

# INTRODUCTION

## ORGANIZATION OF THE REPORT

This publication by the Arizona Department of Health Services, *Arizona Health Status and Vital Statistics 2011*, is the annual update of information on vital statistics and the health status of Arizona residents. It provides population-wide data on *pregnancies, births, abortions, stillbirths, reportable diseases, deaths, marriages, divorces, hospital inpatient discharges, emergency department visits, and the population* of the State.

The year 2011 report highlights both the statewide trends and patterns in the general population, as well as inequalities in health status among ethnic groups and Arizona's counties. When possible, the data for 2011 are placed in a temporal context by comparison with the data for the preceding years. The information in this volume consists of frequencies and rates of vital events for the State's residents (except as noted).

The updated *Index to Tables* in this report contains entries referring to specific health conditions, risk factors, disease categories, diagnostic groupings, procedures performed on hospital inpatients, and causes of death. The year 2011 report provides the mortality data for *morbid obesity* and enterocolitis due to *Clostridium difficile*; the latter a disease often acquired in hospitals and other health care institutions with long-term patients and residents.

Since 1992, the report has been organized into three major parts, reflecting differences in geographic coverage:

*Part I is concerned with statewide statistics, Part II presents county-level information, Part III is focused on community-level data, but is excluded from the 2011 report due to shifting definitions of communities.*

The first two parts are further divided into sections on reproductive and perinatal health, utilization of hospital care, mortality, and the status on year 2020 health objectives.

Not all health statistics are available on a sub-county level. Hence, information about pregnancies, stillbirths, induced terminations of pregnancy (abortions), inpatient discharges, emergency room visits, reportable diseases, marriages, and marriage dissolutions is given only for the State and by county.

Part I of the report, *THE STATE*, has four chapters. The first chapter deals with *reproductive and perinatal health*, i.e., characteristics of women who became pregnant, factors related to the course of their pregnancies, and the status of pregnancy outcomes. Much of these data are given for each year from 2001 to 2011. The natality section of this report is concerned with fertility and birth rates, the general health of newborns as indexed by birthweight, prematurity, and selected demographic and prenatal care characteristics of the women giving birth.

The second chapter is focused on *trends and patterns in mortality*. It compares the annual age-adjusted profile of leading causes of death by gender from 2001 to 2011. Urban/rural and ethnic differences in cause-specific mortality are also examined for Arizona residents. The five leading causes of death are discussed for infants (<1 year), children (1-14 years), adolescents (15-19 years), young adults (20-44 years), middle-aged adults (45-64 years), and the elderly (65 or more years). For each age group, cause-specific mortality is compared between urban (i.e. Maricopa, Pima, Pinal, and Yuma counties) and rural (all other counties) regions and between genders by year from 2001 to 2011. Urban and rural regions are compared in gender-specific total mortality. The chapter on mortality concludes with an examination of patterns of premature mortality by gender and race/ethnicity.

*Morbidity*, levels of disease in the population, is the topic of the third chapter. The presentation is limited to data on diseases reported for the entire population of the State by statutory mandate.

Chapter 4 is focused on *inpatient hospital care*, as well as *emergency room care* in Arizona in 2011. An inpatient discharge occurs when a person who was admitted to a hospital leaves that hospital. A person who has been hospitalized more than once in a given calendar year will be counted multiple times as a discharge and included more than once in the hospital inpatient discharge data set; thus, the statistics on inpatient hospital care and emergency room care in this report are for discharges, not persons.

The available data are for State-licensed hospitals including psychiatric facilities. Federal, military, and the Department of Veteran Affairs hospitals are not included. All discharges are for the residents of Arizona. Discharges of out-of-state residents are not included in this report. Diagnostic groupings and code numbers are based on the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM).

Beginning in 2008, up to twenty-five diagnoses are coded for each discharge. In sections 4A and 7A, discharges are presented by first-listed (or principal) diagnosis, which is the first one listed on the discharge summary of the medical record. The number of first-listed diagnoses is the same as the number of discharges.

The data on the number of procedures in sections 4B and 7B are for inpatients only. Procedures include surgical and non-surgical operations, diagnostic procedures, and special treatments reported on the medical record. Up to six procedures were included for each discharge. These all-listed procedures include all occurrences of the procedure regardless of the order on the medical record.

Preceding the tabulated data in the first four chapters is a narrative description of the findings. This description is not meant to be exhaustive but rather is a presentation of the major highlights to be gleaned from the data.

Part II and Part III contain information with no accompanying narrative.

Part II, *THE COUNTIES*, presents the tabulated data on 1) Trends and patterns in health status and vital statistics by county of residence in Chapter 5; 2) County profiles and statewide trends on indicators for assessing health status and monitoring progress toward Arizona and national year 2011 objectives in Chapter 6. The health indicators are organized around ten subject areas: *maternal, infant, and child health, responsible sexual behavior, vaccine preventable diseases, injury and violence, cancer, diabetes, heart disease and stroke, respiratory diseases, human immunodeficiency virus (HIV) disease, and substance abuse*; 3) Hospital inpatient and emergency room statistics by disease category, diagnosis group, and all-listed procedures by patient's county of residence in the State, in Chapter 7 and; 4) Selected historical vital events including births, deaths, infant deaths, marriages, and dissolutions of marriage by year and county in the State for 1950-1999 in Chapter 8.

Part III, *THE COMMUNITIES*, provides readers with selected community-level data on live births and

deaths in Arizona in 2011 (Chapter 9). Currently AZDHS is shifting from defining communities through the use of zip codes to defining communities as Community Health Analysis Areas (CHAAs) identified using Census Block Groups from the 2000 census. This transition was not final at the completion of the 2011 report and will be provided as an online supplement.

Chapter 10 presents population denominators for Arizona by gender, age groups, county of residence, and race/ethnicity.

To use *Arizona Health Status and Vital Statistics 2011* effectively, the reader should become familiar with the *Technical Notes* at the end of the report. They provide definitions of terms used in the report, as well as information about the sources of data. *Technical Notes* also provide a link to detailed comparability ratios used to make comparisons between cause-of-death data classified by the Ninth and Tenth Revisions of the International Classification of Diseases.

In addition to the bound form, the *Arizona Health Status and Vital Statistics 2011*, as well as previously published reports for 2000-2010, are available online at:

<http://www.azdhs.gov/plan/report/ahs/index.htm>

## KEY FINDINGS

### DECLINE IN THE NUMBER OF RESIDENT BIRTHS

In 2011, there were 85,190 resident births, the lowest annual number of resident births in the past decade. The magnitude of the reduction in the number of births from 2010 to 2011 was the largest among Hispanics or Latinos (-5.6 percent).

### SELECTED CHARACTERISTICS OF THE WOMEN GIVING BIRTH IN 2011

Among women who gave birth in Arizona in 2011:

- 46,393 births were paid for by the Arizona Health Care Cost Containment System (AHCCCS)
- 37,780 were unmarried (which may signify absence of emotional, social, and financial resources)
- 30,991 had a serious medical condition such as hypertension, anemia, or diabetes
- 16,094 experienced complications during labor and/or delivery
- 15,171 received late or no prenatal care
- 8,435 were teenagers 19 years old or younger

- 3,922 smoked and/or used alcohol during pregnancy.

#### BIRTHS BY PAYER

Since 2001, the share of resident births paid for by AHCCCS (the State's Medicaid program) continued to exceed the share paid by private health insurance. In 2011, the Arizona Health Care Cost Containment System was the payment source in 53.0 percent of deliveries.

#### TEEN PREGNANCIES

In 2011, both the number of teen pregnancies and the pregnancy rate were lower than they were in 2007 - 2010. From 2007 to 2011 the number of teen pregnancies decreased by 31.7 percent and the pregnancy rate by 33.1 percent.

The magnitude of the decrease in the number of teen pregnancies was the most pronounced among Hispanic or Latino teens: from 8,545 pregnancies in 2007 to 5,297 in 2011. The decline of 3,248 in the number of pregnancies among Hispanic or Latino teens accounted for 64.7 percent of the overall decrease of 4,769 in teen pregnancies from 2007 to 2011  $((3,248/4,769)*100=68.1)$ .

#### TOTAL MORTALITY

During 2011, 47,547 Arizona residents died, 1,676 more than in 2010. The 2011 age-adjusted mortality rate rose from 679.9 in 2010 to 699.6 in 2011. The median age at death in 2011 was 77 years.

#### INFANT MORTALITY

In 2011, 504 infants died before reaching their first birthday, 197 fewer than the latest peak of 701 infant deaths in 2007. The infant mortality rate (IMR) decreased from 6.8 infant deaths per 1,000 live births in 2007 to 5.9/1,000 in 2011, the lowest IMR in the State's history. If the risk of infant mortality remained the same as it was in 2007, 99 fewer infant deaths can be attributed to the absolute reduction in the number of births by 14,490 from 2007 to 2011  $((14,490 \times 6.8)/1,000) = 98.5$ .

Newborn weight at birth is one of the most important predictors of an infant's survival chances. In 2011, the mortality rate among babies weighing less than 500 grams at birth was 90.8 percent. Together, births of infants weighing less than 1,000 grams accounted for 0.6 percent of births and 44.8 percent of all infant deaths

#### CAUSE-SPECIFIC MORTALITY

In 2011, the number of deaths *in motor vehicle accidents* increased from 711 in 2010 to 787 in 2011, a 10.7 percent increase. In 2011, 161 Arizonans died from *morbid obesity* as the underlying cause of death.

The number of completed *suicides* in 2011 (1,113) was the highest ever recorded in Arizona's history. In 2011, males accounted for 77.8 percent of suicides. In 2011, *suicide* was the 6<sup>th</sup> leading cause of death among males. It ranked as the 13<sup>th</sup> cause of mortality for females. The age-adjusted suicide rate increased from 14.8 per 100,000 residents of the State in 2008 to 17.2 suicides per 100,000 in 2011.

From 2009 to 2011 the number of deaths from *diabetes* increased by 59.6 percent, from 1,078 deaths in 2009 to 1,721 deaths in 2011. In 2011, there were 1,721 deaths that had diabetes assigned as the underlying cause. Another 2,372 deaths had diabetes assigned as a contributing factor. The diabetes-related death rate of 59.1/100,000 (Table 6A-6) was 2.4 times greater than the rate for diabetes as underlying cause (24.8/100,000). The diabetes-related death rate includes all mentions of diabetes on the death certificate as the underlying or other than underlying cause.

#### HOSPITAL CARE

In 2011, there were 690,376 inpatients discharged, excluding newborn infants, from non-Federal short stay hospitals in Arizona. Among those admitted as inpatients, 2,748 Arizonans were hospitalized with the diagnosis of enterocolitis due to *Clostridium difficile*, a bacterial inflammation of the intestines. The disease is of growing public health concern because it is often acquired in hospitals and other health care institutions with long-term patients as residents.

In 2011, 2,846 Arizonans were admitted as inpatients with the diagnosis of *depression* as first-listed diagnosis. In addition there were 3,535 emergency room records with depression as the first-listed diagnosis (for a total of 6,831 hospital encounters).

#### EMERGENCY ROOM CARE

During 2011, more than 1.9 million visits were made by Arizona residents to hospital emergency rooms (ER), about 30.5 visits per 100 persons. In 2011, *abdominal pain, chest pain, acute upper respiratory infection, mental disorders, contusion with intact skin surfaces, and spinal disorders* were the leading diagnostic categories, accounting for approximately one-fourth (24.6 percent) of all visits

Almost nineteen hundred Arizonans (1,858) were treated in an emergency room with the diagnosis of *exposure to excessive natural heat*. In addition, 427 were hospitalized as inpatients with this diagnosis.

A comparison of some of the basic findings for

the State for 2001, 2006, and 2011 is presented on the following page.

#### **INCREASE IN THE AGE-SPECIFIC MORTALITY**

Among Arizona aged 20-44 years, the mortality rates from 2010 to 2011 decreased for American Indian, Hispanics, and Asians, but increased for Blacks and White non-Hispanics. For American Indians aged 20-44 years, the mortality rate decreased 22.8% from 2010 to 2011.

#### **RELATIVE FREQUENCIES OR RATES OF VITAL EVENTS**

Changes in the absolute frequency counts of events such as births or deaths may mean two different things. First, the likelihood of an event may have changed (for example the risk of death among Arizonans aged 20-44 years increased from 2010 to 2011). Second, the size of the population or population sub-group changed (for example, there were more deaths among Hispanics aged 20-44 years because there were more Hispanics in this age group residing in Arizona in 2011 than there were in 2010).

Under the circumstances, it is important to treat the 2008 - 2011 fertility, birth rates, and other rates of vital events with caution. Perhaps, these rates have not changed; rather, the population denominators used to calculate them did.

Unlike the numerators – the frequency counts of pregnancies, births, deaths, etc. – which reflect the true occurrence of registered vital events; the population denominators for 2001-2009 and 2011 are not exact enumerations of the State's residents in different race/ethnic, gender, or age group categories. These denominators are extrapolations, which use past experience, and are not adjusted for the impact of current events. Unfortunately, the population denominators for 2008 and 2009 were overinflated and all rates of vital events based on them were artificially underestimated.