

ARIZONA
CHRONIC DISEASE SURVEILLANCE
INDICATORS REPORT
September 2004

Arizona Department of Health Services
Public Health Prevention Services

Arizona Chronic Disease Surveillance Indicators Report: September 2004

by

Veronica M. Vensor, MS
Epidemiologist
Public Health Prevention Services
Arizona Department of Health Services

Viral Joshi, MPH
Epidemiologist
Public Health Prevention Services
Arizona Department of Health Services

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Chronic Disease Surveillance Indicators State of Arizona

Chronic disease accounts for seven of the 10 leading causes of deaths for the state of Arizona (Arizona Health Status & Vital Statistics, 2002). They are the most prevalent, costly, and preventable of all health problems. Increased opportunity for primary and secondary prevention of chronic disease has resulted in the expansion of chronic disease programs within the Public Health Services of the Arizona Department of Health Services (ADHS) (Office of Chronic Disease Prevention and Nutrition Services, 2004). Effective public health programs include the monitoring of disease risk factors through public health surveillance. Public health surveillance is the ongoing systematic collection, analysis, and interpretation of outcome-specific data for use in planning, implementing, and evaluating public health practice (Friis & Sellers, 1996).

Health indicators were chosen to address the need for a chronic disease surveillance system. The indicators were chosen if the disease, condition, or risk factor imposed a considerable public health burden and if the surveillance data were available for its inclusion into the surveillance system (Chronic Disease & Epidemiology Work Group, ADHS, 2004).

The data systems for chronic disease surveillance include mortality, hospital discharge, Behavioral Risk Factor Surveillance System (BRFSS), Youth Risk Behavior Surveillance System (YRBSS), United States Renal Data System (USRDS), and United States Census data.

This report condenses information about the leading chronic diseases in Arizona into a single document. It is intended to serve the needs of several chronic disease programs by summarizing and comparing outcome data. However, its greatest value is in presenting the statewide trend data of the behavioral risk factors for these diseases. Data trends are presented throughout this report, where possible. These trends show the progress and challenges of the state's Healthy Arizona Objectives for 2010.

The following table provides an overview of chronic disease in Arizona for 2002.

Disease	Mortality ¹		Hospitalization ²		Estimated Prevalence ³		Calculated Prevalence ⁴
	Number	Rate [†]	Number	Rate [†]	Number	Rate [†]	Percent
Asthma	NA	NA	6,248	114.2	619,831	11,325.8	13.9
Arthritis	NA	NA	18,805	258.5	NA	NA	26.6
Cancer	9,148	168.6	19,671	503.0	282,880	7,045.0	NA
Cardiovascular Disease	12,999	265.5	61,270	1,120.0	324,608	8,084.3	NA
Chronic Lower Respiratory Disease	2,530	47.0	13,638	249.2	NA	NA	NA
Diabetes	1,201	22.3	8,057	146.8	262,686	4,799.9	6.4

† Rates are per 100,000 population.
 NA = Not Available

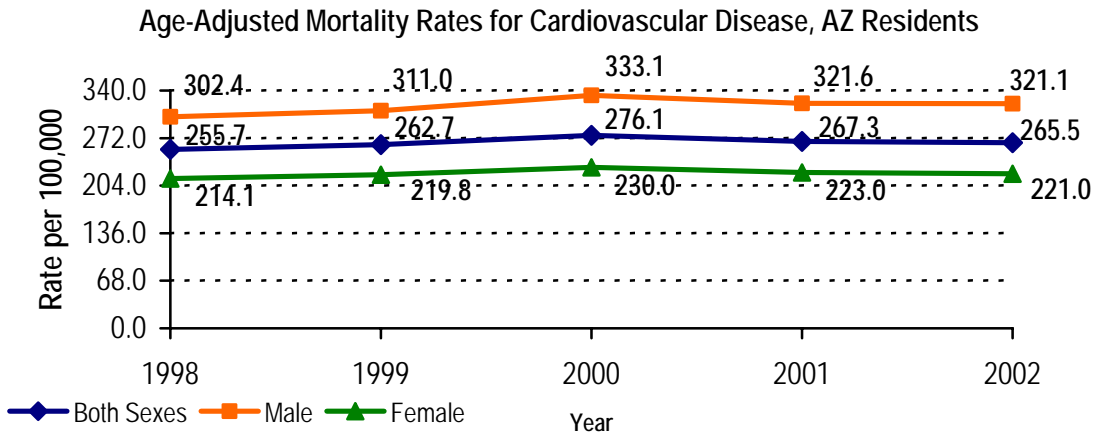
1. Data Source: Arizona Health Status & Vital Statistics, 2002.
2. Data Source: Number/Rate of Discharges by Principal Diagnosis and Age Group, Arizona Residents, 2002 available at <http://www.hs.state.az.us/plan/hip/by/diagnosis/index.htm>.
3. The prevalence estimates were calculated by applying the national estimate (NHIS 2001) to the 2002 population estimate for the State. Asthma and diabetes are the only conditions that include children (age<18).
4. The prevalence estimates represent percentages based on the Behavioral Risk Factor Surveillance System data specific to Arizona residents for 2002 available at www.cdc.gov/brfss.

PART ONE: CHRONIC DISEASE AND CONDITIONS

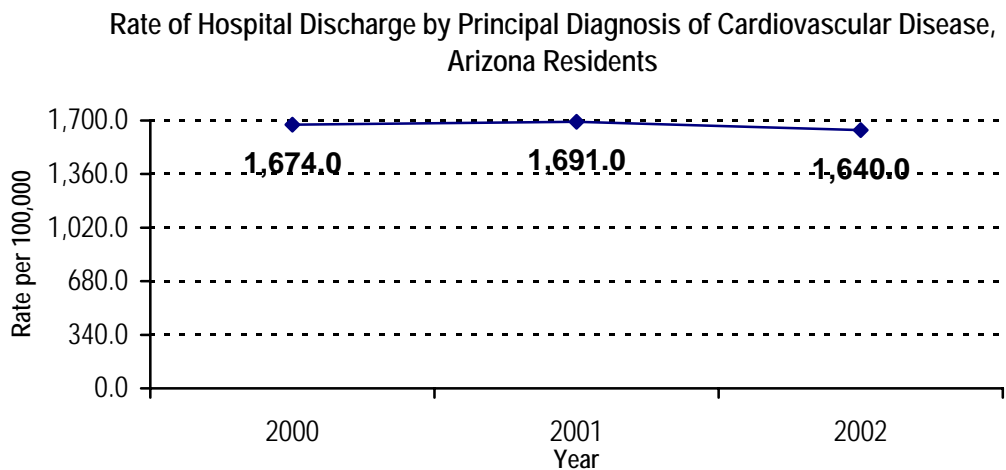
1. Cardiovascular Disease:

The principal components of cardiovascular disease are heart disease and stroke, the first and third leading cause of death in the United States. In Arizona, heart disease and stroke were the first and fourth leading cause of death in 2002; 10,551 deaths were due to heart disease and 2,448 were due to stroke (Arizona Health Status & Vital Statistics, 2002).

Cardiovascular disease is often thought to primarily affect men and older adults. However, it is also a major killer of people in the prime of life and women. Two of the major independent risk factors for cardiovascular disease are high blood pressure and high blood cholesterol. Other important risk factors for heart disease and stroke are diabetes, tobacco use, physical inactivity, poor nutrition, and overweight and obesity (http://www.cdc.gov/nccdphp/bb_heartdisease/index.htm).



Source: Arizona Health Status & Vital Statistics, 1998-2002.



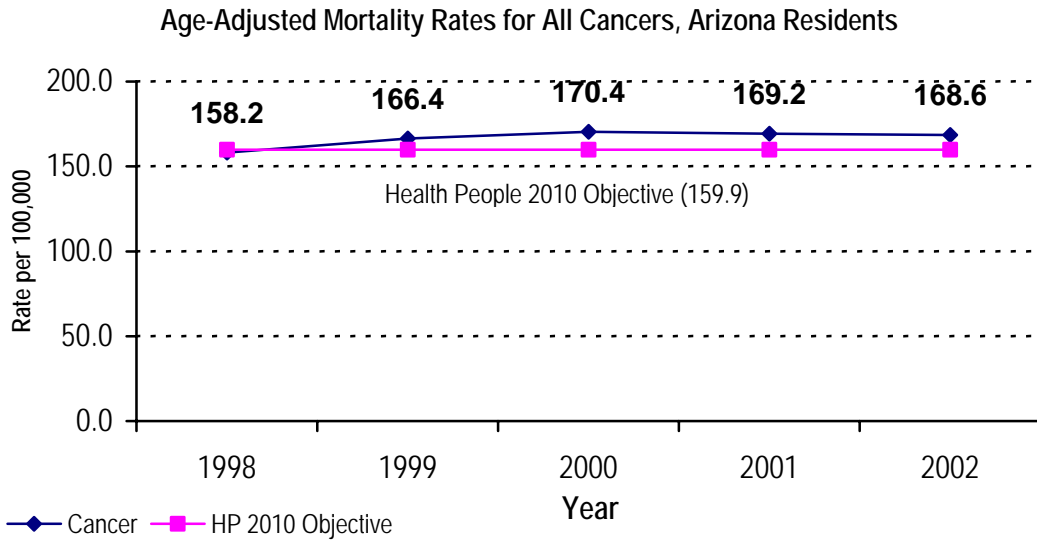
Source: Hospital Discharge Database, ADHS, 2000-2002.

2. Cancer:

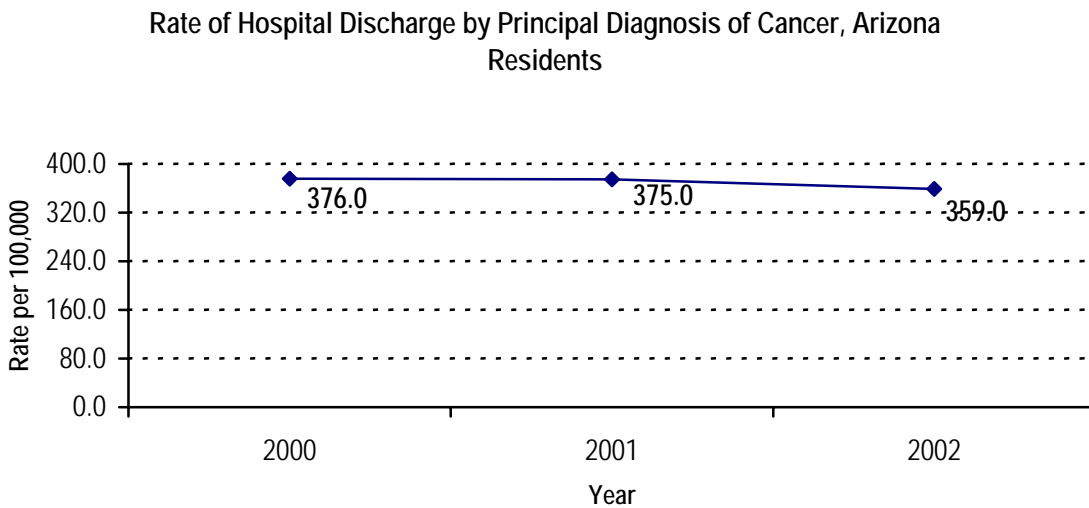
Cancer is the second leading cause of death in Arizona, second only to heart disease. It is estimated that 1,368,030 people in the United States will be diagnosed with cancer in 2004. In Arizona alone, it is estimated that 23,560 individuals will be diagnosed with cancer in 2004. Cancer is a large group of diseases characterized by uncontrolled growth and spread of abnormal cells. Cancer can be caused by external factors (chemicals, tobacco smoke, radiation, viruses), internal factors (hormones, immune conditions, genetics), and lifestyle factors (tobacco and alcohol use, unprotected sun exposure, poor nutrition, physical inactivity). Many cancers can be cured if detected and treated promptly, and many others

can be prevented by lifestyle changes, especially avoidance of tobacco (American Cancer Society, 2004).

Arizona Revised Statute §36-133 mandates the reporting of cancer cases in the state of Arizona. The Arizona Cancer Registry is a population-based surveillance system that collects, manages and analyzes information on the incidence, survival and mortality of persons having been diagnosed with cancer.



Source: Arizona Health Status & Vital Statistics, 1998-2002.



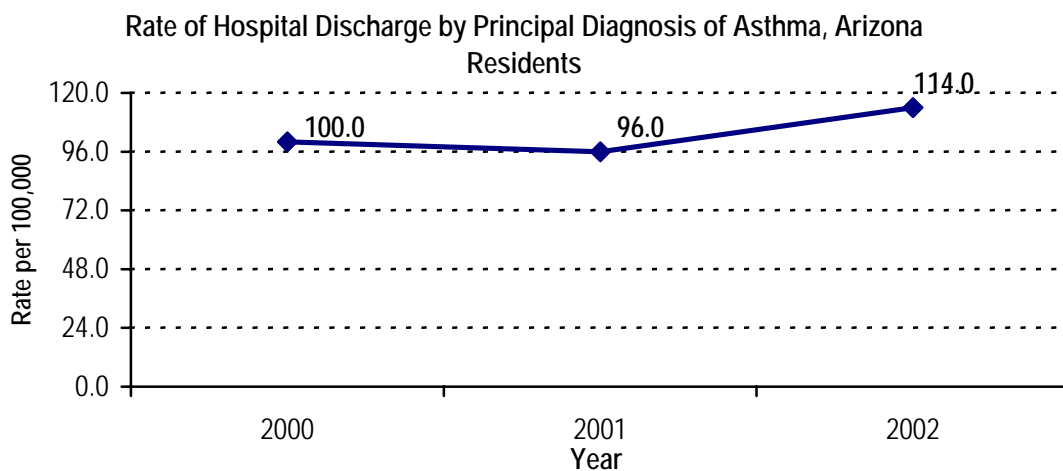
Source: Hospital Discharge Database, ADHS, 2000-2002.

3. Asthma:

Asthma is one of the nation's most common and costly diseases, affecting 17 million Americans, including almost 5 million children. It is a chronic respiratory disease by which

the small airways in the lungs become inflamed and narrowed in response to triggers. The triggers that signal an asthma attack include allergens, airway irritants (e.g. smoke), sharp changes in weather, exercise, and infections. Asthma attacks may involve shortness of breath, coughing, wheezing, chest pain, chest tightening, or any combination of these symptoms (NCHS Health E-Stats, 2003).

The prevalence for asthma among Arizona adults (persons 18 years of age or older) was approximately 13.9 percent in 2002 (Arizona BRFSS, 2002).



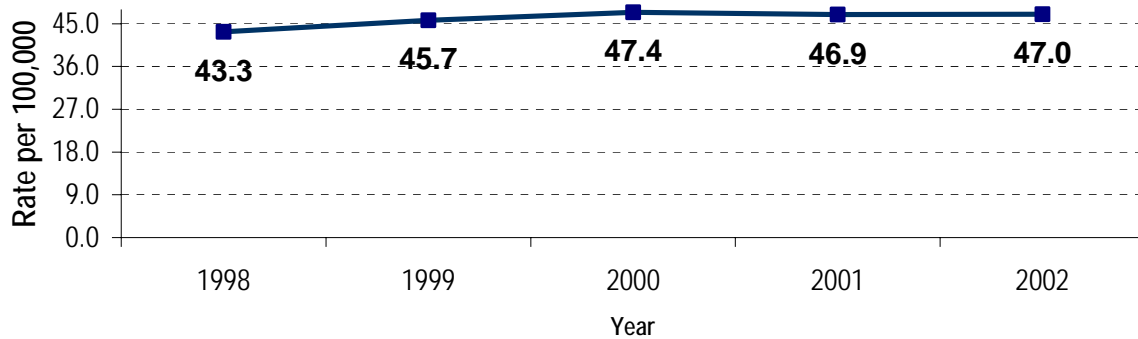
Source: Hospital Discharge Database, ADHS, 2000-2002.

4. Chronic Lower Respiratory Disease:

Chronic Lower Respiratory Disease is comprised of many conditions such as chronic bronchitis and emphysema. In chronic bronchitis, the airways leading to the lungs become inflamed and thickened causing an increase in mucus production, which also contributes to cough and difficulty in breathing. In emphysema, the small air sacs in the lungs are destroyed leaving only a few large air sacs, which have less surface area for the exchange of oxygen and carbon dioxide. Poor exchange of oxygen and carbon dioxide causes shortness of breath (http://www.nhlbi.nih.gov/health/dci/Diseases/Copd/Copd_OtherNames.html).

Chronic Lower Respiratory Disease was the third leading cause of death in Arizona for 2002.

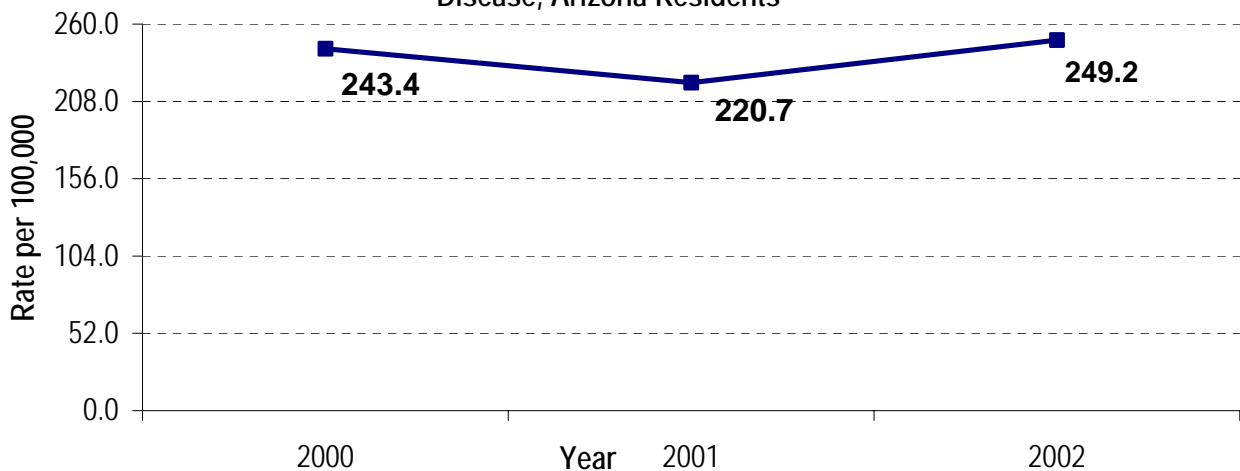
Age-Adjusted Mortality Rates for Chronic Lower Respiratory Disease, AZ Residents



Source: Arizona Health Status & Vital Statistics, 1998-2002.

Hospital discharge data for 2002 reveals 13,638 hospitalizations due to chronic lower respiratory disease. Since 2000, the rate of chronic lower respiratory disease related hospitalizations increased to 249.2 per 100,000 population in 2002.

Rate of Hospital Discharge by Principal Diagnosis of Chronic Lower Respiratory Disease, Arizona Residents



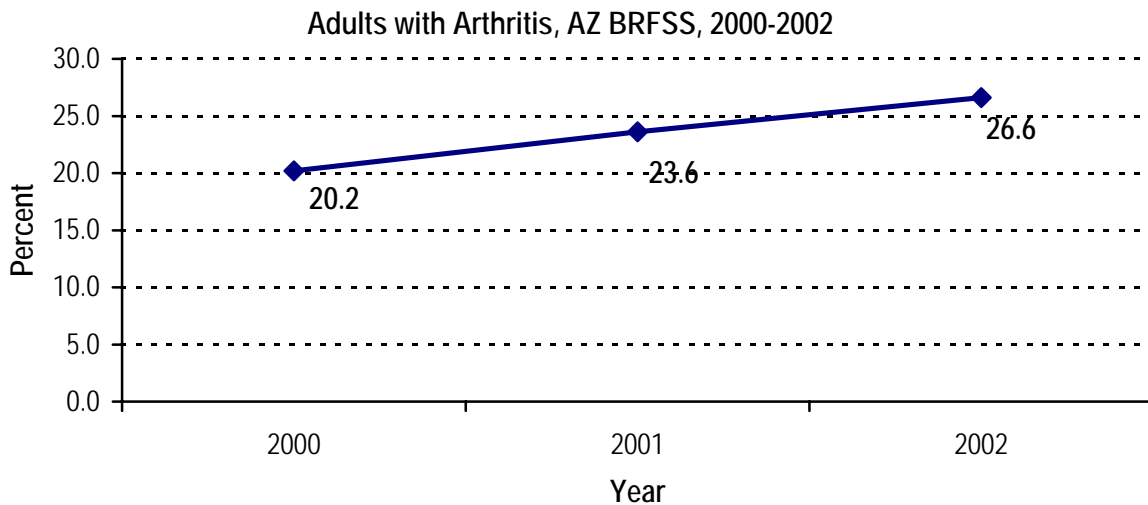
Source: Hospital Discharge Database, ADHS, 2000-2002.

5. Arthritis:

Nationally, seven million people are limited in their daily activities because of arthritis, while another 36 million endure aches and pains associated with arthritis and other rheumatic conditions. In Arizona, arthritis affects approximately 900,000 or more individuals -- more than one out of every six people. Prevalence of arthritis in Arizona is expected to dramatically increase in the coming years, due to the aging of the baby-boom generation and the popularity of Arizona as a retirement destination. Arthritis encompasses more than 100

diseases and conditions affecting joints, the surrounding tissues, and other connective tissues. These conditions include bursitis, fibromyalgia, gout, lyme disease, lupus (systemic lupus erythematosus), osteoarthritis, rheumatoid arthritis, and rheumatic fever. The three most common forms of arthritis are fibromyalgia, osteoarthritis, and rheumatoid arthritis (www.arthritis.org).

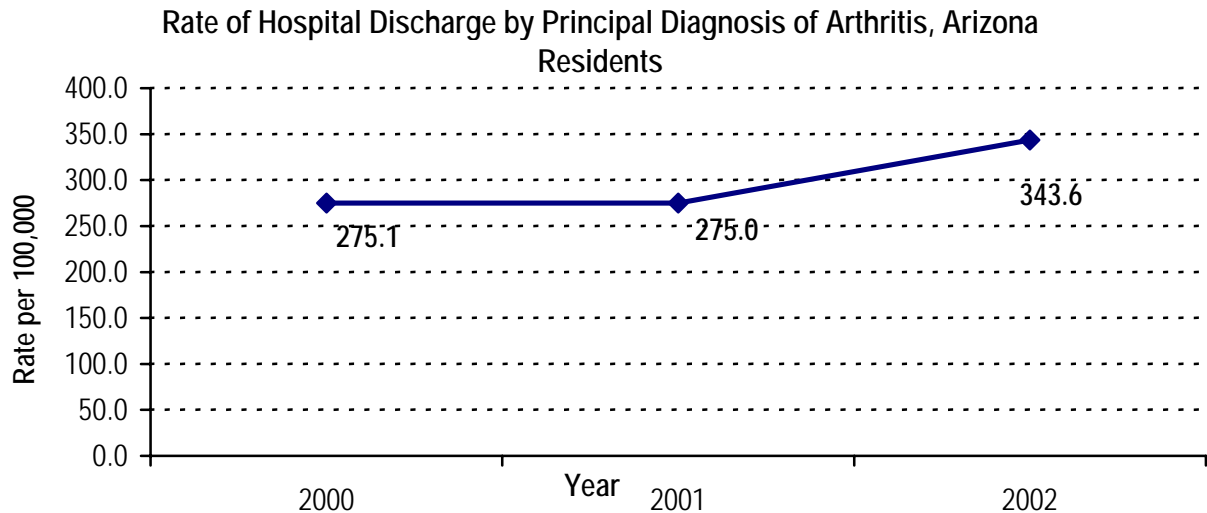
In 2002, 26.6 percent of Arizona adults reported having arthritis (Arizona BRFSS, 2002). The majority of Arizona adults that reported having arthritis were women (60 percent women vs. 40 percent men). Since the year 2000, the percentage of adults, who reported having arthritis, has steadily risen.



Source: Arizona BRFSS, 2000-2002.

Hospital discharge data for 2002 reveals 18,805 hospitalizations due to arthritis and other rheumatic conditions.¹ Since 2000, the rate of arthritis-related hospitalizations increased to 343.6 per 100,000 population in 2002.

¹ Arthritis and Other Rheumatic Conditions include ICD-9-CM codes selected by the National Arthritis Data Workgroup (CDC, Direct and Indirect Costs of Arthritis and Other Rheumatic Conditions-United States, 1997. MMWR 2003; 52:1124-7.) The codes are as follows: 274, 354, 390, 391, 443, 446, 710-716, 719-721, and 725-729.



Source: Hospital Discharge Database, ADHS, 2000-2002.

6. Blindness:

Based on the *2002 Vision Problems in the USA Report* from the National Eye Institute, it is estimated that 2.75 percent of the 40 years of age and older population in Arizona has a vision impairment or is blind. Blindness is defined as visual acuity with best correction in the better eye worse than or equal to 20/200 or a visual field extent of less than 20 degrees in diameter. Vision impairment is defined as having 20/40 or worse vision in the better eye, even with eyeglasses.

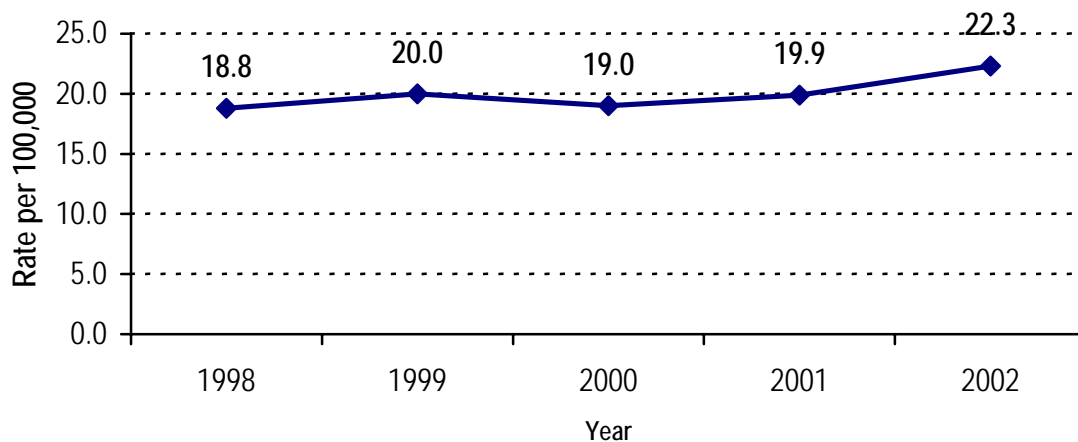
National Eye Institute Report, Arizona 2002			
	Total	Female	Male
Population, aged 40 and older	2,114,232	1,110,773	1,003,459
Vision Impairment	58,117	36,002	22,115
Blindness	16,530	10,570	5,960
Cataract	378,937	225,001	153,936
Glaucoma	36,573	22,416	14,157
Population, 18 and older	3,763,685	1,903,939	1,859,746
Diabetic Retinopathy	98,592	49,929	48,663
Population, aged 50 and older	1,406,212	755,224	650,988
Age-related Macular Degeneration	29,352	17,196	12,156

7. Diabetes:

Diabetes is a disease in which the body does not properly use or produce insulin. Insulin is a hormone that converts sugar and other food into energy. Two major types of diabetes are Type 1 and Type 2 diabetes. In Type 1 diabetes, the body does not produce enough insulin. In Type 2 diabetes, the most common form of diabetes, either the body does not produce enough insulin or the cells ignore the insulin (www.diabetes.org).

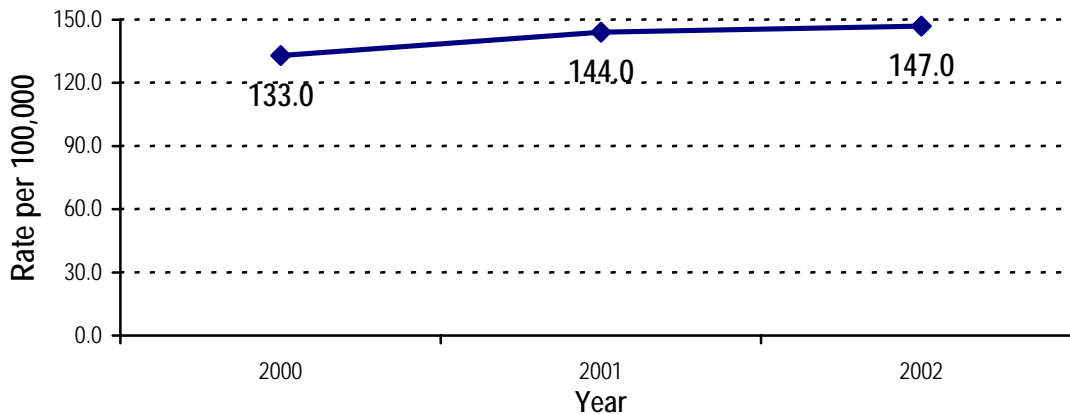
It was estimated that about 262,686 Arizonans had diabetes in 2002 (Chronic Disease Estimates for 2002, ADHS). Diabetes continues to be a serious health problem in Arizona and the United States.

Age-Adjusted Mortality Rates for Diabetes, Arizona Residents



Source: Arizona Health Status & Vital Statistics, 1998-2002.

Rate of Hospital Discharge by Principal Diagnosis of Diabetes, Arizona Residents



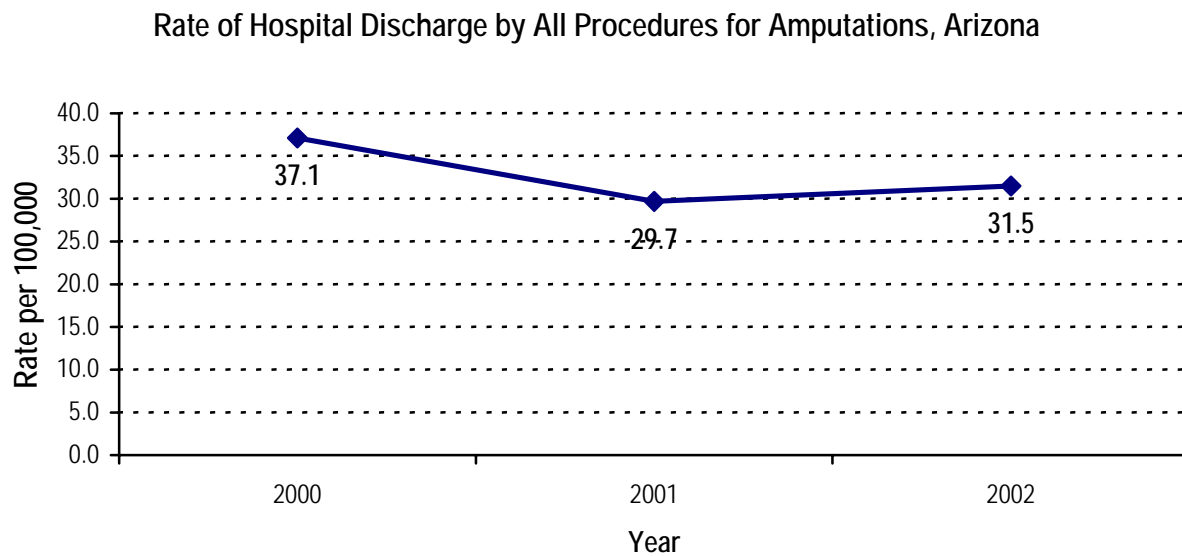
Source: Hospital Discharge Database, ADHS, 2000-2002.

The above graph illustrates that the rate of diabetes-related discharges has increased from 133.0 per 100,000 population in 2000 to 147.0 per 100,000 population in 2002.

8. Amputations:

Diabetes is the most frequent cause of lower limb amputations. The risk of a leg amputation is 15 to 40 times greater for a person with diabetes (www.diabetes.org).

Hospital Discharge Data was used to calculate the rate of discharge for lower extremity amputations. In 2002, there were 1, 726 discharges.



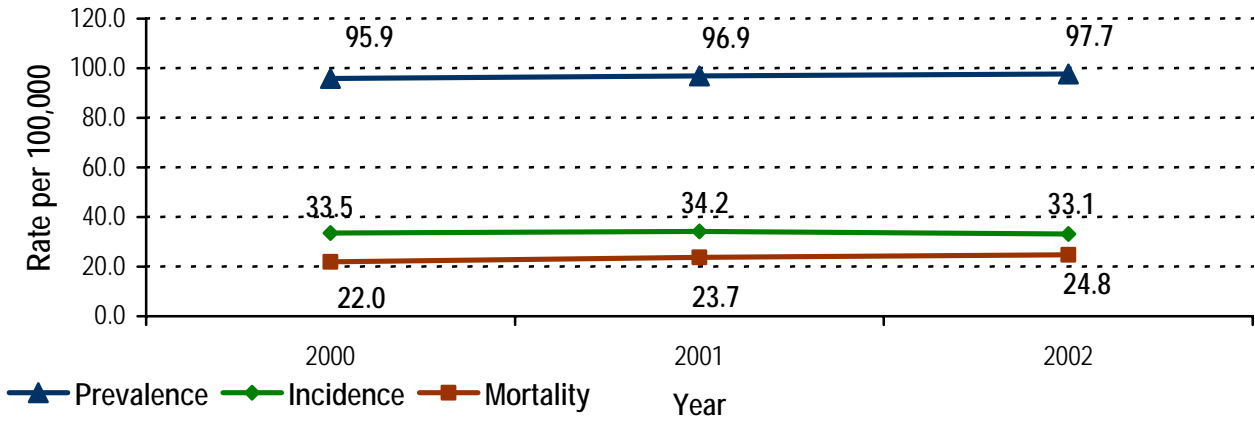
Source: Hospital Discharge Database, ADHS, 2000-2002.

9. End Stage Renal Disease:

Kidneys perform many vital functions such as filtering waste and excess fluids from the blood to help maintain optimal health. End Stage Renal Disease (ESRD) may lead to complete kidney failure, which would require dialysis or a kidney transplant. The major causes of kidney disease are diabetes and hypertension (www.kidney.org).

The following data is based on the End Stage Renal Disease (ESRD) Network #15 Data System. Arizona had 1,814 newly diagnosed (incidence) chronic ESRD patients in 2002. Since 2000, the incidence of chronic ESRD has remained the same.

Prevalence, Incidence, and Mortality Rates for End Stage Renal Disease, 2000-2002, Arizona



Source: End Stage Renal Disease Network #15 Data System.

PART TWO: RISK FACTORS FOR CHRONIC DISEASE AND CONDITIONS

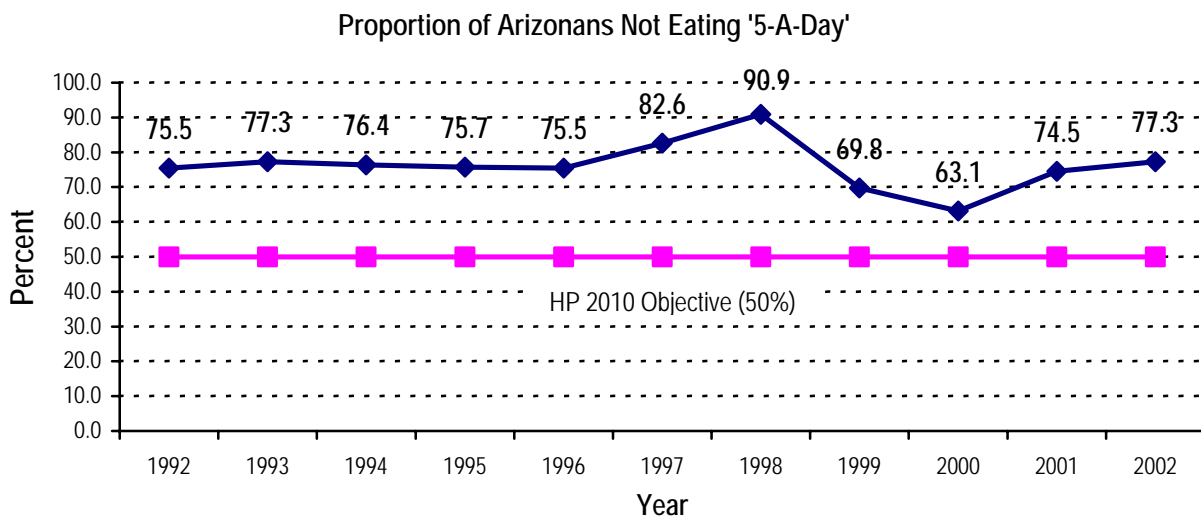
Prevention of the common risk factors of unhealthy eating habits, physical inactivity, obesity, and tobacco use could prevent much of the morbidity from chronic disease. The following section provides information on the common risk factors for the chronic diseases highlighted in the previous section.

10. Nutrition:

Proportion of Arizonans Consuming Inadequate Servings of Fruits And Vegetables Daily

This indicator is defined as self-reported eating fewer than five servings of fruits and vegetables per day by adults, age 18 and older, who participated in the Arizona BRFSS.

Proportion of Arizonans Consuming Fewer Than Five Servings of Fruits or Vegetables Per Day, 1992-2002.



Source: Arizona BRFSS, 1992-2002.

11. Physical Activity:

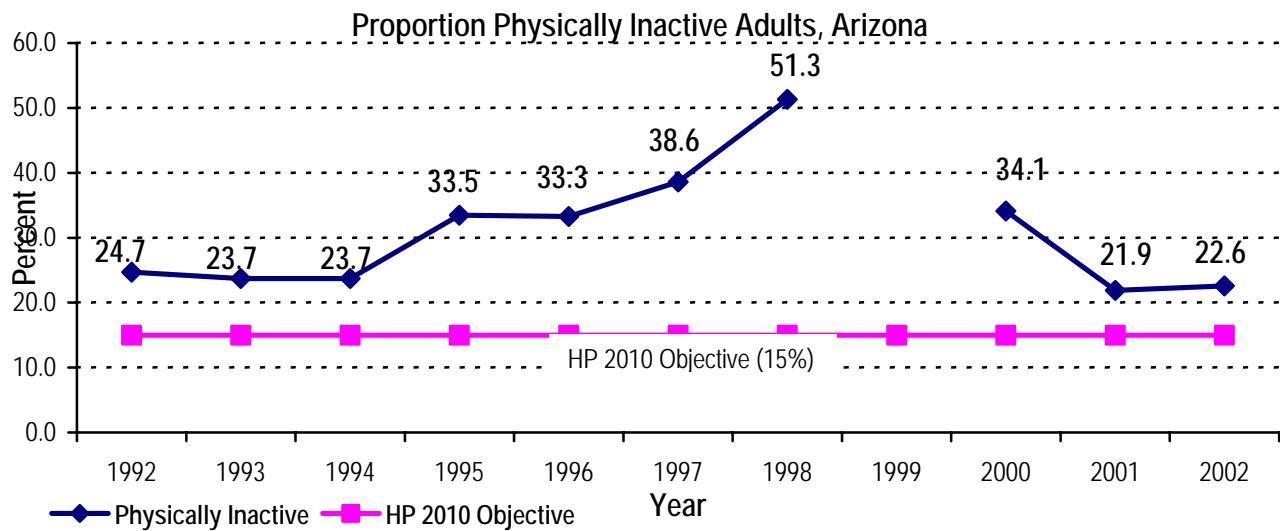
Proportion Of Adults Who Are Considered Physically Inactive

Health problems related to physical inactivity have significant economic consequences for the United States healthcare system. In the long term, physical inactivity threatens to reverse the decades-long progress that has been made in reducing the morbidity and mortality related with many chronic conditions. Regular physical activity greatly reduces the risk of dying of heart disease, the nation's leading cause of death, and decreases the risk for colon cancer, diabetes, and high blood pressure. It also helps to control weight; contributes to healthy bones, muscles, and joints; helps to relieve the pain of arthritis; reduces symptoms of anxiety and depression; and can decrease the need for hospitalizations, physician visits, and

medications (U.S. Department of Health and Human Services. *Physical Activity Fundamental To Preventing Disease*, June 2002).

The following data are from the Arizona BRFSS. This indicator is defined as no leisure time (outside of work) physical activity within the past 30 days by adults, age 18 and older. The graph below illustrates the proportion of adult Arizonans, who are physically inactive. Based on a 10-year trend line, approximately 30 percent of the Arizona adult population is physically inactivity.

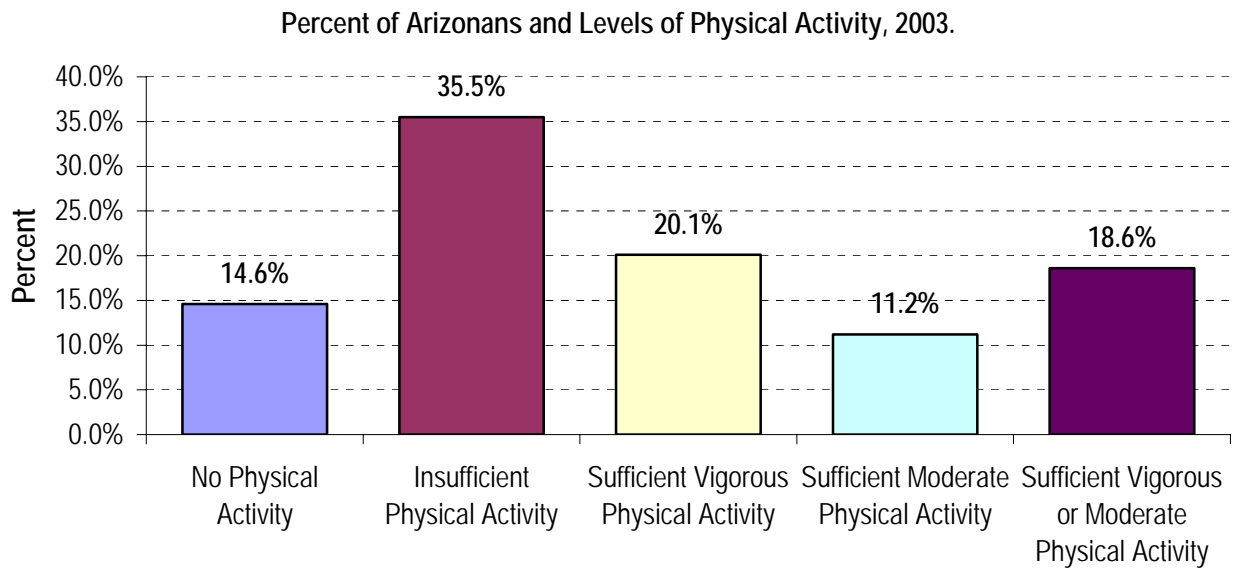
Proportion of Arizonans Not Participating in Physical Activity in the Past Month, 1992-2002.



Source: Arizona BRFSS, 1992-2002.

Furthermore, analysis of the 2003 Arizona BRFSS data indicated that 35.5 percent of all respondents reported insufficient activity for both moderate and vigorous physical activity categories. Only 18.6 percent of respondents met the recommendations for either moderate or vigorous physical activity.

Proportion of Arizonans with Sufficient, Insufficient, or No Physical Activity Levels, 2003.



Source: Arizona BRFSS, 2003.

Proportion of Children Who Are Physically Active

The Arizona YRBSS measured levels of physical activity among youth in Grades 9 through 12.

Self-reported Physical Activity Among Youth During the Past Seven Days.

Year 2003	Percent
No vigorous or moderate physical activity	7.7%
Vigorous activity for 20 minutes or more/ 3 or more days	66.9%
Moderate activity 30 minutes or more/ 5 or more days	29.2%
Participated in recommended physical activity in past week	2.2%

Source: Arizona YRBSS, 2003. Arizona Department of Education (www.ade.state.az.us)

12. Overweight/Obesity:

Pre-School Children Who Are Overweight

Data for preschool children are available through the State, and the Inter Tribal Council of Arizona (ITCA) and the Navajo Nation’s Women, Infants, and Children’s (WIC) Programs. The State and ITCA WIC programs define overweight as children two through four years of age with a weight for height $\geq 95^{\text{th}}$ percentile. The Navajo Nation WIC program defines overweight as children one through four years of age with weight for height $> 90^{\text{th}}$ percentile.

These data only include low-income children participating in the WIC programs conducted by the State of Arizona, the ITCA, or the Navajo Nation.

WIC participants and program characteristics report.

Source	Year	Number of Clients	Percent Overweight
State of Arizona WIC Program	2002	35,470	11.4%
Inter-Tribal Council of Arizona	2002	4,912	20.8%
Navajo WIC Program	1998	11,655	21.1% (>90 th percentile)

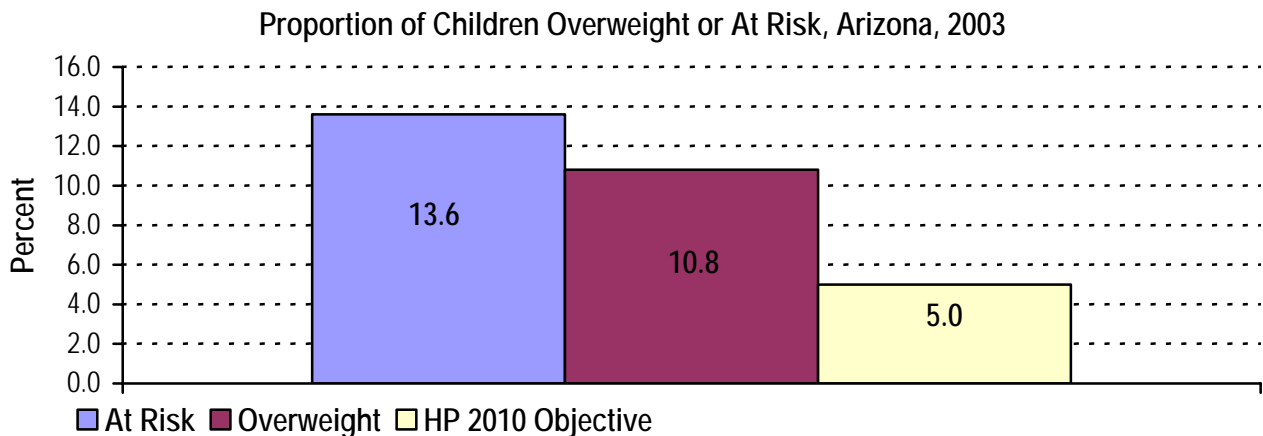
NOTES:

- Arizona WIC - 2002 Pediatric Nutrition Surveillance System Summary.
- Navajo WIC Program - Data from the Navajo Nation may include some children living in New Mexico.

Proportion of High School Age Children Who Are Overweight or At Risk to Become Overweight

This information is compiled from students responding to the 2003 Arizona YRBSS. The survey included students in grades 9 through 12. Students reported their height and weight. Height and weight was used to calculate Body Mass Index (BMI) for Children and Teens (also referred to as BMI-for-age). Overweight is defined as BMI \geq 95th percentile and At Risk of Overweight is defined as BMI \geq 85th percentile and < 95th percentile.

Proportion of Children Who Are Overweight or At Risk, 2003.



Source: Arizona YRBSS, 2003. Arizona Department of Education.

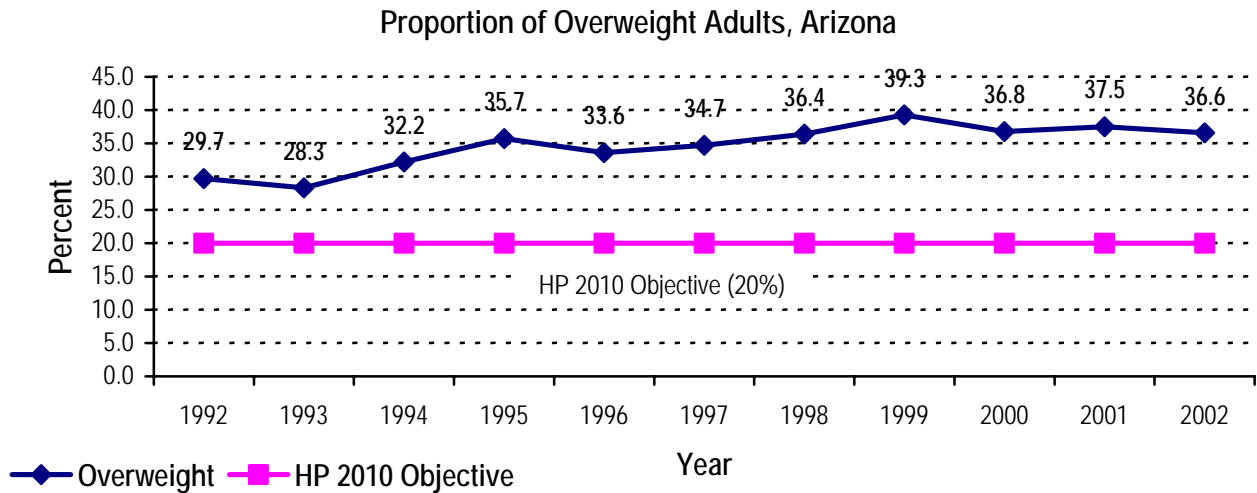
Excessive weight in adults is divided into two exclusive categories: overweight and obese.

Proportion Of Adults Who Are Overweight

Respondents to the Arizona BRFSS with a BMI between 25.0 and 29.9 are considered overweight adults. BMI is defined as weight in kilograms divided by height in meters squared

(w/h²). The denominator includes all survey respondents, except those with missing, do not know and refused answers.

Proportion of Arizonans Whose Body Mass Index Exceeds the Lower Limit of Overweight, 1992-2002.

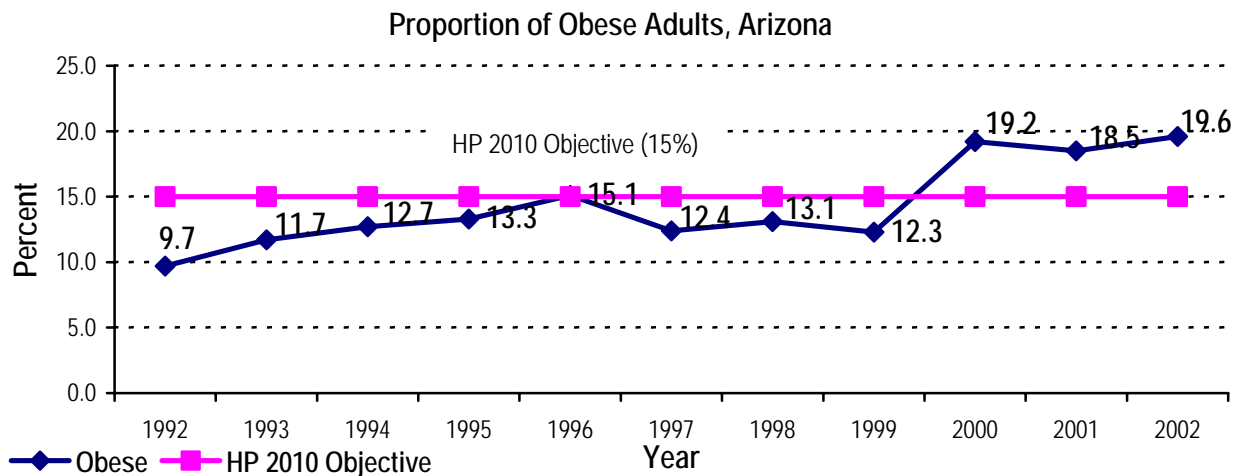


Source: Arizona BRFSS 1992-2002.

Proportion of Adults Who Are Obese

Respondents to the Arizona BRFSS with a BMI of 30.0 or more are considered obese adults. The denominator includes all survey respondents, except those with missing, do not know and refused answers.

Proportion of Arizonans Whose Body Mass Index Exceeds the Lower Limit of Obese, 1992-2002.



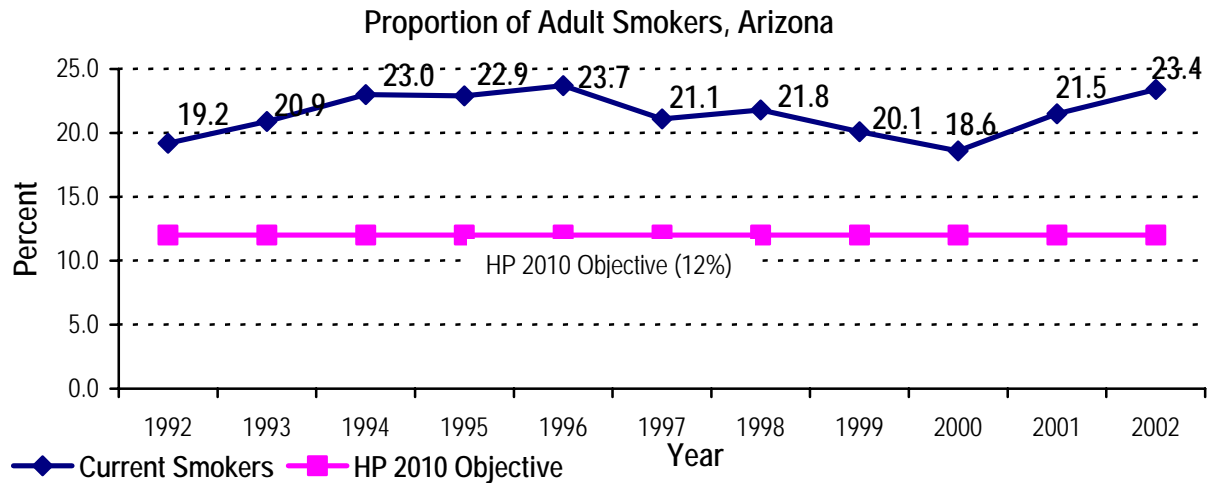
Source: Arizona BRFSS, 1992-2002.

13. Tobacco:

Proportions of Arizonans Who Are Current Smokers

This indicator is defined as self-reported current smokers by adults, age 18 and older, who participated in the Arizona BRFSS.

Proportion of Arizonans Who Are Current Smokers, 1992-2002.

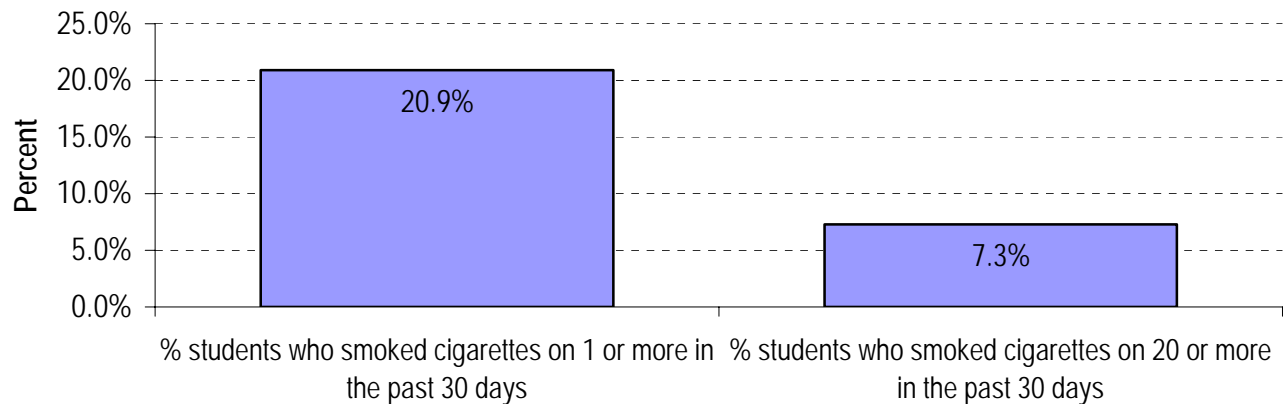


Source: Arizona BRFSS, 1992-2002.

Proportion of Children Who Are Smokers

This information is compiled from students responding to the 2003 Arizona YRBSS. Approximately 60 percent of the students replied that they never tried cigarette smoking (even one or two puffs). The following graph presents information about students' smoking patterns within the past 30 days. Twenty percent of students reported smoking cigarettes on one or more days and 7 percent of students reported smoking on 20 or more days both within the past 30 days. The Healthy People 2010 goal is to decrease adolescent smoking to 16 percent.

Proportion of Adolescent Smokers, Arizona



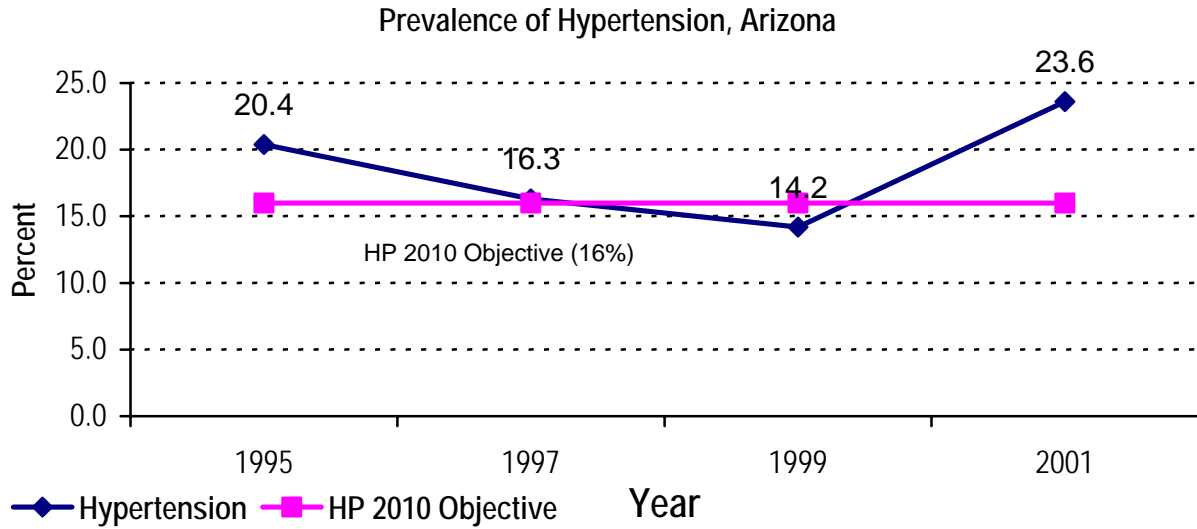
Source: Arizona YRBSS, 2003. Arizona Department of Education.

14. Hypertension:

Hypertension (high blood pressure) is when blood pressure frequently exceeds 140/90. High blood pressure is a risk factor for heart disease, stroke, kidney failure, and blindness. About one in every five adults in the United States has high blood pressure. High blood pressure occurs more often in men than in women and almost twice as often in African-Americans compared to Caucasians. Most of the time, no cause is identified and this is called essential hypertension. Other times, there may be an identifiable reason why blood pressure is high. Excess sodium (salt) in one's diet may be an identifiable cause of increased blood pressure. Lifestyle modifications such as following a low sodium diet, exercising, quitting smoking, losing weight, and avoiding excessive alcohol intake, are often recommended for maintaining normal blood pressure (National Institute of Health, 2003). According to the 1995 Nutrition Survey conducted in Maricopa County, 30 percent of the population consumes high levels of sodium per day (> 3000 mg/day).

The following table illustrates the percent of Arizonans with hypertension.

Percent of Arizonans Told They Have Hypertension

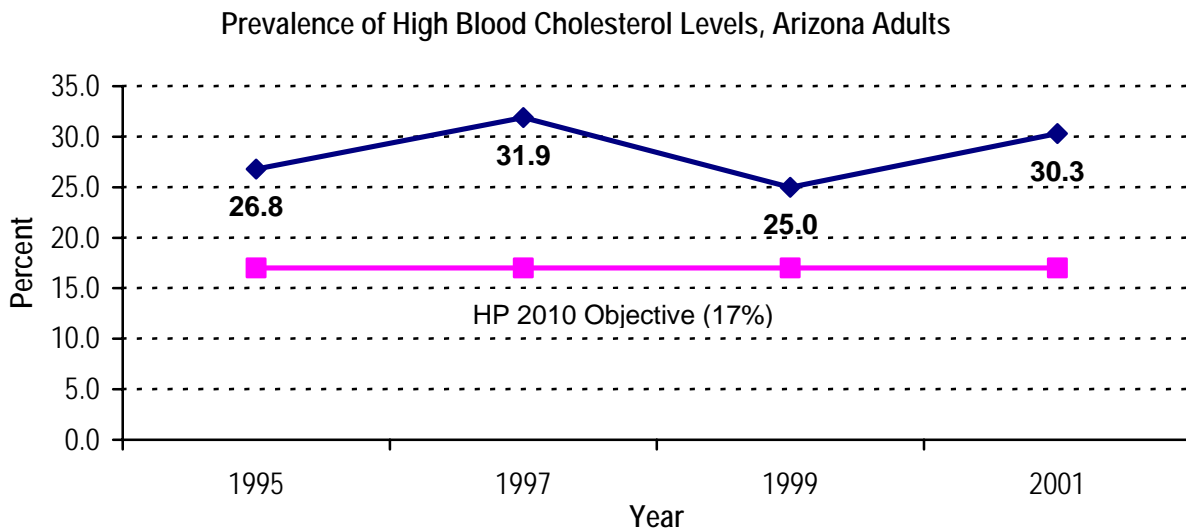


Source: Arizona BRFSS, 1995,1997,1999, and 2001.

15. Cholesterol:

Elevated cholesterol levels are linked to heart disease and stroke. The Arizona BRFSS was used to determine the proportion of Arizona adults with high blood cholesterol. In 2001, 30.3 percent of all Arizona adults reported high cholesterol levels.

Percent of Arizonans Told They Have High Blood Cholesterol



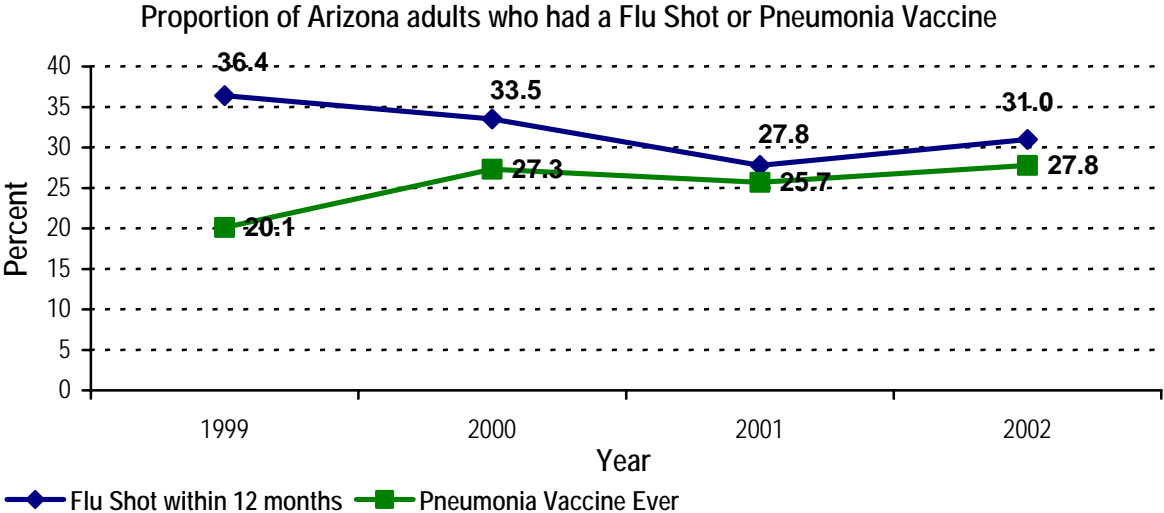
Source: Arizona BRFSS, 1995-2001.

16. Immunizations:

The Arizona BRFSS was used to determine the proportion of Arizona adults who received a flu shot or pneumonia vaccination. In 2002, 31 percent of Arizona's adults received a flu

shot within the past 12 months and 28 percent had received a pneumonia vaccine. The Healthy People 2010 objective for adults is 60 percent.

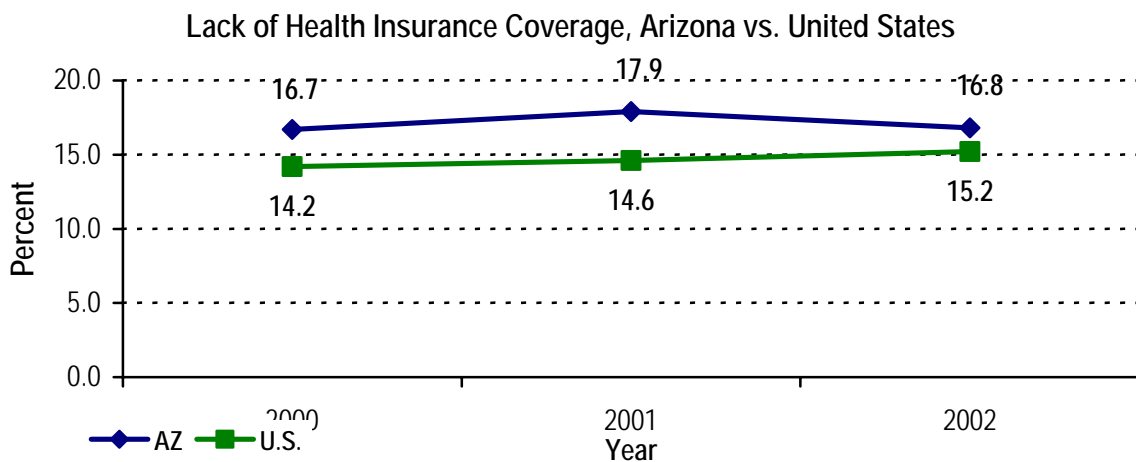
Percentage of Arizona Adults Who Had a Flu or Pneumonia Vaccine, 1999-2002.



Source: Arizona BRFSS, 1999-2002.

17. Health Insurance:

The ability to access healthcare makes a substantial difference in the kind and amount of healthcare received. Persons, who run the highest risk of being uninsured are low-income individuals or those who earn less than 200 percent of the federal poverty level (Kaiser, 2001). Typically, there are more uninsured adults than children because Arizona Health Care Cost Containment System (Arizona's Medicaid program) and Kids Care (Arizona's Children's Health Insurance Program) focus on children. Arizona has one of the highest rates of uninsured (Kaiser, 2001). Access to healthcare is of great importance because uninsured adults and children are less likely to seek preventive services. Delay in seeking and receiving treatment can lead to more serious and costly health problems. Since the year 2000, the rate of uninsured Arizonans has remained steady.



Source: United States Census Bureau (www.census.gov).

Data Sources

Data for surveillance of chronic disease indicators are derived from multiple sources.

- BRFSS is a telephone survey conducted by the ADHS, who uses BRFSS data to track health problems and evaluate public health programs. Data are collected by using standard procedures through monthly telephone interviews with adults (persons, aged 18 and older).
- Hospital Discharge Data are records associated with a patient's stay. The data contains diagnosis and treatment information. The state-based hospital discharge data does not include federal facilities, such as the Veterans Affairs or Indian Health Service hospitals.

- Death certificates are completed for all deaths that occur in the state. The data used only reflects that of Arizona residents. Death data are used to monitor the underlying cause of death.
- The USRDS is a national data system that collects, analyzes, and distributes information on ESRD.
- The YRBSS monitors risk behaviors among youth. The risk behaviors include tobacco use, unhealthy dietary behavior, inadequate physical activity, alcohol and other drug use, risky sexual behaviors, and behaviors that contribute to unintentional injuries and violence. The YRBSS includes local representative samples of students in Grades 9-12. The YRBSS was conducted for the first time in 2003 for Arizona.

CONCLUSION

In conclusion, the health indicators addressed in this report were chosen if they impose a considerable public health burden and if the data were available for its inclusion. The main purpose of this report is to serve the needs of several chronic disease programs through the ongoing systematic collection, analysis, and interpretation of data.

For further questions, please contact the Epidemiology Unit, ADHS Public Health Prevention Services at 602-542-1223.