2B.

LEADING CAUSES OF DEATH

In 2010, the Office of Vital Records (OVR) of the Arizona Department of Health Services implemented the new (2003) Standard U.S. death certificate. The new certificate added several new questions: 1) whether tobacco use contributed to the death, and 2) whether, if the decedent was a female, the death was “pregnancy-associated” (defined as death from any cause during pregnancy or within one calendar year of delivery or pregnancy termination).

The death certificate now includes a new classification of the decedent’s racial/ethnic status, consistent with the revised federal standards for collecting and reporting racial and ethnic status. These standards were published in the Federal Register on October 30, 1997, as “Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity”. The revised standards are available on the OMB (the Office of Management and Budget) web-site at: http://www.whitehouse.gov/omb/fedreg/ombdir15.html

There are now 15 racial categories (including Guamanian or Chamorro; Samoan or Native Hawaiian) to choose from. It is also permitted to indicate more than one race for a decedent. In 2014, among the 51,074 deaths of Arizona residents, indication of “two or more races” appeared on only 465 certificates. The total number of deaths for decedents identified as Native Hawaiian was 14. To create frequency counts of race and ethnicity that were adequate to compute statistically reliable mortality rates, race was “bridged”, or essentially collapsed into 5 categories; White non-Hispanic, Hispanic or Latino, Black or African American, Native American or Alaska Native, and Asian or Pacific Islander. When an individual was identified as both Hispanic and any other race, that person was added to the racial/ethnic group with the lowest population. For example, a person identified as both White and Hispanic would be coded as Hispanic, where a person identified as American Indian and Hispanic would be coded as American Indian. Please refer to the technical appendix for further explanation of the racial bridging used in this report.
Based on the number of deaths (but not age-adjusted mortality rate), the leading underlying cause of death to Arizona residents in 2014 was cancer (10,600 or 20.8 percent of all deaths), closely followed by heart disease, which accounted for 9,953 or 19.5 percent of deaths (Figure 2B-1A, Table 2B-1, Table 5E-14). The third leading cause of death, chronic lower respiratory diseases, accounted for 3,185 or 6.2 percent of total deaths. Deaths due to accidents (unintentional injuries) ranked fourth in 2014, with 3,011 resident deaths reported. Deaths due to Alzheimer’s disease ranked fifth in 2014, with 2,345 resident deaths reported. Together, these five causes accounted for 57.0 percent of total deaths in 2014. The fifteen leading causes accounted for 74.3 percent of all deaths among Arizona residents.

For the purpose of mortality statistics, every death is attributed to one underlying condition or underlying cause of death. The underlying cause is defined as the disease or injury that initiated the chain of events leading directly to death. It is selected from up to 20 causes and conditions entered by the physician on the death certificate. The totality of all these conditions is known as multiple cause of death.

In addition to 10,600 deaths that had diseases of the heart assigned as the underlying cause, another 8,675 deaths had diseases of the heart assigned as a secondary cause of death. The sum of these two counts (19,275, Figure 2B-1B) is the total number of deaths that had any mention of diseases of the heart on the 2014 death certificates. The ranking based on any mention of the 15 diagnostic categories is different from ranking of the leading causes of death based on the underlying cause. In particular, essential (primary) hypertension ranked 10th as the underlying cause but ranked 3rd when any mention of it was counted.
It is important to note that (Figures 2B-2, 2B-3, 2B-4, and 2B-5) are based on the age-adjusted mortality rates and not on the number of deaths.

In 2014, cancer was the number one cause of death for Asians or Pacific Islanders, Blacks or African Americans Hispanic or Latinos, and White non-Hispanics. Diseases of the heart were the leading cause of death specific to American Indians (Figure 2B-2, Table 2B-4). Unintentional injury was the third leading cause of death only for American Indians. For both Hispanics, and Whites, Alzheimer’s disease was the 5th leading cause of death in 2014. Diabetes was among the fourth leading cause of death for American Indians and Blacks (Table 2B-4).

Chronic liver disease and cirrhosis was the fifth leading cause of death specific to American Indians. Chronic lower respiratory diseases were the third leading cause of death specific to White non-Hispanics.

Based on age-adjusted mortality rates, cancer was the leading cause of death followed by heart disease for females of all racial/ethnic groups (Figure 2B-3, Table 2B-4). Diabetes was the 4th leading cause of death for American Indian, Black, and Hispanic women. Alzheimer’s disease was among the five leading causes of death for women of all racial/ethnic backgrounds excluding American Indians.

Chronic liver disease and cirrhosis was the 3rd leading cause of death specific to American Indian females. Chronic lower respiratory diseases were the 3rd leading cause of death specific to White non-Hispanic females.
B. LEADING CAUSES OF DEATH

Five Leading Causes by Gender

Figure 2B-4
Age-adjusted Mortality Rates* for the Five Leading Causes of Death by Race/Ethnicity among Males, Arizona, 2014

<table>
<thead>
<tr>
<th>Rank</th>
<th>Asian or Pacific Islander</th>
<th>American Indian or Alaska Native</th>
<th>Black or African American</th>
<th>Hispanic or Latino</th>
<th>White non-Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cancer 82.1</td>
<td>Diseases of heart 159.3</td>
<td>Diseases of heart 175.3</td>
<td>Cancer 158.6</td>
<td>Diseases of heart 168.9</td>
</tr>
<tr>
<td>2</td>
<td>Diseases of heart 73.8</td>
<td>Unintentional injury 128.2</td>
<td>Cancer 154.7</td>
<td>Diseases of heart 147.8</td>
<td>Cancer 166.5</td>
</tr>
<tr>
<td>3</td>
<td>Chronic lower respiratory diseases 53.8</td>
<td>Cancer 124.6</td>
<td>Chronic lower respiratory diseases 47.4</td>
<td>Unintentional injury 47.3</td>
<td>Unintentional injury 57.7</td>
</tr>
<tr>
<td>4</td>
<td>Stroke 33.1</td>
<td>Diabetes 74.7</td>
<td>Unintentional injury 44.1</td>
<td>Diabetes 46.8</td>
<td>Chronic lower respiratory diseases 49.7</td>
</tr>
<tr>
<td>5</td>
<td>Diabetes 30.1</td>
<td>Chronic liver disease and cirrhosis 48.0</td>
<td>Diabetes 41.8</td>
<td>Chronic lower respiratory diseases 28.7</td>
<td>Intentional Self-harm Suicide 31.9</td>
</tr>
</tbody>
</table>

Note: * Number of deaths per 100,000 population age-adjusted to the 2000 U.S. standard.

Based on age-adjusted mortality rates, cancer followed by diseases of the heart were the two leading causes of death among Asian or Pacific Islander, and Hispanic or Latino males (Figure 2B-4; Table 2B-4). Age-adjusted mortality rates for diseases of the heart were the highest of all causes among American Indian, Black or African American, and White non-Hispanic males.

Unintentional injury ranked among the top 5 leading causes of death for males in all racial/ethnic groups excluding Asians, but was the 2nd leading cause of death only for American Indian males.

In 2014, based on the age-adjusted mortality rates, diabetes was among the fourth leading causes of death for American Indian, and Hispanic or Latino males, and the 5th leading causes of death for Asian and Black males.

Figure 2B-5
Age-adjusted Mortality Rates* for the Five Leading Causes of Death by Gender in Urban* and Rural Areas, Arizona, 2014

<table>
<thead>
<tr>
<th>Rank</th>
<th>Urban male</th>
<th>Urban female</th>
<th>Rural male</th>
<th>Rural female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cancer 160.1</td>
<td>Cancer 115.0</td>
<td>Diseases of heart 191.0</td>
<td>Cancer 123.7</td>
</tr>
<tr>
<td>2</td>
<td>Diseases of heart 157.2</td>
<td>Diseases of heart 97.8</td>
<td>Cancer 163.0</td>
<td>Diseases of heart 112.6</td>
</tr>
<tr>
<td>3</td>
<td>Unintentional injury 52.2</td>
<td>Alzheimer's disease 37.5</td>
<td>Unintentional injury 76.1</td>
<td>Unintentional Injury 40.3</td>
</tr>
<tr>
<td>4</td>
<td>Chronic lower respiratory diseases 45.2</td>
<td>Chronic lower respiratory diseases 37.0</td>
<td>Chronic lower respiratory diseases 47.7</td>
<td>Chronic lower respiratory diseases 39.6</td>
</tr>
<tr>
<td>5</td>
<td>Diabetes 30.1</td>
<td>Unintentional injury 28.3</td>
<td>Intentional Self-harm Suicide 40.5</td>
<td>Stroke 29.7</td>
</tr>
</tbody>
</table>

Notes: * Number of deaths per 100,000 population age-adjusted to the 2000 U.S. standard; * Urban counties include Maricopa, Pima, Pinal and Yuma counties. The remaining counties comprise Arizona’s rural areas.

In 2014, the profile of the leading causes of death differed by gender for residents of the urban (Maricopa, Pima, Pinal, and Yuma counties) and rural (all the remaining counties) areas of the state. (Figure 2B-5, Table 2B-5).

Cancer exceeded diseases of the heart as the leading causes of death among both urban males and urban females and rural females. Alzheimer’s disease was the 3rd leading cause of death among urban females. Suicide was the 5th leading cause of death specific to rural males.
The age-adjusted mortality rate for diseases of the heart decreased by 47.6 percent from 247.7 deaths per 100,000 population in 1994 to 129.9/100,000 in 2014 (Figure 2B-6). The age-adjusted mortality rate for cancer declined less, by 28.5 percent, from 1994-2014. In Arizona, the relative risk of death from heart disease versus cancer changed from 29.9 percent greater in 1994 to 4.7 percent less in 2014.

In 2004, 896 more Arizonans died from diseases of the heart than cancer (Table 2B-1). In 2014, the number of deaths from cancer exceeded the number of heart disease deaths by 647 (Table 2B-4).

For the past several years, cancer has been the number one cause of death among Arizonans aged 0-84 years (Figure 2B-7). Beginning in 1996, the annual number of cancer deaths exceeded the number of deaths from heart disease. In 2014, 2,836 more Arizonans 0-84 years old died from cancer (8,847) than heart disease (6,011).
Among Arizonans age 85 and over, heart disease is the number one leading cause of death by a wide margin. In 2014, adults aged 85 and over accounted for 16.5 percent of all deaths from cancer but 39.6 percent of all deaths from heart disease. In 2014, the median age at death for heart disease was 81 years (Table 2D-3) and a minority of deaths (43.4 percent, Table 2D-4) were premature, i.e., before reaching the expected years of life at birth for all U.S. residents (78.8 years).

However, from 2004 to 2014, the number of deaths from cancer increased by 33.2 percent among Arizonans 85 years or older, more than 3 times the increase observed in diseases of the heart (10.7 percent increase).

Arizona’s White non-Hispanics were 2.2 times more likely to die from diseases of the heart and 1.7 times more likely to die from malignant neoplasms in 2014 than Asians, the group with the lowest risk of each respective cause of death (Figure 2B-9, Table 2B-4). Compared to Asians, Black or African American Arizonans were 1.7 times more likely to die of cancer and 2.3 times more likely to die of heart disease.

For all the racial/ethnic groups, except the American Indians, the relative risk of death from cancer exceeded the mortality risk of death from heart disease in 2014 (Table 2B-3).
The number of deaths from unintentional injuries increased by 4.0 percent from 3,137 in 2013 to 3,011 in 2014 (Table 2B-1). In 2014, based on age-adjusted mortality rates, accidents ranked third as a leading cause of death for males and fifth for females (Table 2B-4). From 2013 to 2014, the age-adjusted mortality rate for accidents decreased 5.7 percent for males and 8.2 percent for females (Figure 2B-10).

In 2014, 702 deaths were caused by motor vehicle accidents, a decrease of 8.5 percent from 2013. Additionally, Arizonans experienced a 3.8 percent increase in the number of accidental drug poisonings due to drugs and/or medicaments from 2013 (n=853) to 2014 (n=885). (Table 2B-9). Deaths due to mechanical suffocation increased 66 percent over this period.

The American Indian death rate for unintentional injuries (85.4/100,000) was 4.7 times greater than the rate for Asians (18.3/100,000), the group at the lowest risk of unintentional injury death among racial/ethnic groups in the State (Figure 2B-11, Table 2B-4).

In 2014, Navajo (94.1/100,000) and Apache (91.9/100,000) counties had the two highest age-adjusted mortality rates for unintentional injuries (Table 5E-11).
2B. LEADING CAUSES OF DEATH
Chronic lower respiratory diseases

In 2014, chronic lower respiratory diseases (bronchitis, emphysema, asthma) were the 3rd leading cause of death among Arizona residents (Table 2B-1). From 2013 to 2014, the mortality rates for chronic lower respiratory diseases decreased for both genders (Figure 2B-12, Table 2B-2).

Urban females had the lowest mortality rate for chronic lower respiratory diseases (37.0/100,000) among the genders and by regional group (Table 2B-5). Rural males were the group with the highest mortality risk for chronic lower respiratory diseases 47.7/100,000), followed by urban males (45.2/100,000) and rural females (39.6 deaths per 100,000).

Mortality rates for emphysema, chronic bronchitis, asthma, and other lower respiratory disorders were substantially higher among White non-Hispanics (35.9 deaths per 100,000) and Black or African Americans (34.0/100,000) than they were among Hispanics, (21.1/100,000), Asians (17.3/100,000), and American Indians (12.4/100,000; Figure 2B-13, Table 2B-4).

Notes: * Number of deaths per 100,000 population age-adjusted to the 2000 U.S. standard; † This ICD-10 title corresponds to Chronic Obstructive Pulmonary Disease (ICD-9 title).
Cerebrovascular disease and diseases of the heart are two of the leading causes of death that share many risk factors such as hypertension, smoking, obesity, and high levels of cholesterol. The age-adjusted mortality rate for stroke decreased by 39.9 percent from 43.6 deaths per 100,000 population in 2004 to 26.2/100,000 in 2014 (Table 2B-3).

Females remained at greater risk than males to die from a stroke from 2004-2011. In 2012, the age-adjusted mortality rate for stroke was greater among males than females, with male risk being slightly higher than female risk (Figure 2B-14). In 2013-2014, the stroke mortality rate for females was again greater than the rate for males (Figure 2B-14, Table 2B-2).

Compared to Arizona's overall rate, Blacks or African Americans were 55.8 percent more likely to die from cerebrovascular disease in 2014 (Figure 2B-15, Table 2B-4). The 2014 mortality rate for cerebrovascular disease among American Indians (24.5/100,000) was the lowest among racial/ethnic groups.

American Indian females had the lowest mortality rate for cerebrovascular disease among all gender and racial/ethnic subgroups (24.0 deaths per 100,000, Table 2B-4), while Black or African American females had the highest rate of 39.2 deaths per 100,000.

Notes: * Number of deaths per 100,000 population age-adjusted to the 2000 U.S. standard.
2B. LEADING CAUSES OF DEATH

Alzheimer’s disease

Based on the number of deaths in 2014, Alzheimer’s disease was the 4th leading cause of death for females and 6th leading cause for males (Table 2B-4).

From 2013 to 2014, the age-adjusted mortality rate for Alzheimer’s disease decreased among both genders. The decline in the age adjusted mortality rate was greater for females (7.5 Percent) than for males (5.5 percent) (Figure 2B-16).

The age-adjusted mortality rates for Alzheimer’s disease in 2014 were higher among Black or African Americans (35.8/100,000), Hispanics (34.1/100,000), and White non-Hispanics (31.1/100,000) than among American Indian (21.4/100,000) or Asian residents of Arizona (11.0/100,000; Figure 2B-17, Table 2B-4).

White non-Hispanic residents of Arizona disproportionately contributed to mortality from Alzheimer’s disease. In 2014, White non-Hispanics accounted for 57.6 percent (Table 10C-1) of the State’s population, but 85.0 percent of all deaths from Alzheimer’s disease (1,993 out of 2,345; Table 2B-4).

In 2014, the median age at death from Alzheimer’s disease was 88 for females and 86 for males (Table 2D-3).
Both men and women experienced a decline in mortality rates for diabetes in 2014 (Figure 2B-18) following a period of increase during 2010 to 2013 (based on the data in Table 2B-1).

In addition to 1,776 deaths that had diabetes assigned as the underlying cause in 2014, another 2,678 deaths had diabetes assigned as a contributing factor. The diabetes-related death rate of 57.6/100,000 (Table 6A-6) was 2.5 times greater than the rate for diabetes as underlying cause (23.0/100,000, Table 2B-2).

The diabetes-related death rate includes all mentions of diabetes on the death certificate as the underlying or other than underlying cause.

In 2014, compared to Arizona’s rate, American Indians were 2.7 times more likely to die from diabetes (63.2 deaths per 100,000; Figure 2B-19, Table 2B-4). The rate of 18.3 deaths per 100,000 among Asians was the lowest rate among all racial/ethnic groups in the State.

Among the 15 Arizona counties, in 2014 Apache (43.9/100,000), Navajo (30.8/100,000), and Gila (30.4/100,000) counties had the highest mortality rates for diabetes (Table 5E-11).

Note: * Number of deaths per 100,000 population age-adjusted to the 2000 U.S. standard.
2B. LEADING CAUSES OF DEATH
Influenza and pneumonia

The number of deaths from influenza and pneumonia decreased by 47.7 percent from a recent high of 1,280 in 2005 to 669 in 2014, though the number of influenza deaths rose 14.0 percent from 2012 to 2013 (Table 2B-1). Among the 669 deaths, influenza was identified as the underlying cause for 62 of them, while pneumonia was listed as the underlying cause on 607 death certificates (Table 2B-6).

The mortality rate for influenza and pneumonia decreased for females from 8.8 deaths per 100,000 in 2013 to 7.7 deaths in 2014 (Figure 2B-20, Table 2B-2). The mortality rate for influenza and pneumonia also decreased for males from 11.6 deaths per 100,000 in 2013 to 10.4/100,000 in 2014.

In 2014, the age-adjusted mortality rate for Arizona males was 35.1 percent greater than that of Arizona females.

In 2014, American Indian residents of Arizona had the highest mortality rate for influenza and pneumonia (22.9 deaths per 100,000) among the racial/ethnic groups. The age-adjusted mortality of 4.2/100,000 among Blacks was the lowest rate among racial/ethnic groups in the State (Figure 2B-21, Table 2B-4).

Compared to the State death rate for influenza and pneumonia, Apache County’s rate was 3.1 times greater (27.9/100,000). The mortality rate was also higher in Yuma County (18.6/100,000), Graham (16.2/100,000), and Navajo County (15.1/100,000) (Table 5E-11).
In 2014, suicide was the 7th leading cause of death among males. It ranked as the 11th cause of mortality for females. The age-adjusted suicide rate decreased from 17.0 suicides per 100,000 in 2013 to 16.5 in 2014 (Table 2B-4).

From 2013 to 2014, the suicide rate remained stable for females, but decreased by 3.8 percent for males (Figure 2B-22, Table 2B-4). In 2014, suicide posed a 3.3 times greater mortality risk for males (25.6/100,000) than for females (7.7/100,000).

In 2014, White non-Hispanics had the highest age-adjusted suicide rate (21.0 suicides per 100,000) among racial/ethnic groups, followed by American Indians (13.9/100,000), Black or African Americans (9.0/100,000), Hispanics (8.3/100,000), and Asians (7.0/100,000; Figure 2B-23, Table 2B-4).

The age-adjusted mortality rates for suicide varied in Arizona in 2014 from 7.1 suicides per 100,000 residents of Santa Cruz County to 32.5 suicides per 100,000 residents of Apache County (Table 5E-11).
2B. LEADING CAUSES OF DEATH

Chronic liver disease and cirrhosis

Chronic liver disease and cirrhosis was the 9th leading cause of death in Arizona in 2014 (Figure 2B-1, Table 2B-1). Among the 984 deaths due to chronic liver disease and cirrhosis, 590 (60.0 percent) were males (Table 2B-4).

Among females, the age-adjusted mortality rate for chronic liver disease and cirrhosis slightly decreased 9.0 percent from 2013 to 2014. Among males, the mortality rate decreased 9.3 percent from 18.2/100,000 in 2013 to 16.5/100,000 in 2014 (Figure 2B-24, Table 2B-3).

In 2014, Gila, Apache, La Paz, Navajo, Yavapai, and Mohave, and counties had the highest mortality rates for chronic liver disease and cirrhosis (Table 5E-11).

The 2014 death rate for chronic liver disease and cirrhosis among American Indians (52.7 deaths per 100,000) was 4.0 times greater than the state average (13.2/100,000; Figure 2B-25, Table 2B-4). The rate for Hispanics (18.0 deaths per 100,000 population) was the second highest among racial/ethnic groups in the State.

Compared to the median age at death from all causes (76 years), those who died from chronic liver disease and cirrhosis were on average 17 years younger (59 years, Table 2D-3). In 2014, the median age at death of American Indians who died from chronic liver disease and cirrhosis was only 52 years (Table 2D-3).