

ABSTRACT

Use of emergency department data for case finding following a community anthrax exposure

D Swenson¹, LK Mayo², K Dufault¹, ER Daly¹, S Bascom¹, J Dionne-Odom^{1,2}, and EA Talbot^{1,2}

¹New Hampshire Department of Health and Humans Services, Concord, NH, USA; and ²Dartmouth-Hitchcock Medical Center, Lebanon, NH, USA
 E-mail: dswenson@dhhs.state.nh.us

Objective

This paper describes the use of customizable tools to query electronic emergency department data, as part of case finding, during the response to a community anthrax exposure in New Hampshire.

Introduction

On 24 December 2009, a female New Hampshire resident was confirmed to have gastrointestinal anthrax on the basis of clinical findings and laboratory testing.¹ Her source of anthrax was not immediately known, so the New Hampshire Department of Health and Human Services (DHHS), in conjunction with several other state and federal agencies, conducted a comprehensive epidemiologic investigation, which included active surveillance to identify any additional anthrax cases from a similar exposure. It was determined that the index patient participated in a drumming event with animal-hide drums on 4 December, one day before the onset of symptoms. Two drums used at the event were later found to be contaminated with *Bacillus anthracis*.

Methods

A retrospective review of emergency department encounters between 1 October and 26 December was conducted immediately after confirmation of the index anthrax case to identify possible anthrax cases that had already presented but were not confirmed because of the rarity of clinical anthrax. In addition, active, prospective surveillance for possible cases continued between 26 December and 31 January, 2010. DHHS's statewide emergency department data system's customizable query tools were used to mine data daily for clinical syndrome terms in chief complaint text fields and ICD-9-CM codes associated with the three manifestations of anthrax (inhalation, cutaneous, and gastrointestinal). Chief complaint text and ICD-9-CM query results were reviewed by surveillance staff and a physician

using a clinical criteria protocol to decide whether the case warranted follow-up with hospitals to collect additional clinical and laboratory data.

Results

Of 1,83,973 emergency department encounters between 1 October 2009 and 31 January 2010, 7111 (3.9%) met either the chief complaint or ICD-9-CM search criteria. Of these 7111, 62 (0.9%) warranted collection of additional information based on the clinical criteria protocol. No additional anthrax cases were identified. Three persons were found seeking anthrax post-exposure prophylaxis at an emergency department. Two of these persons were workers involved in the public health response and one person had attended the drumming event and was previously identified during the contact investigation (Figure 1).

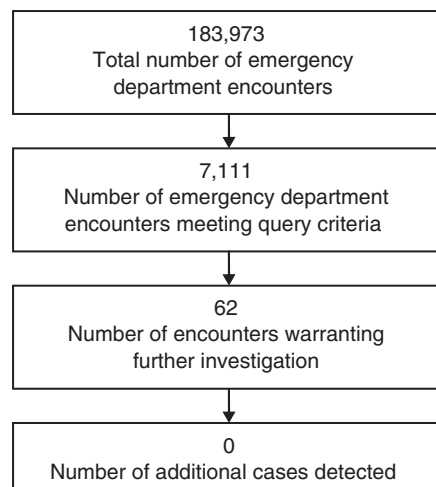


Figure 1 Investigation outcome of emergency department encounters meeting anthrax query and clinical criteria.

Conclusions

New Hampshire's emergency department surveillance system was quickly adapted, through the development of custom queries, to investigate an emergent public health threat. The query tool and clinical criteria protocol allowed for efficient follow-up of only those encounters that were most suspicious for anthrax. These tools narrowed down a pool of nearly 2,00,000 emergency department visits to 62 possible cases requiring further investigation, allowing for more efficient use of health department resources.

Acknowledgements

This paper was presented as an oral presentation at the 2010 International Society for Disease Surveillance Conference, held in Park City, UT, USA, on 1–2 December 2010.

Reference

- 1 CDC. Gastrointestinal anthrax after an animal-hide drumming event—New Hampshire and Massachusetts, 2009. *MMWR* 2010; 59:872–7.