



**Meeting Notes**  
**Promoting a Data and Research Agenda on Air Quality and Health**

June 17, 2002  
University of New Hampshire  
Notes Prepared by Norm Anderson, Maine Lung Association

Participants: Tom Kelly, Cameron Wake, Adam Wilson, Holly DeBlois (UNH), Debra Martin (Jordan Institute); Rick Rumba (NH DES); Lindsay Dearborn (NHDHHS); Ed Miller, Norman Anderson, Edgar Caldwell (American Lung Association of Maine); Ron Deprez (Public Health Resource Group), Ivan Most (private consultant); Richard Clapp (Tellus Institute); Dave Brown (International Centre);

**Purpose of the Meeting**

Last year, the University of New Hampshire and the Jordan Institute hosted a meeting to help develop a research proposal (referred generally as the New England Integrated Sciences and Assessment, or NEISA, project) focused on investigating the relationships among climate, air quality, and adverse health outcomes such as asthma. They are also looking towards an ecological approach for framing research projects and motivating actions directed at improving social welfare. Through a series of follow-up conversations and meetings, we found that there were many points of common interest and concern between those involved with the NEISA project and the Lung Association. In particular, the American Lung Association of Maine and the Maine and New Brunswick Lung Association sponsored initiative called the International Centre for Air Quality and Health place a high priority on supporting research efforts focused on improving our understanding between air quality and health throughout the airshed and motivating actions to reduce air emissions. While independent from one another, we believed that there are many opportunities for the International Centre (as well as individual lung associations) and NEISA to support one another, and this meeting was held to further explore those opportunities.

**NEISA Proposal**

The NEISA proposal seeks to better define the relationships among climate, air quality, and health. It is also seeking to develop this understanding within a community context. This proposal will be submitted to the National Oceanographic and Atmospheric Administration (NOAA), and the investigators are seeking input from a variety of stakeholders regarding how to best design such a study. Particular features of this proposal include the following:

- Community involvement. This study seeks to the leaders in the study community so that the parameters can be better defined and so that the results may be most useful to health and environmental improvement efforts. This focus differs from most research designs, in that it includes community health systems. The current focus is on Manchester (NH), Portland (ME), and possibly Burlington (VT).
- Unique meteorology. The New England (and Eastern Canada) airshed has unique characteristics that warrant specific attention.
- Spatial and temporal resolution. The grid size for most climate models is too large to investigate local variations in weather and air quality. For ozone levels may vary significantly between the coast and sites 10-20 miles inland. A grid size of 200 kilometers is insensitive to these differences. In addition, measurements recorded at intervals of an hour or less may be necessary to properly assess what is happening with locally generated and transported pollutants.
- Hierarchy of health data. Severe impacts on health (mortality and hospitalizations from cardiopulmonary diseases) have been measured in response to air pollution episodes. Data are generally available regarding these effects. However, these outcomes do not represent the full spectrum of effects. Furthermore, measuring these effects alone may not be sufficient to investigate the relationships between fluctuating air pollution levels and health. More sensitive measures include physician visits for asthma, lost workdays/schooldays, school nurse visits, symptoms (such as those recorded in diaries), and pulmonary function measurements. Obtaining such data, however, would probably entail in most cases some sort of new mechanism of data gathering, as well as the cooperation of local schools or businesses. There are resource and confidentiality issues involved, as well as the need to engage the support and participation of local/state health departments and health practitioners. Pulmonary function measurements (flow-volume loops) in a prospective study might provide valuable information in that they represent a continuous (as opposed to discrete) variable. There are problems with standardization and interpretation, however. These are among the challenges that must be considered in the design of the proposal.

We spent some time discussing who should be consulted at an early stage on this effort, including investigators at the Harvard School of Public Health (Mike Wolfson, Doug Dockery, Joel Schwartz) and representative from organizations such as the International Society for Environmental Epidemiology.

### **The International Centre**

The Lung Associations of Maine and New Brunswick have recognized the need to establish an “airshed-wide” framework for promoting actions to improve air quality and human health. Over the past year, the Centre has conducted a variety of outreach efforts directed towards identifying the need and value for such a framework and the possible role of the Lung Associations in bringing that framework forward. We found strong endorsement for the idea and for the Lung Association to take a lead role in this effort. Particularly, we identified the following needs that the Centre could address:

- Have a centralized source of credible information and network opportunities
- Have a link between various organizations with similar goals; create new alignments

- Educate and engage the public
- Facilitate new research that coordinates effort and fills knowledge gaps
- Coordinate the gathering and analysis of community air quality and health data
- Track changes in air quality, health, and legislation
- Better link environment with health strategies

We identified linkages between the Centre and UNH in all of these key focus areas.

### *Centre Philosophy*

We discussed the basic philosophy of the Centre. For example, should it be modeled after the Lung Association's approach to the tobacco industry (which is fundamentally adversarial), or are alternative approaches needed? We discussed the fact that pollution does not rise from a single entity or industry, and involves behavior in which we all share a role in our choices of energy and transportation. Policy considerations should not be limited to the traditional command and control often played out in legislative hearing rooms. Models such as the successful toxics use reduction effort in Massachusetts were discussed. We also discussed the positive ergonomics changes in business using a market based approach following a failed regulatory process. We generally agreed on the need to involve business and industry (currently absent in the discussion) in a positive way, while noting that the profit motive clearly exists.

### *Organization*

Currently the Centre is a Lung Association directed effort. We recognized that we need to develop more clarity with regard to how others would participate. For example, what role would academic institutions, other non governmental organizations, the business community, the public sector (eg, health departments, NESCAUM), and individual researchers play. We noted that there could be significant benefits to academic institutions to align with the Centre, and vice versa.

We discussed how we might model the Centre's organization and operation on other successful regional actions, such as those associated with more traditional public health or environmental issues. There may be lessons to be learned.

### **Data and Research Issues**

We discussed the importance of considering the actual physiology of air pollution health effects and the implications for monitoring and assessment. Specifically, if the effects of particulate matter are mediated by a smooth muscle effect, both the averaging times and the constellation of health endpoints may require serious rethinking. Dave Brown presented information on the exposure variability among school children to diesel particulates. His study, while involving only a limited number of children (15-16), was among the first to bring the potential seriousness of this exposure situation to light, and was an example of examining an environmental exposure within a model based on the type of response it could evoke.

We also noted the willingness of regulatory agencies in both the US and Canada to develop and present meaningful exposure measurements.

## **Model Development**

Much of what we discussed in terms of the Centre involved model development as instruments for action. The Centre should function as a means to synthesize research findings in ways that are useful to effective policy actions throughout the airshed. An example is expanding the Ontario Medical Association health costs of air pollution study to the entire eastern Canadian/northeastern US airshed. Such a focus should help the Centre place priorities on the type of research it promotes, and how it establishes relationships with researchers and the institutions with which they are affiliated.

## **Next Steps**

We all felt it was important to continue the conversation, and use a meeting format such as this one as a forum to better link health/environmental research with health improvement strategies (education, public policy, constituency building, advocacy).

A couple follow-up ideas were discussed.

- Workshops. Perhaps under the auspices of the International Centre, host a meeting focused on clarifying the design of a health costs of air pollution study. Invite the experts in the field to participate. This could be a means of gaining peer review and support for such an analysis, particularly in the US.
- Assist with stakeholder process regarding the NEISA study. Help identify a “panel” of researchers within the airshed who can provide assistance to Cameron on the design of the study.
- List serve. A list serve could be a relatively quick and easy means of maintaining communication among the group, and to expand the network of participants.

We also briefly discussed the idea of meeting again in the late fall, possibly in conjunction with a workshop.