

## Animal bite surveillance using NC DETECT

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### Objective

We describe the use of emergency department (ED) visit data collected through the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) for surveillance of animal bites in NC. Animal bite surveillance using ED visit data provides useful and timely information for public health practitioners.

### Introduction

Animal bites may have potentially devastating consequences, including physical and emotional trauma, infection, rabies exposure, hospitalization and, rarely, death (1). NC law requires animal bites be reported to local health directors (2). However, methods for recording and storing bite data vary among municipalities. NC does not have a statewide system for reporting and surveillance of animal bites. Additionally, many animal bites are likely not reported to the appropriate agencies (3).

NC DETECT provides near-real-time statewide surveillance capacity to local, regional and state-level users with twice daily data feeds from NC EDs. Between 2008 and 2010, 110 to 113 EDs were submitting visit data to NC DETECT. Several animal bite-related online reports are available and provide aggregate and visit-level analyses customized to users' respective jurisdictions. The NC DETECT ED visit database currently provides the most comprehensive and cost-effective source of animal bite data in NC.

### Methods

Several NC DETECT animal bite-related reports were developed based on chief complaint and triage note keyword searches and ICD-9-CM codes. Using the Animal Bite Keyword Report, statewide ED visit data were extracted for 2008–2010. ED visit records in NC DETECT were examined manually to assess the performance of case definition keywords. Using the Animal Bite ICD-9-CM Code Report, statewide ED visit data were extracted for 2008–2010. The following ICD-9-CM injury codes are included in this report: E906.0 (dog bite), E906.1 (rat bite), E906.3 (bite of other animal except arthropod) and E906.5 (bite by unspecified animal). The burden of ICD-9-CM-coded animal bite visits to total ED visits was examined by age group and gender.

### Results

Review of Animal Bite Keyword Report data revealed several additional case definition inclusion and exclusion keywords. This knowledge has led to continued development of keyword reports. The Animal Bite ICD-9-CM Code Report indicated a total of 33,294 ED visits for animal bite from 2008 to 2010. For each year, the highest proportion of ICD-9-CM-coded animal bite ED visits to total ED visits were for 5–9 year olds (Fig. 1). Across all 3 years, males had a slightly higher proportion of animal bite-coded ED visits to total ED visits (0.28%) compared to females (0.23%).

### Conclusions

Case definition development for the Animal Bite Keyword Report is an iterative process. Sensitivity and specificity of keyword reports must be considered, and case definitions should depend on the report's intended use. Evaluation of the Animal

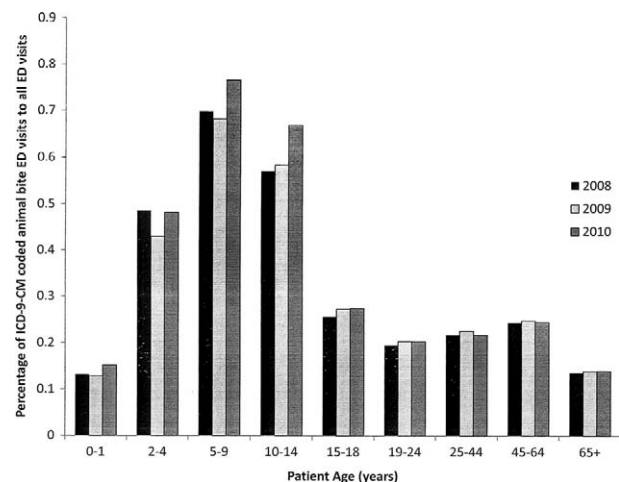


Fig. 1. Percentage of ICD-9-CM\*-coded animal bite ED visits to all ED visits by patient age and year, 2008–2010, NC DETECT. \*E906.0, E906.1, E906.3 and E906.5.

Bite ICD-9-CM Code Report showed 5–9 year olds and males have the highest proportion of animal bite-coded ED visits in NC. A snake bite report and animal bite incidence rate reports are under development. NC DETECT is a valuable source for animal bite surveillance in NC.

### Keywords

Animal bite; surveillance; emergency department

### References

1. Patronek GJ, Slavinski SA. Animal bites. *J Am Vet Med Assoc.* 2009;234:336–45.
2. NC General Statutes GS130A-196 (2010).
3. Overall KL, Love M. Dog bites to humans—demography, epidemiology, injury, and risk. *J Am Vet Med Assoc.* 2001;218:1923–4.

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