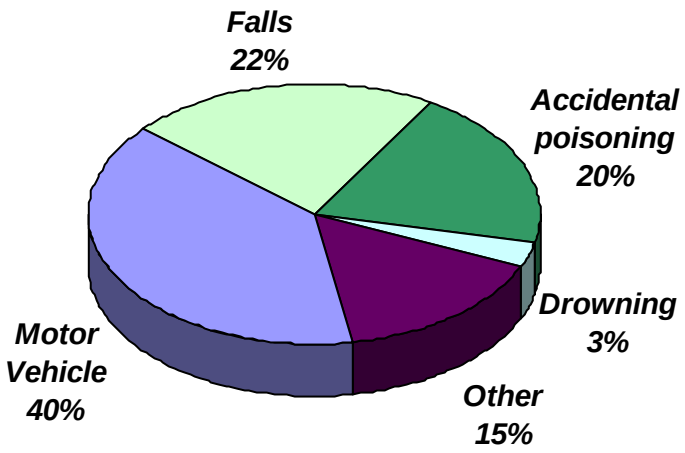
Unintentional injury deaths include motor vehicle accidents, other transport accidents, falls, accidental drowning, accidental poisoning, firearm accidents,

Figure 9-1.
Unintentional Injury Death Comparisons
2002, Age Adjusted



and other accidental deaths. In Maricopa County, 1,283 people died from unintentional injuries. As shown in Figure 9-2, 40% of these deaths were from motor vehicle accidents, 3% drowned, 20% were from accidental poisoning, 22% were from falls and the remaining 15% died from other unintentional injuries. The "other" category includes 11 deaths (1% of all unintentional injury deaths) from accidental firearm injuries.

Figure 9-2. Unintentional Injury Deaths by Type
Maricopa County 2002

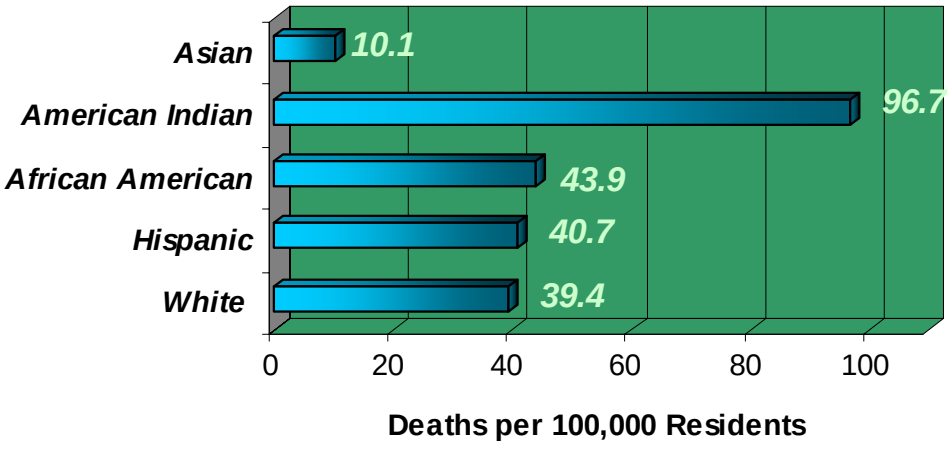


The motor vehicle accident death rate in 2002 (15.3), was the seventh highest cause of death in Maricopa County after heart disease, cancer, stroke, all other unintentional injuries, pneumonia/influenza, and diabetes. It is comparable to the U.S. rate (15.4).

Differences Between Ethnic, Age, and Gender Groups

Compared to other ethnic groups in Maricopa County, American Indians were disproportionately more likely to die from an unintentional injury than were people in other ethnic groups. As shown in Figure 9-3, the age-adjusted death rate for unintentional injuries among American

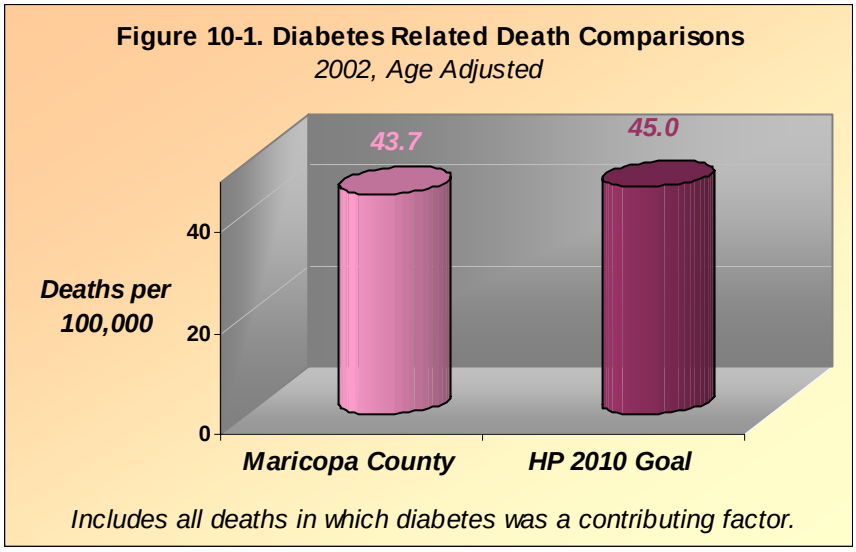
Figure 9-3. Unintentional Injury Deaths by Race/Ethnicity
Maricopa County 2002, Age Adjusted



Indians was 96.7 deaths per 100,000 American Indians. Whites (39.4), Hispanics (40.7), African Americans (43.9), and Asians (10.1) had much lower rates.

Men were also at higher risk for death from unintentional injury. Sixty-eight percent of unintentional injury deaths were among men and 32% were among women.

Diabetes

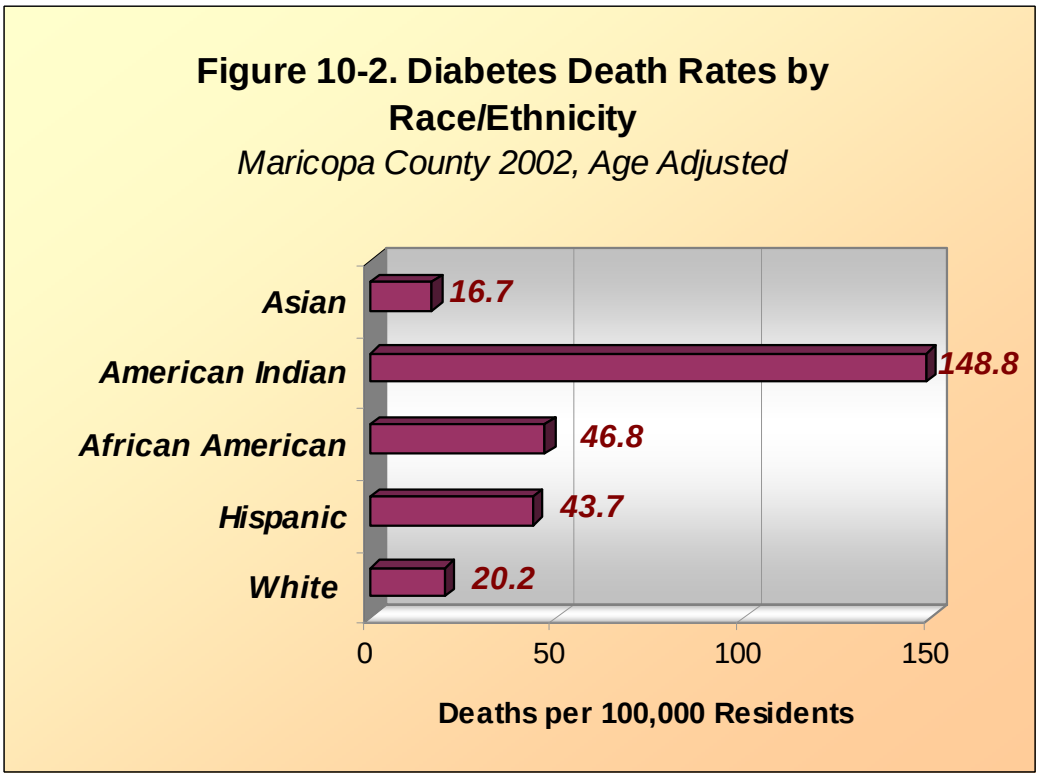


Key Findings

- Maricopa County's rate for diabetes-related deaths in 2002 was favorable compared to the Healthy People 2010 goal.
- American Indians, African Americans and Hispanics were more likely to die from diabetes than were people in other ethnic groups.
- Levels of exercise and good nutrition among Maricopa County residents matched levels for U.S. citizens overall. These behaviors are major contributors to diabetes risk and prevention.

Meeting HP 2010 Goal

In 2002, 691 people died from diabetes in Maricopa County and diabetes was the sixth largest cause of death. However, the rate of diabetes related deaths in Maricopa



County (43.7) was lower than the Healthy People 2010 goal (45.0), as shown in Figure 10-1 on the previous page. (The Healthy People 2010 goal and the comparable Maricopa County rate shown above include all diabetes-related deaths. The remaining rates in this section include only deaths that are due directly to diabetes.)

Differences Between Ethnic Groups

In 2002, American Indians were at a higher risk for death from diabetes than were people in other ethnic groups. The rate for American Indians (148.8) was seven times higher than the rate for whites. African Americans (46.8) and Hispanics (43.7) had double the rate for whites (20.2) as shown in Figure 10-2 on the previous page.

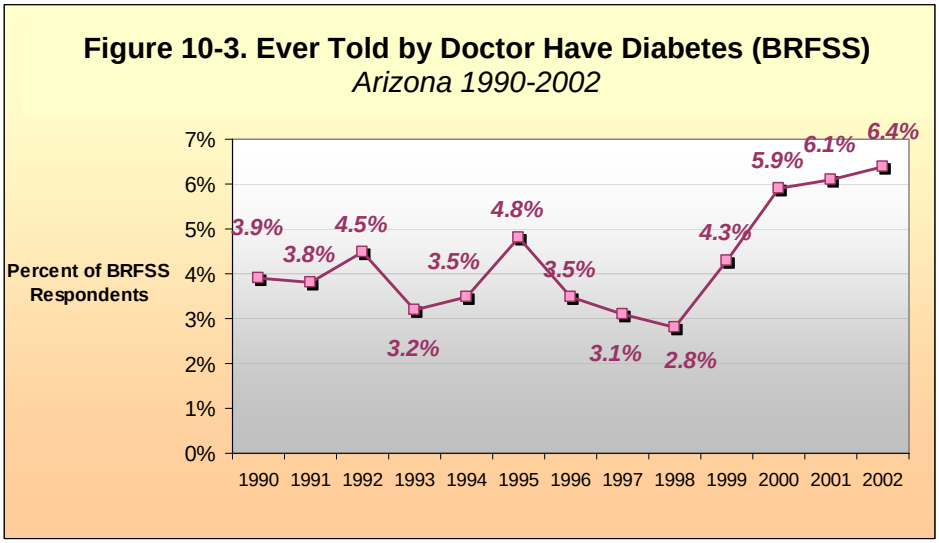
Many Living with Diabetes

The actual number of people living with diabetes in Maricopa County is not known, but one estimate suggests that about 6% of the Maricopa County adults had been told that they had diabetes. The BRFSS survey, the nationwide telephone survey, asked people if a doctor had ever told them they had diabetes. In 2002, 5.8% of the Maricopa County residents interviewed said they had ever been told by a doctor that they have diabetes. Applied to the Maricopa County population, this would mean that more than 133,860 Maricopa County adults have been diagnosed at some point in their lives.

There are also a number of people who have diabetes, but have not been diagnosed for the disease. Using an estimate for undiagnosed diabetes cases from the American Diabetes Association, there may have been as many as 200,790 people with diabetes -- diagnosed and undiagnosed -- living in Maricopa County.

Maricopa County did not have an increase in diabetes deaths between 1998 and 2002. However, there has been an increase in the percentage of people in Arizona who say they have been diagnosed with diabetes. (Maricopa County data for previous years are not available).

Figure 10-3. Ever Told by Doctor Have Diabetes (BRFSS)
Arizona 1990-2002



According to the BRFSS survey, 3.9% of respondents in 1990 said they had been diagnosed with diabetes. By 2002, this number was 6.4%, as shown in Figure 10-3. There has also been an increase in obesity, from 11% of the Arizona respondents in 1990 to 20% by 2002.

Exercise and Nutrition are Key

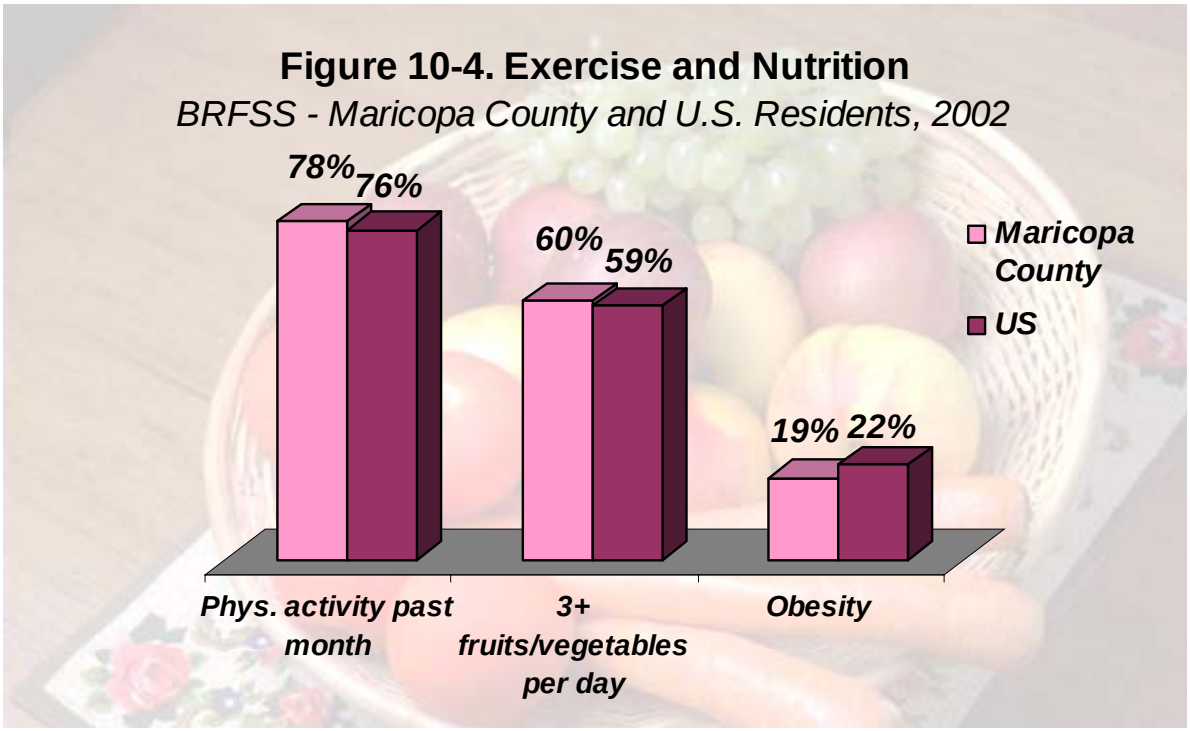
There are two types of diabetes – Type 1 and Type 2. Type 1 diabetes, which makes up about 5-10% of all diabetes

cases, results from the body's failure to produce insulin. Risk factors for Type 1 diabetes include "autoimmune, genetic, and environmental factors" according to the CDC. Type 2 diabetes, 90-95% of the cases, results from insulin resistance and insulin deficiency. Risk factors for Type 2 diabetes include older age, obesity, family history of diabetes, physical inactivity, race/ethnicity and other factors. The CDC says, "African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Pacific Islanders are at particularly high risk for Type 2 diabetes."

Studies show that exercise and diet can help prevent Type 2 diabetes, the most common form. In Maricopa County, 78% of residents answering the BRFSS survey said they engaged in some form of physical activity in the past month. While this is a positive sign, it also suggests that one in five Maricopa County residents engage in no physical activity at all over the course of a month. Only 60% said that they eat at least 3 fruits or vegetables each day. The number drops to 21% for those eating the recommended five or more fruits or vegetables daily. Finally, the survey found that almost one in five (19%) of the Maricopa County residents surveyed met the criteria for obesity. (See Figure 10-4 below.)

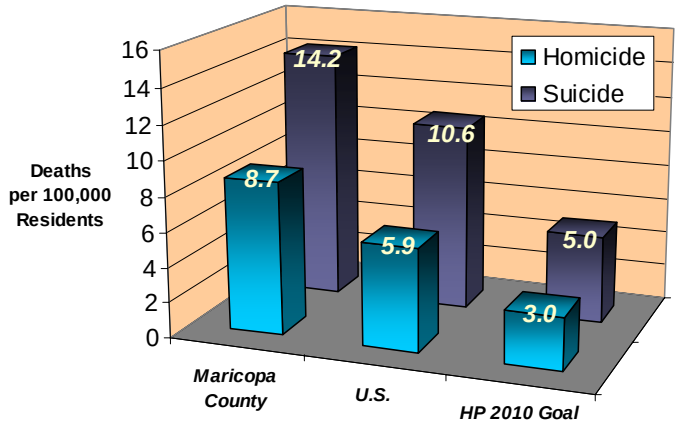
Figure 10-4. Exercise and Nutrition

BRFSS - Maricopa County and U.S. Residents, 2002



Homicide and Suicide

Figure 11-1. Homicide/Suicide Comparisons
2002, Age Adjusted



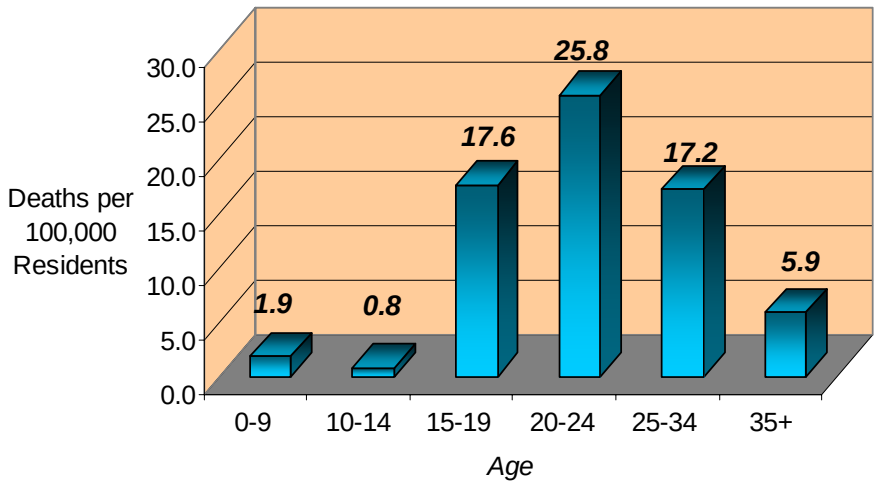
Key Findings

- In 2002, both homicide and suicide rates in Maricopa County were higher than U.S. rates and Healthy People 2010 goals.
- Homicides occur disproportionately to all males, African Americans, Hispanics, American Indians, and men in their late teens and twenties.
- Suicide was more common among men than among women and more pronounced among whites than among other ethnic groups.

Homicide Rates High

A total of 298 people were murdered in Maricopa County during 2002. As shown in Figure 11-1, this represents a homicide rate of 8.7 deaths per 100,000 residents. In comparison, the rate for the United States 5.9 deaths per 100,000 residents and the Healthy People 2010 goal was 3.0 deaths per 100,000.

Figure 11-2. Homicide Deaths by Age
Maricopa County 2002



Hispanics, African Americans, American Indians, Young at Higher Risk for Homicide

The rates for homicide deaths in Maricopa County were highest among the 20-24 year old age group at 25.8 deaths per 100,000, followed by the 15-19 year olds at 17.6 and 25-34 year olds at 17.2. (See Figure 11-2, previous page.)

In 2002, the homicide death rate was more than four times higher for Hispanics, African Americans, and American Indians than it was for whites. As shown in Figure 11-3 below, the rate for whites was 4.0 homicide deaths per 100,000 in contrast to 22.1 for African Americans, 25.8 for American Indians, and 16.2 for Hispanics.

Men were far more likely to die from homicide than were women. Eighty-five percent of homicide deaths were among men, 15% among women. The rate for men was 15.3 deaths per 100,000. For women, the rate was 2.7 per 100,000.

Suicide Rates High

As was the case for homicide, suicide rates were high in Maricopa County in 2002. There were 457 suicides in Maricopa County in 2002. This represents an age-adjusted suicide death rate of 14.2 suicides per 100,000 residents. For the same year, the United States had a lower rate at 10.6. Both Maricopa County and the U.S. were far from the targeted goal for Healthy People 2010 of 5.0. See Figure 11-1.

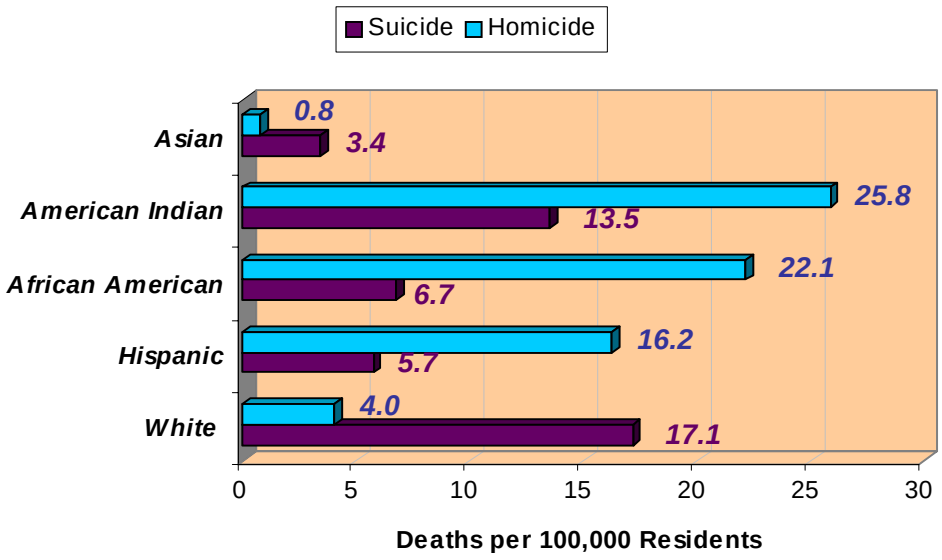
Whites, American Indians, Men at Highest Risk for Suicide

The suicide rate among whites was more than double the rates for Hispanics and African Americans. As shown in the Figure 11-3 below, the rate for whites was 17.1 deaths per 100,000 residents, while the Hispanic rate was 5.7, the rate for African Americans was 6.7, and the rate for Asians was 3.4. American Indians had the highest rate after whites at 13.5 per 100,000.

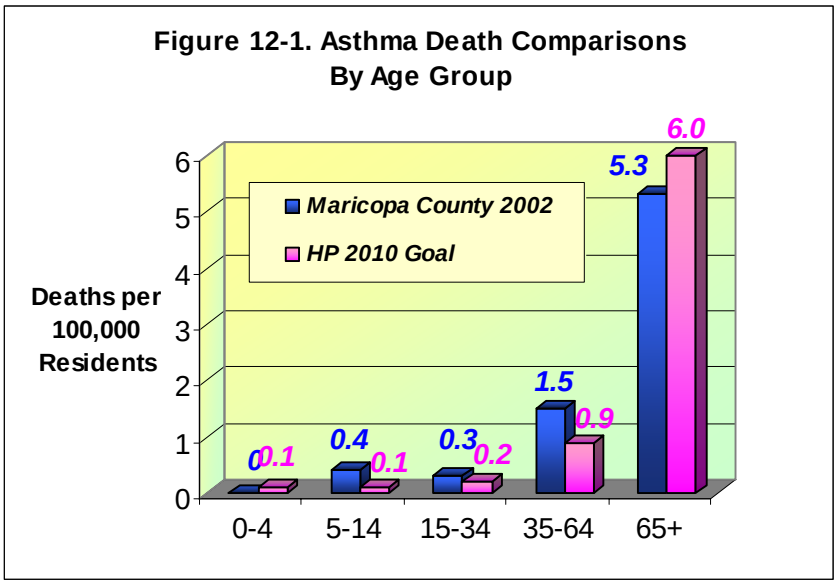
Men were far more likely to commit suicide than were women. Eighty-one percent of suicide deaths were among males, 19% among females. The rate for men was 22.4 suicides per 100,000 men. The rate for women was 5.2 suicides per 100,000 women.

Figure 11-3. Homicides, Suicides by Race/Ethnicity

Maricopa County 2002, Age Adjusted



Asthma



- In 2002, Maricopa County reached the Healthy People 2010 goal for asthma deaths for young children and seniors. However, the asthma death rates for other age groups exceeded the Healthy People 2010 Goals.

- The rate of death from asthma in Maricopa County decreased between 1998 and 2002.

- While asthma deaths were most common in the older age groups, the occurrence of asthma was relatively common among younger people, as well.

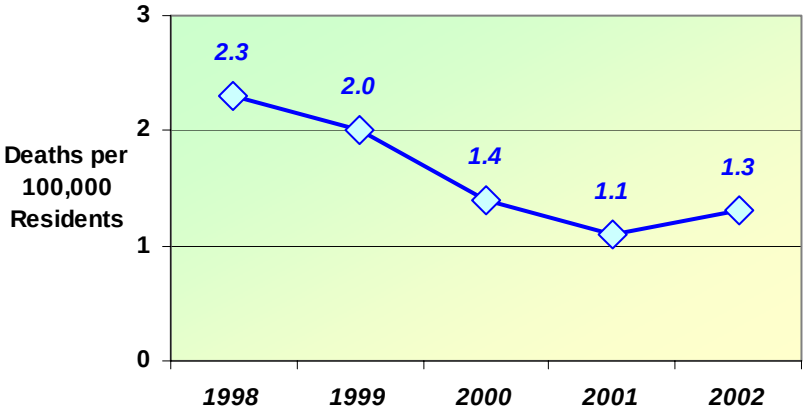
- In Maricopa County, asthma deaths disproportionally affected Asians more than any other ethnic group.

Not at Healthy People Goals for All Groups

In 2002, Maricopa County had no deaths from asthma among very young children (0-4 years old). This rate was below the Healthy People 2010 goal of 0.1 per 100,000 for this age group, as shown in Figure 12-1 above. The rate of deaths among Maricopa County residents 65 and older was 5.3 per 100,000; below the Healthy People goal of 6.0.

In the three remaining age groups, the Maricopa County asthma death rate in 2002 did not meet the 2010 goals.

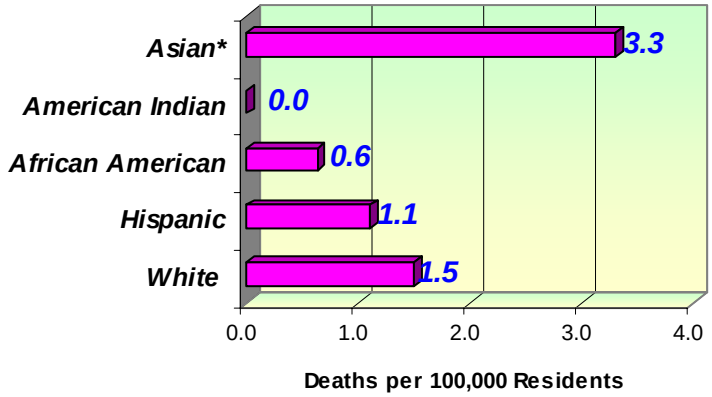
Figure 12-2. Asthma Deaths by Year
Maricopa County 1998-2002



Slight Decrease in Asthma Deaths

In 1998, the death rate from asthma in Maricopa County was 2.3. As shown in the Figure 12-2 on the previous page, this has decreased slightly each year to a rate of 1.3 in 2002.

Figure 12-3. Asthma Deaths by Race/Ethnicity
Maricopa County 2002, Age Adjusted



* Includes one Asian death from asthma in 2002.

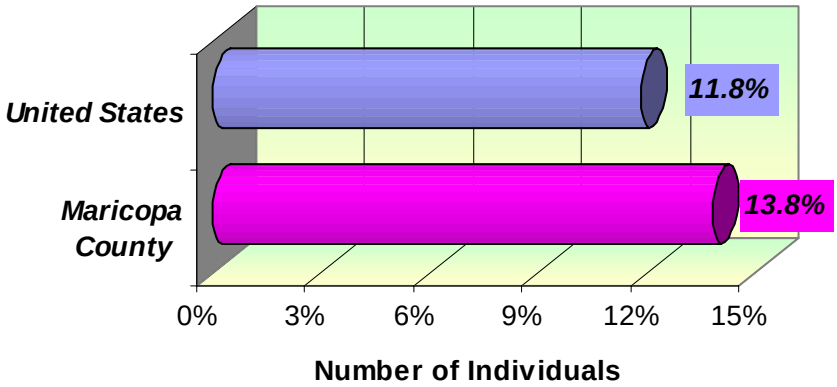
Few Differences Between Ethnic Groups

As shown in Figure 12-3, most ethnic groups had an asthma death rate at or below 1.5 deaths per 100,000 residents. The rate for Asians was higher at 3.3 (age adjusted). However, this represents only one Asian death in 2002 and therefore should not be considered a particularly high rate.

Asthma Common in Maricopa County

Several studies indicate that there were many thousands of Maricopa County residents living with asthma. According to the BRFSS survey in 2002, 13.8% of Maricopa County residents interviewed say that they had been told by a doctor that they had asthma at some point in their lives. This means that as many as 318,495 adults may once have had asthma in the county. As shown in 12-4, the Maricopa County percentage is somewhat higher than the United States number of 11.8%.

Figure 12-4. Ever Told by Doctor Have Asthma
BRFSS – Maricopa County, U.S. 2002



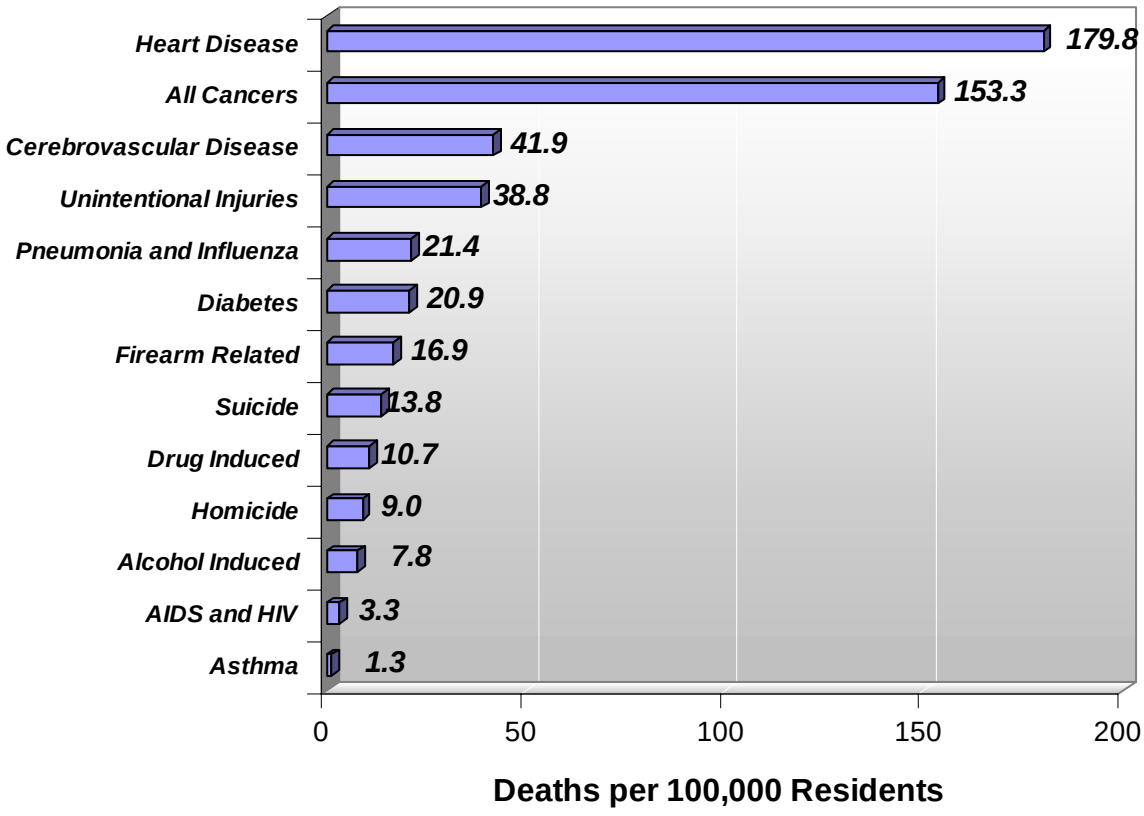
Years of Potential Life Lost

Figure 13-1 below is a summary of crude death (mortality) rates for selected causes of death. It displays the causes of death in order from the highest rate to the lowest rate in Maricopa County in 2002. Drug induced, alcohol induced, and firearm related deaths include deaths from multiple classifications (e.g., a suicide may be listed under both "suicide" and "firearm related" deaths.)

Another way to look at causes of death is to estimate how many additional years people might have lived had they not died

Figure 13-1. Crude Rate for Selected Causes of Death

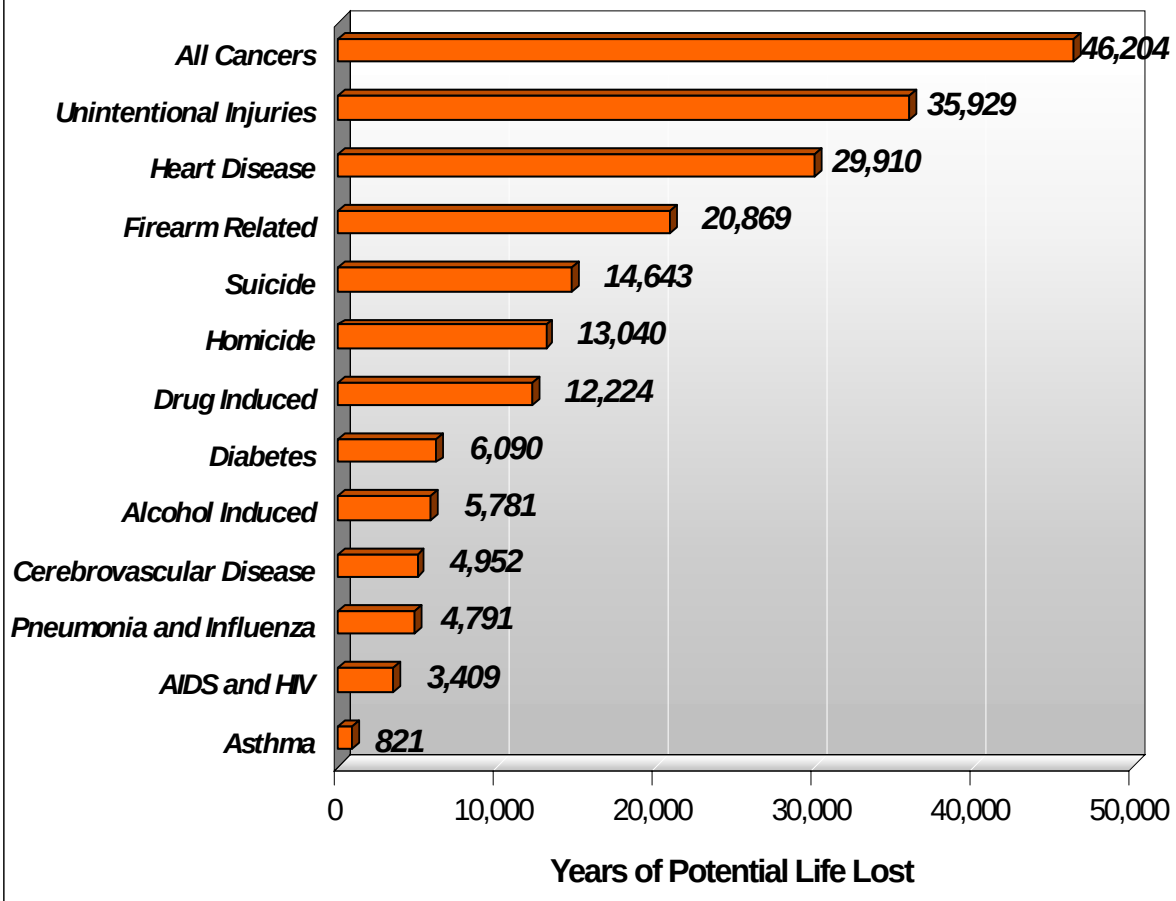
Maricopa County 2002



from a given cause of death. Figure 13-2 below shows each cause of death according to how many potential years of life were lost to that cause of death. This figure shows cancer as the cause that takes the most years of potential life from Maricopa County residents – over 46,000 years. The second highest is unintentional injuries at almost 36,000 years.

Importantly, this analysis shows that diseases with relatively low crude death rates, such as firearm related deaths, suicides, and homicides, may account for many years of potential life lost because they tend to strike people who are younger and who may otherwise have lived many additional years.

Figure 13-2.
Years of Potential Life Lost by Causes of Death
Maricopa County 2002



Note: Includes only deaths among women and men who died at or younger than US life expectancy (Female = 79.8 Male = 74.4)

Maternal and Infant Health

Infant Mortality

Key Findings

- Between 1998 and 2002, infant mortality decreased in Maricopa County.
- In 2002, Maricopa County had a lower rate of infant deaths than did the United States. However, Maricopa County has not met the Healthy People 2010 goal.
- Infant mortality disproportionately affects African Americans more than any other ethnic group in Maricopa County.
- Adequacy of prenatal care, which is a risk factor associated with infant mortality, varies by ethnic group, age, marital status and education.

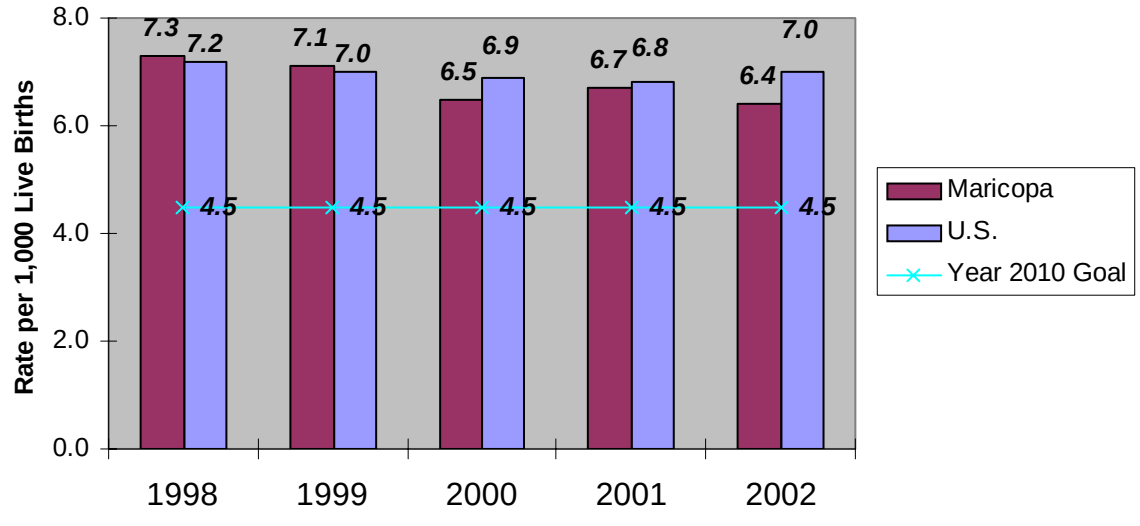
Decrease in Infant Mortality Over Time

In 1998, the infant mortality rate in Maricopa County was 7.3 infant deaths per 1,000 live births. In 2002, this number decreased to 6.4 infant deaths per 1,000 live births. (See Figure 14-1.)

In comparison, the infant mortality rate in the United States increased between 2001 and 2002. According to the Centers for Disease Control and Prevention, this was the first time since 1958 that infant mortality increased between one year and the next. In the past, the rate declined or remained the same each successive year.

However, comparisons between Maricopa County and U.S. rates should be made with caution for two reasons. First, there

Figure 14-1. Infant Mortality Comparisons
Maricopa County, U.S., 1998-2002



are fewer births in Maricopa County than in the United States, so the Maricopa County rate fluctuates more from year to year. Second, since Maricopa County has a different racial/ethnic distribution than the U.S., the rate should be race/ethnicity adjusted for a more accurate comparison.

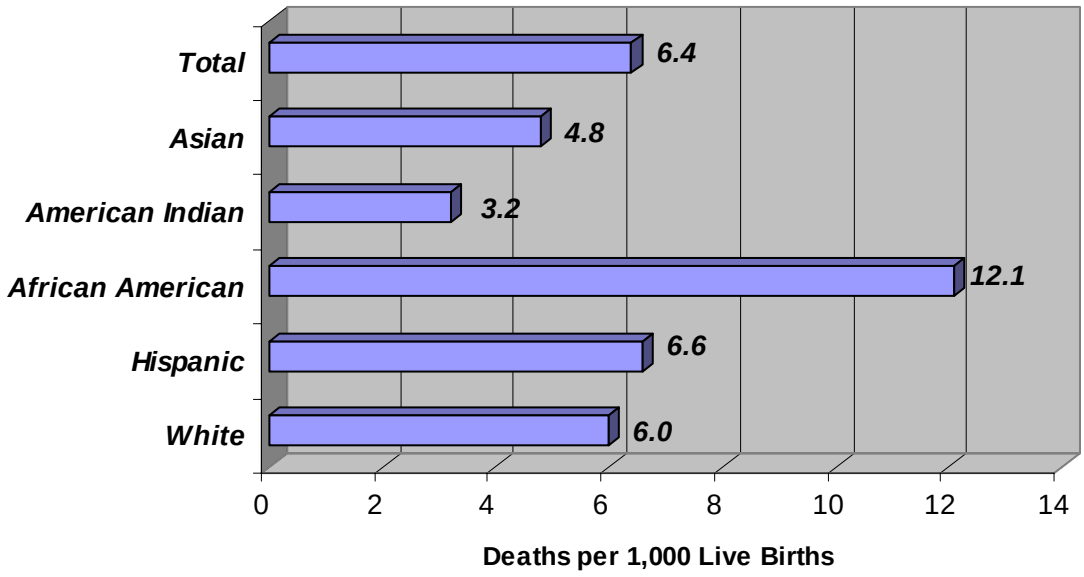
Infant Mortality Not at 2010 Goal

In 2002, there were 56,613 births and 361 infant deaths. This was a rate of 6.4 infant deaths per 1,000 live births. Maricopa County had not yet met the Healthy People 2010 goal of 4.5 infant deaths per 1,000 live births, as shown in Figure 14-1.

Infant Mortality Higher Among African Americans

In Maricopa County in 2002, the infant mortality rate among African Americans was higher than for any other group. The rate for African Americans was double the rate for whites (12.1 for African Americans compared to 6.0 for whites). American Indians and Asians had lower rates than the other groups at 3.2 and 4.8 respectively. (See Figure 14-2.)

Figure 14-2. Infant Mortality Rates by Race/Ethnicity
Maricopa County 2002



Prenatal Care

Key Findings

- Hispanics, African Americans, and American Indians were less likely than other groups to receive adequate prenatal care in 2002.
- Single mothers and the youngest mothers (under the age of 15) were the least likely to receive adequate care.
- The higher the educational level of the mother, the more likely she was to receive adequate prenatal care.

Infant mortality is associated with many factors or combinations of factors, including genetics, risk behaviors, access to health care, income, education, family and obstetrical history, and more. One factor that has shown to be associated to infant mortality is the use of prenatal care.

Hispanics, American Indians, African Americans Less Likely to Receive Adequate Care

Table 15-1 shows the levels of inadequate prenatal care for different race/ethnic groups in 2002. Among ethnic groups, whites and Asians were the most likely to have adequate care – 85% of white mothers and 83% of Asian mothers who gave birth in 2002 had adequate prenatal care. Hispanic and American Indian mothers had the lowest percentages of adequate prenatal care (67% of Hispanic mothers and 65% of American Indian mothers). African Americans were in the middle (75%). This means that about 1 in 3 Hispanic and American Indian mothers and 1 in 4 African American mothers had inadequate prenatal care in 2002.

Table 15-1. Adequate Prenatal Care
Maricopa County, 2002

	Adequate	Inadequate
White	85%	15%
Hispanic	67%	33%
African American	75%	25%
American Indian	65%	35%
Asian	83%	17%
< 15	49%	51%
15 - 19	65%	35%
20 - 29	75%	25%
30 - 44	82%	18%
45+	73%	27%
Married	83%	17%
Single	66%	34%
Divorced	74%	26%
Total (All Mothers)	76%	24%

How to read: 85% of white mothers giving birth in 2002 received adequate prenatal care.

Young and Single Mothers Least Likely to Get Care

When looking at adequacy of care by the age of the mother, very young mothers (under 15 years old) were least likely to have adequate prenatal care – only about half (49%) received adequate care. As shown in Table 15-1, adequacy of care increased with age up to age 30-44. Among the mothers over the age of 44, 73% received adequate care.

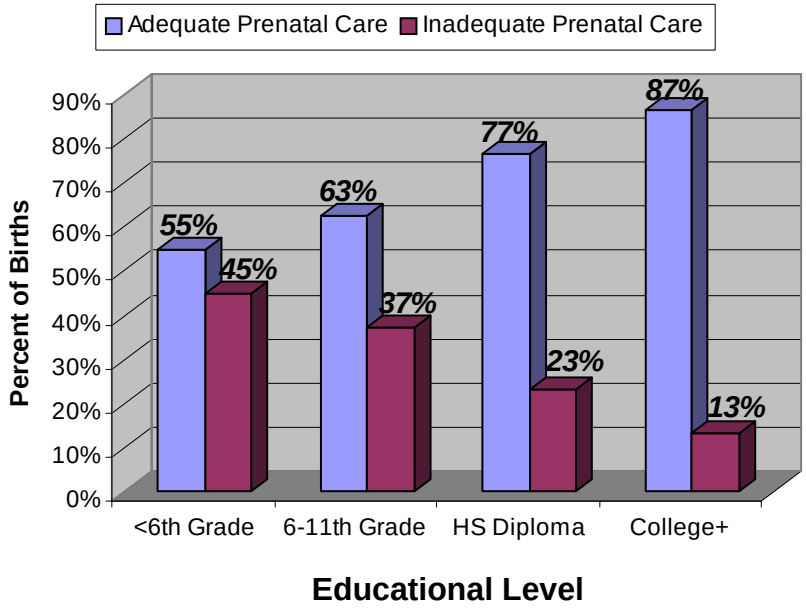
As was the case for ethnicity and age, marital status was also related to adequacy of care. As shown in Table 15-1, only 66% of single mothers received adequate

care in 2002, while 74% of divorced mothers and 83% of married mothers received adequate care.

More Educated, More Prenatal Care

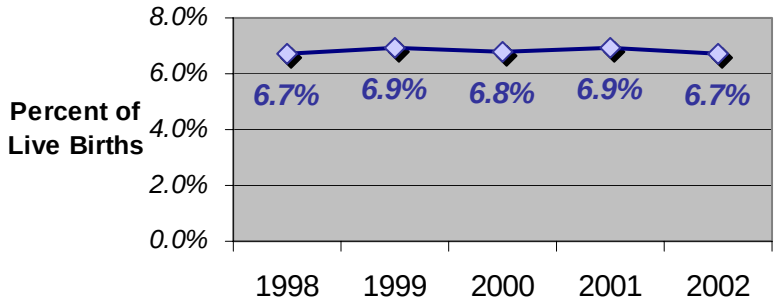
In addition to marital status, age, and ethnicity, education of the mother was also related to levels of adequate care. As shown in Figure 15-1, adequacy of care increases with education level. Eighty-seven percent of the college educated mothers giving birth in Maricopa County in 2002 received adequate prenatal care. In contrast, only 55% of the least educated group (mothers with less than a sixth grade education) received adequate prenatal care. This may be related, at least in part, to income, access to care, nutrition, understanding of prevention and how to use the health system regardless of insurance status. All of these factors are associated with higher educational levels.

Figure 15-1. Adequacy of Prenatal Care by Education of Mother
Maricopa County 2002



Low Birthweight Births

Figure 16-1. Low Birthweight Births
Maricopa County 1998-2002



Key Findings

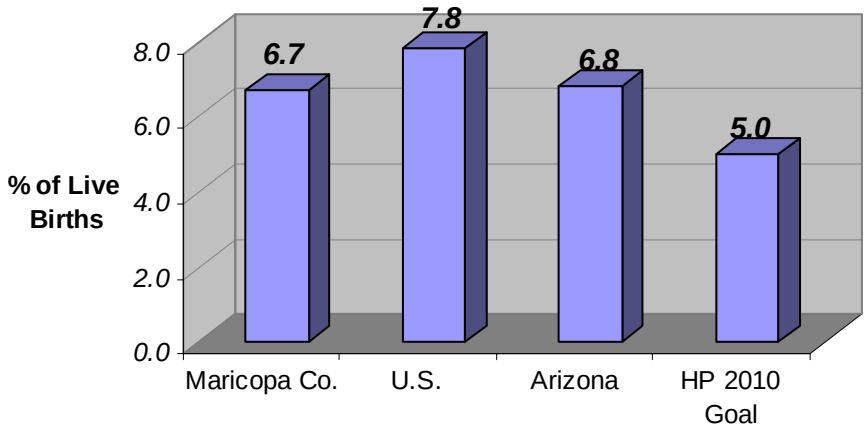
- The percent of infants born at low birthweight (under 2500 grams) remained at about the same level each year between 1998 and 2002.
- African Americans had the highest percentage of babies born at a low birthweight in 2002.
- Maricopa County's low birthweight rate was better than the rate for the total United States, but did not meet the Healthy People 2010 Goal.

Steady Rate Over Time

Infants who weigh less than 2500 grams (5 lbs 8 oz) at birth are considered to be "low birthweight" babies. According to the United States Department of Health and Human Services, low birthweight babies were "more likely to experience long-term developmental and neurologic disabilities than were infants of normal birthweight" and the smallest low birthweight infants "were at a higher risk of dying within their first year."

In Maricopa County, 6.7% of all infants born alive in 2002 weighed less than 2500 grams. Five years ago, in 1998, the figure was the same at 6.7% of live births. The percent increased and decreased in intervening years, but

Figure 16-2. Low Birthweight Comparisons 2002



has remained at about the same level year to year. (See Figure 16-1.)

Maricopa County Not at Goal

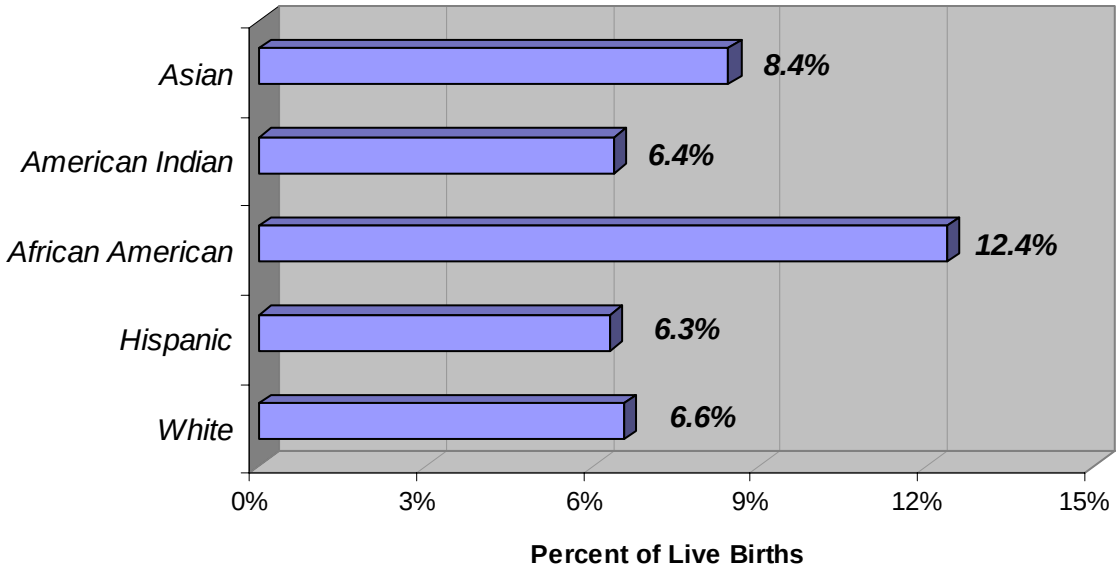
As shown in Figure 16-2, Maricopa County had a lower percentage of low birthweight babies than did the United States as a whole in 2002. However, the Healthy People Goal of 5.0% was still a goal for Maricopa County in the future.

As mentioned in the infant mortality section of this report, comparisons between Maricopa County and U.S. rates should be made with caution since Maricopa County has a different racial/ethnic distribution than the U.S. and this affects the final low birthweight rate.

African Americans at Highest Risk

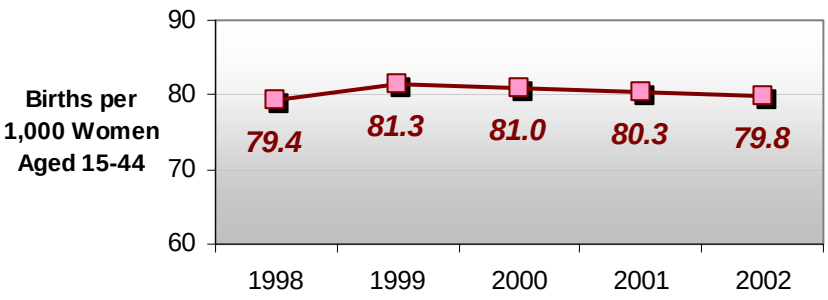
As shown in Figure 16-3, in Maricopa County in 2002, 12.4% of African American infants weighed less than 2500 grams. This was almost double the percent of low birthweight babies seen among American Indians, Hispanics, and whites. Asians had the second highest percent of low birthweight babies at 8.4%.

Figure 16-3. Low Birthweight by Race/Ethnicity
Maricopa County 2002



Births to Teens

Figure 17-1. General Fertility Rate
Maricopa County 1998-2002



Key Findings

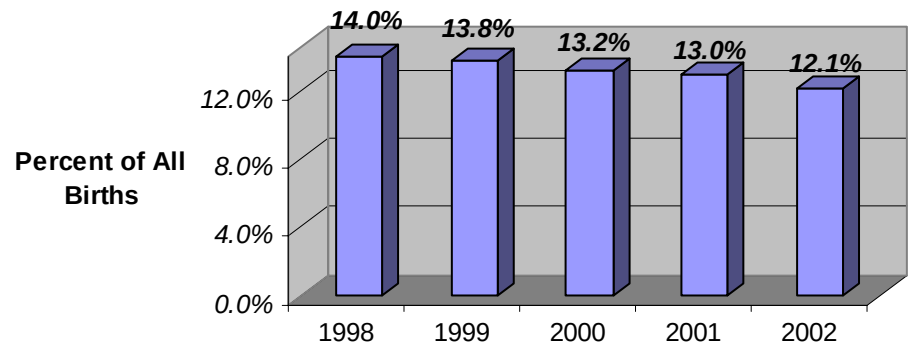
- The birth rate for all women in Maricopa County varied slightly between 1998 and 2002.
- The percent of births to teenage mothers decreased consistently between 1998 and 2002.
- Hispanics and American Indians had the highest rates of births to teenage mothers although rate decreased significantly among African Americans and Hispanics between 1998 and 2002.

Total Birth Rate Steady as Births to Teens Drops

In 1998, the number of births per 1,000 women between the ages of 15 and 44 was 79.4. In 2002, the comparable fertility rate was 79.8. There was little change in the intervening years, as shown in Figure 17-1.

During this same period, the percent of births to teenage mothers dropped. In 1998, 14.0% of all mothers giving birth were women 19 years old or younger, as shown in Figure 17-2. Each year, this decreased slightly and in 2002, the percent of all mothers who were 19 years old and younger was 12.1%.

Figure 17-2. Births to Teenaged Mothers
Maricopa County 1998-2002



As discussed in the Prenatal Care section of this report, some of these teen mothers did not

receive proper care. Of the teen mothers who gave birth in 2002, 65% received prenatal care during the first trimester of the pregnancy. The Healthy People 2010 goal for first trimester prenatal care is 90% for mothers of all ages.

Hispanics, American Indians Have Highest Teen Birth Rate

In Maricopa County in 2002, Hispanics and American Indians had the highest rate of births among teen mothers. For every 1,000 Hispanic females between the ages of 10 and 19 in Maricopa County, about 58 gave birth in 2002. For American Indians, the rate was about the same (55). The comparable rate for African Americans was far lower at 30.4 births per 1,000 to teen mothers, as were the rates for whites (13.4) and Asians (11.0). (See table below.)

While Hispanics have the highest rate of births to teen mothers, the rate has decreased since 1998. In 1998, the births per 1,000 female Hispanics aged 10-19 was 79.7. By 2002, the rate had decreased greatly to 57.8. This same pattern also occurred among African American teenagers with the rate decreasing from 65 to 30.4.

The only racial/ethnic group that appears to have experienced an increase in the rate of births to teen mothers was American Indians. In 1998, American Indians had a rate of 45.8, which climbed to 55.0 births per 1,000 females aged 10-19 by 2002. However, given that there are relatively few births to American Indians, the rates fluctuate greatly from year to year.

Table 17-1. Births to Teen Mothers by Race/Ethnicity
Maricopa County, 2002

	Births to teenaged mothers	All mothers	Births to teens as a percent of all births*	Teen birth rates (per 1,000 females aged 10-19)**
White	1,699	26,182	6.5%	13.4
Hispanic	4,492	24,982	18.0%	57.8
African American	320	1,978	16.2%	30.4
American Indian	260	1,565	16.6%	55.0
Asian	56	1,657	3.4%	11.0
Other/unknown	12	249	-	-
Total	6,839	56,613	12.1%	29.9

** How to read: 6.5% of white mothers giving birth in 2002 were 19 years old or younger.*
*** How to read: In 2002, there were 57.8 births to Hispanic teen mothers for every 1,000 Hispanic female teens in Maricopa County.*

Population Facts

U.S. Census 2002 Estimates for Maricopa County

Age	Males	Percent	Females	Percent	Total	Percent
Under 5	137,560	8.3%	130,725	7.9%	268,285	8.1%
5-9	131,077	7.9%	125,211	7.6%	256,288	7.8%
10-14	128,114	7.7%	121,627	7.4%	249,741	7.6%
15-19	114,429	6.9%	107,191	6.5%	221,620	6.7%
20-24	126,813	7.7%	113,442	6.9%	240,255	7.3%
25-34	272,342	16.4%	246,486	15.0%	518,828	15.7%
35-44	255,005	15.4%	242,635	14.7%	497,640	15.1%
45-54	198,647	12.0%	204,899	12.4%	403,546	12.2%
55-64	130,646	7.9%	142,694	8.7%	273,340	8.3%
65-74	89,678	5.4%	103,723	6.3%	193,401	5.9%
75-84	56,770	3.4%	79,064	4.8%	135,834	4.1%
85 and older	15,042	0.9%	30,056	1.8%	45,098	1.4%
Total	1,656,123	100.0%	1,647,753	100.0%	3,303,876	100.0%

Race/Ethnicity	Total	Percent
White, not Hispanic	2,113,768	64.0%
Hispanic	895,057	27.1%
African American, not Hispanic	119,461	3.6%
American Indian, not Hispanic	53,840	1.6%
Asian, not Hispanic	81,192	2.5%
Other, not Hispanic	40,558	1.2%
Total	3,303,876	100.0%

Source: United States Census

Data on this page were used for calculating all rates (denominators) in this report for 2002.

Population figures for 1998 through 2001 may be found in the *Maricopa County Health Status Report 1998-2002 Figures and Reference Tables*.

Population Pyramids

Figures 18-1, 18-2, and 18-3 show changes in Maricopa County population between 1980 and 2000. Comparison of the three figures shows an overall growth in population between 1980 and 2000 as the pyramids get larger each decade. This represents a doubling of the population from approximately 1.5 million in 1980 to 3.0 million in 2000. (Exact population numbers used for these pyramids are shown in Table 18-1.)

Each of the figures shows the age and gender distribution of the Maricopa County population for the specific census years. For example, in 1980 (Figure 18-1), the age group with the largest population was the 20-24 age group. There were 74,526 men in this age group, as shown by the blue bar, and slightly fewer women, 72,858, as shown by the maroon bar. In the 85 and older age group, there were almost twice as many women as men – 7,352 women and 3,959 men. This is shown on the top of the figure (labeled "85+") where the maroon bar is wider than the blue bar.

Figure 18-1. Population Distribution by Age and Gender
Maricopa County 1980

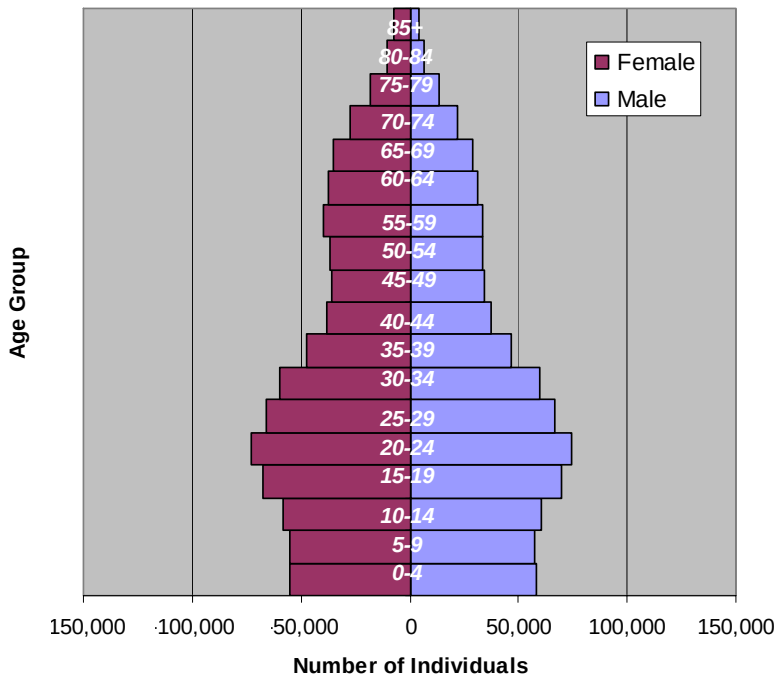
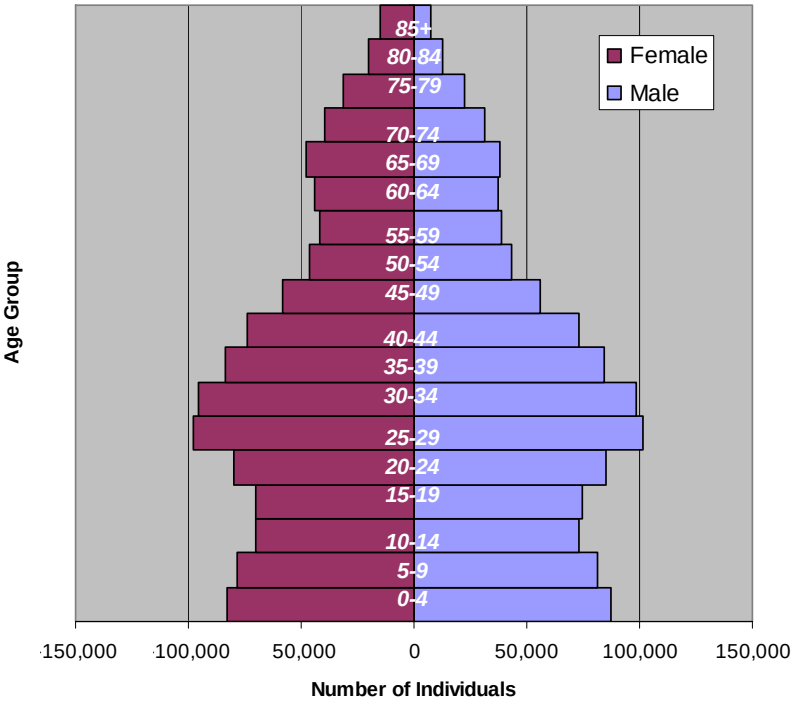
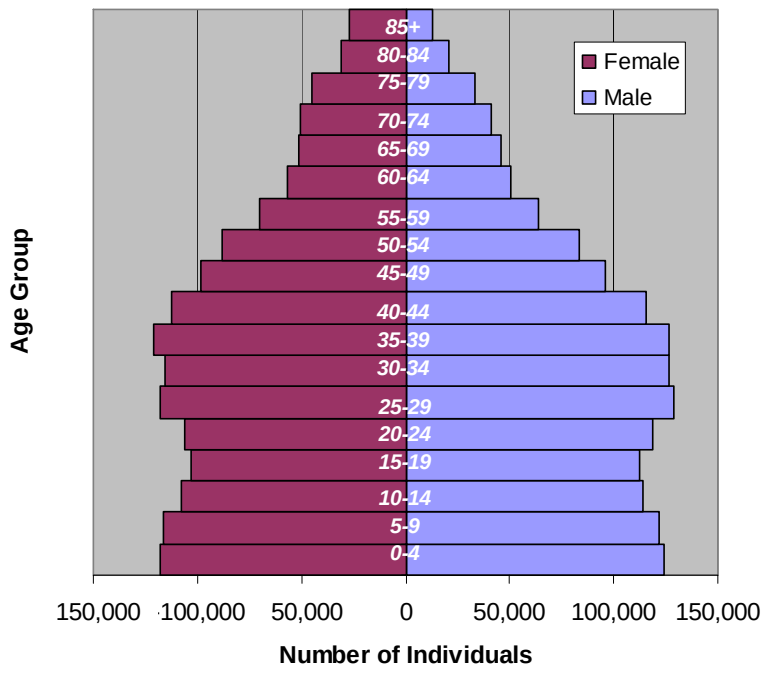


Figure 18-2. Population Distribution by Age and Gender
Maricopa County 1990



By 1990 (Figure 18-2 on the previous page), the population had increased in every age/gender group compared to 1980. The relative sizes of the age groups had also changed somewhat. The 25-29 age group became the largest single group. As a proportion of the total population, the 15-24 age groups decreased slightly over the decade and the 35-44 age groups increased. This is due, in part, to the aging of residents who were in their twenties in 1980 and the age of those migrating into the county.

Figure 18-3. Population Distribution by Age and Gender
Maricopa County 2000



As shown in the final figure (Figure 18-3), the population increased again overall and in all age/gender groups in 2000. The group that was in its twenties in 1980 added to a slight increase in the proportion of residents in the 45-54 age groups.

Table 18-1. Population Distribution by Age and Gender
Maricopa County 1980, 1990, 2000

	1980			***1990***			***2000***		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Age									
0-4	58,005	55,279	113,284	87,064	83,118	170,182	123,805	118,169	241,974
5-9	57,478	55,025	112,503	81,589	78,006	159,595	121,944	116,278	238,222
10-14	60,192	58,031	118,223	73,486	70,064	143,550	114,064	107,992	222,056
15-19	70,053	67,321	137,374	74,632	70,257	144,889	112,020	102,652	214,672
20-24	74,526	72,858	147,384	84,886	79,675	164,561	118,396	106,048	224,444
25-29	67,027	66,204	133,231	101,593	97,787	199,380	129,000	117,693	246,693
30-34	59,943	59,701	119,644	98,235	95,553	193,788	126,349	115,287	241,636
35-39	46,628	47,594	94,222	84,088	83,469	167,557	126,726	120,940	247,666
40-44	37,722	38,548	76,270	73,033	74,088	147,121	115,527	112,714	228,241
45-49	34,639	35,555	70,194	56,273	57,975	114,248	95,863	98,641	194,504
50-54	33,300	36,846	70,146	43,528	46,104	89,632	83,584	88,376	171,960
55-59	33,684	39,723	73,407	38,815	41,909	80,724	63,969	69,843	133,812
60-64	31,269	37,169	68,438	37,494	44,123	81,617	50,764	56,526	107,290
65-69	28,694	35,435	64,129	38,025	47,514	85,539	45,655	51,621	97,276
70-74	22,169	27,637	49,806	31,309	39,779	71,088	41,408	50,132	91,540
75-79	13,628	18,214	31,842	22,128	31,607	53,735	33,430	44,942	78,372
80-84	6,875	10,769	17,644	12,477	20,270	32,747	21,027	30,637	51,664
85+	3,959	7,352	11,311	7,123	15,025	22,148	12,942	27,185	40,127
Total	739,791	769,261	1,509,052	1,045,778	1,076,323	2,122,101	1,536,473	1,535,676	3,072,149

Summary Table

Causes of Death	2002 Maricopa County Number of Individuals	2002 Maricopa County Crude Rate (Deaths per 100,000 Residents)	Age Adjusted Rate (Deaths per 100,000 Residents) Maricopa County	Arizona 2002	U.S. Prelim. Data 2002	Healthy People 2010 Goal
Heart Disease	5,942	179.8	200.0	201.0	240.4	-
Coronary Heart Disease	5,037	152.5	169.7	-	-	166.0
All Other Heart Disease	905	27.4	-	-	-	-
All Cancers	5,066	153.3	168.8	168.6	194.0	159.9
Lung, Trachea, Bronchus Cancer	1,417	42.9	47.3	46.6	55.1	44.9
Female Breast Cancer[1]	389	23.6	23.7	22.2	25.5	22.3
Prostate Cancer[1]	300	18.1	25.0	24.8	26.6	28.8
All Other Cancers	2,960	89.6	-	-	-	-
Cerebrovascular Disease (Stroke)	1,385	41.9	46.8	47.0	56.3	48.0
Unintentional Injuries (Accidents)[2]	1,283	38.8	40.7	45.2	35.3	17.5
Motor Vehicle	504	15.3	15.6	18.5	15.4	-
Falls	282	8.5	9.5	8.6	5.5	-
Accidental Poisoning	258	7.8	8.1	9.2	5.1	-
Drowning	41	1.2	1.2	1.2	1.2	-
All Other Unintentional Injuries	198	6.0	-	-	-	-
Pneumonia & Influenza	708	21.4	23.7	25.0	22.7	-
Diabetes	691	20.9	23.1	22.3	25.4	45.0[3]
Suicide	457	13.8	14.2	15.9	10.6	5.0
Homicide	298	9.0	8.7	8.6	5.9	3.0
AIDS & HIV	110	3.3	3.6	3.1	4.9	0.7[4]
Asthma	43	1.3	1.4	-	1.5	-
Drug Induced	354	10.7	11.0	12.2	7.7	1.0[4]
Firearm Related	558	16.9	16.9	17.3	10.3	4.1
Alcohol Induced	259	7.8	8.5	9.3	6.6	-

Diseases/Conditions	Maricopa County Number of cases	Maricopa County Crude Rate (Cases per 100,000 Residents)	Case Rate (Cases per 100,000 Residents) Arizona 2002	U.S. 2001	Healthy People 2010 Goal
Hepatitis C	1,613	48.8	-	-	1.0
Hepatitis B	872	26.4	4.6	2.8	-
Salmonellosis	395	12.0	14.7	14.4	6.8
AIDS	332	10.0	8.1	15.0	1.0
HIV	321	9.7	2.9	-	-

Diseases/Conditions	Maricopa County Number of cases	Maricopa County Crude Rate (Cases per 100,000 Residents)	Case Rate (Cases per 100,000 Residents) Arizona 2002	U.S. 2001	Healthy People 2010 Goal
Meningitis & Encephalitis	265	8.0	5.9	-	-
Hepatitis A	182	5.5	5.6	3.8	4.5
Tuberculosis	172	5.2	4.8	5.7	1.0
Syphilis (Primary and Secondary)	155	4.7	3.7	2.2	0.2[5]
Pertussis	58	1.8	5.1	2.7	0.7
Rubella	0	0	0	0.04	0
Mumps	0	0	<0.1	0.1	0
Measles	0	0	0	0.01	0

Maternal and Child Health	Maricopa County Number of cases	Maricopa County Rate or Percent	Rate or Percent Arizona 2002	U.S. Prelim. 2002[6]	Healthy People 2010 Goal
Infant Mortality Rate per 1,000 live births	361	6.4	6.3	7.0	4.5
Low birthweight births – percent of live births	3,800	6.7%	6.8%	7.8%	5.0%
Births to teen mothers – percent of live births	6,839	12.1%	13.1%	10.7%	-

How to Read:

Causes of Death

- Number of individuals: 5,942 Maricopa County residents died of heart disease in the year 2002.
- Rate per 100,000: For every 100,000 residents of Maricopa County, there were 179.8 people who died from heart disease in 2002.

Diseases/Conditions

- Number of cases: 1,613 Maricopa County residents were diagnosed with Hepatitis C in 2002.
- Rate per 100,000: For every 100,000 residents of Maricopa County, there were 48.8 diagnosed with Hepatitis C in 2002.

Maternal and Child Health

- Infant mortality: For every 1,000 births in Maricopa County in 2002, there were 6.4 infants who died.
- Low birthweight: Of all births in Maricopa County in 2002, 6.7% of them were infants who weighed less than 2500 grams.
- Births to teen mothers: Of all births in Maricopa County in 2002, 12.1% were to teenaged mothers.

Notes:

1. The Maricopa County, Arizona, United States and HP 2010 Goal rates for female breast cancer are calculated as a rate per 100,000 women. The rates for prostate cancer are calculated as rates per 100,000 men. The U.S. rates for these two conditions are from 2001. All other death rates are from 2002.

2. Unintentional injuries listed in this table include 1,283 deaths from unintentional injuries, but do not include the 31 deaths from complications of medical or surgical care. The figure in this table is comparable to the HP 2010 goal. See Technical Notes for more information.

3. The HP 2010 goal for diabetes includes deaths from underlying and multiple causes – these are diabetes related deaths. All other death rates, including those for diabetes, are from underlying cause only.

4. When compared directly to the Healthy People 2010 Goals, Maricopa County data for HIV/AIDS and drug induced deaths are inflated by approximately 15-20% because a different method of grouping causes of death was used to determine the Healthy People Goals.

5. The Healthy People 2010 goal for primary and secondary syphilis includes only transmission of syphilis that occurred in the United States. It is likely that Maricopa County includes some cases acquired outside of the country.

6. The infant mortality, low birthweight, and teen mother figures for the United States are from preliminary 2002 data.

Technical Notes

For additional statistics on deaths, diseases, and births please see the document *Maricopa County Health Status Report 1998-2002 Figures and Reference Tables*. The document is available by calling 602.372.2604 or may be found at www.maricopa.gov/public_health/epi/hsr.asp.

Population Statistics

For 2000, 2001 and 2002, this report uses the most recent U.S. Census data and estimates for **population** figures.

The population figures in this report may differ from figures in previous Maricopa County Department of Public Health (MCDPH) and other reports in two ways. First, some reports use Arizona Department of Economic Security (ADES) or MCDPH estimates for population data. Second, some reports may use the first published estimates by the 2000 U.S. Census. This report uses the most recent **U.S. Census** population figures and estimates for 2000-2002. For a complete explanation on how the most recent U.S. Census data differ from the first published U.S. Census data, please see the following: "2000 Census of Population and Housing, Notes and Errata" at www.census.gov/prod/cen2000/notes/errata.pdf.

For 1998 and 1999, this report uses population figures from the **Arizona Department of Economic Security**. ADES figures are used for annual estimates for the second half of each decade because they are generally closer to real figures than the intercensal estimates of the U.S. Census. The estimates for 1998 and 1999 were considerably lower than the actual population as shown by the 2000 U.S. Census. Therefore, disease and death rates for 1998 and 1999 are may be artifactually high because the ADES figures used for denominators were low. However, changes that occurred between 2000 and 2002 would not be affected.

Data for the 1990 and 2000 **population pyramids** in the Population Facts section are from the U.S. Census (www.censusscope.org/us/s4/c13/chart_age.html). The total population for 2000 in Figure 18-3 differs from other numbers provided in this report and in the *Maricopa County Health Status Report 1998-2002 Figures and Reference Tables*. This is because a different version of the census was used to create the pyramid. Data for the 1980 population pyramid was provided by the ADES, Population Statistics Unit.

This report and all reports from MCDPH define **Hispanic** as follows: all respondents listing Hispanic, either alone or in combination with any race, are classified as Hispanic. The table below shows how the U.S. Census variables of "origin" and "race" are used for categorization in this report.

Race/Ethnicity Categories Used in This Report

Category Used in This Report	U.S. Census Code "Race"	U.S. Census Code "Origin"
White	Race=1 (White Alone)	Origin=1 (Non-Hispanic)
African American	Race=2 (Black Alone)	Origin=1 (Non-Hispanic)
American Indian	Race=3 (Am. Ind. Alone)	Origin=1 (Non-Hispanic)
Asian	Race=4 (Asian Alone) or 5 (Native Hawaiian Alone)	Origin=1 (Non-Hispanic)
Other	Race=6 (Two or More Races)	Origin=1 (Non-Hispanic)
Hispanic	Race=Any (1-6)	Origin=2 (Hispanic)

Titles for each race/ethnic category are modified from the U.S. Census. The U.S. Census has categories entitled "white",

"Asian", and "Hispanic" all of which are used here. It also includes "American Indian and Alaska Native" and "Black or African American." These categories were shortened to "American Indian" and "African American" respectively for brevity in this report, but are comparable to the U.S. Census categories.

Death (Mortality) Statistics

Crude death rates are calculated by taking the number of deaths and dividing it by the number of residents in Maricopa County. This number is then multiplied by 100,000 to get a rate per 100,000 residents. This may be done for the total population or within an appropriate age, gender, or race/ethnicity category. For example, there were 106 deaths from diabetes among Hispanics in 2002 and there were 895,057 Hispanics in Maricopa County in 2002. Therefore, there were 11.8 diabetes deaths per 100,000 Hispanic residents in 2002. The artithmetic is as follows: $(106 \div 895{,}057) \times 100{,}000 = 11.8$.

Age adjusting - In order to compare Maricopa County's rate to the U.S. rate fairly, both rates were age adjusted. This means that statistical methods were used to insure that the difference between rates for the two groups reflects actual disease differences and not only different age compositions. When death rates for two different groups are compared without using age adjusting, it may appear that one group or the other has a higher death rate. However, the higher death rate may be due solely to the fact that one group has an older population, a population more likely to die of any and all causes. Age adjusting takes this into account so that if there is a difference in death rates, it is due to factors other than the age of the population.

When they are age adjusted, Maricopa County rates are adjusted to the 2000 standard population using the direct method described in *Health, United States, 2003* published by the National Center for Health Statistics at www.cdc.gov/nchs/data/hus/hus03.pdf, p.414. Arizona, Healthy People goals, and U.S. rates included in this report are also age adjusted to the 2000 standard population.

All data on **death statistics** are from the Arizona Department of Health Services (ADHS) final annual death files. The mortality data for Maricopa County are from death certificates for Maricopa County residents only. This includes Maricopa County residents who died in Maricopa County and residents who died elsewhere. Non-Maricopa County residents who died in Maricopa County are not included. Previously published reports may show different death rates because residents and non-residents were included.

Unless otherwise noted, all deaths are attributed to one underlying condition, based on death certificate information, utilizing the rules from the *International Statistical Classification of Diseases and Related Health Problems (ICD)*, ninth and tenth revisions. Causes of death are classified by ICD-9 or ICD-10 codes. In this report, ICD-9 codes are used for 1998 and 1999 mortality data. ICD-10 codes are used for 2000-2002 data. The codes defining each cause of death are listed in the table at the end of this report.

The disease cases (morbidity) and death rates for **American Indians** and **Asians** may appear extraordinarily high compared to other groups. Both of these groups have relatively small populations in Maricopa County (under 100,000 residents as shown in Population Facts section of this report). Rates may appear high, but may represent only one or two deaths in a given category. Therefore, it is advisable to check the raw number of cases or deaths. (Raw numbers may be found in the *Maricopa County Health Status Report 1998-2002 Figures and Reference Tables*.)

The following are technical information for specific causes of death:

- In this report, **unintentional injury** deaths include all unintentional injuries except for "complications of medical and surgical care." In *Maricopa County Health Status Report 1998-2002 Figures and Reference*

Tables unintentional injuries include both "motor vehicle accidents" and "all other accidents and adverse effects", including complications of medical/surgical care. See the Technical Notes of that document for more details.

- The mortality rate for **breast cancer** is calculated among women only (using only female residents in the denominator) and **prostate cancer** is calculated among men only (using only male residents in the denominator).

- **Firearm related deaths, drug induced deaths, and alcohol induced deaths** include deaths from a number of other categories, such as suicide, homicide, accidental injury, etc. For example, a firearm related death may also be classified as a suicide, homicide, or "other accident or adverse effect."

- An **alcohol induced or drug induced death** may be attributed to a long or short term effect of alcohol or drugs, such as acute alcohol intoxication or alcoholic cardiomyopathy. For example, the alcohol induced category includes mental and behavioral disorders due to use of alcohol, degeneration of nervous system due to alcohol, alcoholic polyneuropathy, alcoholic cardiomyopathy, alcoholic gastritis, alcoholic liver disease, finding of alcohol in blood, accidental poisoning by alcohol, intentional self-poisoning by alcohol and unknown intent poisoning by alcohol. Neither alcohol induced nor drug induced deaths include deaths in motor vehicle accidents or other accidents while intoxicated or under the influence of drugs. **Firearm related** deaths, on the other hand, do include accidental deaths, as well as intentional use of firearms. The ICD-9 and ICD-10 codes used for these three categories are shown in the table at the end of this report.

- The number and rate of **drug induced deaths in 2000** was low compared to other years. This may be an artifact of coding changes as the year 2000 marked changes from ICD-9 to ICD-10.

Comparison death and disease rates for Arizona may be found in *Arizona Health Status and Vital Statistics 2002*, published by the ADHS or at www.hs.state.az.us/plan/report/ahs/ahs2002/toc02.htm. The U.S. data are considered "preliminary" for 2002 and are from *Health, United States, 2002* published by the National Center for Health Statistics at www.cdc.gov/nchs/data/nvsr/nvsr52/nvsr52_13.pdf. Healthy People 2010 Goals are set by the Department of Health and Human Services and may be found at www.healthypeople.gov/Document/tableofcontents.htm.

Communicable Disease Morbidity Statistics

Crude morbidity rates or **case rates** are calculated by taking the number of cases for a selected disease and dividing it by the number of residents in Maricopa County. This number is then multiplied by 100,000 to get a rate per 100,000 residents. This may be done for the total population or within an appropriate age, gender, or race/ethnicity category. For example, there were 341 females with Hepatitis B in 2002 and there were 1,647,753 females in Maricopa County in 2002. Therefore, there were 20.7 Hepatitis B cases per 100,000 females in 2002. The arithmetic is as follows: $(341 \div 1{,}647{,}753) \times 100{,}000 = 20.7$.

All **communicable disease statistics** are from ADHS, except for the data on hepatitis B, hepatitis C, and syphilis. Syphilis data are from the MCDPH, Division of Public Health Clinical Services, STD Field Services. Hepatitis B and C data are from the MCDPH, Division of Epidemiology and Data Services, communicable disease reporting database.

Communicable disease morbidity data include only **confirmed cases** and are classified by the earliest date in the record. The earliest date may be date of onset, date of diagnosis,

or date of report. HIV and AIDS data are classified by date of diagnosis in Maricopa County and Arizona. HIV/AIDS cases are reported by date of report for the United States. All communicable disease statistics in this report are new cases for each specified year (incidence).

Hospital discharge data are from the ADHS. These data are for all area hospitals of a certain size or larger except government hospitals such as the Carl T. Hayden Veteran's Administration Medical Center or Phoenix Indian Medical Center. Estimates for Maricopa County based on the National Health Information Survey are also from ADHS.

Data on **tuberculosis, HIV, AIDS,** and **STDs** may differ from other reports published by Maricopa County Department of Public Health and the Arizona Department of Health Services. Data on these diseases are in databases that may have been updated during the time between reports. For this report, data used are current as of May 2004. HIV/AIDS data are from March 10, 2004.

Years of Potential Life Lost

The following method is used to calculate years of potential life lost:

- First, the average ages at death for men and women in the U.S. are obtained from the National Center on Health Statistics. For 2002, these are 79.8 years for women and 74.4 years for men.

- Second, the average ages of death for men and women in Maricopa County for each cause of death are obtained. In calculating this average age for each cause of death, only people who died at or younger than the U.S. average are included. For example, the average age at death for cancer among women at or under the age of 80 was 64.3.

- Third, the average age for each cause among each gender group is subtracted from the U.S. average to get an average number of years lost per person. For cancer among women, for example, 79.8 – 64.3 = 15.5.

- Fourth, the result of this calculation is then multiplied by the total number of deaths for that gender and that cause. For cancer among women, this was 1,666 deaths among women 80 or under × 15.5 average potential years lost = 25,823 years potential years lost.

- Fifth, the potential years of life lost for men is added to the potential years of life lost for women. In 2002 for cancer this was 25,823 years for women and 20,381 years for men for a total of 46,204 years of potential life lost.

Natality (Birth) Statistics

Infant mortality statistics shown in this report are from unlinked data. U.S. data are preliminary for 2002 and are from the National Center for Health Statistics at http://www.cdc. gov/nchs/data /nvsr/nvsr52/nvsr52_13.pdf. Arizona figures for 2002 can be found in *Arizona Health Status and Vital Statistics 2002*, published by the ADHS or at www.hs.state.az.us/plan /report/ahs /ahs2002/toc02.htm. All infant mortality data shown in the Summary Table is unlinked.

As is the case for American Indians and Asians, the **rates for older and younger maternal age groups** (under 15 and over 45) may appear extraordinarily high compared to other groups. All of these groups have relatively small populations in Maricopa County. Rates may appear high, but may represent only one or two cases in a given category. Therefore, it is advisable to check the raw numbers. (Numbers available in *Maricopa County Health Status Report 1998-2002 Figures and Reference Tables*.)

The following are terms related to reproductive health and their definitions:

- **Birth or Live Birth** – The complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy which, after such expulsion or extraction, breaths or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached.

- **Birth Rate** – Number of live births during a calendar year per 1,000 residents.

- **Birthweight** – The weight of a neonate determined immediately after delivery or as soon thereafter as possible.

- **Infant Death** – Any death at any time from birth up to, but not including, the first year of age (364 days, 23 hours, 59 minutes from the moment of birth).

- **Infant Mortality Rate** – Number of infant deaths per 1,000 live births.

- **General Fertility Rate** – Total number of live births to women of all ages during a calendar year per 1,000 women of childbearing age (15-44 years old).

- **Linked Infant Mortality** – Whenever possible, infant death certificate data are linked to birth certificate information to determine parental, demographic and birth data. Not all infant deaths can be linked. (In 2002, up to 3% were lost to follow-up).

- **Low Birthweight** – Any birthweight of less than 2,500 grams at birth (less than 5 pounds 8 ounces).

- **Preterm delivery** – Any delivery that occurs through the end of the last day of the 37th week (259th day), following onset of the last menstrual period.

An extensive analysis of natality statistics in Maricopa County may be found in the *Maricopa County Maternal and Child Health Needs Assessment* available online at www.maricopa.gov/public_health.

Healthy People 2010 Goals

The Centers for Disease Control and Prevention provide national health goals for the year 2010 – Healthy People (HP) 2010 goals. These goals appear throughout the report and on the Summary Table. On the Summary Table, a hyphen indicates that no goal has been set for that indicator or the goal is not comparable to Maricopa County data. A goal of "0" indicates that the goal is zero.

This report provides HP 2010 Goals only when the goals are comparable to Maricopa County data. A goal is considered comparable in this report if two conditions exist:

- First, the HP Goal must include the same conditions as are included in the Maricopa County data. For example, if the Maricopa County figure for heart disease includes all heart disease but the HP 2010 goal includes only coronary heart disease, the goal is not listed as a comparison to the Maricopa County heart disease rate.

- Second, the nationally tested "conversion ratio" between ICD-9 and ICD-10 codes for any given condition must fall between certain boundaries. The conversion ratio measures how closely the two classifications resemble each other. A conversion ratio of "1" means that the ICD-9 codes are equivalent to the ICD-10 codes for that category. Because the HP 2010 goals use ICD-9 codes and the Maricopa County 2000-2002 data use ICD-10 codes, they may or may not be comparable. Therefore, if the conversion ratio is between 0.95 and 1.05, a direct comparison is made with no mention of any differences. If the ratio does not meet this requirement, but is between 0.80 and 1.20, the potential bias is mentioned in the report, along with specifying the direction of the bias. A ratio that exceeds the .80 to 1.20 range is

not used for comparisons. The conversion ratios are from *Deaths: Final Data for 1999*, National Vital Statistics Reports, Volume 49:8, National Center for Health Statistics.

More information on the technical aspects of HP 2010 can be found at www.healthypeople.gov/document/tableofcontents.htm#tracking.

Notes on Specific Sections of This Report

Most of the **zoonotic and vectoborne diseases** information in this report is from *Vectorborne and Zoonotic Disease Newsletter 2002 Highlights,* published by ADHS March 2003 and *Vectorborne and Zoonotic Diseases Maricopa County 2002,* published by MCDPH in March 2003. Vectorborne and zoonotic data used in this report are from ADHS. Therefore, figures from MCDPH listed in other reports may differ slightly due to differing report dates, confirmation status, or other factors.

In the **heart disease** section of this report, there are estimates of the number of Maricopa County residents living with heart failure and hypertension. The American Heart Association (www. americanheart.org/presenter.jhtml?identifier=2114) estimates 5 million people with heart failure and "one in four" adults with hypertension in the U.S., "nearly one-third" of whom aren't aware of their status. Based on the July 2002 U.S. Census population estimate of 287,973,924 for the U.S., five million people is 1.7% of the U.S. population. Applying that 1.7% to Maricopa County population results in 56,166 residents with heart failure. One in four (25%) of Maricopa County residents over the age of 20 is 576,986. One-third of that number is 190,405 – an estimate of how many people are unaware of their status.

In the section on **cancer**, the source for cigarette smoking/lung deaths is the National Institutes of Health at http://cis.nci.nih.gov/fact/3_14.htm.

In the **diabetes** section, there is information on reported exercise and nutrition behaviors. These data are from the Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is a telephone survey operated by the Centers for Disease Control and Prevention (CDC) conducted monthly and analyzed annually. Telephone interviewers ask adults questions associated with diseases, injuries and infectious disease. For example, one question is, "Have you ever been told by a doctor that you have diabetes?" As is the case with any survey, the results may be biased in several ways. First, telephone surveys, be definition, do not include residents without phones. Therefore, these residents are not included in the survey. Second, respondents may overstate one type of behavior over others. There is more information on the BRFSS at http://apps.nccd.cdc.gov/brfss-smart/index.asp.

In the diabetes section, "133,860 Maricopa County residents have been diagnosed at some point in their lives" was derived by taking the BRFSS percentage of 5.8% of Maricopa County respondents who stated they had been diagnosed with diabetes by a doctor and applying it to the total adult (20 and older) population for Maricopa County (2,307,942). This method is used several times in this report. The quote that begins, "There may be as many as 200,970…" is derived from information on the American Diabetes Association (ADA) website. The ADA estimates that one-third of the people with diabetes have not been diagnosed. The one-third was applied to the number above to estimate a total. No error margins were calculated for this estimate or for other estimates in this report.

Obesity, mentioned in the **diabetes** section, is defined by the BRFSS as "All respondents 18 and older who report that their Body Mass Index (BMI) is 30.0 or more. BMI is defined as weight in kilograms divided by height in meters squared."

The "Adequacy of Prenatal Care" table and figure in the **prenatal care** section are classified as follows: "adequate" includes "adequate" and "adequate +", "inadequate" includes "inadequate" and "intermediate"

care. The Index of Prenatal Care Adequacy is constructed from several variables listed on birth certificates - time of initiation of prenatal care, number of prenatal care visits, and gestational age. These variables are combined for an overall index. (In some reports, this is referred to as the "Kotelchuck Index.")

In the infant mortality section, all **infant mortality** data are unlinked. For linked data, see the *Maricopa County Health Status Report 1998-2002 Figures and Reference Tables*.

The information regarding **infant mortality** in the United States increasing for the first time since 1958 is from National Vital Statistics Reports, Vol 52, no. 13, page 1, Deaths: Preliminary Data for 2002 or web www.cdc.gov/nchs/data/nvser/nvsr52/nvsr52_13.pdf.. Furthur information about this finding may be found at www.cdc.gov/nchs/products/pubs/hestats/infantmort/infantmort.htm in the "Supplemental Analyses of Recent Trends in Infant Mortality" by Kenneth D. Kochanek and Joyce A. Martin. This report states that "while the infant mortality rate increased, the perinatal mortality rate (late fetal deaths plus early neonatal deaths per 1,000 live births plus fetal deaths) remained stable." It states that further information will be available later in the year.

In the **low birthweight** section, quotes from the U.S. Department of Health and Human Services may be found at www.healthypeople.gov/document/HTML/Volume2/16MICH.htm #_Toc494699665.

More Information

For more information on population and health statistics, please visit the following websites:

Maricopa County Department of Public Health: www.maricopa.gov/public_health
Arizona Department of Health Services: www.hs.state.az.us
Centers for Disease Control and Prevention, National Center for Health Statistics: www.cdc.gov/nchs
Arizona Department of Economic Security: www.de.state.az.us

ICD Codes Used for This Report		
Cause	**ICD-9 Codes Used (1998, 1999)**	**ICD-10 Codes Used (2000-2002)**
Tuberculosis	010-018	A16-A19
Syphilis	090-097	A50-A53
HIV Disease	042-044	B20-B24
Malignant Neoplasms (Cancer)	140-208	C00-C97
Malig. Neo. Stomach	151	C16
Malig. Neo. Colon	153-154	C18-C21
Malig. Neo. Pancreas	157	C25
Malig. Neo. Bronchus, Lung	162	C33-C34
Malig. Neo. Breast	174-175	C50
Malig. Neo. Uterus, Cervix, Ovary	179,180,182,183.0	C53-C56
Malig. Neo. Prostate	185	C61
Malig. Neo. Urinary	188-189	C64-C68
Non-Hodgkins Lymphoma	200,202	C82-C85
Leukemia	204-208	C91-C95
Other Malig. Neoplasms	140-150, 152, 155, 156, 158-161, 163-165, 170-173, 181, 183.1-183.9, 184, 186-187, 190-199, 201, 203	C00-C15, C17, C22-C24, C26-C32, C37-C49, C51-C52, C57-C60, C62-C63, C69-C81, C88, C90, C96-97
Diabetes	250	E10-E14
Alzheimers	331.0	G30
Major Cardiovascular Disease	390-434, 436-448	I00-I78
Disease of Heart	390-392, 402, 404, 410-429	I00-I09, I11, I13, I20-I51
Hypertensive HD	402,404	I11, I13
Ischemic HD	410-414, 429.2	I20-I25
Other HD	390-392, 415-417, 420-428, 429.0-429.1, 429.3-429.9	I00-I09, I26-I51
Primary Hypertension	401, 403	I10, I12
Cerebrovascular	430-434, 436-438	I60-I69
Atherosclerosis	440	I70
Other Circulatory	441-448	I71-I78
Influenza & Pneumonia	480-487	J10-J18
Chronic Lower Respiratory	466	J40-J47
Peptic Ulcer	531-534	K25-K28
Liver Disease	571	K70, K73-K74
Nephritis	580, 589	N00-N07, N17-N19, N25-N27
Pregnancy, childbirth, and the puerperium	630-676	O00-O99
Perinatal Conditions	760-771.2, 771.4-779	P00-P96
Congenital Malformations	740-759	Q00-Q99
SIDS (Sudden Infant Death Syndrome)	798.0	R95
Ill Defined Disease Conditions (Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified, excluding SIDS)	780-799, excluding 798.0	R00-R94, R96-R99

ICD Codes Used for This Report		
Cause	**ICD-9 Codes Used (1998, 1999)**	**ICD-10 Codes Used (2000-2002)**
All Other Diseases	001-009, 020-027, 030-041, 045-057, 060-066, 070-088, 098-104, 110-112, 114-118, 120-139, 210-246, 251-326, 330, 331.1-337, 340-389, 435, 451-465, 470-478, 490-496, 500-508, 510-530, 535-537, 540-543, 550-553, 555-558, 560, 562, 564-570, 572-579, 581-588, 590-608, 610-611, 614-629, 680-686, 690-698, 700-739, 760-769, 771.0-771.1, 771.3	A00-A09, A20-A49, A54-B19, B25-B99, D00-E07, E15-G25, G31-H93, I80-J06, J20-J39, J60-K22, K29-K66, K71-K72, K75-M99, N10-N15N20-N23, N28-N98
Motor Vehicle Accidents	E810-E825	V02-V04, V09.0, V09.2, V12-V14, V19.0 - V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0 V89.2
All Other Accidents & Adverse Effects	E826-E949	V01, V05-V06, V09.1, V09.3-V09.9, V10-V11, V15-V18, V19.3, V19.8-V19.9, V80.0-V80.2, V80.6-V80.9, V81.2-V81.9, V82.2-V82.9, V87.9, V88.9, V89.1, V89.3, V89.9 V90-X59, Y40-Y86, Y88
Suicide	E950-E959	U03, X60-X84, Y87.0
Homicide	E960-E978	U01-U02, X85-Y09, Y87.1
All Other External Causes	E800-E809, E980-E999	Y10-Y36, Y87.2, Y89
Unknown causes	No ICD code listed	No ICD code listed
Firearm Related	E922, E955.0-E955.4, E965.0-E965.4, E970, E985.0-E985.4	W32-W34, X72-X74, X93-X95, Y22-Y24, Y35.0
Drug Induced	292, 304, 305.2-305.9, E850-E858, E950.0-E950.5, E962.0, E980.0-E980.5	F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.8, F17.0, F17.3-F17.5, F17.7-F17.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, X40-X44, X60-X64, X85, Y10-Y14
Alcohol Induced	291, 303, 305.0, 357.5, 425.5, 535.3, 571.0-571.3, 790.3, E860	F10, G31.2, G62.1, I42.6, K29.2, K70, R78.0, X45, X65, Y15