

Epidemiology of Snakebites for a Large Poison Center from 2007 - 2017

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Background

- Globally, snakebites are a large burden of morbidity and mortality, yet represent a neglected tropical disease with studies being limited in size and scope¹
- Understanding the epidemiology of snakebites can help identify at risk populations, guide public health measures, and determine what bites require medical treatment with antivenom
- Crofab, the name of the antivenom administered in the USA, has been shown to be very effective in treating severe snakebite cases²
- Snakes are regional with envenomation following local species, yet Crofab covers all major species of snakes without regard to regional incidence

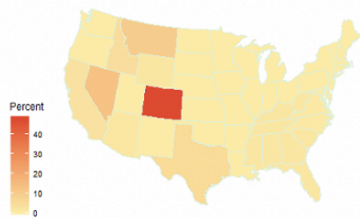


Figure 1: Percentage of Snakebites in the United States (2007-2017)

Methods

- Specialists in Poison Information record data from callsto Rocky Mountain Poison and Drug Center from January 1st, 2007 through December 31st, 2017 based on standardized protocols
- Data reviewed and entered into REDCap database
- Descriptive statistical review of data, pending formal statistical review

Table 1: Descriptive Statistics

Characteristic	N	Percent (%)		
Snakebite intentional?				
Yes	83	4.63		
No	1430	79.80		
Bite Location				
Ankle	206	11.50		
Arm	90	5.02		
Face	23	1.28		
Foot	218	12.17		
Hand	747	41.69		
Leg	301	16.80		
Torso	11	0.61		
Snake Type			Crofab Administered	No Crofab Administered
Copperhead	127	10.44	7.94%	8.92%
Coral Snake	2	0.16	0%	0.21%
Exotic Snake	9	0.74	0.23%	0.41%
Rattlesnake	818	67.21	64.75%	34.44%
Water Moccasin	15	1.23	1.29%	0.62%
Unknown Pit Viper	71	5.83	4.91%	3.94%
Local Symptoms				
Yes	1385	77.29		
No	231	13.11		
Hematologic Symptoms				
Yes	94	5.25		
No	847	47.27		
Systemic Symptoms				
Yes	427	23.83		
No	1016	56.70		

Results

- Fewer snakebites are intentional than compared with previous studies^{3, 5}
- Hands and legs are the most common areas for snakebites to occur
- Most venomous snakebites result from rattlesnakes and occur in the Western USA
- Local symptoms occur in 77% of patients, with only 23% experiencing systemic effects and 5% experiencing hematologic changes in laboratory studies
- Crofab was administered to 48% of all patients bitten by venomous snakes with 65% of rattlesnake bites being administered Crofab, compared to 85% Crofab administration reported in previous studies⁴

Discussion

Compared to previous studies, we demonstrate a greater number of unintentional snakebite exposures and an overall lower incidence of Crofab administration over the course of snakebite treatment. Given the incidence of systemic and hematologic symptoms though, Crofab continues to be overused in current treatment algorithms. Given the preponderance of rattlesnake and coral snake bites compared to other species, targeted treatments would appear to be more effective and could reduce the cost of treatment.

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Disclosures

The authors have no relevant financial relationships to disclose.