

## Defining emergency department asthma visits for public health surveillance

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### Objective

Determine operational definition of emergency department (ED) visits attributable to asthma for public health surveillance.

### Introduction

Tracking ED asthma visits is an important part of asthma surveillance, as ED visits can be preventable and may represent asthma control failure (1). When using limited clinical ED datasets for secondary purposes such as public health surveillance, it is important to employ a standard approach to operationally defining ED visits attributable to asthma. The prevailing approach uses only the primary ICD-9-CM diagnosis (Dx) for the ED visit (2); however, doing so may underestimate the public health impact of asthma. We conducted this pilot study to determine the value of including ED visits with asthma-related Dx in secondary or tertiary positions. For example, for an ED visit with a primary Dx of upper respiratory infection and secondary Dx of asthma, it is possible that the infection triggered the asthma exacerbation and the visit could be attributed to both infection and asthma.

### Methods

We utilized all ED visit data for 2008–2009 from the state public health surveillance system (3), accounting for 99.5% of the visits to North Carolina EDs. Included were visits with an ICD-9-CM diagnosis code for asthma (493.xx) in any Dx position (1–11). We then grouped asthma visits into 11 strata based on the Dx position containing the asthma code. We identified the most frequent chief complaint and primary Dx categories for each of the 11 asthma Dx positions. We also grouped procedure codes (ICD-9-CM and CPT) for potential asthma (e.g., nebulized medications) and cardiac (e.g., electrocardiogram) conditions for each Dx position.

### Results

350,341 (4.0%) of the 8.7 million ED visits had a diagnosis of asthma in 1 of the 11 Dx positions. The most common chief complaints for visits with asthma were: Dx positions 1 and 2- dyspnea and asthma, and Dx positions 3–5- injury. 69,877 (19.9%) of the asthma visits had at least 1 procedure code assigned, those with asthma or cardiac procedure code are shown in Fig. 1.

### Conclusions

Restricting the definition of an asthma-related ED visit to the first diagnosis position may miss a substantial proportion of the asthma-related public health burden. Further analysis is in progress to evaluate the validity of these preliminary findings.

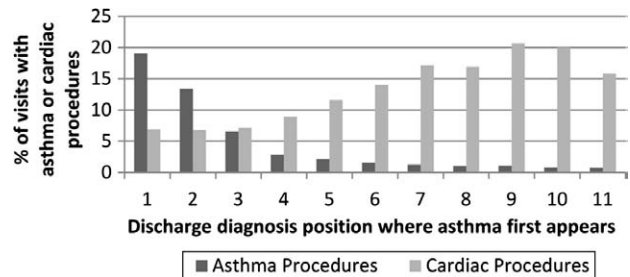


Fig. 1. Procedures by diagnosis position where asthma first appears.

### Keywords

Public health surveillance; ED data; asthma

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### References

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