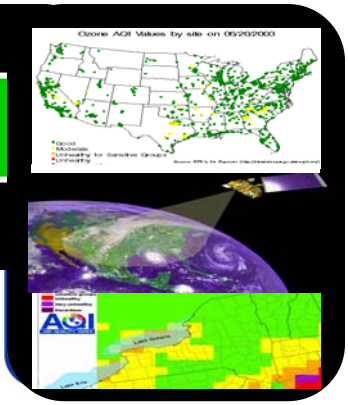
Public Health Air Surveillance Evaluation Project

BACKGROUND INFORMATION

Air Monitoring ❖ NASA Satellite Data ❖ Air Quality Models



Public Health Air Surveillance Evaluation (PHASE) Project

Evaluating, Developing, and Delivering Air Quality Characterization Data to Environmental Public Health Tracking Partners

Background: The Centers for Disease Control and Prevention (CDC) is working with the Environmental Protection Agency (EPA), state, academic, and other partners to develop a National Environmental Public Health Tracking (EPHT) Network. The EPA is developing routinely available air quality information and forecasting tools as well as indicators that can be used to help measure the success of its programs in terms of public health outcomes. The National EPHT Network is a possible mechanism for achieving these mutual goals of relating health surveillance data to environmental exposures.

Objective: To develop, evaluate, and demonstrate the advantages and limitations of different methods of generating air quality characterization surveillance data that can be systematically and routinely available to link with public health surveillance data as part of the EPHT Network. The evaluation portion of this project is scheduled for completion by September 2005.

Participating Organizations:
CDC's National Center for Environmental Health
EPA's National Exposure Research Laboratory
EPA's Office of Air Quality, Standards, and Planning
Wisconsin Division of Public Health
New York State Department of Health
Maine Bureau of Health

Air Pollutants:

- Ozone
- Particulate matter (PM)

Sources of Air Quality Characterization:

- Ambient air monitors
- NASA Satellite Aerosol Optical Depth
- EPA/National Oceanic and Atmospheric Administration (NOAA) Community Multiscale Air Quality Model
- Statistically Combined Sources

Air Quality Measures for Linkage:

- 24-Hour average PM concentration
- 1-Hour ozone concentration
- 8-Hour ozone concentration

Health Effects:

- Adult and pediatric asthma
- Acute cardiovascular endpoints
  - Myocardial infarction
  - Congestive heart failure
  - Stroke

Sources of Health Effect Data:

- Hospital discharge
- Mortality
- Emergency department (one state only)

Health Effect Measures for Linkage:

- Daily hospital/emergency department admissions
  - Residential address
  - Aggregated to zip code
  - Aggregated to city
  - Aggregated to county
- Daily mortality counts

Potential Public Health Actions:

- Assess Air Quality Index (AQI)/alert awareness and effectiveness
- Identify hot spots
- Predict hospital peaks/alert health providers
- Follow-up investigations
- Generate hypotheses

Selection of "Best" Air Data Generation Method:

- Evaluation criteria
  - Resource requirements
  - Ease of use
  - Spatial and temporal coverage
  - Compatibility with health data
  - Correlation with actual human exposure
  - Uncertainty quantification

Final Products:

- Matrix - Evaluation information for each method
- Results of each state linkage project
- Team recommendation of "best" methods
- Report on lessons learned

October 26, 2004