

Topic area:Tracking Data

Tracking of hazard, exposure, and/or health outcome data

Title:

Linking asthma-related emergency department visits to ambient air monitoring data for Environmental Public Health Tracking in Maine.

Keyword(s): asthma, ambient air quality, ozone, hospitalization.

Background: Asthma prevalence in Maine is the highest of any state; a large proportion of residents live in ozone non-attainment areas. Wilson (2000) measured a 5% increase in asthma emergency department (ED) visits per 18 ppb increase in ambient ozone for the Portland HSA

Objective(s): 1) establish the feasibility of tracking the association between asthma emergency department (ED) visits and ambient levels of ozone; 2) evaluate the feasibility of including other regions, air constituents and health outcomes.

Method(s):

Asthma ED visits were identified from hospital records for the Portland, Maine HSA for 2000 through 2002. Relevant air quality and meteorological data were obtained from the EPA and Maine DEP. Total asthma ED visits were described by age, sex, and residence (town and zipcode); daily counts were compiled by age and sex strata. Maximum 8-hour average ozone concentrations were obtained for each day, with interpolations to zipcode centroids; data summaries included time trends and counts of “unhealthy” days. Data sets for bidirectional case-crossover analyses will be constructed using 1-3 day lag periods for ozone, a two-week referent period, sex/age group strata, and meteorological confounders.

Result(s): There were 4,326 asthma-related ED visits for the Portland HSA; the median age was 27 (ranging 0-94); 58% were female. Temporal trends exhibited the expected fall peaks and summer troughs. Ozone levels contributed to 27 “unhealthy” air days the Portland area from 2000-2002. Linking daily ambient ozone estimates to individual patients at the zipcode level is pending final data generation by the EPA.

Conclusion(s): Maine’s EPHT program has collected hospitalization records and ambient air quality data that are suitable for tracking associations with case-crossover analysis.

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