Injuries Due to Venomous Insects and Plants Among Arizona Residents, 2012

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Prepared by: Jennifer Dudek, MPH
150 North 18th Avenue, Suite 320
Phoenix, AZ 85007
Office of Injury Prevention
Bureau of Women's and Children's Health
Arizona Department of Health Services
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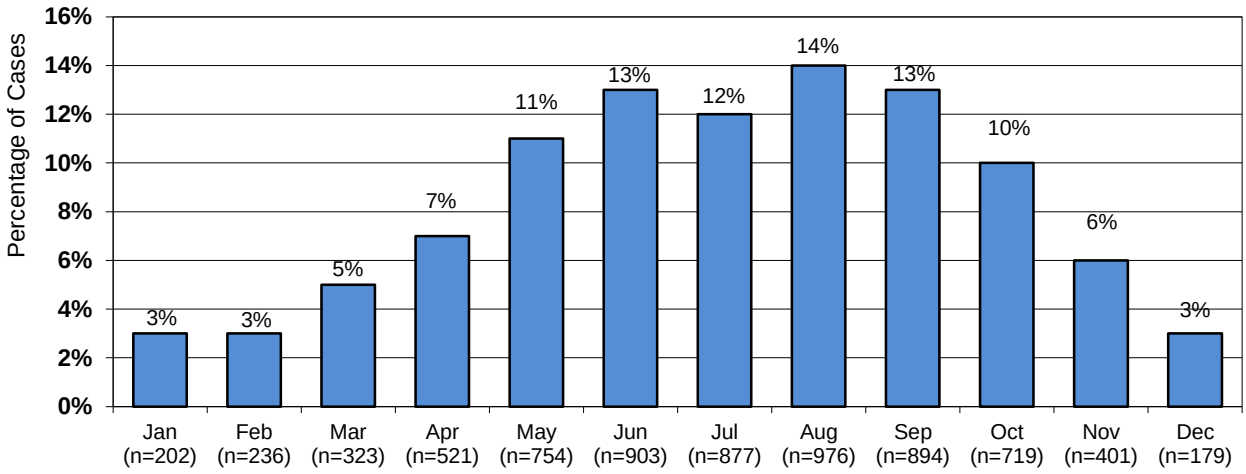
This brief includes mortality data with an underlying cause of death coded to ICD-10 codes X20-X29, and hospital discharge data coded to ICD-9 codes 905.0-905.9. The hospital discharge data only include information from private, acute-care facilities. Data from urgent care centers or federal facilities, including Indian Health Services or Veteran's Administration facilities, are not available.

In 2012, there were 2 fatalities among Arizona residents due to envenomation by bee stings.

Six thousand nine hundred eighty five Arizona residents were hospitalized or treated in emergency departments in 2012 for non-fatal insect or reptile envenomation. While males generally have higher rates of injury than females for most types of injury, females had slightly higher age-adjusted rates of non-fatal insect or reptile envenomation. In 2012, there were 105.7 injuries per 100,000 males (n=3,417) and 111.3 injuries per 100,000 females (n=3,568). These numbers show that females were 6 percent more likely to incur injuries from insect or reptile envenomation than males in 2012.

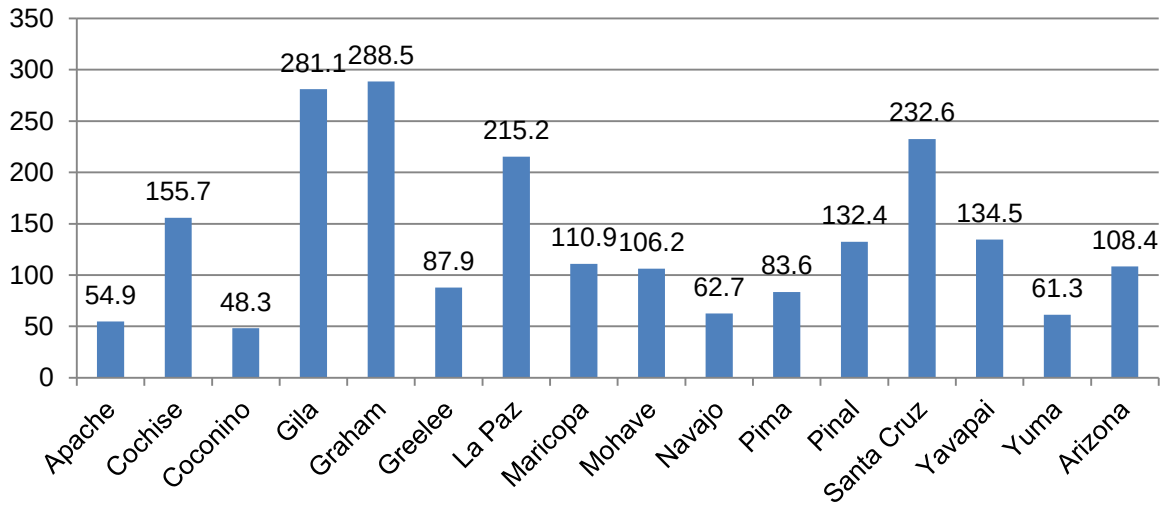
The highest number of hospitalizations and emergency department visits due to envenomation by insects or reptiles occurred during the hot summer months. There were not significant differences in the distribution of cases by type of envenomation. Figure 1 shows the distribution of cases by month.

Figure 1. Percentage of Non-Fatal Venomous Creature Hospitalizations and Emergency Department Visits by Month, Arizona, 2012 (n=6,985)



Rural counties had the highest age-adjusted rates of hospitalizations and emergency department visits for non-fatal injuries due to insect or reptile envenomation in 2012. While there were 108.4 cases per 100,000 residents across Arizona, La Paz, Gila and Graham Counties had rates at least twice that high. Counties located at higher elevations had lower rates of injuries related to venomous creatures; this is most likely attributable to the fact those venomous invertebrates cannot survive in colder climates. There is not a definitive reason regarding why Yuma County residents sought medical care at such a low rate. It is possible that residents sought care on the local military base, resulting in an artificially low rate. Figure 2 shows the age-adjusted rates of hospitalizations and emergency department visits per 100,000 residents due to venomous creature by county of residence.

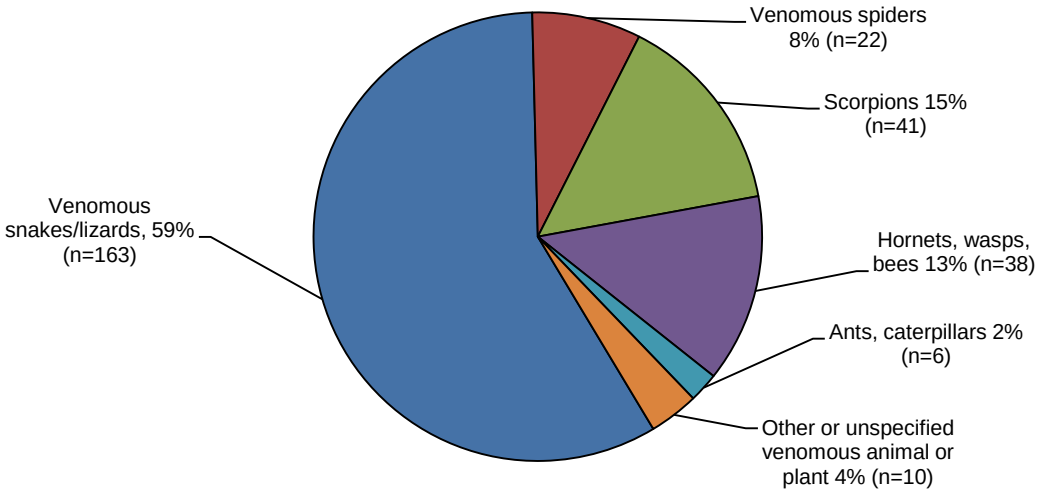
Figure 2. Age-adjusted rates of Hospitalizations and Emergency Department Visits per 100,000 residents by County, Arizona 2012 (n=6,984)



Inpatient Hospitalizations

In 2012, there were 274 non-fatal inpatient hospitalizations among Arizona residents for treatment of insect or reptile envenomation. Scorpion stings accounted for 15 percent of non-fatal inpatient hospitalizations (n=41). Bites by venomous snakes and lizards accounted for the highest percentage of non-fatal inpatient hospitalizations (59 percent, n=163). Figure 3 shows non-fatal inpatient hospitalizations by type of bite/sting.

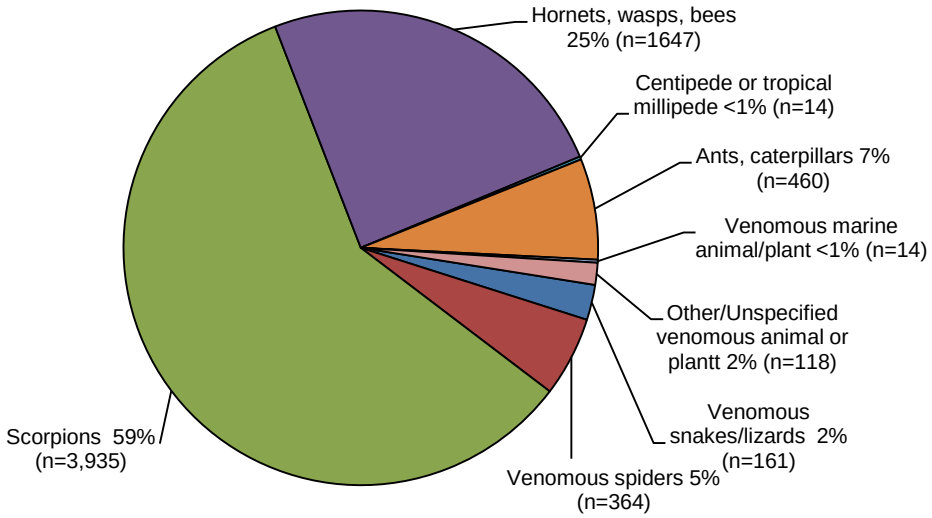
Figure 3. Non-Fatal Inpatient Hospitalizations due to Venomous Animals or Plants, Arizona 2012 (n=274)



Hospital charges for non-fatal inpatient hospitalizations due to venomous animals or plants totaled more than $18.2 million, with an average hospital stay lasting 2 days and resulting in $550,323 in hospital charges. The median hospital charge was $39,020. Arizona residents spent a total of 274 days hospitalized, with the longest stay lasting 54 days.

Emergency Department Visits
In 2012, there were 6,711 non-fatal emergency department visits by Arizona residents for treatment of insect or reptile envenomation. Scorpion stings accounted for a majority of these visits (59 percent, n=3,935). The second highest number of visits resulted from stings by hornets, bees, and wasps (25 percent, n=1,647). Figure 4 shows non-fatal emergency department visits by type of bite/sting.

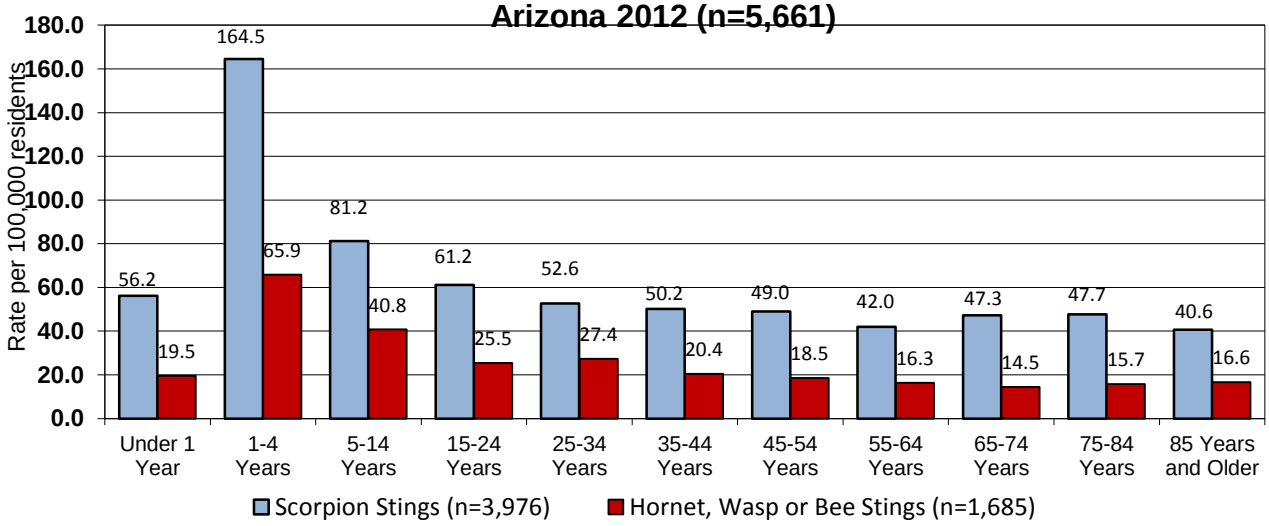
Figure 4. Non-Fatal Emergency Department Visits due to Venomous Animals or Plants, Arizona 2012 (n=6,711)



Hospital charges for non-fatal emergency department visits due to venomous animals or plants totaled more than $24.9 million. Visits to treat scorpion stings totaled more than $18.4 million in hospital charges. While scorpion stings resulted in 59 percent of the total non-fatal emergency department visits for venomous animals or plants, they accounted for 74 percent of the total hospital charges.

All Hospitalizations and Emergency Department visits
Among the 3,976 non-fatal hospital visits due to scorpion stings in 2012, the highest rate of events was among children ages 1 to 4 (164.5 ED visits per 100,000 residents). Children ages 1 to 4 also had the highest age-specific rate of emergency department visits due to hornet, wasp, and bee stings, the second leading cause of emergency department visits due to venomous creatures (65.9.0 ED visits per 100,000 residents). Figure 5 shows the rate of non-fatal hospitalizations emergency department visits due to scorpion and bee stings by age group.

Figure 5. Age-Specific Rates of Non-Fatal Hospital Visits due to Scorpion and Hornet, Wasp and Bee Stings per 100,000 Residents, Arizona 2012 (n=5,661)



Among the 386 non-fatal hospital and emergency department visits due to venomous spider bites in 2012, the highest rate of events was among adults ages 25 to 34 (9.4 visits per 100,000 residents). Children ages 1 to 4 had the second highest age-specific rate of hospital visits (8.4 per 100,000 residents) followed closely by those 15 to 24 years of age. Among the 324 hospital and emergency department visits for snakes and lizards, adults aged 65 to 74 years of age had the highest rate of 7.2 per 100,000 residents. Figure 6 shows the rate of non-fatal hospitalizations and emergency department visits due to venomous spiders and snakes/lizards by age group.

Figure 6. Age-Specific Rates of Non-Fatal Hospital Visits due to Spiders and Snakes/Lizards per 100,000 Residents, Arizona 2012 (n=710)

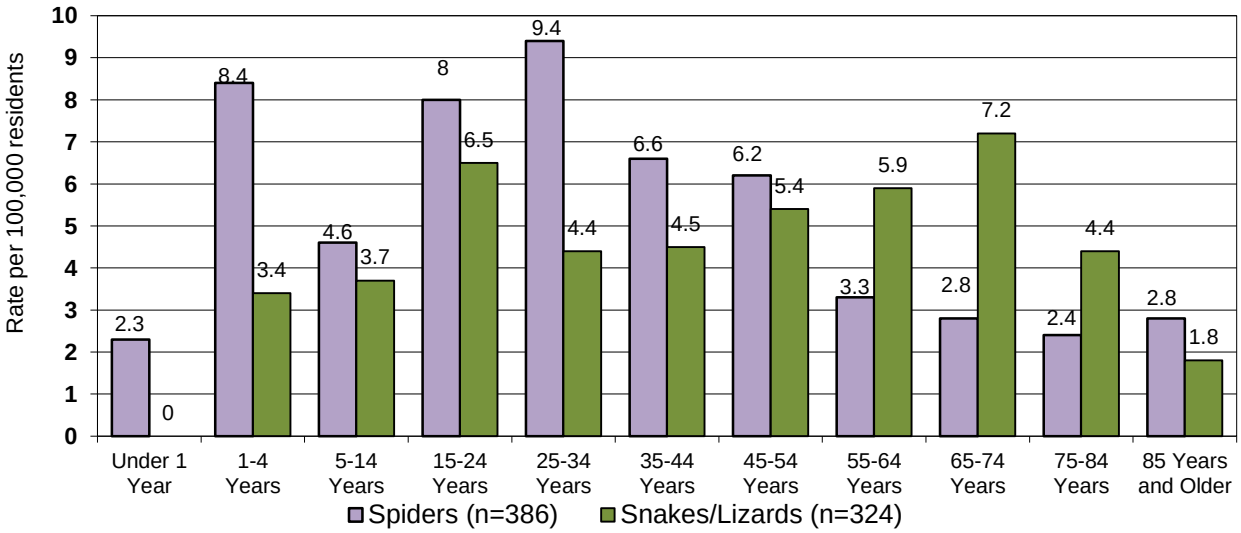


Figure 8. An Arizona Bark Scorpion

Figure 9. A Striped Scorpion

Source: http://phoenix.about.com/od/arizonapicturesandphotos/ig/Arizona-Bark-Scorpions/Scorpion-01.htm; http://phoenix.about.com/od/arizonapicturesandphotos/ig/Arizona-Bark-Scorpions/Scorpion-06.htm

Hospital discharge data do not specify the species of scorpion, so it is not possible to further classify injuries. Bark scorpions, as shown in Figure 8, are the most venomous scorpions in North America, and extreme reactions to their stings can cause paralysis and convulsions, though fatalities are rare. Medical attention is recommended for stings to pets, young children, older adults, and people with compromised immune systems.

Visit the following websites for more information on Arizona's venomous creatures:

- The University of Arizona's Cooperative Extension:
  - Venomous Wildlife: http://cals.arizona.edu/pubs/natresources/az1481g
  - Scorpions: http://ag.arizona.edu/pubs/insects/az1223.pdf
- The Arizona Game and Fish Department: http://www.azgfd.gov/w_c/nongameandendangeredwildlifeprogram/reptiles.shtml
- Arizona's Poison Control Centers:
  - Banner Good Samaritan Poison & Drug Information Center: http://www.bannerhealth.com/Locations/Arizona/Banner+Good+Samaritan+Poison+and+Drug+Information+Center/_Banner+Poison+Control+Center.htm
  - The University of Arizona College of Pharmacy Poison and Drug Information Center: http://www.pharmacy.arizona.edu/outreach/poison/scorpions.php
- The Arizona-Sonora Desert Museum: http://www.desertmuseum.org/books/nhsd_inverts.php