

Air Quality and Health Workshop 2009

Preliminary Program

March 26-27, 2009

Sheraton Vancouver Wall Centre Hotel Vancouver, BC, Canada (as of January 20, 2009)

Theme:

"From Good Intentions to Proven Interventions: Effectiveness of Actions to Reduce the Health Impacts of Air Pollution"

Workshops focus and target audience

The focus on the workshop is to provide a forum to discuss the current evidence regarding actions that effectively reduce the human health impacts of air pollution. The opportunities to reduce these impacts range from community air quality management strategies to individual actions to reduce exposure or biological effects. To develop a full understanding of these opportunities and to effectively realize their potential will require interactions between air quality managers, scientists and policymakers; public health practitioners; providers of health care to patients; and non-governmental organizations. As our growing understanding of the population health impacts of air pollution has led to much of our current orientation for air quality monitoring, management and policy development, this workshop in particular aims to develop an understanding for air quality managers of the potential for individual actions to reduce impacts and the current state of evidence regarding effectiveness.

Learning Objectives

1. To provide a forum to discuss the current evidence regarding actions which effectively reduce human health impacts of air pollution
2. To develop a full understanding of these opportunities and to effectively realize their full potential in reducing health impacts
3. To develop an understanding for air quality managers of their potential for individual actions to reduce impacts and the current state of evidence regarding effectiveness

THURSDAY, MARCH 26, 2009

12:00 – 1:00 REGISTRATION

1:00 – 1:10 WELCOMING REMARKS/ OVERVIEW

Dr. Ray Copps, BC Centre for Disease Control

Mr. Scott McDonald, British Columbia Lung Association

Mr. Glen Okrainetz, Ministry of Healthy Living and Sports

1:10 – 2:00 KEYNOTE

Keynote Introductions: Dr. Tom Kosatsky

Keynote: *"The Attributable Benefits of Collective, Behavioural, and Medical Measures in Reducing the Health Impacts of Air Pollution."*

Speaker: Dr. Nino Kunzli, (CREAL-IMIM)

At the completion of this session attendees will be able to:

- describe the major population health impacts of air pollution.

- understand the locus of measures to control the health impacts of air pollution.

2:00 – 2:20 COFFEE BREAK**Actions at the Individual Level :** *“What can mechanisms for damage tell us about the possibilities for intervention?”*

To set the framework for later presentations that describe actions that can reduce air pollution health impacts, this session will provide a general introduction to the mechanisms by which air pollutants lead to adverse health impacts. Individual presentations are geared towards providing the non-medical audience with a basic understanding of how air pollutants lead to disease and what opportunities for intervention may be feasible given this understanding. Medical specialists will benefit from these state-of-the-art descriptions of the current understanding of biological mechanisms related to air pollution impacts.

Learning Objectives

1. To provide a general introduction to the mechanism by which air pollution leads to adverse health effects
2. To provide non-medical audience with basic understanding of how air pollutants lead to disease
3. To discuss feasible interventions that might help mitigate the adverse health effects from air pollution
4. To provide medical specialists with the state-of-the art descriptions of current understanding of biological mechanisms related to air pollution impacts

Moderator: Dr. Tom Kosatsky

2:20 – 2:50 AIR QUALITY AND CHRONIC HEART DISEASE (ACUTE AND CHRONIC EFFECTS)

Speaker: Dr. Joel Kaufman, University of Washington, Seattle, WA, USA

At the completion of this session attendees will be able to:

- describe recent evidence linking fine particulate air pollution to heart disease
- discuss controversies in understanding how air pollutants might impact cardiovascular health.

2:50 – 3:15 IMPACT OF AIR POLLUTION ON BLOOD VESSELS AND HEART DISEASE

Speaker: Dr. Stephan van Eeden, St. Paul's Hospital, UBC, Vancouver, BC, Canada

At the completion of this session attendees will be able to:

- describe inflammatory mechanisms of air pollution at the pulmonary, cardiovascular, and systemic levels.
- discuss the role of various inflammatory markers and their value in assessing exposure and predicting adverse outcomes of air pollution.

3:15 – 3:40 SUDDEN CARDIO-RESPIRATORY EFFECTS OF TRANSIENT EXPOSURE TO HIGH PARTICULATE LEVELS

Speaker: Dr. Audrey Smargiassi, Quebec Institute of Public Health/University of Montreal, Montreal, QC, Canada

At the completion of this session attendees will be able to:

- understand the current evidence on the cardiovascular effects of exposure to short-term peaks of ambient fine particles.
- integrate their understanding of the effects of short-term pollutant exposure into advice on health risks and optimal preventive measures.
- understand limits to their interventions due to knowledge gaps.

3:40 – 4:15 AIR QUALITY AND CHRONIC LUNG DISEASES

Speaker: Dr. Chris Carlsten, University of British Columbia, Vancouver, BC, Canada

At the completion of this session attendees will be able to:

- understand the evidence for the role of air pollution in exacerbating chronic lung disease.
- evaluate the evidence for the role of air pollution in initiating chronic lung disease.

4:15 – 4:45 PANEL DISCUSSION: “Determinants of the Risk to Health Care Given Exposure”**6:00 – 7:00 DR. DAVID BATES MEMORIAL LECTURE “ MEASURING EFFICACY OF AIR POLLUTION CONTROL”**

Speaker: Dr. Doug Dockery, Harvard School of Public Health, Boston, MA, USA

FRIDAY, MARCH 27, 2009**Actions at the Individual Level: Basis for Dietary, Pharmacologic, and Activity-Reduction Recommendations**

As the understanding of the mechanisms by which air pollution results in adverse impacts has developed, opportunities have arisen for individual actions to mitigate these effects. This session will describe the growing body of evidence supporting effective dietary and pharmacologic interventions as a means to reduce harmful impacts of air pollution exposure. A critical analysis of the weight of evidence that is required before such interventions can be broadly implemented will open the session.

Learning Objectives

1. To describe the evidence supporting dietary and pharmacologic interventions to reduce adverse health effects of air pollution
2. To analyze the evidence to support implementation of these interventions
3. To discuss how effective these interventions are in mitigating the health impacts of air pollution
4. To discuss the policy implications of these interventions

Moderator: Dr. Chris Carlsten

8:00 – 8:30 REGISTRATION**8:30 – 8:50 EVIDENCE AND AIR POLLUTION HEALTH INTERVENTIONS**

Speaker: Dr. Sverre Vedal, University of Washington, Seattle, WA, USA

At the completion of this session attendees will be able to:

- describe study designs used to assess the effectiveness of pharmacologic and dietary interventions to reduce or prevent respiratory and cardiovascular effects of air pollution.
- identify challenges to performing these intervention studies and the challenges interpreting their findings.
- evaluate evidence (both experimental and observational) on the effectiveness of interventions.

8:50 – 9:15 EFFECTIVENESS OF DIETARY AND PHARMACOLOGIC INTERVENTIONS IN REDUCING IMPACTS OF AIR POLLUTION (BRONCHODILATORS, ANTIOXIDANTS, OMEGA 3 FATTY ACIDS)

Speaker: Dr. Isabelle Romieu, Mexico

At the completion of this session attendees will be able to:

- describe the mechanisms by which acute respiratory effects of air pollutant exposure might be mitigated.
- describe the epidemiologic evidences of the effectiveness of these measures.
- discuss how these evidences might influence patient care and its policy implications.

9:15 – 9:40 EFFECTIVENESS OF DIETARY AND PHARMACOLOGIC INTERVENTIONS IN REDUCING CARDIOVASCULAR IMPACTS OF AIR POLLUTION (ACTIVITY REDUCTION, STATINS, ANTI-INFLAMMATORIES)

Speaker: Dr. Murray Mittleman, Harvard School of Public Health, Boston, MA, USA

At the completion of this session attendees will be able to:

- describe mechanisms by which acute cardiovascular effects of air pollutant exposure might be mitigated.
- describe the epidemiologic evidence that these measures are efficacious.
- discuss how these evidences might influence patient care and its policy implications.

9:40 – 10:10 PANEL DISCUSSION: *“What Should We Advise Now? And to Whom?”*

10:10 – 10:30 COFFEE BREAK

FRIDAY, MARCH 27, 2009

Actions at the Individual Level: Basis for Exposure Reduction

Air quality management and related public health efforts are geared towards population-level risk reduction. To date these have largely focused on reducing concentrations of pollutants in ambient air. Human Exposure, however, is a function of both the pollutant concentrations and the interactions of individuals with pollutants over space and time. Given the large amount of time that the individuals spend in indoor environments, individual actions related to locations, control of air quality within buildings and activities that may impact exposure and inhaled doses also provide opportunities for exposure and risk reduction. This session will discuss the exposure reduction that can be achieved within the indoor environment, features that modify this reduction and the impact of varying activities on pollutant exposure. The goal of this session is to discuss individual actions that can effectively reduce pollution exposure.

Learning Objectives

1. To discuss the exposure reduction that can be achieved within the indoor environment, features that modify this reduction and the impact of varying activities on pollutant exposure.
2. To discuss individual actions that can effectively reduce air pollution exposure.

10:30 – 10:55 INFILTRATION OF OUTDOOR AIR POLLUTON: HOW MUCH DOES STAYING INDOORS REDUCE EXPOSURES (PM AND OZONE)

Speaker: Mr. Ryan Allen, Simon Fraser University, Burnaby, BC, Canada

At the completion of this session attendees will be able to:

- describe measurement and modeling approaches used to quantify the extent of infiltration of air pollutants into indoor residential environment.
- identify the average level of PM and Ozone exposure reduction that can be achieved by remaining indoors and the variability in this level between typical residences in a single airshed.
- discuss the relative importance of different factors that impact the level of pollutant infiltration.

10:55 – 11:10 AIR CLEANERS EFFECTIVENESS

Speaker: Ms. Prabjit Barn, MSc., BC Centre for Disease Control, Vancouver, BC, Canada

At the completion of this session attendees will be able to:

- describe the various types of air cleaners widely available to the public and their mechanism of operation.
- review the evidence for the effectiveness of air cleaners in reducing indoor concentrations of particulate matter (and other common air pollutants).
- review the evidence for the effectiveness of air cleaners in reducing health impacts associated with air pollution exposure.

11:10 – 11:40 EFFECTS ON EXPOSURE AND DOSE OF CHANGING ACTIVITIES AND/OR LOCATIONS

Speaker: Dr. Dave Stieb, Health Canada, Ottawa, ON, Canada

At the completion of this session attendees will be able to:

- understand the impact of level of exertion on air pollution dose.
- understand the relative concentrations of selected pollutants:
 - in different microenvironments, including indoors, outdoors, vehicles
 - at different times of day.

11:40 – 12:15 PANEL DISCUSSION: "How can Individuals Best Cope With Outdoor Air Pollution?"**12:15 – 1:45 LUNCH/PRESENTATION OF DR. ROBERT CATON AND DR. DAVID BATES SCHOLARSHIPS**

Presentors: Ms. Kathy Preston, RWDI and Ms. Elizabeth Caton

Actions at Community Level: Exposure Reduction

Air Quality management has largely focused on community-level actions. Evidence that such actions actually lead to population health improvements is difficult to obtain. This session will provide some examples of studies to assess the effectiveness of community air quality management programs on exposure and health impact reduction.

Learning Objectives

1. To provide some examples of studies to assess the effectiveness of community air quality management programs on exposure and health impact reduction.

Moderator: Mr. Glen Okrainetz

1:45 – 2:10

THE LONDON CONGESTION AND ITS IMPACT ON ENVIRONMENTAL HEALTH

Speaker: Dr. Shakoor Hajat, London School of Hygiene and Tropical Medicine, Liverpool, UK

At the completion of this session attendees will be able to:

- describe the characteristics of the London congestion charge scheme and its implementation.
- discuss the evidence supporting the impact of the congestion charge on ambient air quality, population exposure and measures to human health.
- recognize the challenges in demonstrating the impact of the congestion charge of the population health.

2:10 - 2:35

THE LIBBY MONTANA WOODSTOVE EXCHANGE

Speaker: Dr. Curtis Noonan, University of Montana, Montana, USA

At the completion of this session attendees will be able to:

- understand the approach used in implementing a community-wide woodstove exchange program as a strategy for achieving compliance with ambient air quality standards.
- describe changes to particulate matter concentrations and reporting of respiratory symptoms and health conditions during the woodstove program.
- recognize the challenges in demonstrating the impact of stove exchange programs on population health.

2:35 – 3:00

THE CALIFORNIA EXPERIENCE: ESTIMATING THE IMPACTS OF CARB ON THE HEALTH OF CALIFORNIANS

Speaker: Mr. Jeff Austin, California Air Resource Board, Los Angeles, CA, USA

At the completion of this session attendees will be able to:

- learn the key elements of California's air pollution control strategy over the last four decades.
- discuss basic techniques for projecting ambient air pollution levels in the future.
- review the estimated impact of CARB management strategies on population health in California.

3:00 – 3:30

PANEL DISCUSSION: "*Comparison of Community Approaches to Pollutant Exposure Reduction*"

3:30 – 3:50

COFFEE BREAK

3:50 – 4:10

LOOKING AHEAD – REAL PROSPECTS FOR REDUCING IMPACTS OF AIR QUALITY ON HEALTH

Speaker: Dr. Nino Kunzli, CREAL, IMIM

At the completion of this session attendees will be able to:

- describe gaps in air quality issues and what can be done to address the issues.
- identify directions, focus for future research.
- summarize the discussion.

4:10 – 4:40 PANEL DISCUSSION:

Panel Discussants: *Dr. Doug Dockery, Dr. Nino Kuenzli, Dr. Tom Kosatsky, Dr. Mike Brauer, Dr. Chris Carlsten,
and Mr. Glen Okrainetz*

Moderator: *Mr. Martin Mullan*

4:40 – 4:45 CLOSING REMARKS AND EVALUATION