poster ABSTRACT

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TITLE

Tracking Asthma-Related Emergency Department Visits and Ambient Air Quality in Maine: A PHASE'd Approach to Building an Environmental Public Health Tracking Module

THEME

Foster Collaborations Among Health and the Environment

KEYWORDS

asthma, ambient air quality, ozone, hospitalization, collaboration

BACKGROUND

Maine has a high prevalence of asthma and a large proportion of residents who live in ozone non-attainment areas. Maine's Environmental Public Health Tracking (EPHT) Program joined the Public Health Air Surveillance Evaluation (PHASE) team, a collaborative effort of the U.S. EPA, CDC, and grantee states of New York and Wisconsin, to evaluate ambient air quality models and implement linkage with respiratory and cardiovascular health outcomes.

OBJECTIVE(S)

The Maine EPHT Program's goals with the PHASE Project are to: 1) establish ongoing working relationships with state and federal environmental agencies; 2) obtain state-of-the-art data for ambient air quality; and 3) utilize these data and expertise to enhance Maine's EPHT module for tracking the association between asthma emergency department (ED) visits and ambient levels of ozone.

METHOD(S)

Air quality and meteorological data were obtained from PHASE collaborators at EPA. Daily maximum 8-hour average ozone concentrations and 24-hr average particulate levels were generated for several spatial scales based on three data models. One data set was generated from interpolations of air monitoring data alone, one data set generated predictions based on emissions data, and a third model statistically combined the former two outputs. The daily ozone estimates were assigned to zip codes and linked to asthma emergency department (ED) visits by zip code of residence. ED visits were identified from hospital records for the Portland, Maine hospital service area (2000–2002). Analytic data sets for bidirectional and time-stratified case-crossover studies were constructed using 1-3 day lag periods for ozone exposure, multiple referent periods, sex and age group strata, and meteorological confounders.

RESULT(S)

The PHASE collaboration has provided environmental data and expertise, which have been incorporated in formal case-crossover analyses to assess the association between ambient air quality and asthma ED visits in Maine. Specific results will be presented pending the advice of an expert panel.

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DISCUSSION/RECOMMENDATION(S)

The PHASE collaboration has provided Maine's EPHT with highly sophisticated environmental data and expertise. This will enhance the EPHT module for tracking the association between asthma emergency department (ED) visits and ambient levels of ozone. However, much work remains to be done to establish best practices for surveillance analysis and to establish a means for evaluating and enhancing the effectiveness of intervention efforts such as air quality alerts and public education.

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