

Poisonings Among Arizona Residents, 2010

Resources for the development of this report were provided through funding to the Arizona Department of Health Services from the Centers for Disease and Control and Prevention, Cooperative Agreement 1U17CE002023-01, Core Violence and Injury Prevention Program.

Permission to quote from or reproduce materials from this publication is granted when acknowledgment is made.



Prepared by: Alana Shacter, MPH
150 North 18th Avenue, Suite 320
Phoenix, AZ 85007
Injury Prevention Program
Bureau of Women's and Children's Health
Arizona Department of Health Services
November 2011

Table of Contents

Executive Summary	2
Overview of Poisonings Among Arizona Residents	3
Poison Control Centers Serving Arizona	4
Five-Year Trends in Poisonings Among Arizona Residents, 2006-2010	6
<i>Mortality</i>	<i>6</i>
<i>Non-Fatal Inpatient Hospitalizations</i>	<i>9</i>
Poisoning-Related Mortality, 2010	12
<i>Unintentional Poisoning Fatalities.....</i>	<i>18</i>
<i>Poisoning-Related Suicides.....</i>	<i>21</i>
Non-Fatal Poisoning-Related Inpatient Hospitalizations, 2010	23
<i>Non-Fatal Unintentional Poisoning-Related Inpatient Hospitalizations</i>	<i>27</i>
<i>Non-Fatal Self-Inflicted Poisoning-Related Inpatient Hospitalizations</i>	<i>31</i>
Non-Fatal Poisoning-Related Emergency Department Visits, 2010.....	35
<i>Non-Fatal Unintentional Poisoning-Related Emergency Department Visits.....</i>	<i>39</i>
<i>Non-Fatal Self-Inflicted Poisoning-Related Emergency Department Visits.....</i>	<i>42</i>
Poisoning and Prescription Drug Overdoses as an Arizona Public Health Concern	46
Poisoning Prevention Tips and Resources	47
Methodology.....	48

Executive Summary

Poisonings were the underlying cause of death for 1,176 Arizona residents in 2010. Males ages 45 through 54 years had the highest rate of poisoning-related deaths with 47.5 deaths per 100,000 residents. Poisoning mortality rates were highest among American Indians (25.0 deaths per 100,000 residents) and non-Hispanic Whites (23.7 deaths per 100,000 residents). Seventy-six percent of the poisoning-related deaths in 2010 were due to unintentional injuries (n=890); 16 percent were due to suicide (n=186); and eight percent were of an undetermined manner of death (n=99). The poisons most commonly specified on death certificates in 2010 were alcohol (18 percent, n=207), Oxycodone or Hydrocodone (15 percent, n=180), and benzodiazepines (13 percent, n=155). Among counties with at least 20 poisoning-related deaths in 2010, Mohave County had the highest fatality rate (32.0 deaths per 100,000 residents).

In 2010, there were 6,907 non-fatal inpatient hospitalizations due to poisonings. Adult females had the highest rates of non-fatal poisoning-related inpatient hospitalizations. Females 45 through 54 years of age had a rate of 193.4 cases per 100,000 residents, and females 35 through 44 years of age had a rate of 168.1 cases per 100,000 residents. Non-fatal poisoning-related inpatient hospitalization rates were highest among Non-Hispanic Whites (138.5 cases per 100,000 residents) and African Americans (132.0 cases per 100,000 residents). Self-inflicted poisonings accounted for 48 percent of non-fatal inpatient hospitalizations (n=3,226), and unintentional poisonings comprised an additional 45 percent (n=3,075). Hospital charges for non-fatal poisoning-related inpatient hospitalizations totaled more than \$179.6 million in 2010, and Arizona residents spent a total of 20,606 days hospitalized for these injuries. Graham and Gila Counties had the highest age-adjusted rates of inpatient hospitalizations due to non-fatal poisonings (157.4 and 129.6 hospitalizations per 100,000 residents, respectively).

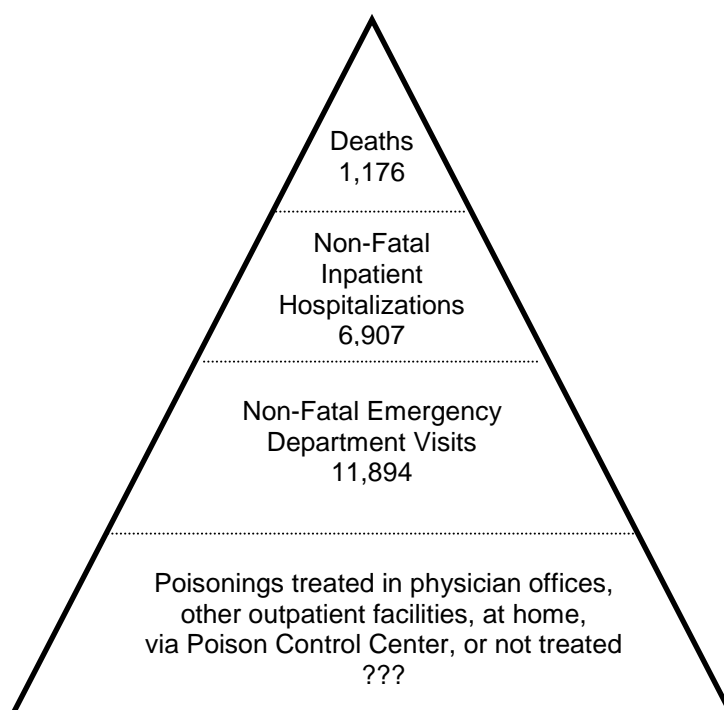
In 2010, there were 11,894 non-fatal poisoning-related emergency department visits among Arizona residents. Twenty percent of the visits were among children ages 14 years and younger (n=2,348), and 86 percent of these visits were attributed to unintentional poisonings (n=2,018). The highest number of non-fatal emergency department visits for poisoning-related injuries were among residents ages 15 through 24 years (24 percent, n=2,915). The highest age-specific rate of non-fatal poisoning-related emergency department visits among males younger than five years of age (390.4 visits per 100,000 residents), and the highest rate among females was in the 15 through 24 year age group (363.8 visits per 100,000 residents). Fifty-two percent of the non-fatal poisoning-related emergency department visits were the result of unintentional poisonings (n=6,140), and 35 percent of the visits resulted from self-inflicted injuries (n=4,143). Hospital charges for non-fatal poisoning-related emergency department visits totaled over \$46.9 million in 2010.

The data presented in this report show that poisoning is a public health problem that impacts the lives of thousands of Arizona residents each year. These injuries can occur throughout the life span, and like so many injuries, poisonings are predictable and preventable. Understanding the circumstances of poisonings is an important step towards educating and empowering communities and implementing prevention strategies.

Overview of Poisonings Among Arizona Residents

Fatalities and injuries resulting from poisonings are significant problems in Arizona. Beginning in 2007, poisoning-related deaths surpassed motor-vehicle crashes as the leading injury-related cause of death among Arizonans.¹ As this report shows, the burden of poisoning-related injuries has increased in recent years, accounting for a greater percentage of injury-related morbidity and mortality. Figure 1 presents an overview of the number of poisoning-related events by outcome and illustrates the limitations of currently available data sources and the inability to enumerate the true number of poisonings.

Figure 1. Poisoning Outcomes Pyramid, Arizona 2010



This report presents a comprehensive picture of poisoning-related injuries among Arizona residents in 2010, as well as poisoning trends during the five years since 2006. To help better understand the data, information about poison control centers are also presented. For additional information about data sources and methods used, please refer to the Methodology section of this report. ***To learn about preventing poisonings, please refer to the Prevention Tips and Resources section of this report.***

¹ Please refer to the Methodology Section for a description of the types of poisonings included in this report; these numbers may not match other publications.

Poison Control Centers Serving Arizona

Poison Control Centers (PCCs) are widely considered to be a cost-effective tool for reducing healthcare costs resulting from poisoning events. It has been estimated that for every dollar invested in a PCC, seven dollars of medical care can be avoided.² Because of the clear benefit to citizens, the state of Arizona has mandated the existence of a PCC since 1980. Per Arizona Revised Statutes 36-1161 through 36-1163, the Arizona Department of Health Services is responsible for establishing a poison and drug information system consisting of two poison control centers. While the poison control centers are charged with serving as a resource for poison identification and treatment, it is also tasked with educating the public about poisoning prevention.

As of October 2011, two of the nation's 57 nationally recognized PCCs were located in Arizona. The Arizona Poison and Drug Information Center (APDIC) is affiliated with the University of Arizona College of Pharmacy located in Tucson. The Banner Good Samaritan Poison & Drug Information Center (BGSPDIC) is located in Phoenix. The BGSPDIC serves Maricopa County, including the metropolitan Phoenix area. The APDIC serves the remainder of the state. While the BGSPDIC serves a smaller geographic area, it covers about 60 percent of the state's residents.

Similar to other nationally recognized PCCs, both Arizona centers are accessed by calling the National Poison Control Center toll-free telephone number: 1-800-222-1222. Calls to this number are routed to the appropriate PCC based on geography. Because calls are routed based on the telephone number from which the call is placed, individuals with an Arizona telephone area code will speak to either BGSPDIC or APDIC, even if they are calling from outside Arizona.

Individuals are encouraged to call PCCs with any concerns, whether or not an incident has occurred. While providing information and medical advice about poisonings, both of Arizona's centers provide additional services to residents, including drug information and identification, medical consultation with clinicians, and poisoning prevention education and outreach.

In 2010, the APDIC documented 25,973 calls for human exposures to toxins and poisons, out of 57,073 total calls (45.5 percent). 23 of these cases resulted in death and 33 percent (n=8,650) of the calls were managed in a healthcare facility.

In 2010, the BGSPDIC documented 47,157 calls for human exposures to toxins and poisons, out of more than 109,000 total calls (43 percent). Twenty-two percent of the calls for poison exposures were managed in a healthcare facility, and 75 percent of calls were managed at home.

The availability of a 24-hour poison control center allows many people who may have sought emergency care to be treated in their own homes, resulting in financial savings for themselves and the healthcare facilities they may have otherwise visited. BGSPDIC estimates that 29,000 callers may have sought medical treatment at an emergency department in 2010 if they had not been able to consult with the poison control center and care for themselves at home.³

² Miller TR, Lestina DC. Costs of poisoning in the United States and savings from poison control centers: A benefit-cost analysis. *Ann Emerg Med* February 1997; 29:239-245.

³ Banner Good Samaritan Poison & Drug Information Center 2010 Summary, accessed Oct. 7th, 2011 at www.bannerhealth.com/Locations/Arizona/Banner+Good+Samaritan+Poison+and+Drug+Information+Center/About+Us/By+the+Numbers.htm

A survey of patients who called a PCC found that 79 percent of the patients surveyed would have used the local emergency medical services in the absence of a poison control hotline, at an estimated cost of more than five times the operating costs of the PCC.⁴

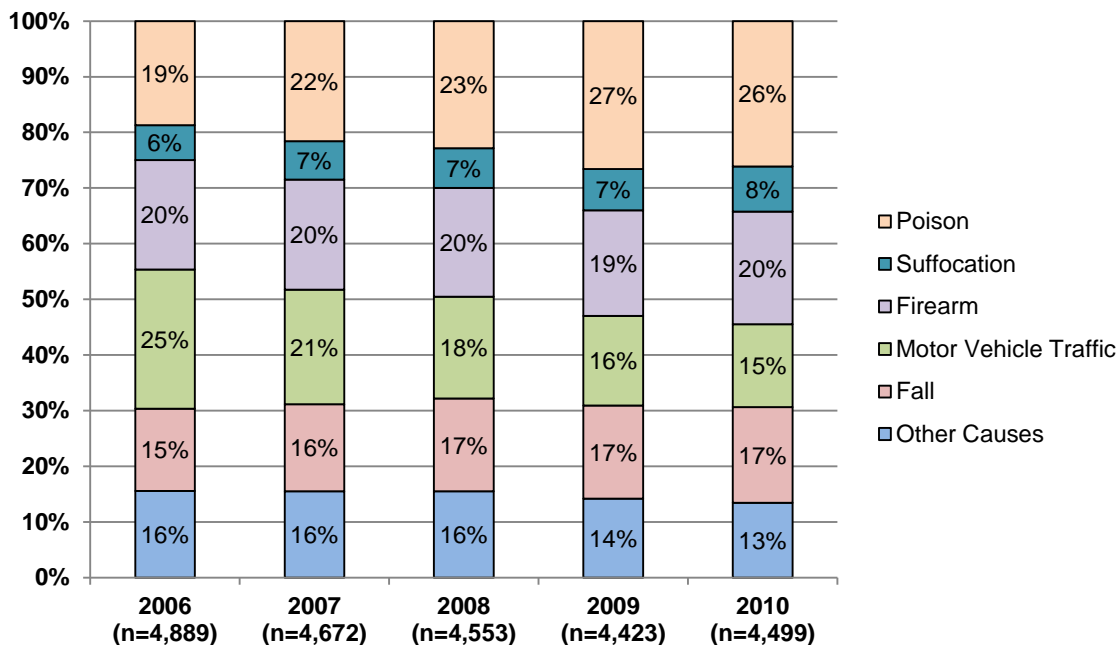
⁴ Kearney TE, Olson KR, Bero LA, Heard SE, Blanc PD. Health Care Cost Effects of Public Use of a Regional Poison Control Center. *West J Med* 1995; 162:499-504.

Five-Year Trends in Poisonings Among Arizona Residents, 2006-2010

Mortality

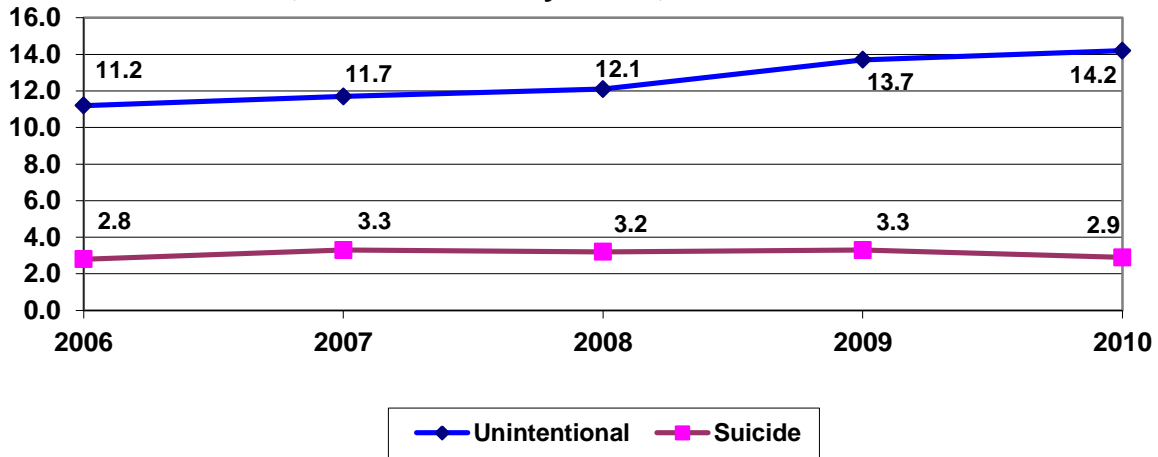
While injuries account for approximately 10 percent of deaths among Arizonans each year, the types of injury have changed over time. Since 2006, the proportion of poisoning-related deaths has increased from 19 percent of all injury-related deaths (n=914) to 26 percent of injury-related deaths in 2010 (n=1,176). Over this five-year period, the number of injury-related deaths has decreased slightly, and the increase in poisoning-related deaths was offset by substantial decreases in motor vehicle traffic fatalities. Figure 1 shows the distribution of injury-related deaths by mechanism of injury over the five year period from 2006 through 2010.

Figure 1. Proportion of Injury-Related Fatalities by Mechanism of Injury Arizona, 2006-2010



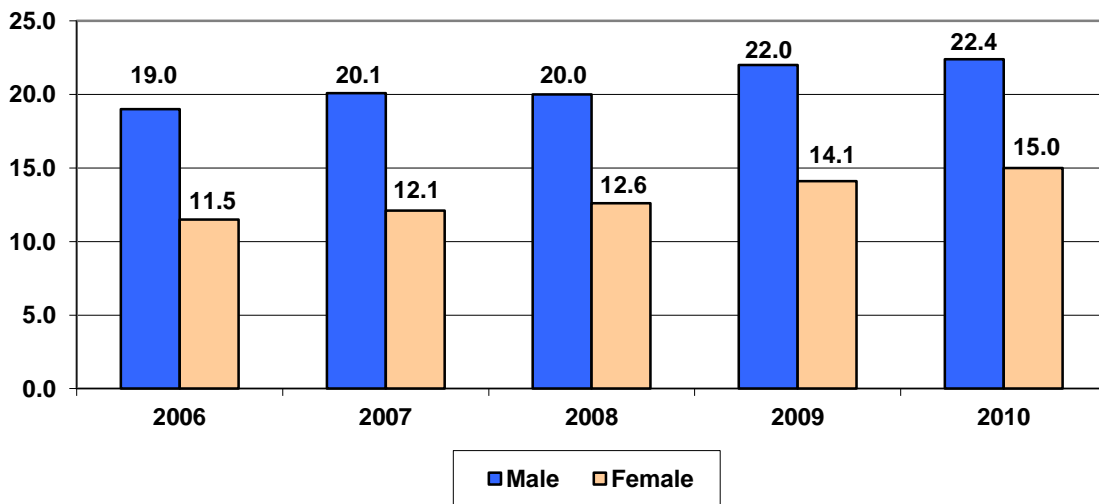
Between 2006 and 2010, the age-adjusted poisoning-related mortality rate increased 22 percent for Arizona residents. In the same time period, the rate of unintentional poisoning deaths increased by a larger percentage than that of poisoning-related deaths by suicide. There was a 27 percent increase of unintentional poisoning-related fatalities, and a 5 percent increase of suicides. Figure 2 shows the age-adjusted poisoning-related mortality rates by manner of death for Arizona residents from 2006 to 2010.

Figure 2. Age-Adjusted Poisoning-Related Mortality Rates per 100,000 Residents by Intent, Arizona 2006-2010



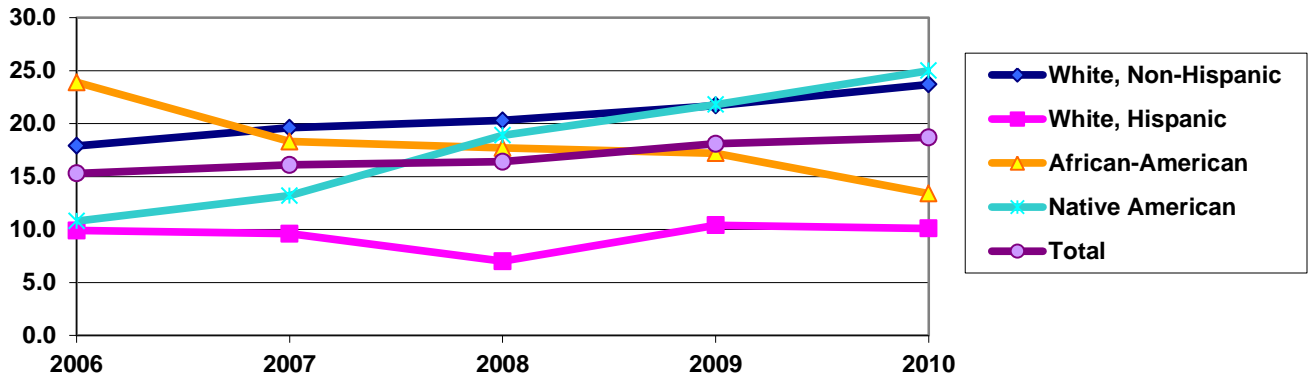
Between 2006 and 2010, the age-adjusted poisoning-related mortality rates increased for both males and females, though the rates for males were consistently higher than those for females. Figure 3 shows the age-adjusted poisoning-related mortality rates by sex for Arizona residents from 2006 to 2010.

Figure 3. Age-Adjusted Poisoning-Related Mortality Rates per 100,000 Residents by Sex, Arizona 2006-2010



While rates increased for Native American (by 131 percent) and White, Non-Hispanic residents (by 32 percent), poisoning-related fatality rates among African American Arizonans decreased 44 percent. Figure 4 shows the age-adjusted poisoning-related mortality rates by race/ethnicity for Arizona residents from 2006 to 2010. There were 29 poisoning-related fatalities among Asian residents from 2006 through 2010, so age-adjusted rates have not been presented here, as the small number of deaths would result in an unstable rate over time. Age-adjusted mortality rates could not be calculated for the 41 poisoning-related deaths among Arizonans of other or unknown race/ethnicities because a denominator could not be characterized.

Figure 4. Age-Adjusted Poisoning-Related Mortality Rates per 100,000 Residents, by Race/Ethnicity, Arizona 2006-2010



While the trend is not supported in all counties, the age-adjusted rate of poisoning-related fatalities in Arizona increased between 2006 and 2010. Table 1 shows the age-adjusted fatality rate per 100,000 residents for poisoning-related deaths by county of residence from 2006 to 2010. Ten of the state's 15 counties had at least one year in which there were fewer than 20 deaths, making those counties' rates unstable over time.

Table 1. Age-Adjusted Fatality Rate per 100,000 Residents for Poisoning-Related Deaths by County of Residence, Arizona 2006-2010

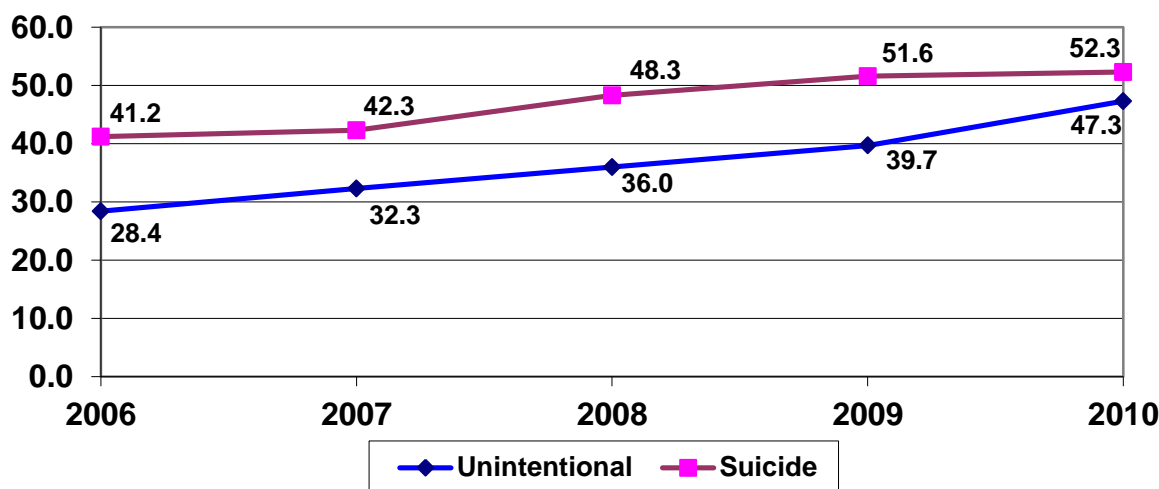
	2006	2007	2008	2009	2010
Apache*	8.8	24.4	23.2	23.1	28.8
Cochise*	15.8	16.8	13.0	17.3	16.6
Coconino*	5.7	9.7	18.6	18.4	18.6
Gila*	20.8	18.6	18.0	27.1	21.2
Graham*	9.7	22.0	14.7	16.5	17.5
Greenlee*	9.5	20.7	10.1	50.1	11.4
La Paz*	26.3	8.2	20.0	25.2	58.4
Maricopa	15.2	16.2	16.0	16.7	16.6
Mohave	13.3	13.7	21.3	31.1	32.0
Navajo*	20.1	16.7	16.5	26.0	25.8
Pima	20.6	17.2	17.7	20.8	22.6
Pinal	11.3	15.5	13.6	13.4	16.3
Santa Cruz*	7.2	4.9	6.7	18.5	7.7
Yavapai	13.4	18.3	20.5	21.1	27.8
Yuma*	8.2	16.3	12.3	13.0	14.0
Statewide Total	15.3	16.1	16.4	18.1	18.7

*Rates are unstable for counties indicated, as they had fewer than 20 deaths in at least one year.

Non-Fatal Inpatient Hospitalizations

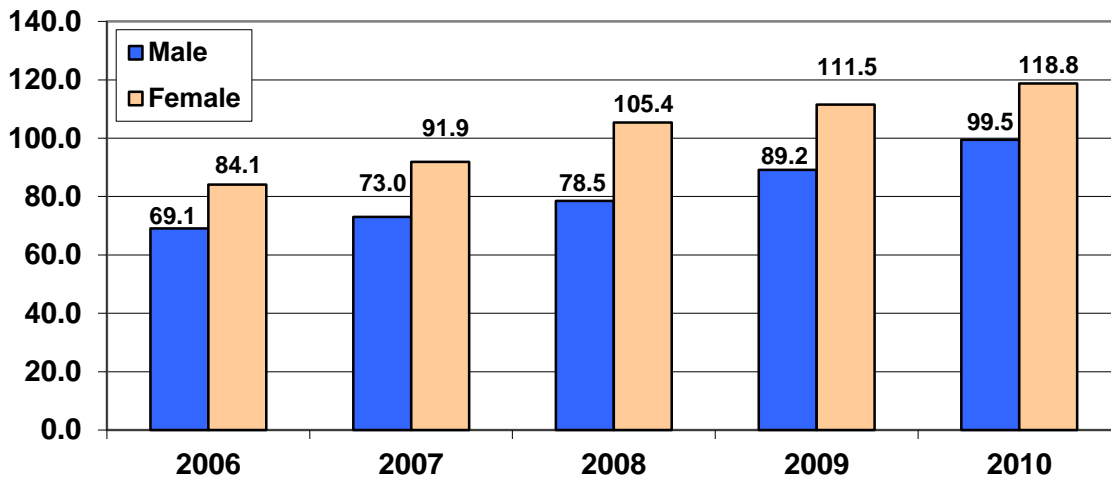
Between 2006 and 2010, the age-adjusted rate of non-fatal poisoning-related inpatient hospitalizations among Arizona residents increased 43 percent, from 76.5 cases per 100,000 residents in 2006 to 109.2 cases in 2010. While the increase was still apparent when hospitalizations were divided by injury intent, cases resulting from self-inflicted poisonings increased more than cases of unintentional poisonings (a 67 percent increase and a 27 percent increase, respectively). Figure 5 shows the age-adjusted poisoning-related rates for non-fatal inpatient hospitalizations by injury intent for Arizona residents from 2006 to 2010.

Figure 5. Age-Adjusted Non-Fatal Poisoning-Related Inpatient Hospitalization Rates per 100,000 Residents by Intent, Arizona 2006-2010



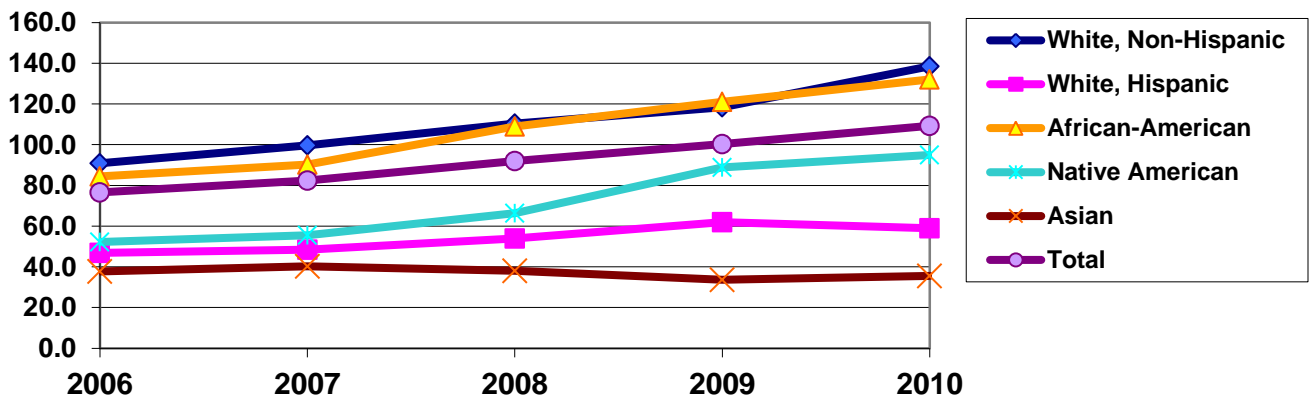
While age-adjusted poisoning-related mortality rates were consistently higher among males, similar rates for non-fatal poisoning-related inpatient hospitalizations were higher for females than for males. Rates increased among both males and females during the five years from 2006 through 2010, with a 44 percent increase in the rate among males and a 41 percent increase in the rate among females. Figure 6 shows the age-adjusted rates by sex for non-fatal poisoning-related inpatient hospitalizations from 2006 through 2010.

Figure 6. Age-Adjusted Non-Fatal Poisoning-Related Inpatient Hospitalization Rates per 100,000 Residents by Sex, Arizona 2006-2010



The age-adjusted rate of poisoning-related inpatient hospitalizations increased among Native American (82 percent), African American (56 percent), non-Hispanic White (52 percent), and Hispanic residents (26 percent), and decreased six percent among Asian residents between 2006 and 2010. Figure 7 shows the age-adjusted non-fatal poisoning-related inpatient hospitalization rates by race/ethnicity for Arizona residents from 2006 to 2010.

Figure 7. Age-Adjusted Non-Fatal Poisoning-Related Inpatient Hospitalization Rates per 100,000 Residents, by Race/Ethnicity, Arizona 2006-2010



The age-adjusted rate of non-fatal poisoning-related inpatient hospitalizations in Arizona increased between 2006 and 2010 among all counties with at least 20 hospitalizations in a given year. Though they have relatively small populations, Graham and Gila Counties had poisoning-related hospitalization rates consistently higher than the remainder of the state. Table 2 shows the age-adjusted fatality rate per 100,000 residents for non-fatal poisoning-related inpatient hospitalizations by county of residence from 2006 to 2010. Four of the state's 15

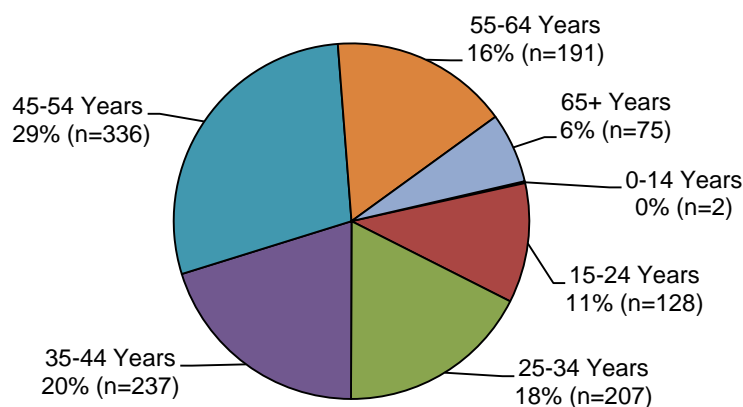
counties had at least one year in which there were fewer than 20 events, making the rate for that county unstable over time.

Table 2. Age-Adjusted Rate per 100,000 Residents for Non-Fatal Poisoning-Related Inpatient Hospitalizations by County of Residence, Arizona 2006-2010					
	2006	2007	2008	2009	2010
Apache*	35.1	26.8	45.4	55.7	58.4
Cochise	52.7	36.2	53.1	68.3	66.7
Coconino	60.8	60.4	63.1	59.2	73.8
Gila	97.9	92.4	97.8	101.3	129.6
Graham	96.0	114.1	139.2	187.6	157.4
Greenlee*	51.2	54.3	89.9	76.3	37.0
La Paz*	59.1	46.8	39.9	113.5	52.8
Maricopa	75.9	85.4	94.6	102.5	114.5
Mohave	104.5	101.0	104.3	124.9	112.8
Navajo	74.5	56.8	76.6	83.3	95.2
Pima	84.5	92.9	103.6	107.0	116.8
Pinal	90.1	83.1	90.9	117.0	109.3
Santa Cruz*	37.5	31.5	44.2	47.6	48.9
Yavapai	69.2	75.5	74.2	78.3	105.3
Yuma	53.5	53.3	67.4	68.8	67.9
Statewide Total	76.5	82.4	91.9	100.3	109.2
*Rates are unstable for counties indicated, as they had fewer than 20 cases in at least one year.					

Poisoning-Related Mortality, 2010

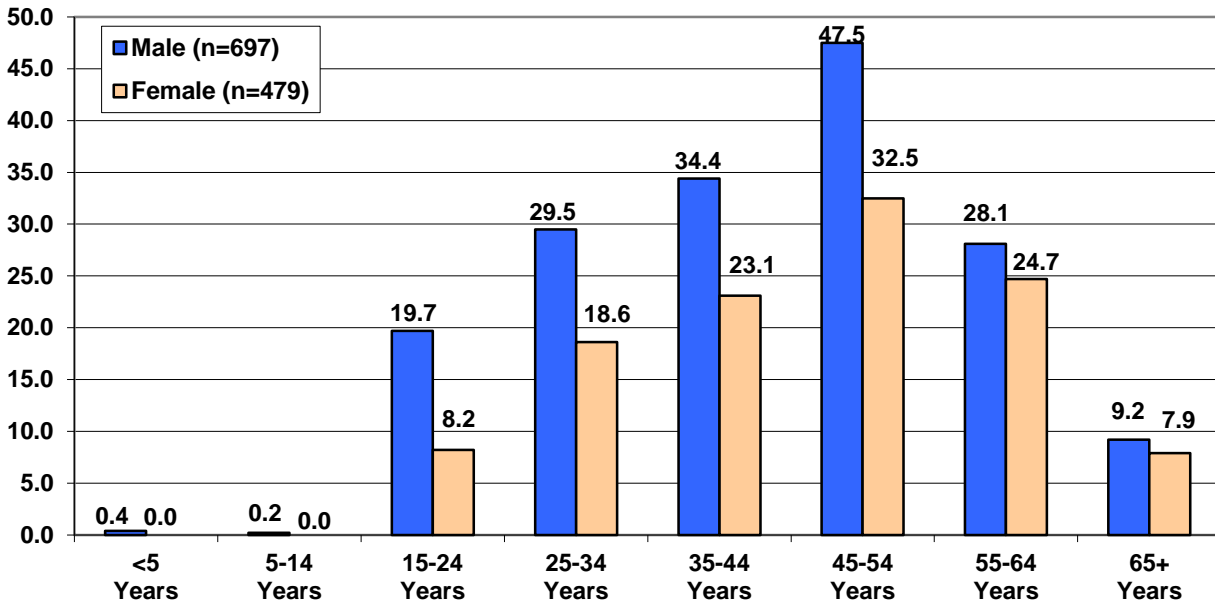
There were 1,176 deaths among Arizona residents attributed to poisoning in 2010. Fifty-nine percent of deaths were among males (n=697), and 41 percent were among females (n=479). Residents ages 45 through 54 years had the highest number of deaths of any age group, and accounted for 29 percent of the poisoning fatalities in 2010 (n=336). Though they accounted for only 26 percent of the general population, residents ages 35 through 54 years comprised 49 percent of the poisoning-related deaths in 2010 (n=573). Figure 8 shows the number and percentage of fatalities by age group.

Figure 8. Poisoning Mortality by Age Group, Arizona 2010 (n=1,176)



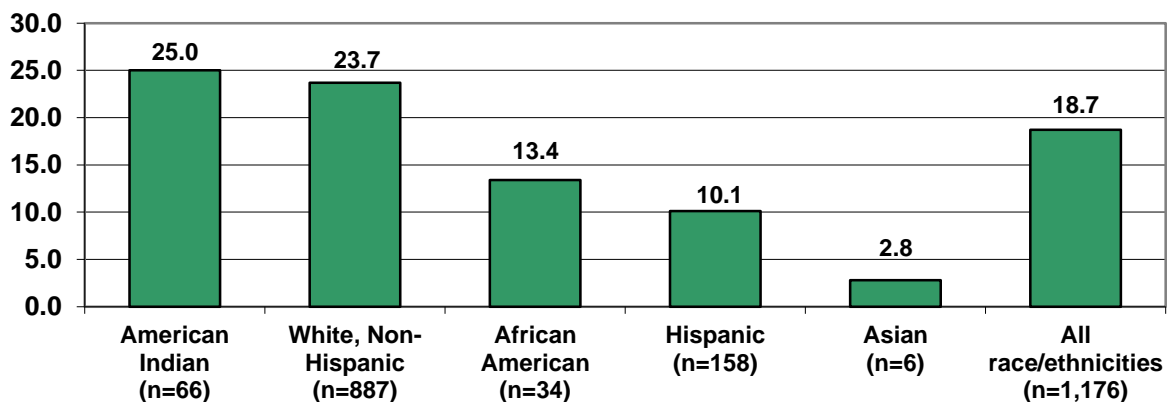
In 2010, the age-adjusted poisoning mortality rate among Arizona females was 15.0 deaths per 100,000 residents; the rate among males was 1.5 times higher (22.4 deaths per 100,000 residents). When looking at poisoning deaths by age group, males had higher mortality rates than females in each age group, though the ratio of deaths among males and females varied. Adults 45 through 54 years of age had the highest rate of fatalities among both males and females. Though their mortality rates were lower than most groups of adults, young adults had the highest ratio of deaths among males versus females. Deaths among males 15 through 24 years outnumbered those among females in that age group by a factor of 2.4. Figure 9 shows the poisoning-related mortality rates per 100,000 Arizona residents by age group and sex.

Figure 9. Poisoning Mortality Rates per 100,000 Residents by Age Group and Sex, Arizona 2010



American Indian residents had the highest age-adjusted poisoning-related mortality rate in 2010 (25.0 deaths per 100,000 residents), followed closely by White, non-Hispanic residents (23.7 deaths per 100,000 residents). Hispanic Arizonans had the lowest stable poisoning-related mortality rate in 2010 with 10.1 deaths per 100,000 residents. Though Asian residents had a very low mortality rate, the rate is not stable due to the low number of deaths. Figure 10 shows the age-adjusted poisoning-related mortality rates by race/ethnicity for Arizona residents in 2010.

Figure 10. Age-Adjusted Poisoning Mortality Rate per 100,000 Residents by Race/Ethnicity, Arizona 2010

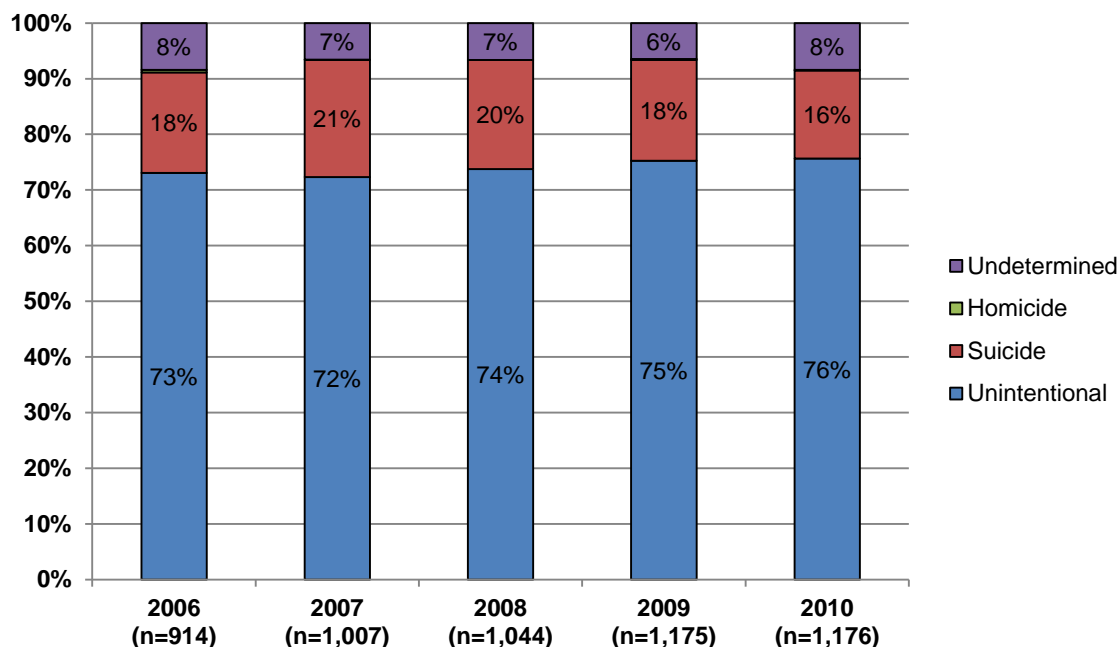


There were 25 deaths among individuals of other or unknown race/ethnicity.

As in previous years, the majority of poisoning-related deaths were determined to be unintentional. In 2010, 76 percent of poisoning-related deaths among Arizona residents were unintentional (n=890). With 186 suicides, 2010 had the lowest percentage of poisoning-related

suicide deaths in any year from 2006 through 2010. Figure 11 shows the proportion of poisoning-related deaths by manner in each year from 2006 through 2010.

Figure 11. Proportion of Poisoning-Related Fatalities by Intent, Arizona, 2006-2010



Every poisoning-related fatality has its own circumstances, including the type of poison used. Multiple drugs may be listed as contributing to a single death. Table 3 lists the poisons most commonly specified on the 2010 death certificates. Because some death certificates may simply state that the cause of death was a “drug overdose” or “combined drug intoxication”, the figures listed below may be an underestimate of the number of deaths involving a particular substance.

Poisons*	2006 (n=914)		2007 (n=1,007)		2008 (n=1,044)		2009 (n=1,175)		2010 (n=1,176)	
	#	%	#	%	#	%	#	%	#	%
Alcohol	135	15%	155	15%	186	18%	223	19%	207	18%
Benzodiazepines	56	6%	54	5%	97	9%	149	13%	155	13%
Carbon Monoxide	45	5%	36	4%	41	4%	24	2%	23	2%
Carisoprodol	2	<1%	10	1%	15	1%	15	1%	14	1%
Cocaine	164	18%	125	12%	87	8%	104	9%	65	6%
Diphenhydramine	13	1%	22	2%	30	3%	33	3%	29	2%
Fentanyl	21	2%	22	2%	37	4%	22	2%	29	2%
Helium	3	<1%	5	<1%	6	1%	10	1%	12	1%
Heroin	49	5%	56	6%	67	6%	91	8%	89	8%
Methadone	85	9%	79	8%	105	10%	113	10%	101	9%
Methamphetamine	97	11%	104	10%	91	9%	101	9%	96	8%
Morphine	87	10%	81	8%	115	11%	114	10%	104	9%
Oxycodone/Hydrocodone	91	10%	119	12%	162	16%	206	18%	180	15%
Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs)	4	<1%	10	1%	11	1%	15	1%	14	1%
Selective Serotonin	22	2%	44	4%	55	5%	46	4%	52	4%

Reuptake Inhibitors (SSRIs)										
Tramadol	4	<1%	13	1%	10	1%	20	2%	28	2%

*More than one poison may have been identified for each death

Poisoning-related fatalities were not distributed evenly throughout the week or the calendar year. If deaths were distributed evenly among days and months, each day would contain 14.3 percent of the deaths and each month would contain 8.3 percent of the deaths. In 2010, Saturdays and Mondays had the highest number of deaths with 16.4 percent and 15.9 percent of poisoning-related deaths respectively (n=1993, n=187). Thursdays had the lowest number of deaths, accounting for 12.9 percent (n=152). The month of August had the highest number of deaths (10.2 percent, n=120), and February had the lowest number of deaths (6.5 percent, n=77). There were differences of the distribution of deaths among males and females with the greatest discrepancy on Thursdays and during the month of November. Figures 12 and 13 show the distribution of poisoning-related deaths in 2010 by sex and day or month of death.

Figure 12. Poisoning Mortality by Day of Week and Sex, Arizona 2010 (n=1,176)

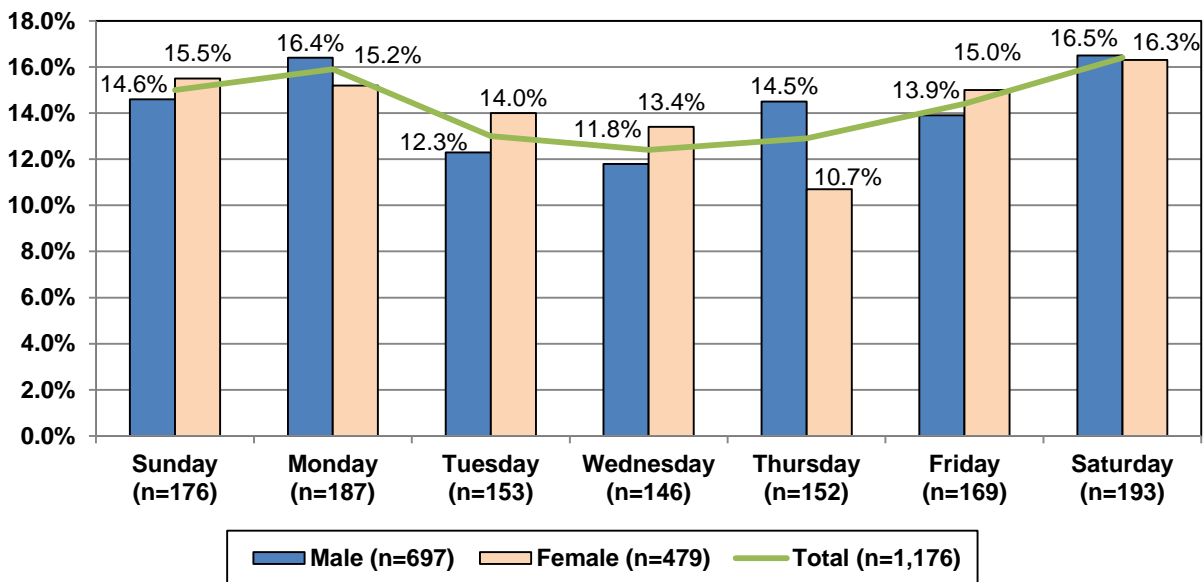
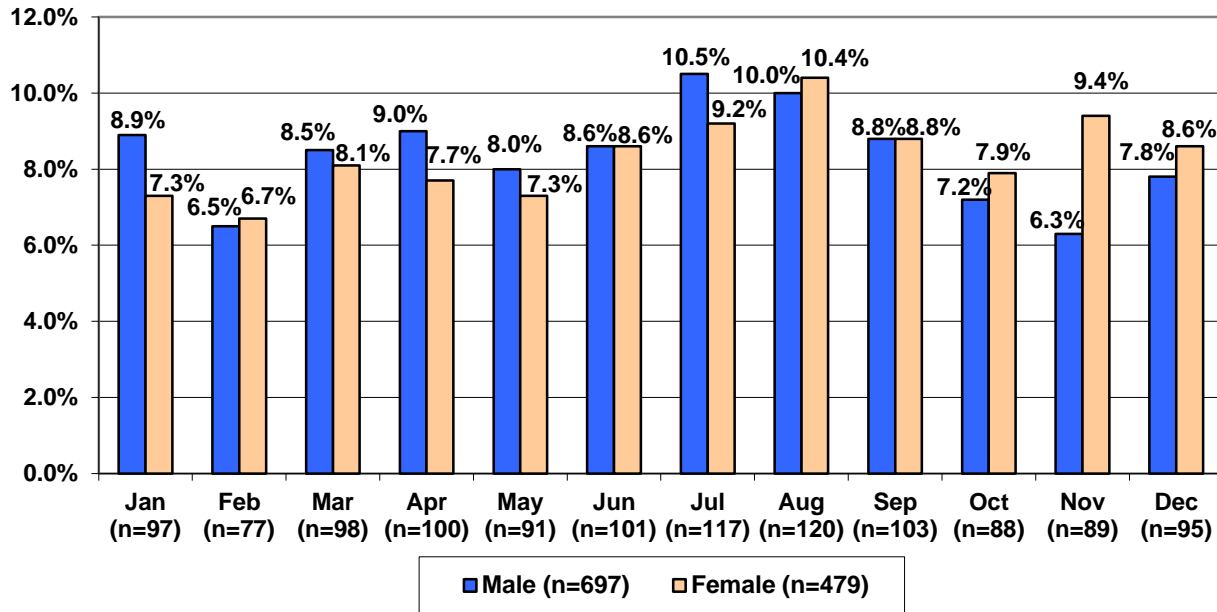


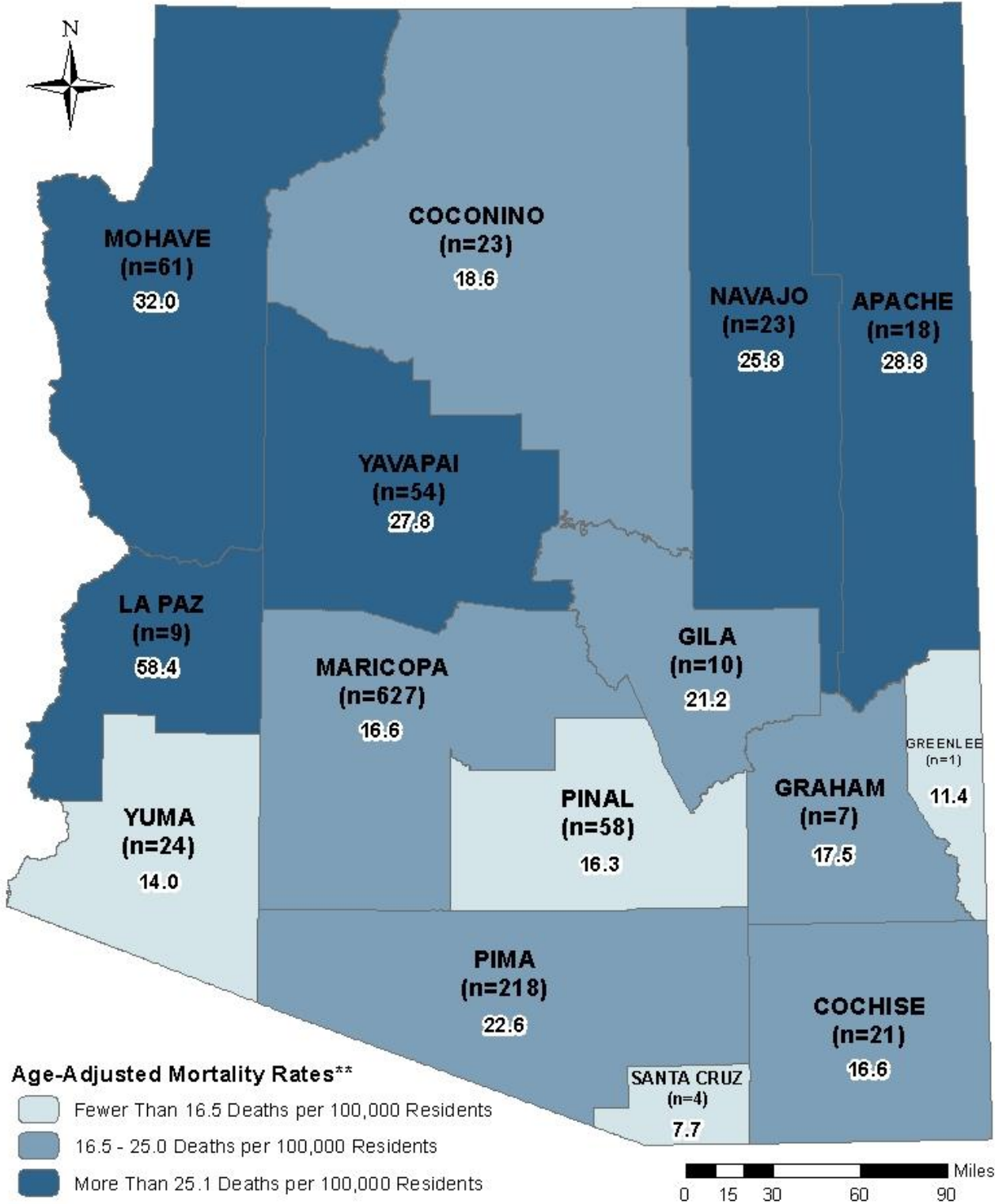
Figure 13. Poisoning Mortality by Calendar Month and Sex, Arizona 2010 (n=1,176)



Poisoning fatalities were distributed among residents of Arizona’s counties as shown in Figure 14. While this report does not examine the distribution of mortality across counties by type of substance, results of such an analysis from New Mexico suggest that unintentional deaths resulting from illegal drugs were more prevalent in urbanized areas, and deaths from prescription drugs were more common in suburban or rural settings.⁵

⁵ CDC. Unintentional Deaths from Drug Poisoning by Urbanization of Area – New Mexico, 1994-2003. MMWR 2005; 54(35):870-873.

Figure 14. Age-Adjusted Poisoning-Related Mortality Rates per 100,000 Residents by County of Residence, Arizona 2010 (n=1,176)*

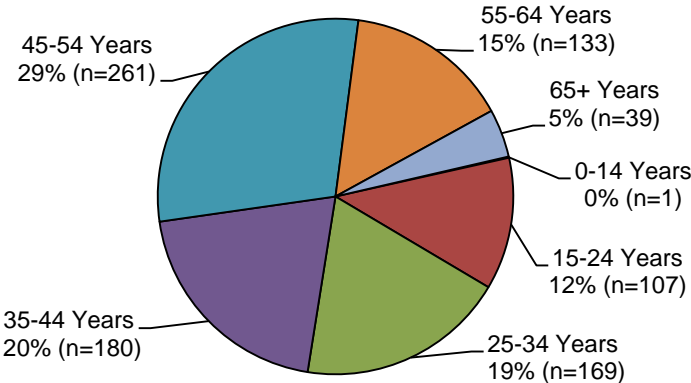


*Fifteen deaths without residential county information are not pictured.
 **Rates are unstable for counties with fewer than 20 deaths per year.

Unintentional Poisoning Fatalities

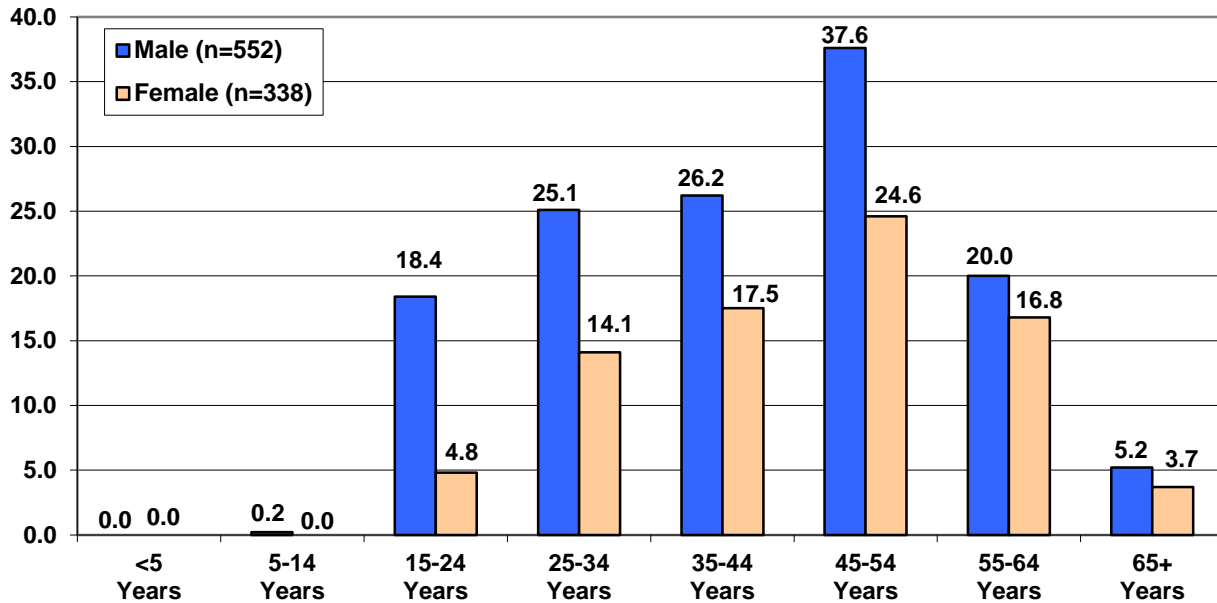
There were 890 deaths among Arizona residents attributed to unintentional poisoning in 2010. Sixty-two percent of the deaths were among males (n=552), and 38 percent were among females (n=338). Residents ages 45 through 54 years had the highest number of deaths of any age group, and accounted for 29 percent of the unintentional poisoning fatalities in 2010 (n=261). Residents ages 35 through 44 years accounted for 20 percent of the deaths (n=180); and residents ages 25 through 34 years accounted for 19 percent of the deaths (n=169). Though they accounted for only 26 percent of the general population, residents age 35 through 54 years comprised 49 percent of the unintentional poisoning-related deaths in 2010. Figure 15 shows the number and percentage of fatalities by age group.

Figure 15. Unintentional Poisoning Mortality by Age Group, Arizona 2010 (n=890)



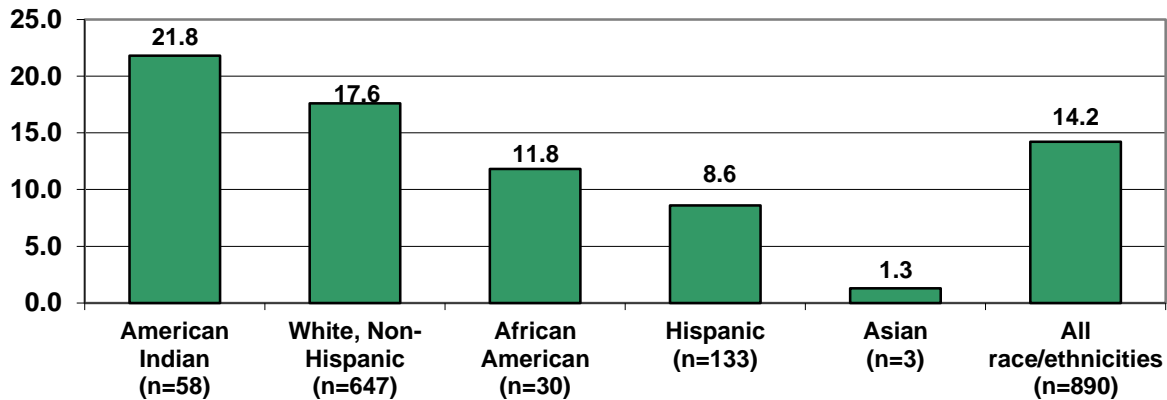
In 2010, the age-adjusted unintentional poisoning mortality rate among Arizona females was 10.7 deaths per 100,000 residents; the rate among males was 1.7 times higher (17.7 deaths per 100,000 residents). When looking at unintentional poisoning deaths by age group, males had higher mortality rates than females in each age group, though the ratio of deaths among males and females varied. Adults 45 through 54 years of age had the highest rate of fatalities among both males and females. Though their mortality rates were lower than most groups of adults, young adults had the highest ratio of deaths among males versus females. Deaths among males 15 through 24 years outnumbered those among females in that age group by a factor of 3.8. Figure 16 shows the unintentional poisoning-related mortality rates per 100,000 Arizona residents by age group and sex.

Figure 16. Unintentional Poisoning Mortality Rates per 100,000 Residents by Age Group and Sex, Arizona 2010



American Indian Arizona residents had the highest age-adjusted unintentional poisoning-related mortality rate in 2010 (21.8 deaths per 100,000 residents), followed by White, Non-Hispanic residents (17.6 deaths per 100,000 residents). Hispanic residents had the lowest age-adjusted mortality rate among race/ethnicities with greater than 20 deaths (8.6 deaths per 100,000 residents). Figure 17 shows the age-adjusted unintentional poisoning-related mortality rates by race/ethnicity for Arizona residents in 2010.

Figure 17. Age-Adjusted Unintentional Poisoning Mortality Rate per 100,000 Residents by Race/Ethnicity, Arizona 2010



There were 19 deaths among individuals of other or unknown race/ethnicity.

Table 4 lists the poisons most commonly specified on the 2010 death certificates for unintentional poisoning-related fatalities. Because some death certificates may simply state that the cause of death was a “drug overdose” or “combined drug intoxication”, the figures listed below may be an underestimate of the number of deaths involving a particular substance.

Poisons*	Number	Percent
Alcohol	173	19%
Benzodiazepines	117	13%
Carisoprodol	11	1%
Cocaine	59	7%
Diphenhydramine	14	2%
Fentanyl	26	3%
Heroin	86	10%
Methadone	95	11%
Methamphetamine	88	10%
Morphine	81	9%
Oxycodone/Hydrocodone	136	15%
Selective Serotonin Reuptake Inhibitors (SSRIs)	34	4%
Tramadol	18	2%

*More than one poison may have been identified for each death

Mohave County had the highest stable rate of unintentional poisoning fatalities in 2010 (22.6 deaths per 100,000 residents, n=43). Unintentional poisoning fatalities were distributed among residents of Arizona's counties as shown in Table 5.

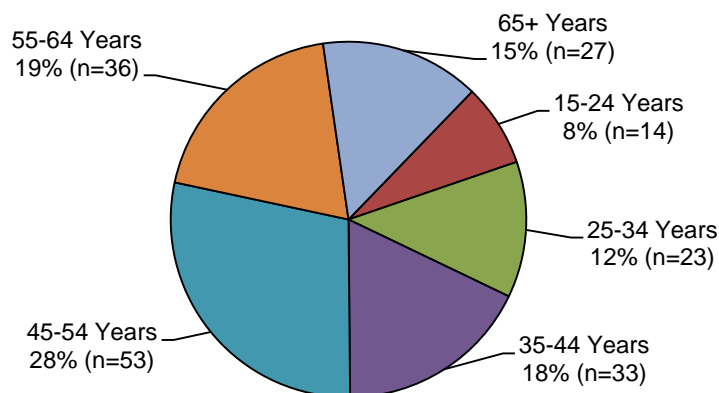
County of Residence	Number of Deaths	Age-Adjusted Fatality Rate per 100,000 Residents
Apache*	14	22.7
Cochise*	18	14.2
Coconino*	15	12.3
Gila*	7	16.7
Graham*	7	17.5
Greenlee*	1	11.4
La Paz*	7	44.6
Maricopa	467	12.4
Mohave	43	22.6
Navajo	20	20.3
Pima	173	18.1
Pinal	38	10.9
Santa Cruz*	3	6.2
Yavapai	40	21.4
Yuma	23	13.5
Unknown County**	14	-
Statewide Total	890	14.2

*Rates are unstable for counties with fewer than 20 deaths per year.
**Rates could not be calculated because the denominator could not be characterized.

Poisoning-Related Suicides

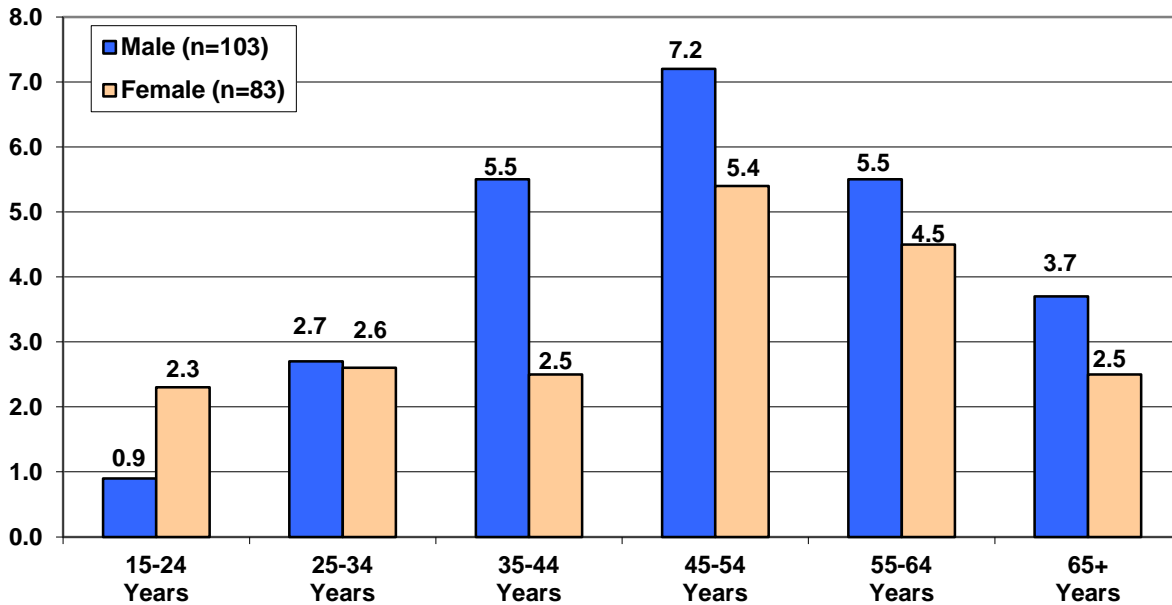
There were 186 deaths among Arizona residents attributed to poisoning in 2010. Fifty-five percent of the deaths were among males (n=103), and 45 percent were among females (n=83). Residents ages 45 through 54 years had the highest number of deaths of any age group, and accounted for 28 percent of the poisoning-related suicides in 2010 (n=53). Residents ages 55 through 64 years accounted for 19 percent of the deaths (n=36); and residents ages 35 through 44 years accounted for 18 percent of the deaths (n=33). Though they accounted for only 26 percent of the general population, residents ages 35 through 54 years comprised 47 percent of the poisoning-related suicides in 2010. There were no poisoning-related suicides in 2010 among children ages 14 years and younger. Figure 18 shows the number and percentage of fatalities by age group.

Figure 18. Poisoning-Related Suicides by Age Group, Arizona 2010 (n=186)



Except for young adults age 15 through 24 years, males had higher poisoning-related suicide rates than females. The 45 through 54 year age group had the highest rate of fatalities among males and females. Figure 19 shows the poisoning-related suicide rates per 100,000 Arizona residents by age group and sex.

Figure 19. Poisoning-Related Suicide Rates per 100,000 Residents by Age Group and Sex, Arizona 2010



White, Non-Hispanic Arizona residents had the highest age-adjusted poisoning-related suicide rate in 2010 (4.1 deaths per 100,000 residents), followed by Hispanic residents (0.9 deaths per 100,000 residents). Among all race/ethnicities, the age-adjusted poisoning-related suicide rate was 2.9 deaths per 100,000 Arizona residents. Age-adjusted rates among other race/ethnicities were not calculated, as the number of deaths was too small to produce a reliable rate.

Table 6 lists the poisons most commonly specified on the 2010 death certificates for poisoning-related suicides. Because some death certificates may simply state that the cause of death was a “drug overdose” or “combined drug intoxication”, the figures listed below may be an underestimate of the number of deaths involving a particular substance.

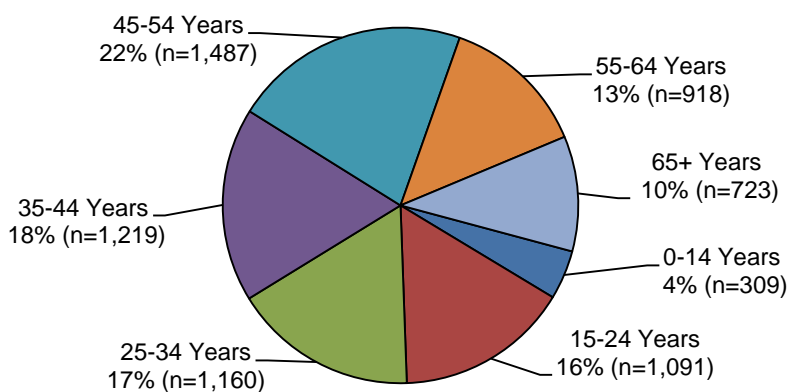
Poisons*	Number	Percent
Alcohol	24	13%
Benzodiazepines	34	18%
Carbon Monoxide	18	10%
Diphenhydramine	11	6%
Helium	11	6%
Methadone	5	3%
Morphine	14	8%
Oxycodone/Hydrocodone	34	18%
Selective Serotonin Reuptake Inhibitors (SSRIs)	9	5%
Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs)	5	3%
Tramadol	7	4%
Zolpidem	5	3%

*More than one poison may have been identified for each death

Non-Fatal Poisoning-Related Inpatient Hospitalizations, 2010

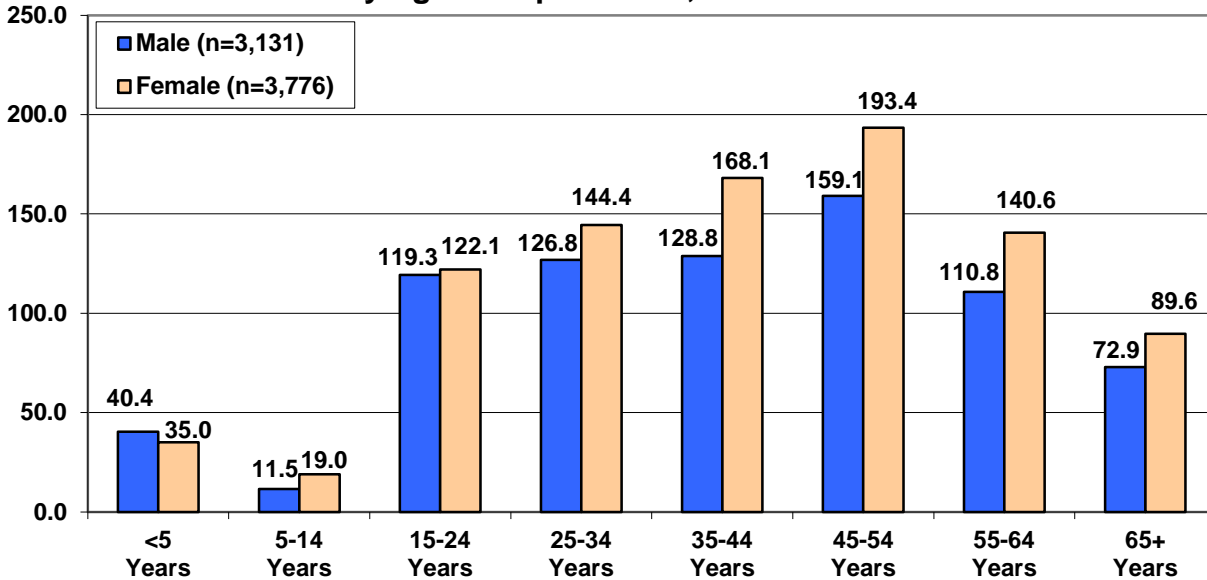
There were 6,907 non-fatal inpatient hospitalizations among Arizona residents attributed to poisoning in 2010. Forty-five percent of the events were among males (n=3,131), and 55 percent were among females (n=3,776). Residents ages 45 through 54 years had the highest number of non-fatal inpatient hospitalizations of any age group, and accounted for 22 percent of the non-fatal poisoning-related inpatient hospitalizations in 2010 (n=1,487). Residents ages 35 through 44 years accounted for 18 percent of the non-fatal inpatient hospitalizations (n=1,219). Though they accounted for only 26 percent of the general population, residents ages 35 through 54 years comprised 40 percent of non-fatal poisoning-related inpatient hospitalizations in 2010. Figure 20 shows the number and percentage of non-fatal inpatient hospitalizations by age group.

Figure 20. Non-Fatal Poisoning-Related Inpatient Hospitalizations by Age Group, Arizona 2010 (n=6,907)



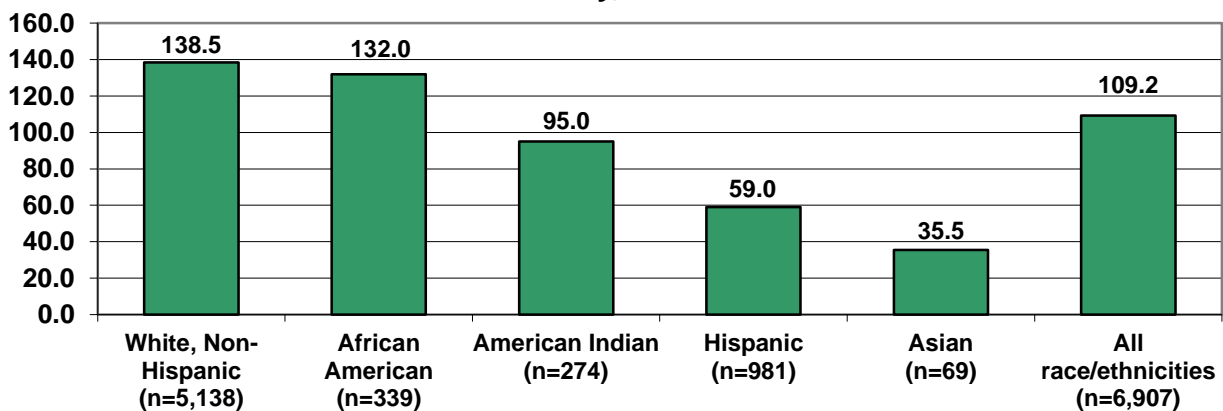
Except for children ages one through four years, females had higher rates of non-fatal inpatient hospitalizations than males across the lifespan. The 45 through 54 year age group had the highest rate among both males and females. Figure 21 shows the non-fatal poisoning-related inpatient hospitalization rates per 100,000 Arizona residents by age group and sex.

Figure 21. Non-Fatal Poisoning-Related Inpatient Hospitalization Rates per 100,000 Residents by Age Group and Sex, Arizona 2010



White, Non-Hispanic Arizona residents had the highest age-adjusted poisoning-related rate of non-fatal inpatient hospitalizations in 2010 (138.5 cases per 100,000 residents), followed by African American residents (132.0 deaths per 100,000 residents). Asian residents had the lowest poisoning-related rate of non-fatal inpatient hospitalizations in 2010 with 35.5 cases per 100,000 residents. Figure 22 shows the age-adjusted non-fatal poisoning-related inpatient hospitalization rates by race/ethnicity for Arizona residents in 2010.

Figure 22. Age-Adjusted Non-Fatal Poisoning-Related Inpatient Hospitalization Rate per 100,000 Residents by Race/Ethnicity, Arizona 2010



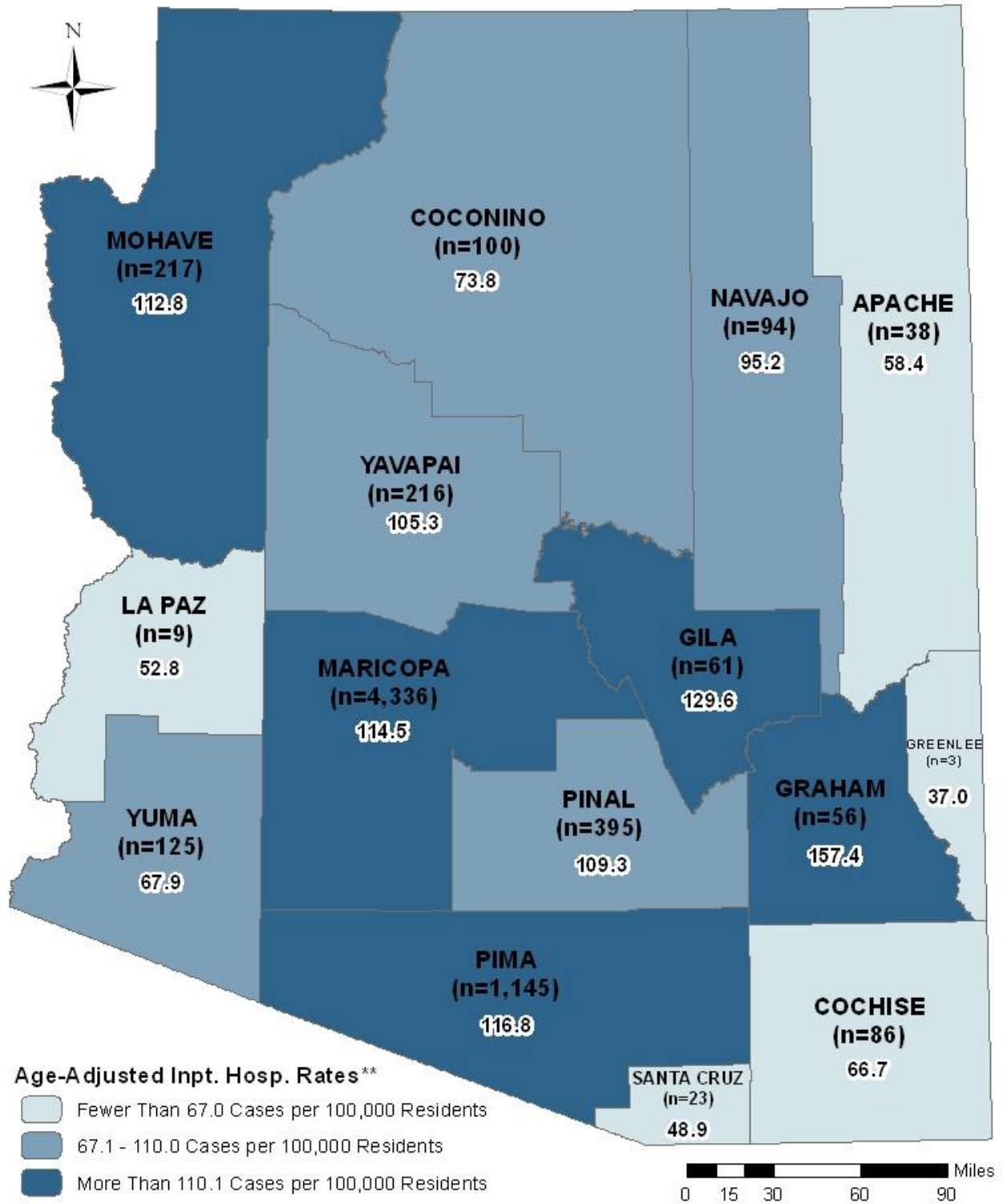
There were 106 hospitalizations among individuals of other or unknown race/ethnicity.

Unintentional and self-inflicted poisonings accounted for 91 percent of non-fatal poisoning-related inpatient hospitalizations, but neither category accounted for a majority of cases. Forty-seven percent of inpatient hospitalizations were attributed to self-inflicted poisonings (n=3,226), 44 percent resulted from unintentional poisonings (n=3,075), poisonings of undetermined intent

accounted for nine percent of hospitalizations (n=602), and there were four visits from poisonings due to assaults or other intents (legal intervention).

Graham and Gila Counties had the highest rates of inpatient hospitalizations for non-fatal poisonings in 2010, with 157.4 and 129.6 cases per 100,000 county residents, respectively. However, Mohave County was the only county to rank among the five counties with the highest rate of poisonings for both fatalities and non-fatal hospitalizations. The number and rate of non-fatal poisoning-related inpatient hospitalizations were distributed among residents of Arizona's counties as shown in Figure 23.

Figure 23. Age-Adjusted Rate per 100,000 Residents of Non-Fatal Poisoning-Related Inpatient Hospitalizations by County of Residence, Arizona 2010 (n=6,907)*



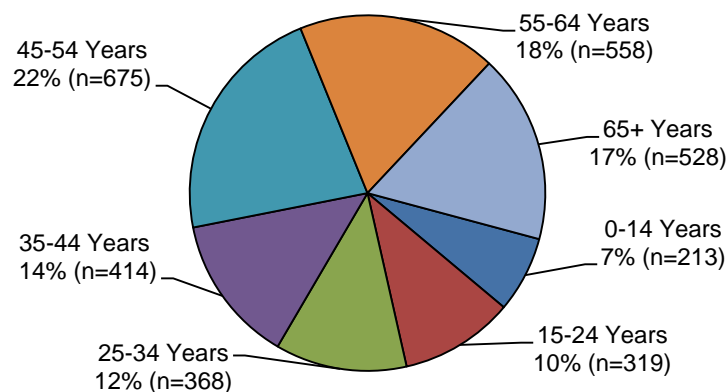
*Three deaths without residential county information are not pictured.
 **Rates are unstable for counties with fewer than 20 cases per year.

In 2010, the average non-fatal poisoning-related inpatient hospitalization totaled \$26,017 in hospital charges and lasted for 3 days (median = \$17,741, 2 days). Arizona residents spent a total of 20,606 days in the hospital for non-fatal poisoning-related events. The longest hospital stay for a non-fatal case was 56 days. Hospital charges for non-fatal inpatient hospitalizations due to poisonings totaled over \$179.6 million for Arizona residents in 2010. The single most costly hospitalization totaled \$445,180 in hospital charges. Seventy percent of hospital fees for non-fatal poisoning-related inpatient hospitalizations were reportedly paid by Medicare, Medicaid, or the Arizona Health Care Cost Containment System (AHCCCS) (4,642 cases; more than \$125.7 million). Hospital charges do not reflect hospital reimbursement rates, nor do they include charges or costs related to emergency medical services, outpatient care, rehabilitation, legal fees, or lost work or school time.

Non-Fatal Unintentional Poisoning-Related Inpatient Hospitalizations

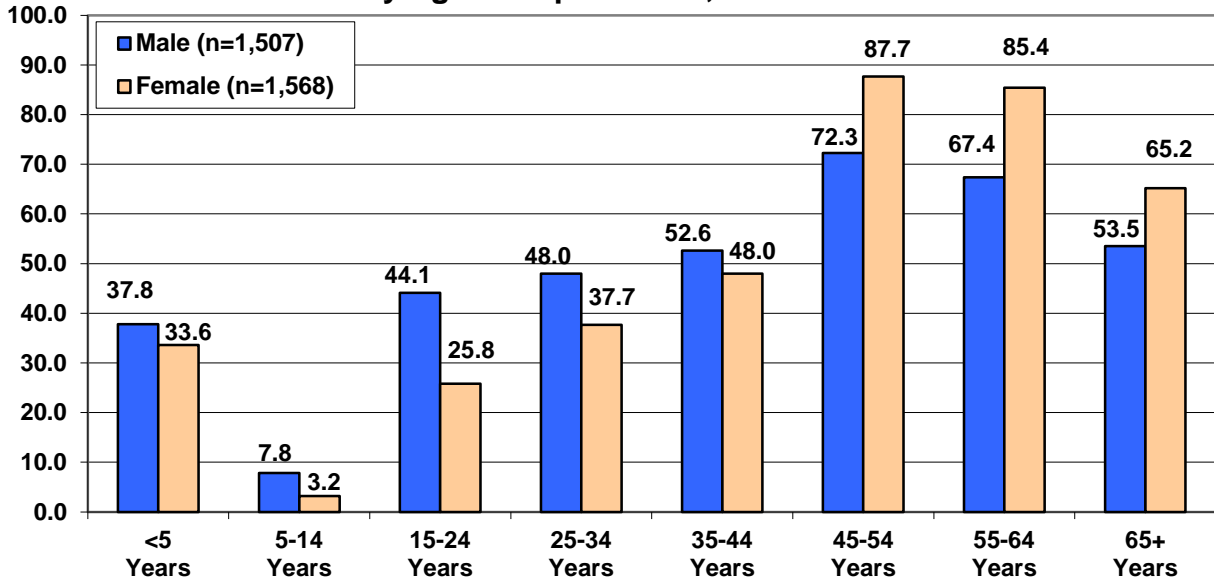
There were 3,075 non-fatal inpatient hospitalizations among Arizona residents attributed to unintentional poisoning in 2010. Forty-nine percent of the deaths were among males (n=1,507), and 51 percent were among females (n=1,568). Residents age 45 through 54 years had the highest number of non-fatal inpatient hospitalizations of any age group, and accounted for 22 percent of the non-fatal unintentional poisoning cases in 2010 (n=675). Residents ages 55 through 64 years accounted for 18 percent of the cases (n=558); and residents age 65 years and older accounted for 17 percent of the cases (n=528). Though they accounted for only 13 percent of the general population, residents age 45 through 54 years had 22 percent of the non-fatal unintentional poisoning-related inpatient hospitalizations in 2010. Figure 24 shows the number and percentage of cases by age group.

Figure 24. Unintentional Poisoning-Related Non-Fatal Inpatient Hospitalizations by Age Group, Arizona 2010 (n=3,075)



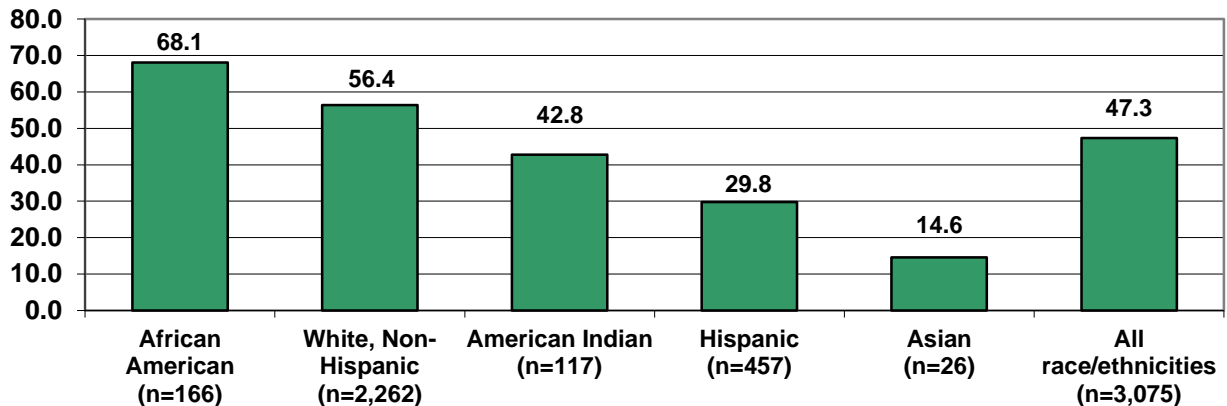
The 45 through 54 year age group had the highest rate of non-fatal inpatient hospitalizations related to unintentional poisonings among both males and females. Males ages 44 years and younger had higher rates than females, and females 45 years and older had higher hospitalization rates than males. Figure 25 shows the non-fatal unintentional poisoning-related inpatient hospitalization rates per 100,000 Arizona residents by age group and sex.

Figure 25. Non-Fatal Unintentional Poisoning-Related Inpatient Hospitalization Rates per 100,000 Residents by Age Group and Sex, Arizona 2010



African American Arizona residents had the highest age-adjusted non-fatal unintentional poisoning-related inpatient hospitalization rate in 2010 (68.1 cases per 100,000 residents), followed by White, non-Hispanic residents (56.4 cases per 100,000 residents). Asian residents had the lowest age-adjusted non-fatal inpatient hospitalization rate due to unintentional poisonings in 2010 with 14.6 cases per 100,000 residents. Figure 26 shows the age-adjusted non-fatal unintentional poisoning-related inpatient hospitalization rates by race/ethnicity for Arizona residents in 2010.

Figure 26. Age-Adjusted Non-Fatal Unintentional Poisoning-Related Inpatient Hospitalization Rate per 100,000 Residents by Race/Ethnicity, Arizona 2010

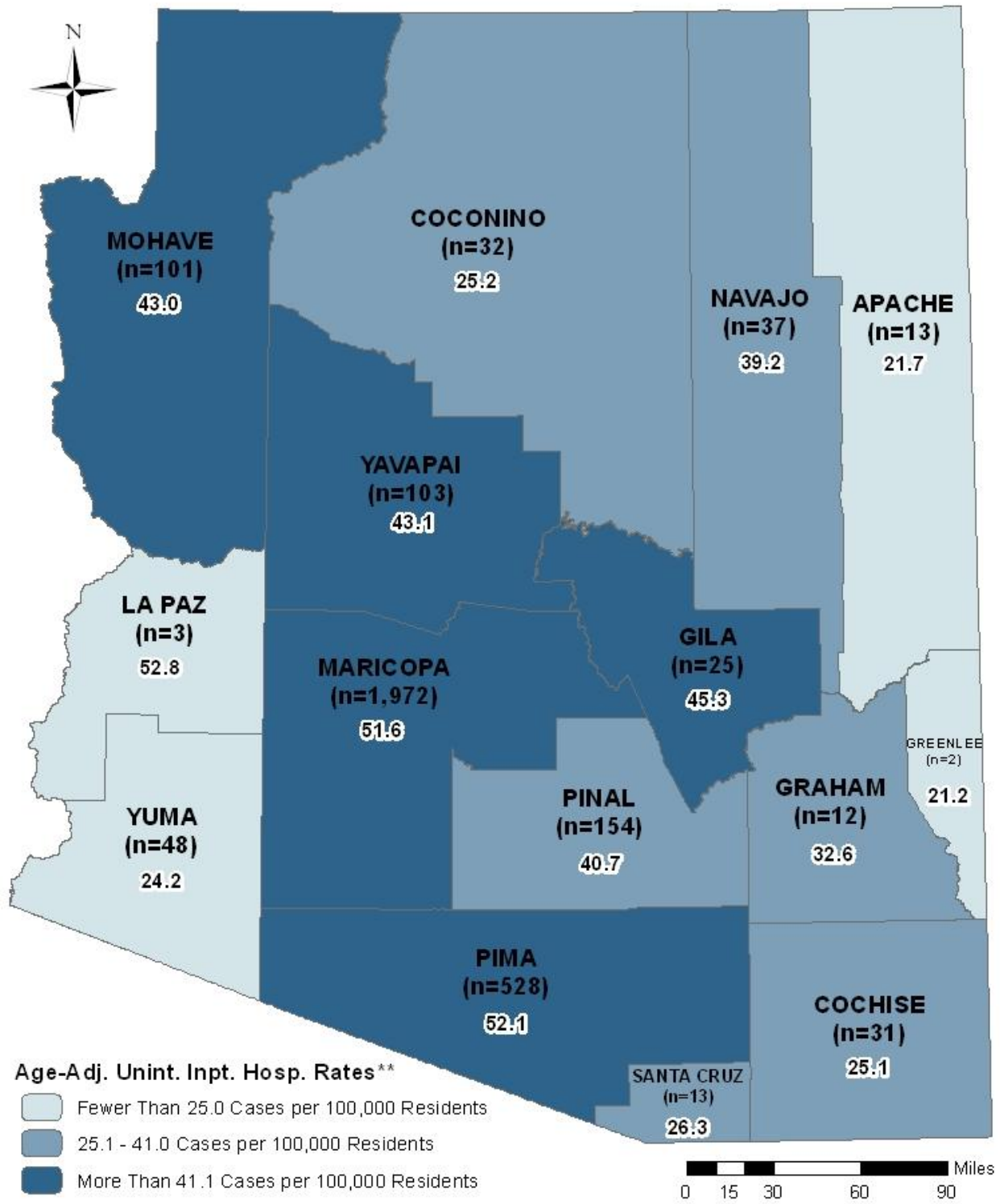


There were 47 hospitalizations among individuals of other or unknown race/ethnicity.

Though Graham County had the highest overall rate of non-fatal poisoning-related inpatient hospitalizations in 2010, it was not among the five counties with the highest rates of unintentional poisoning-related hospitalizations. Arizona's two most populous counties had the

highest rates of unintentional non-fatal poisoning-related inpatient hospitalizations in 2010: Pima County had the highest rate (52.1 cases per 100,000 residents, n=528), and Maricopa County had the second highest rate (51.6 cases per 100,000 residents, n=1,972). Unintentional non-fatal poisoning-related inpatient hospitalizations were distributed among residents of Arizona's counties as shown in Figure 27.

Figure 27. Age-Adjusted Rate per 100,000 Residents of Non-Fatal Unintentional Poisoning-Related Inpatient Hospitalizations by County of Residence, Arizona 2010 (n=3,075)*



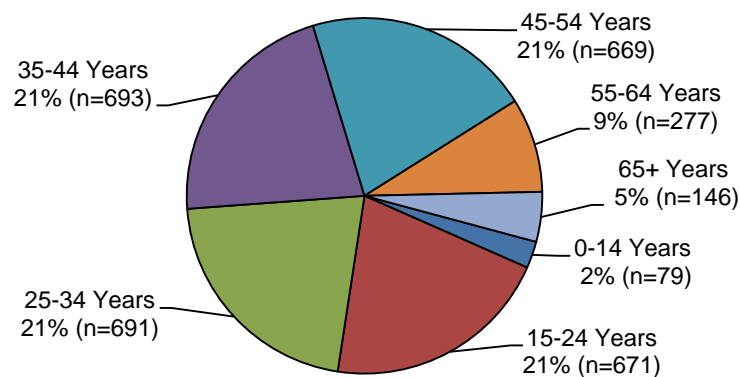
*One death without residential county information is not pictured.
 **Rates are unstable for counties with fewer than 20 cases per year.

In 2010, the average non-fatal unintentional poisoning-related inpatient hospitalization totaled \$26,424 in hospital charges and lasted for 3 days (median = \$17,902, 2 days). Though slightly lower, these figures are not significantly different from the average and median charges and length of stay among all non-fatal poisoning-related inpatient hospitalizations. Arizona residents spent a total of 8,763 days in the hospital for non-fatal unintentional poisoning-related events. Hospital charges for non-fatal inpatient hospitalizations due to unintentional poisonings among Arizona residents totaled over \$81.2 million in 2010. Seventy-three percent of those hospital fees were reportedly paid by Medicare, Medicaid, or the Arizona Health Care Cost Containment System (AHCCCS) (2,190 cases; more than \$59.3 million). Hospital charges do not reflect hospital reimbursement rates, nor do they include charges or costs related to emergency medical services, rehabilitation, legal fees, or lost work or school time.

Non-Fatal Self-Inflicted Poisoning-Related Inpatient Hospitalizations

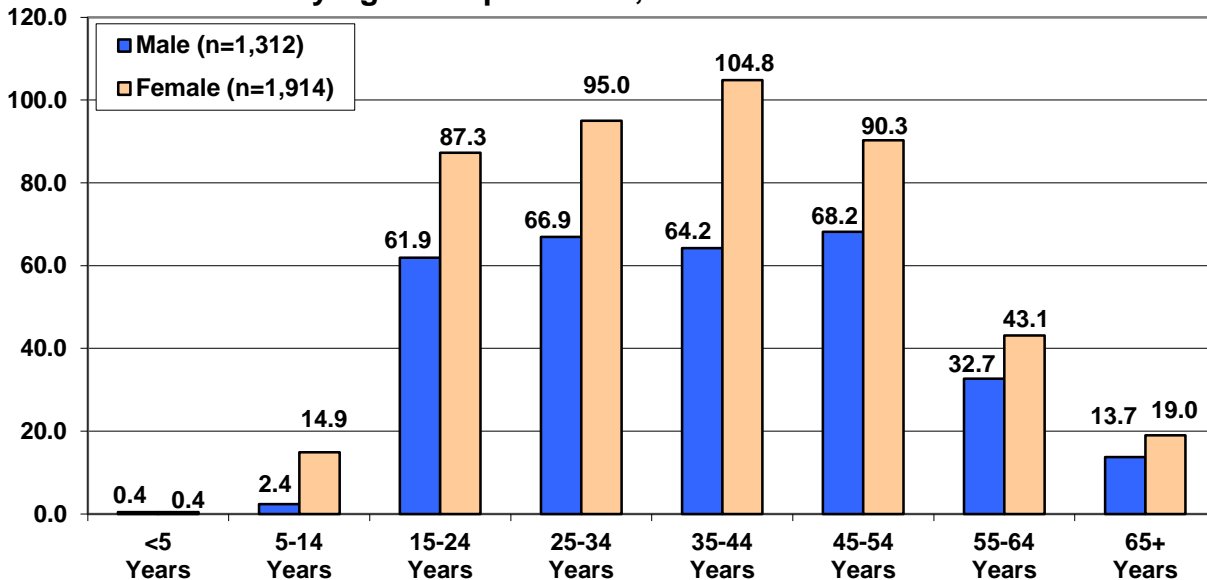
There were 3,226 non-fatal self-inflicted poisoning-related inpatient hospitalizations among Arizona residents in 2010. Forty-one percent of the hospitalizations were among males (n=1,312), and 59 percent were among females (n=1,914). Residents ages 35 through 44 years had the highest number of non-fatal self-inflicted poisoning-related inpatient hospitalizations of any age group in 2010 (21 percent, n=693). Residents ages 25 through 34 years also accounted for 21 percent of the hospitalizations (n=691); and residents ages 15 through 24 years accounted for 21 percent of the events (n=671). Though they accounted for only 54 percent of the general population, residents ages 15 through 54 years were responsible for 84 percent of the non-fatal self-inflicted poisoning-related inpatient hospitalizations in 2010, with similar numbers of cases in each of the four 10-year age groups. Figure 28 shows the number and percentage of non-fatal inpatient hospitalizations for self-inflicted poisoning-related injuries by age group.

Figure 28. Non-Fatal Self-Inflicted Poisoning-Related Inpatient Hospitalizations by Age Group, Arizona 2010 (n=3,226)



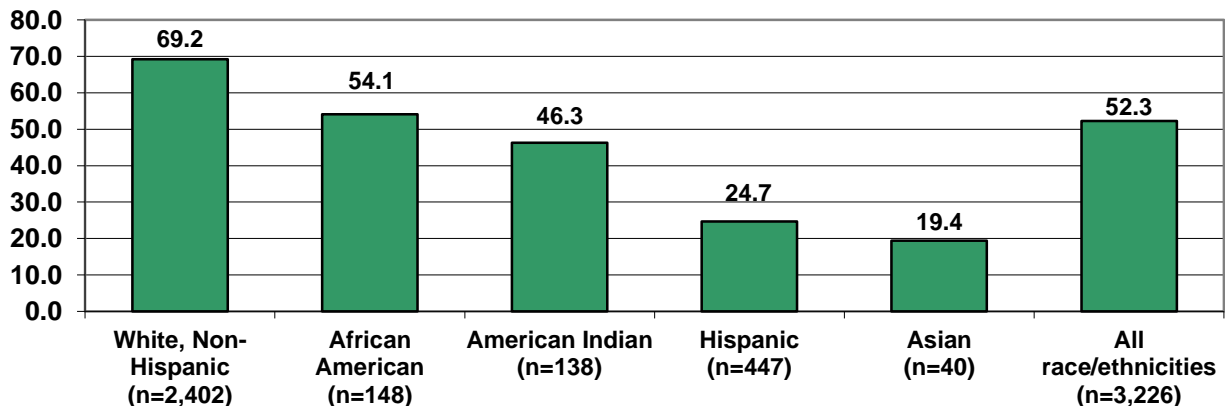
Among non-fatal inpatient hospitalizations for self-inflicted poisonings, females had higher rates of non-fatal inpatient hospitalizations than males in all age groups. The 35 through 44 year age group had the highest rate of events among females, and the 45 through 54 year age group had the highest rate of non-fatal self-inflicted poisoning-related inpatient hospitalizations among males. Figure 29 shows the non-fatal self-inflicted poisoning-related inpatient hospitalization rates per 100,000 Arizona residents by age group and sex.

Figure 29. Non-Fatal Self-Inflicted Poisoning-Related Inpatient Hospitalization Rates per 100,000 Residents by Age Group and Sex, Arizona 2010



White, Non-Hispanic Arizona residents had the highest age-adjusted rate of non-fatal self-inflicted poisoning-related inpatient hospitalizations in 2010 (69.2 events per 100,000 residents), followed by African American residents (54.1 events per 100,000 residents). Among all race/ethnicities, the age-adjusted rate of non-fatal self-inflicted poisoning-related inpatient hospitalizations was 52.3 events per 100,000 Arizona residents. Figure 30 shows the age-adjusted rate of non-fatal self-inflicted poisoning-related inpatient hospitalizations by race/ethnicity for Arizona residents in 2010.

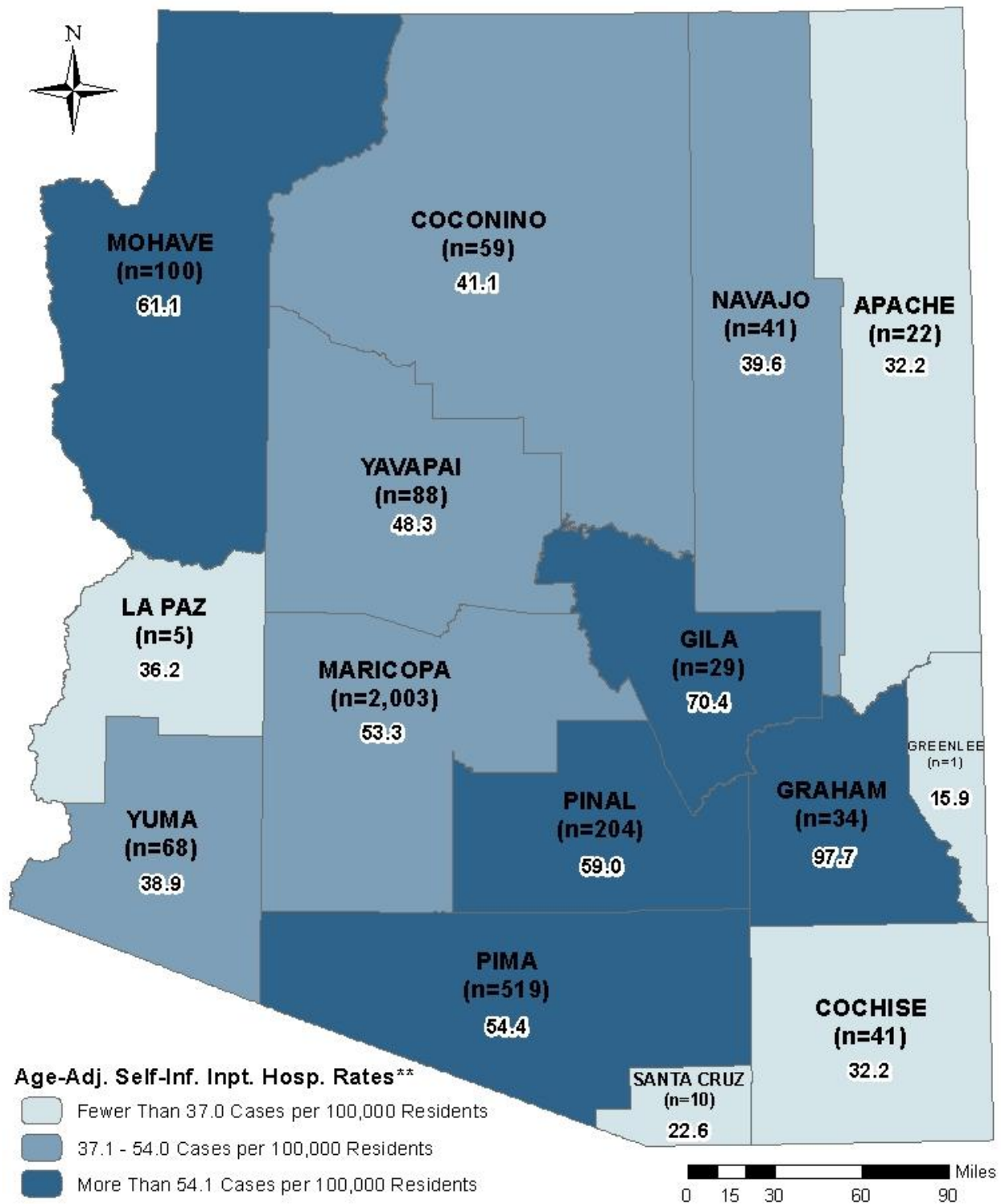
Figure 30. Age-Adjusted Non-Fatal Self-Inflicted Poisoning-Related Inpatient Hospitalization Rate per 100,000 Residents by Race/Ethnicity, Arizona 2010



There were 51 hospitalizations among individuals of other or unknown race/ethnicity.

Self-inflicted non-fatal poisoning-related inpatient hospitalizations were distributed among residents of Arizona's counties as shown in Figure 31.

Figure 31. Age-Adjusted Rate per 100,000 Residents of Non-Fatal Self-Inflicted Poisoning-Related Inpatient Hospitalizations by County of Residence, Arizona 2010 (n=3,226)*



*Two deaths without residential county information are not pictured.

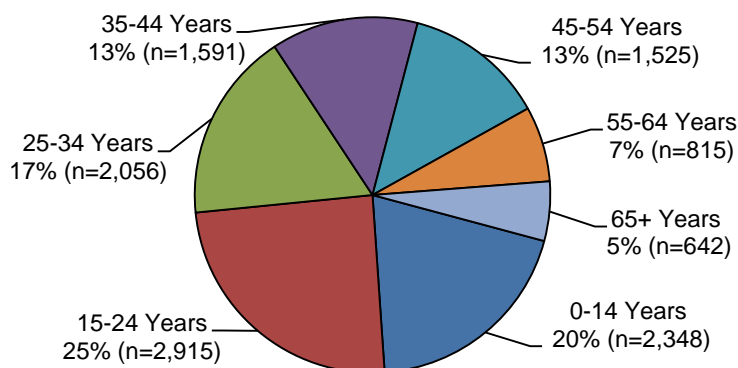
**Rates are unstable for counties with fewer than 20 cases per year.

In 2010, the average non-fatal self-inflicted poisoning-related inpatient hospitalization totaled \$24,942 in hospital charges and lasted for 3 days (median = \$17,438, 2 days). These figures are not significantly different from the average and median charges and length of stay among all non-fatal poisoning-related inpatient hospitalizations. Arizona residents spent a total of 9,924 days in the hospital for non-fatal self-inflicted poisoning-related events. Hospital charges for non-fatal inpatient hospitalizations due to self-inflicted poisonings among Arizona residents totaled over \$80.4 million in 2010. Sixty-five percent of those hospital fees were reportedly paid by Medicare, Medicaid, or the Arizona Health Care Cost Containment System (AHCCCS) (2,017 cases; more than \$52.4 million). Hospital charges do not reflect hospital reimbursement rates, nor do they include charges or costs related to emergency medical services, rehabilitation, legal fees, or lost work or school time.

Non-Fatal Poisoning-Related Emergency Department Visits, 2010

There were 11,894 non-fatal emergency department visits among Arizona residents attributed to non-fatal poisoning in 2010. Forty-five percent of the visits were among males (n=5,391), and 55 percent were among females (n=6,503). Residents ages 15 through 24 years had the highest number of non-fatal emergency department visits of any age group, and accounted for 25 percent of the non-fatal poisoning-related emergency department visits in 2010 (n=2,915). Children ages birth through 14 years accounted for 20 percent of the non-fatal emergency department visits (n=2,348) and residents ages 25 through 34 years accounted for 17 percent of the cases (n=2,056). Though they accounted for only 14 percent of the general population, residents ages 15 through 24 years comprised 25 percent of the non-fatal poisoning-related emergency department visits in 2010. Figure 32 shows the number and percentage of non-fatal emergency department visits by age group.

Figure 32. Non-Fatal Poisoning-Related Emergency Department Visits by Age Group, Arizona 2010 (n=11,892)

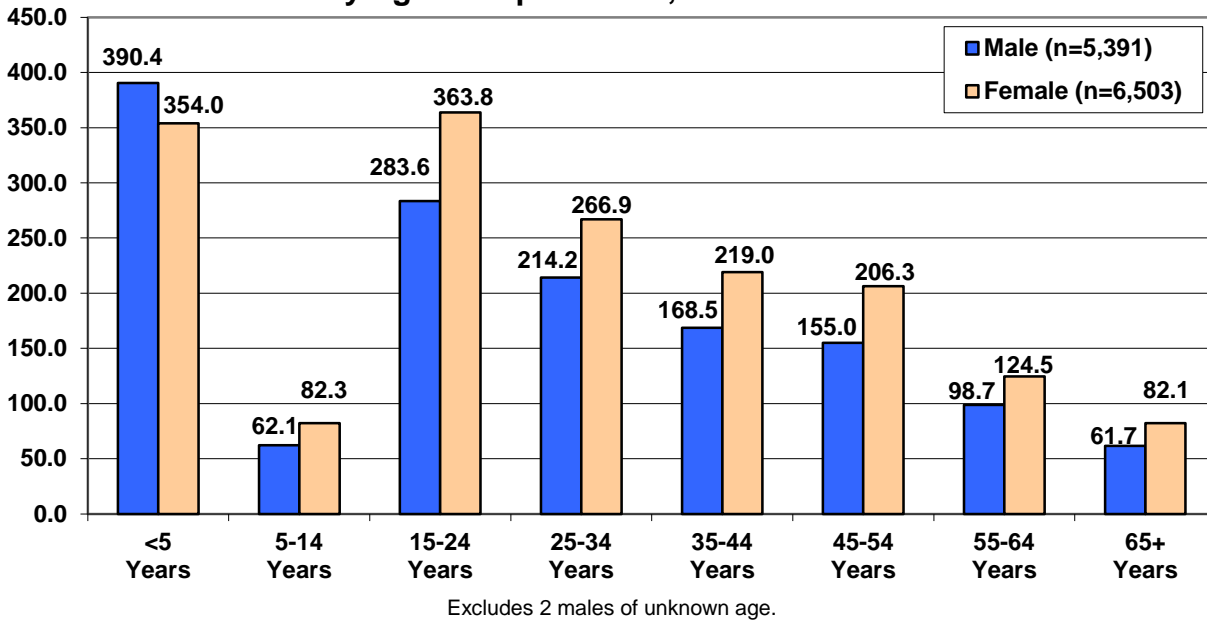


Excludes 2 males of unknown age.

Except for children ages one through four years, females had higher rates of non-fatal emergency department visits than males. Children younger than five years of age one had the highest rate of emergency department visits among males and the 15 to 24 year age group had the highest rate among females. One study has shown that a substantial proportion of young children brought to an urban tertiary-care emergency department with apparent life-threatening events had positive toxicology screenings, even when parents denied medicating the child.⁶ Though the rate of non-fatal poisoning events among Arizona's young children is very high, the results of that study suggest that the rate may be higher still if all young children presenting in the emergency department with an apparent life-threat were screened for potential poisons. Figure 33 shows the non-fatal poisoning-related emergency department visits rates per 100,000 Arizona residents by age group and sex.

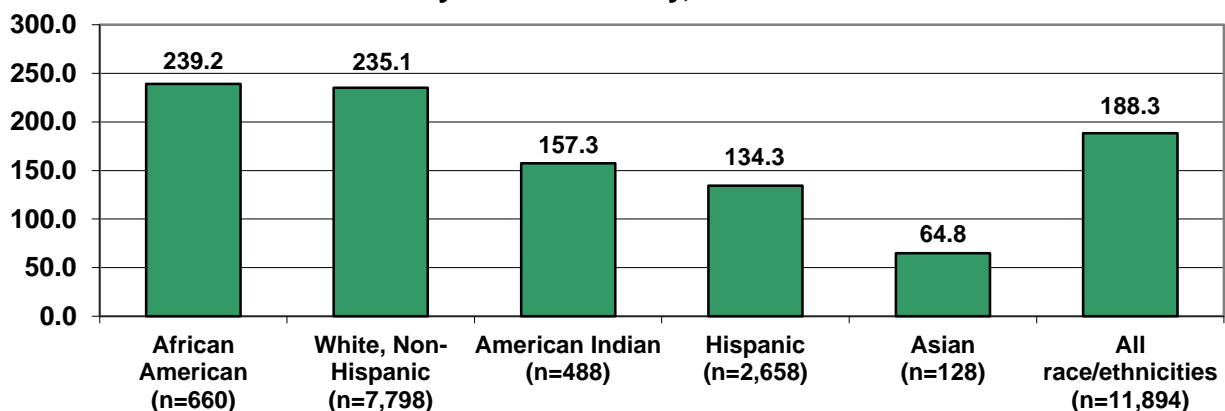
⁶ Pitetti RD, Whitman E, Zaylor A. Accidental and Nonaccidental Poisonings As A Cause of Apparent Life-Threatening Events in Infants. *Pediatrics* 2008; 122:e539-e362.

Figure 33. Non-Fatal Poisoning-Related Emergency Department Visit Rates per 100,000 Residents by Age Group and Sex, Arizona 2010



African American Arizona residents had the highest age-adjusted rate of non-fatal poisoning-related emergency department visits in 2010 (239.2 events per 100,000 residents), followed by White, non-Hispanic residents (235.1 events per 100,000 residents). Among all race/ethnicities, the age-adjusted rate of non-fatal poisoning-related emergency department visits was 188.3 events per 100,000 Arizona residents. Figure 34 shows the age-adjusted rate of non-fatal poisoning-related emergency department visits by race/ethnicity for Arizona residents in 2010.

Figure 34. Age-Adjusted Rate of Non-Fatal Poisoning-Related Emergency Department Visits per 100,000 Residents by Race/Ethnicity, Arizona 2010



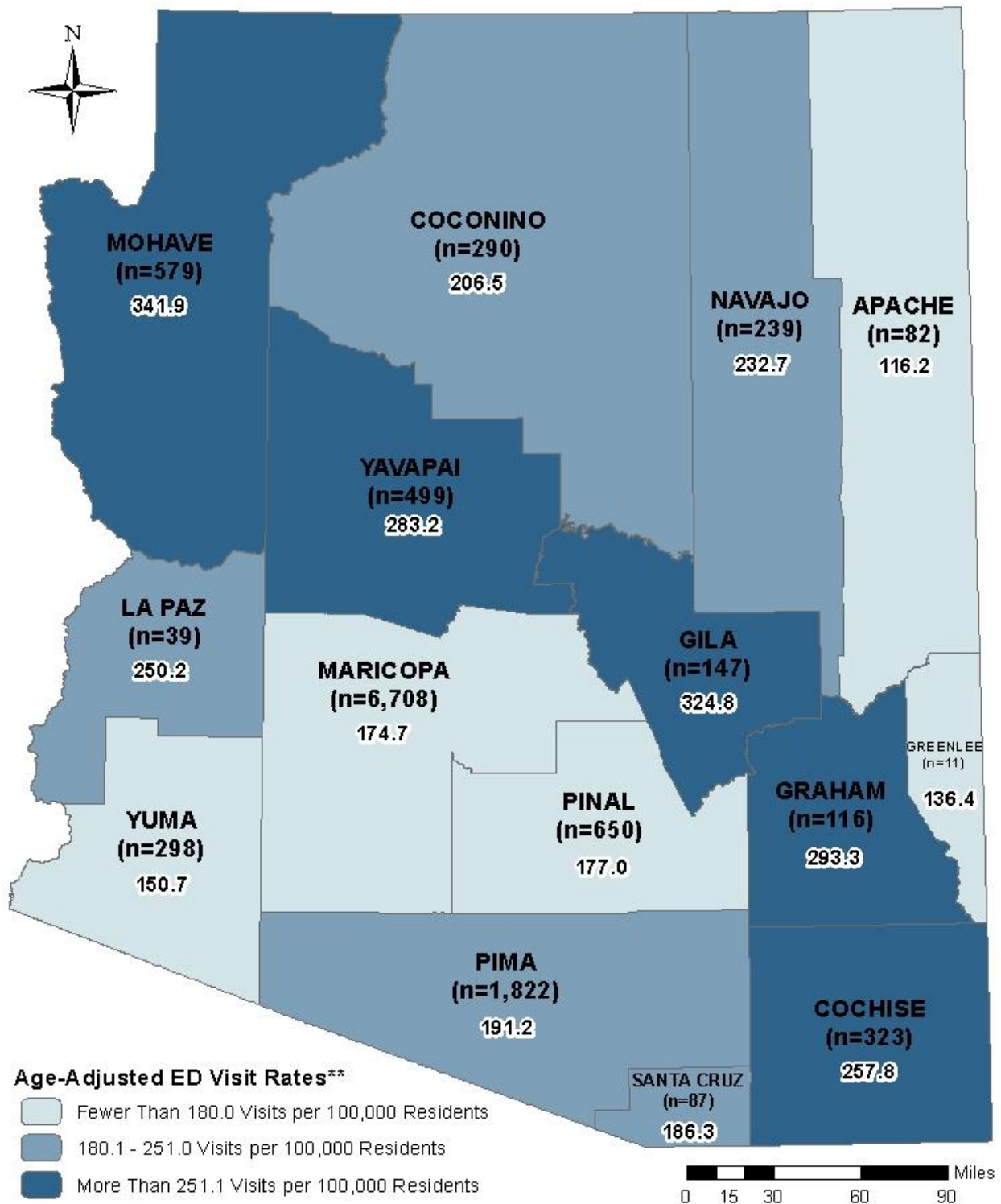
There were 162 emergency department visits among individuals of other or unknown race/ethnicity.

Unlike the distribution among inpatient hospitalizations, a slight majority of non-fatal poisoning-related emergency department visits were identified as being unintentional injuries (52 percent, n=6,140). Thirty-five percent of emergency department visits were attributed to self-inflicted

poisonings (n=4,143), poisonings of undetermined intent accounted for 13 percent of visits (n=1,586), and there were 25 visits from poisonings due to assaults or other intents (legal intervention).

Mohave County had the highest rate of non-fatal poisoning-related emergency department visits in 2010 (341.9 visits per 100,000 residents, n=579), and was the only county to rank among the highest poisoning rates for both fatal and non-fatal poisonings. Non-fatal poisoning-related emergency department visits were distributed among residents of Arizona's counties as shown in Figure 35.

Figure 35. Age-Adjusted Rate per 100,000 Residents of Non-Fatal Poisoning-Related Emergency Department Visits by County of Residence, Arizona 2010 (n=11,894)*



*Four deaths without residential county information are not pictured.

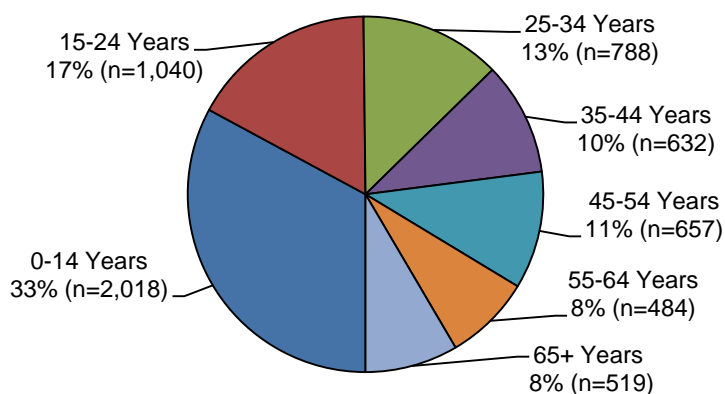
**Rates are unstable for counties with fewer than 20 visits per year.

In 2010, the average non-fatal poisoning-related emergency department visit resulted in \$3,950 in hospital charges (median=\$3,603). Hospital charges for non-fatal emergency department visits due to poisonings among Arizona residents totaled more than \$46.9 million in 2010. Fifty-six percent of those hospital charges were reportedly paid by Medicare, Medicaid, or the Arizona Health Care Cost Containment System (AHCCCS) (6,733 visits; more than \$26.5 million). The single most costly emergency department visit resulted in \$124,785 in hospital charges. Hospital charges do not reflect hospital reimbursement rates, nor do they include charges or costs related to emergency medical services, rehabilitation, legal fees, or lost work or school time.

Non-Fatal Unintentional Poisoning-Related Emergency Department Visits

There were 6,140 emergency department visits among Arizona residents attributed to non-fatal poisonings in 2010. Forty-eight percent of the events were among males (n=2,975), and 52 percent were among females (n=3,165). Children ages birth through 14 years had the highest number of non-fatal emergency department visits of any age group, and accounted for 33 percent of the non-fatal unintentional poisoning-related emergency department visits in 2010 (n=2,018). Residents ages 15 through 24 years accounted for 17 percent of the visits (n=1,040) and residents ages 25 through 34 years accounted for 13 percent of the visits (n=788). Though they account for only 21 percent of the general population, children ages birth through 14 years had 33 percent of the non-fatal unintentional poisoning-related emergency department visits in 2010. Figure 36 shows the number and percentage of cases by age group.

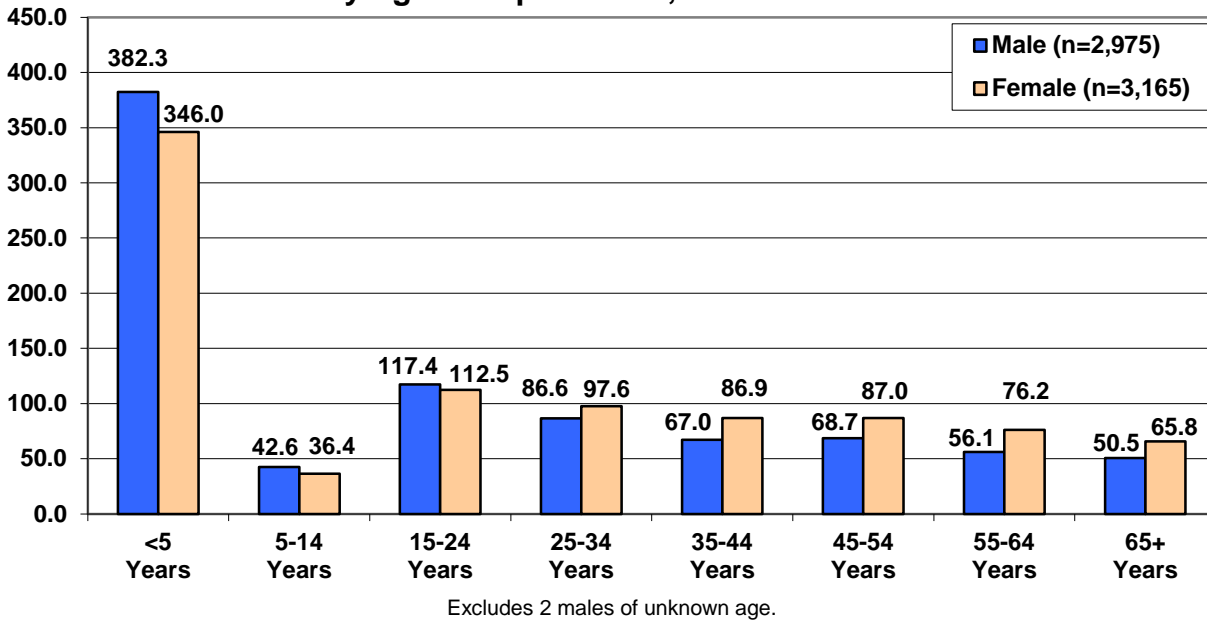
Figure 36. Unintentional Non-Fatal Poisoning-Related Emergency Department Visits by Age Group, Arizona 2010 (n=6,138)



Excludes 2 males of unknown age.

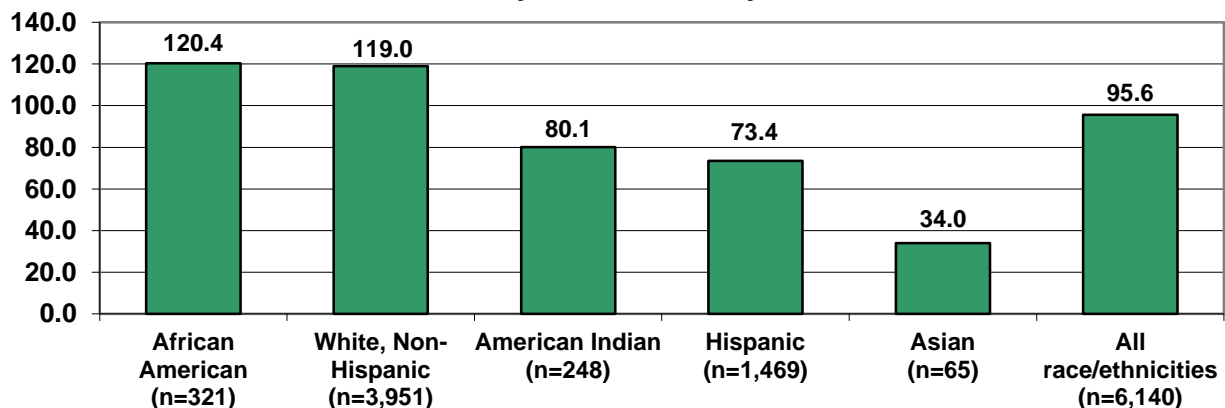
Children younger than five years of age had the highest rate of non-fatal emergency department visits related to unintentional poisonings among both males and females. Females had higher rates of non-fatal, unintentional poisoning-related emergency department visits among Arizona residents in each age group 25 years and older. Figure 37 shows the non-fatal unintentional poisoning-related emergency department visit rates per 100,000 Arizona residents by age group and sex.

Figure 37. Non-Fatal Unintentional Poisoning-Related Emergency Department Visit Rates per 100,000 Residents by Age Group and Sex, Arizona 2010



African American Arizona residents had the highest age-adjusted rate of non-fatal unintentional poisoning-related emergency department visits in 2010 (120.4 events per 100,000 residents), followed by White, non-Hispanic residents (119.0 events per 100,000 residents). Among all race/ethnicities, the age-adjusted rate of non-fatal unintentional poisoning-related emergency department visits was 95.6 events per 100,000 Arizona residents. Figure 38 shows the age-adjusted rate of non-fatal unintentional poisoning-related emergency department visits by race/ethnicity for Arizona residents in 2010.

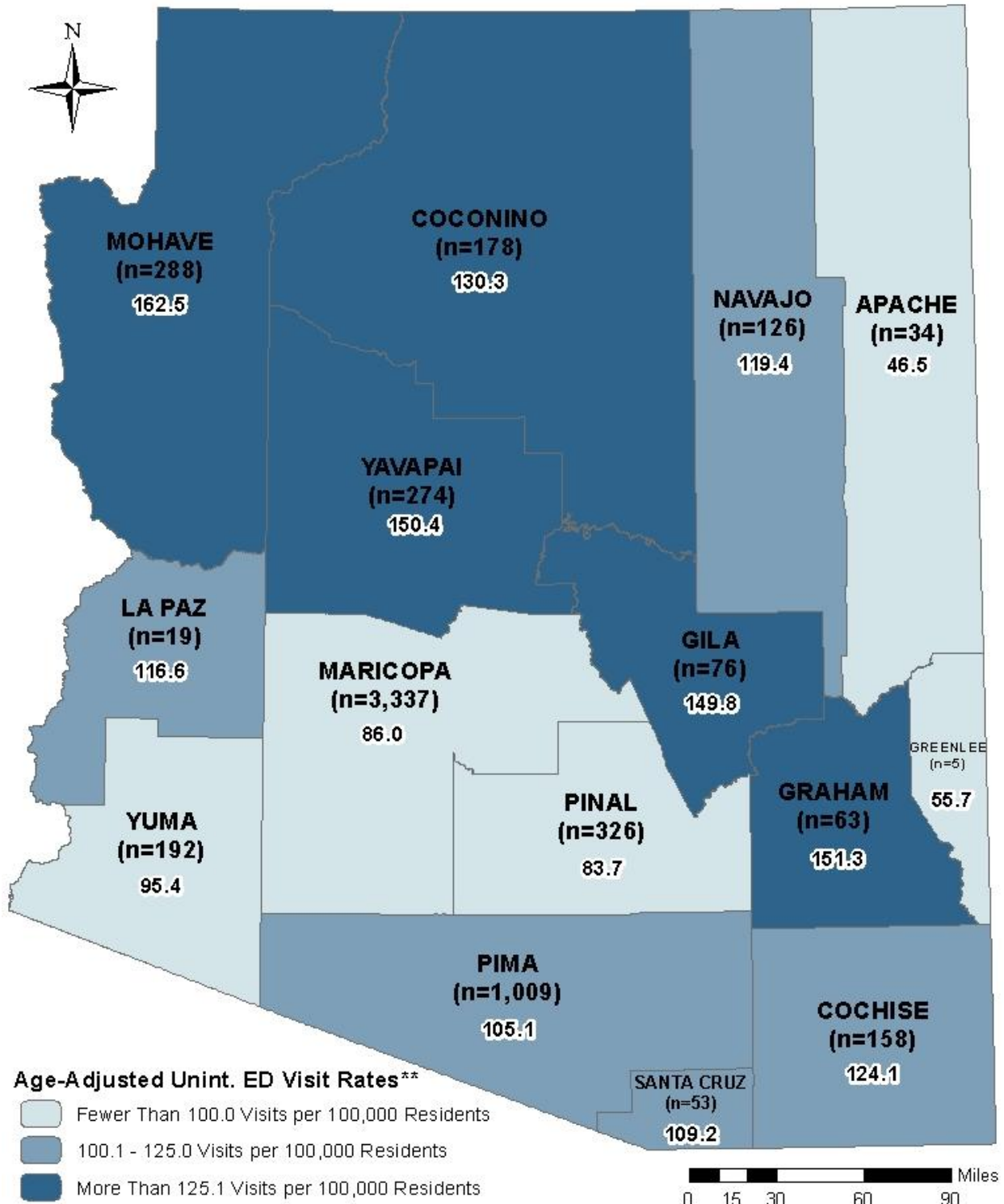
Figure 38. Age-Adjusted Rate of Non-Fatal Unintentional Poisoning-Related Emergency Department Visits per 100,000 Residents by Race/Ethnicity, Arizona 2010



There were 86 visits among individuals of other or unknown race/ethnicity.

Unintentional non-fatal poisoning-related emergency department visits were distributed among residents of Arizona's counties as shown in Figure 39.

Figure 39. Age-Adjusted Rate per 100,000 Residents of Non-Fatal Unintentional Poisoning-Related Emergency Department Visits by County of Residence, Arizona 2010 (n=6,140)*



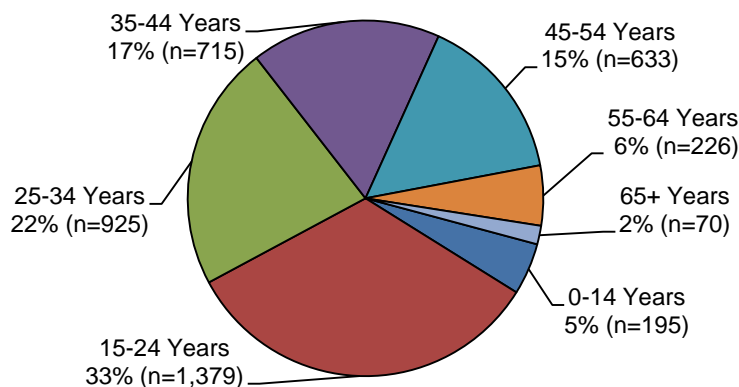
*Two deaths without residential county information are not pictured.
 **Rates are unstable for counties with fewer than 20 visits per year.

Though unintentional poisonings accounted for 52 percent of poisoning-related emergency department visits among Arizona residents in 2010, these visits comprised only 39 percent of total poisoning-related emergency department charges; hospital charges for unintentional poisoning visits among Arizona residents totaled more than \$18.3 million in 2010. The average non-fatal unintentional poisoning-related emergency department visit resulted in \$2,987 in hospital charges (median=\$2,154). Fifty-seven percent of those hospital charges were reportedly paid by Medicare, Medicaid, or the Arizona Health Care Cost Containment System (AHCCCS) (3,490 visits; more than \$10.4 million). Hospital charges do not reflect hospital reimbursement rates, nor do they include charges or costs related to emergency medical services, rehabilitation, legal fees, or lost work or school time.

Non-Fatal Self-Inflicted Poisoning-Related Emergency Department Visits

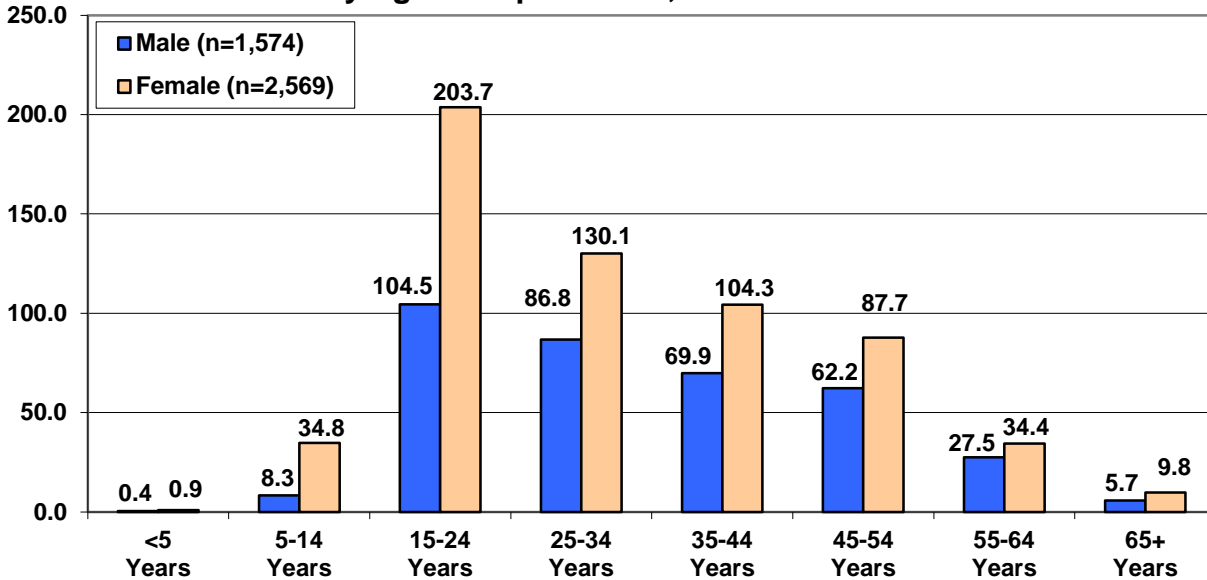
There were 4,143 non-fatal self-inflicted poisoning-related emergency department visits among Arizona residents in 2010. Thirty-eight percent of the visits were among males (n=1,574), and 62 percent were among females (n=2,569). Residents ages 15 through 24 years had the highest number of non-fatal self-inflicted poisoning-related emergency department visits of any age group, and accounted for 33 percent of these events in 2010 (n=1,379). Residents ages 25 through 34 years accounted for 22 percent of the events (n=925) and residents ages 35 through 44 years accounted for 17 percent of the events (n=715). Though they account for only 14 percent of the general population, residents ages 15 through 24 years were responsible for 33 percent of the non-fatal self-inflicted poisoning-related emergency department visits in 2010. Figure 40 shows the number and percentage of non-fatal emergency department visits by age group.

Figure 40. Non-Fatal Self-Inflicted Poisoning-Related Emergency Department Visits by Age Group, Arizona 2010 (n=4,143)



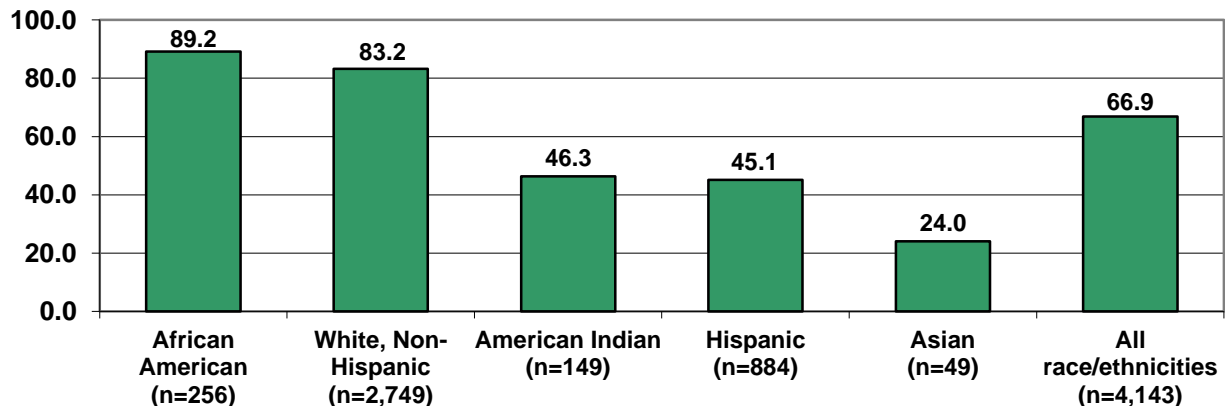
Females had higher rates of non-fatal emergency department visits than males among all age groups. The 15 through 24 year age group had the highest rate of events among both males and females. Figure 41 shows the non-fatal self-inflicted poisoning-related emergency department visits rates per 100,000 Arizona residents by age group and sex.

Figure 41. Non-Fatal Self-Inflicted Poisoning-Related Emergency Department Visit Rates per 100,000 Residents by Age Group and Sex, Arizona 2010



African American Arizona residents had the highest age-adjusted rate of non-fatal self-inflicted poisoning-related emergency department visits in 2010 (89.2 events per 100,000 residents), followed by White, non-Hispanic residents (83.2 events per 100,000 residents). Among all race/ethnicities, the age-adjusted rate of non-fatal self-inflicted poisoning-related emergency department visits was 66.9 events per 100,000 Arizona residents. Figure 42 shows the age-adjusted rate of non-fatal self-inflicted poisoning-related emergency department visits by race/ethnicity for Arizona residents in 2010.

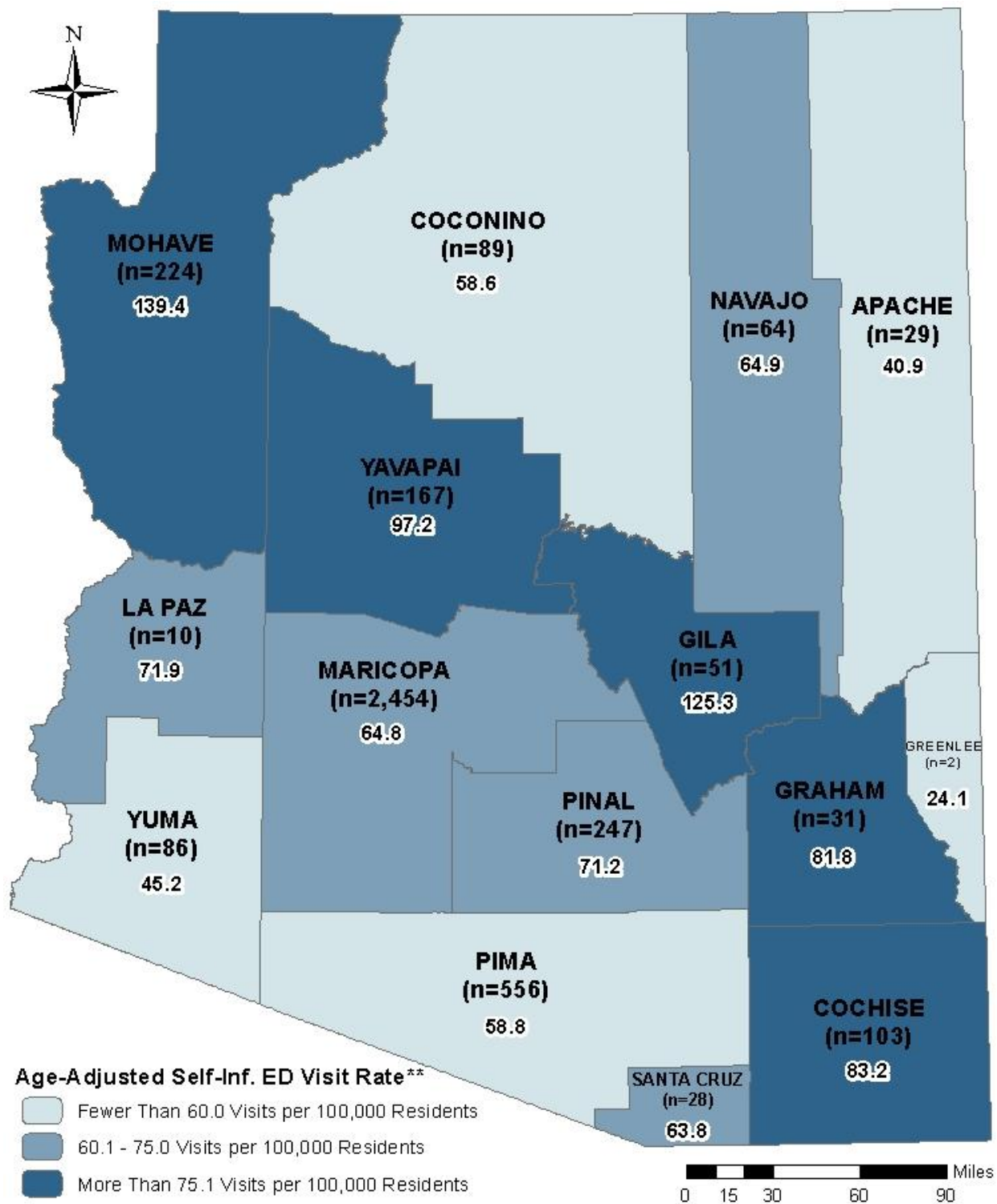
Figure 42. Age-Adjusted Rate of Non-Fatal Self-Inflicted Poisoning-Related Emergency Department Visits per 100,000 Residents by Race/Ethnicity, Arizona 2010



There were 56 visits among individuals of other or unknown race/ethnicity.

Self-inflicted non-fatal poisoning-related emergency department visits were distributed among residents of Arizona's counties as shown in Figure 43.

Figure 43. Age-Adjusted Rate per 100,000 Residents of Non-Fatal Self-Inflicted Poisoning-Related Emergency Department Visits by County of Residence, Arizona 2010 (n=4,143)*



*Two deaths without residential county information are not pictured.
 **Rates are unstable for counties with fewer than 20 visits per year.

In 2010, the average non-fatal self-inflicted poisoning-related emergency department visit totaled \$5,254 in hospital charges (median=\$4,867). Hospital charges for non-fatal emergency department visits due to self-inflicted poisonings totaled more than \$21.7 million for Arizona residents in 2010. Fifty-six percent of those hospital fees were reportedly paid by Medicare, Medicaid, or the Arizona Health Care Cost Containment System (AHCCCS) (2,326 visits, more than \$12.1 million). Hospital charges do not reflect hospital reimbursement rates, nor do they include charges or costs related to emergency medical services, rehabilitation, legal fees, or lost work or school time.

Poisoning and Prescription Drug Overdoses as an Arizona Public Health Concern

Deaths

- Between 2006 and 2010, the age-adjusted poisoning-related mortality rate increased 22 percent for Arizona residents, from 15.3 deaths per 100,000 residents in 2006 to 18.7 deaths per 100,000 residents in 2010.
- In 2010, poisoning were the leading cause of injury-related deaths, accounting for more deaths among Arizonans than car crashes, falls, or firearm injuries.
- Prescription drugs, often combined with alcohol, were responsible for many poison-related deaths. The poisons most commonly specified on death certificates in 2010 were alcohol (18 percent, n=207), Oxycodone or Hydrocodone (15 percent, n=180), and benzodiazepines (13 percent, n=155).
- Poisoning-related fatality rates increased among Native American (by 131 percent) and White, Non-Hispanic residents (by 32 percent) between 2006 and 2010.

Non-Fatal Hospitalizations and Emergency Department Visits

- Between 2006 and 2010, the age-adjusted rate of non-fatal poisoning-related inpatient hospitalizations among Arizona residents increased 43 percent, from 76.5 cases per 100,000 residents in 2006 to 109.2 cases in 2010.
- Adult women had the highest rates of non-fatal poisoning-related inpatient hospitalizations. Females 45 through 54 years of age had a rate of 193.4 cases per 100,000 residents, and females 35 through 44 years of age had a rate of 168.1 cases per 100,000 residents.
- In 2010, there were 11,894 non-fatal poisoning-related emergency department visits among Arizona residents and 20 percent of the visits were among children ages 14 years and younger (n=2,348).
- Though the highest number of non-fatal emergency department visits for poisoning-related injuries were among teens and young adults (15 through 24 years: 24 percent, n=2,915), the highest rates were among children younger than five years of age (372.6 visits per 100,000 residents, 1,698 visits)
- Hospital charges for non-fatal poisoning-related inpatient hospitalizations totaled more than \$179.6 million in 2010, and Arizona residents spent a total of 20,606 days hospitalized for non-fatal poisonings.
- Hospital charges for non-fatal poisoning-related emergency department visits totaled over \$46.9 million in 2010.

Arizona's Response

- Arizona has multi-faceted strategies in place to address each of the White House's 4 approaches to countering prescription drug abuse:
 - Patient and provider education: Arizona has two nationally affiliated poison control centers providing education and drug exposure response throughout the state.
 - Prescription monitoring: Arizona's Controlled Substances Prescription Monitoring Program is managed by the Arizona State Board of Pharmacy. Dispensing pharmacies and practitioners are required under Arizona law to report information on Schedule II, III, and IV prescriptions to the database. (http://www.azpharmacy.gov/CS-Rx_Monitoring/aboutpmp.asp)
 - Drug disposal: Since 2008, sites throughout Arizona have offered drug drop-off services as both individual and ongoing events.
 - Law enforcement against improper prescribing: The federal Drug Enforcement Agency actively targets doctors improperly prescribing potentially addictive medications in Arizona. In 2009, the Phoenix DEA's Tactical Diversion Squad charged a Golden Valley doctor with 14 felony charges for operating a 'pill mill'. (<http://www.azcentral.com/news/articles/2009/07/14/20090714rxdrugbust.html>)

Poisoning Prevention Tips and Resources

Call **1-800-222-1222** to be connected to a local Poison Control Center.

You can prevent poisonings!

- **Store household cleaners in their original containers, away from children**
 - Pills, vitamins, antifreeze, nail polish remover, or insecticide may look similar to children's candy or beverages. Teach children not to eat or drink something without first asking an adult.
 - Teach children to identify medication, and don't refer to pills as 'candy'
- **Identify poisonous plants around your home and remove from children's reach**
 - Visit the Cornell University Department of Animal Science website on poisonous plants at <http://www.ansci.cornell.edu/plants> or contact your local PCC to learn about poisonous plants
- **Read the label and follow directions for using household products or medications**
- **Check with your doctor or pharmacist to prevent dangerous medication interactions**
- **Properly discard unused, unneeded, or expired medication**
 - Look for drug disposal events in your community. These provide a safe, easy way to responsibly get rid of unneeded medication. Such events may be sponsored by local hospitals, pharmacies, police or fire departments.
 - Only flush drugs down the toilet if the label specifically says to do so
 - Ask your pharmacist if you're unsure about proper disposal
 - To dispose of all other medications:
 - Remove the medication from the original packaging
 - Crush the pills and mix them with kitty litter, coffee grounds, or sand
 - Seal the mixture in a plastic bag and dispose of it with your household trash
- **Properly discard unused or unneeded household poisons and their containers**
 - Check with your city or county for hazardous waste collection events and locations.
 - Household poisons can include paints and solvents, auto fluids, household cleaners, pesticide, and pool chemicals
- **Participate in National Poison Prevention Week, held annually during the 3rd week of March**
 - The federal Health Resources and Services Administration (HRSA) provides an Event Planner Kit to help your agency or business get involved. Visit www.poisonprevention.org for more information.

Visit Arizona's Poison Control Centers on the internet at:

Arizona Poison and Drug Information Center, Tucson, Arizona
<http://www.pharmacy.arizona.edu/outreach/poison/index.php>

Banner Good Samaritan Poison and Drug Information Center, Phoenix, Arizona
<http://www.bannerhealth.com/Locations/Arizona/Banner+Poison+Control+Center/Banner+Poison+Control+Center.htm>

Methodology

Mortality data for 2006 through 2010 were compiled from the death certificates registered with the Arizona Department of Health Services Office of Vital Registration. Any death record for an Arizona resident assigned an International Classification of Diseases, 10th Revision (ICD-10) code for poisoning as the underlying cause of death was included in the count. Poisonings due to envenomation by animals, plants, or insects (X20 – X29) were excluded from this report. Table 7 shows the ICD-10 codes included in this report.

Table 7. International Classification of Diseases, 10th Revision (ICD-10) Codes Used in This Report	
ICD-10 Code	ICD-10 Code Description
X40	Unintentional poisoning by non-opioid analgesics, including aspirin and ibuprofen
X41	Unintentional poisoning by sedative or hypnotic drugs, including antidepressants and barbiturates
X42	Unintentional poisoning by narcotic or hallucinogenic drugs, including marijuana, heroin, and methadone
X43	Unintentional poisoning by drugs acting on the autonomic nervous system
X44	Unintentional poisoning by other and unspecified drugs
X45	Unintentional poisoning by alcohol meant for ingestion
X46	Unintentional poisoning by organic solvents
X47	Unintentional poisoning by other gases, including carbon monoxide and motor vehicle exhaust
X48	Unintentional poisoning by pesticides or herbicides
X49	Unintentional poisoning by other and unspecified chemicals
X60	Suicide by poisoning using non-opioid analgesics, including aspirin and ibuprofen
X61	Suicide by poisoning using sedative or hypnotic drugs, including antidepressants and barbiturates
X62	Suicide by poisoning using narcotic or hallucinogenic drugs, including marijuana, heroin, and methadone
X63	Suicide by poisoning using drugs acting on the autonomic nervous system
X64	Suicide by poisoning using other and unspecified drugs
X65	Suicide by poisoning using alcohol meant for ingestion
X66	Suicide by poisoning using organic solvents
X67	Suicide by poisoning using other gases, including carbon monoxide and motor vehicle exhaust
X68	Suicide by poisoning using pesticides or herbicides
X69	Suicide by poisoning using other and unspecified chemicals
X85	Homicide by poisoning using drugs or a biological substance
X86	Homicide by poisoning using corrosive gas
X87	Homicide by poisoning using pesticide
X88	Homicide by poisoning using gas or vapors
X89	Homicide by poisoning using other specified chemicals
X90	Homicide by poisoning using unspecified chemicals
Y10	Poisoning by non-opioid analgesics, including aspirin and ibuprofen, undetermined intent
Y11	Poisoning by sedative or hypnotic drugs, including antidepressants and barbiturates, undetermined intent
Y12	Poisoning by narcotic or hallucinogenic drugs, including marijuana, heroin, and methadone, undetermined intent
Y13	Poisoning by drugs acting on the autonomic nervous system, undetermined intent
Y14	Poisoning by other and unspecified drugs, undetermined intent
Y15	Poisoning by alcohol meant for ingestion, undetermined intent
Y16	Poisoning by organic solvents, undetermined intent

Y17	Poisoning by other gases, including carbon monoxide or motor vehicle exhaust, undetermined intent
Y18	Poisoning by pesticides or herbicides, undetermined intent
Y19	Poisoning by other and unspecified chemicals, undetermined intent

Inpatient hospitalization discharge data and emergency department discharge data from 2006 through 2010 were compiled from the Arizona Hospital Discharge Database at the Arizona Department of Health Services. The discharge database contains information from private, acute-care facilities in the state of Arizona, and do not include visits to federal facilities, such as Veterans' Affairs Hospitals or Indian Health Services facilities. The discharge databases do not contain data from urgent care facilities, private physician practices, or medical clinics. Hospital discharge data include hospital transfers and readmissions. Therefore, a single injured individual may be counted more than once. These data should be interpreted as episodes of medical treatment, not individual injuries.

Records for Arizona residents assigned an International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) External Cause of Injury Code (E-Code) for poisoning as the primary cause of injury were included in this report. The following E-Code ranges were included: E850 – E858, E860 – E869, E950 – E952, E962, E972, E980 – E982. Table 15 lists the general categories of poisonings included in these ICD-9-CM E-Codes. Poisonings due to envenomation by animals, plants, or insects (E905.0 – E905.9) were excluded from this report, as were cases in which medications caused an adverse reaction after therapeutic use (E930 – E949). Medications were counted as poisoning events only if they were administered incorrectly or with the intent to harm. This could include the administration of the wrong drug, or an incorrect dose of a prescribed medication.

Table 15. International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) Codes Used in This Report	
ICD-9-CM Codes	ICD-9-CM Category Description
E850 – E858	Unintentional poisoning by drugs, medicinal substances, and biologicals
E860 – E869	Unintentional poisoning by other solid and liquid substances, gases, and vapors
E950 – E952	Suicide and self-inflicted poisoning by solid or liquid substances, gases in domestic use, and other gases or vapors
E962	Assault by poisoning
E972	Injury due to legal intervention by gas, including poisoning by gas
E980 – E982	Poisoning by solid or liquid substances, gases in domestic use, and other gases, undetermined whether unintentionally or purposely inflicted

Rates for 2006 through 2009 were calculated using Arizona population data compiled by the Arizona Department of Health Services' Bureau of Public Health Statistics, available on the internet at: www.azdhs.gov/plan/menu/info/pd.htm. Rates for 2010 were calculated using the 2010 United States Decennial Census figures for Arizona (Summary File 1), available on the internet from the U.S. Census Bureau's American FactFinder: <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>.

To help compare groups over time, rates have been age-adjusted. Age-adjusting is a statistical procedure used to remove the effect of age differences between populations. All age-adjusted rates in this report were computed using the 'direct' method in which the age-specific rates for a given year are weighted by the age distribution of the 2000 standard population. For information on how to calculate an age-adjusted rate, or to see the 2000 standard age distribution, visit the National Cancer Institute Surveillance Epidemiology and End Results (SEER) program at <http://seer.cancer.gov/seerstat/tutorials/aarates/definition.html>.