

## Abstract

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### **Syndromic surveillance for monitoring health impacts of pollen exposure**

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#### Background

The National Allergy Bureau monitors pollen concentration by operating few pollen stations. Air pollen concentrations can vary within relatively short distances, and gaps in monitoring create local blind spots. We sought to determine if emergency department (ED) data can be used as a proxy for pollen counts and tracking pollen-related health outcomes. The National Syndromic Surveillance Program (NSSP) collects, analyzes, and shares electronic patient encounter data received from emergency departments along with other types of healthcare settings. Currently, 71% of the nation's emergency departments contribute data to NSSP and data are available within 24 hours of a patient's visit.

#### Methods

In a collaboration between CDC and the Georgia Department of Health (GDPH), daily pollen measurements were obtained from the Atlanta Asthma and Allergy Clinic monitor for 2017–2018. A syndrome definition was developed and reviewed for accuracy in categorizing ED visits related to pollen allergies during the same period. Pollen allergy-related ED visits captured by the syndrome were measured as a daily percent of all ED visits; for each day, the count of pollen-related visits was divided by the total number of ED visits for each of GDPH's health districts. Pollen allergy ED visits and 3-day average pollen monitor measurements were compared using Pearson correlation coefficients to estimate the association in each district.

#### Results

The five health districts near the monitoring station showed an association between allergy ED visits and pollen measures. Pearson correlation coefficients ranged from  $r = 0.13$  ( $P = 0.10$ ) to  $r = 0.51$  ( $P < 0.001$ ) for the 3-day average tree pollen counts and  $r = 0.09$  ( $P = 0.47$ ) to  $r = 0.51$  ( $P < 0.001$ ) for the 3-day average oak pollen counts.

#### Conclusion

The association between ED syndromic data with pollen measurements supports the further exploration of syndromic surveillance data to track pollen-related health outcomes.

Public health or related research

