

BACKGROUND: There are approximately 9,000 venomous snake bites in the United States every year resulting in approximately 5 deaths per year. The large majority of bites are by native pit vipers with a small percentage due to coral snakes and exotic pets. With a small percentage of hospitals having access to an inpatient toxicology service or dedicated snakebite services, the majority of venomous snakebites receive consultation from poison centers to help guide appropriate care. Here we report the epidemiology of snakebites to a large poison control center over an 11-year period with the aim of analyzing severity of snake bite by geographic region, patient demographics, and snake species. Given the current treatment protocols in Emergency Departments, this paper aims to refine treatment based on both snake bite and patient epidemiology.

METHODS: All calls to a large regional poison center for snakebite exposures from January 1st, 2007 through December 31st, 2017 were extracted and analyzed. During calls, specialists in poison information (SPI) recorded data based on the poison center's standardized snakebite protocols. There were no exclusion criteria. A standardized database was established using the REDCap data management system. These data were analyzed using descriptive statistics.

RESULTS: One-thousand seven-hundred ninety-two cases were categorized as snakebites during this time. The majority of calls were due to venomous snakes (N=1217, 67.9%) followed by non-venomous snakes (N=351, 19.6%) and unknown (N=224, 12.5%). The mean patient age was 33 years old (standard deviation = 20.1). Most bites occurred in the summer months. Males (N=1217, 67.9%) represented the majority of bites compared to women (N=536, 29.9%). More bites occurred in the upper extremities (N=837, 46.7%) than the lower extremities (N=725, 40.1%). Bites to the hand occurred in 747 cases (41.6%). Rattlesnakes accounted for the majority of the venomous snakebites (N=818, 67.2%). Other venomous snakes included copperheads (N=127, 10.4%), unknown pit vipers (N=71, 5.8%), water moccasins (N=15, 1.2%), exotic snakes (N=9, 0.7%) and coral snakes (N=2, 0.2%). Local symptoms (N=1385, 77.3%) were the most common documented symptoms followed by systemic (N=427, 23.8%) and hematologic (N=94, 5.3%) symptoms. Hypotension (N=98, 23.0%), nausea (N=142, 33.3%), and perioral paresthesias (N=125, 29.3%) were the most common systemic symptoms. Sixty four percent (N=782) of recorded venomous snakebites received antivenom. Twenty-six (3.0%) patients received antivenom for a non-venomous snakebite. Three (0.2%) deaths occurred. None of the reported deaths received antivenom.

CONCLUSIONS: Our data is consistent with previous data illustrating more bites occur in males. A smaller percentage of venomous snakebites received antivenom than other recently published data. Many of the nonvenomous snakebites were managed at home and did not require medical evaluation. Deaths were rare. Our data is limited by what is documented by the SPI while actively managing a case.