

## Outdoor air quality: A primer for BC physicians

Tom Kosatsky, MD

Two new information tools are available to assist physicians in responding to patient concerns about air pollution and to help interpret public air-quality health messaging. The primer offers essential background on air pollution and its effects on health and provides a series of tips on how to decrease vulnerability to those effects. An appendix provides a guide to interpreting BC air-quality advisories and the new Air Quality Health Index. The primer, with its many web-accessible references, can be downloaded at [www.bc.lung.ca](http://www.bc.lung.ca) or [www.bccdc.ca](http://www.bccdc.ca). It was mailed to BC physicians this summer. Here are some highlights.

### The health effects of air pollution

Air pollution affects the health of British Columbians. Health effects have been demonstrated even in areas with relatively low levels of air pollution.

Epidemiologic studies of long-term (months to years) exposure to air pollution show increases in risk of death from lung cancer and cardiopulmonary diseases. Health effects associated with long-term exposure include:

- Accelerated development of atherosclerosis.
- Increase in systemic inflammatory markers.
- Impaired lung development in children.
- Increased incidence of asthma and asthma exacerbations.
- More frequent preterm births and low birth weight babies.
- Increased rates of otitis media.

Short-term exposure (hours and days to weeks) to air pollution has

been associated with increased hospitalizations and deaths due to cardiovascular and respiratory causes. Generally, respiratory effects have been associated with exposure to ozone and cardiovascular effects with exposure to fine airborne particles. Health effects associated with short-term exposure include:

- Increased rates of myocardial infarction in those with risk factors for cardiovascular disease.
- Increased incidence of cardiac arrhythmia.
- Exacerbation of obstructive respiratory illness (e.g., asthma and COPD)
- Respiratory inflammation and irritation.
- Reduced lung function.

For most people air pollution may be a relatively minor risk, especially over the short term. However, studies of large populations indicate measurable health effects on susceptible individuals and substantial public health impacts. Controlling underlying cardiac and pulmonary diseases decreases the effects of air pollutants.

### Health burden for BC residents

A 2008 Canadian Medical Association estimate for BC projected 306 premature deaths, 1158 hospital admissions, 8763 emergency department visits, and 2 526 900 minor illnesses related to air pollution during 2008. The majority of these are attributable to long-term exposure to air pollutants.

### Ways to lower exposure outdoors

Commuting is a significant contributor to air pollution exposure; reducing time spent in traffic can reduce exposure. When considering where to live

and work, people should ideally choose a location that is more than 150 metres away from major roads. High pollutant concentrations can be found up to 750 metres from truck routes. Walking or exercising away from busy roads or smoky areas can reduce exposure to particulate matter. In the summer, engaging in outdoor activity in the early morning or later evening may reduce ozone exposure.

### Pollutants and staying indoors

Some outdoor pollutants efficiently penetrate indoors. Installing HEPA filters in forced-air furnaces may reduce indoor exposure to particles. Ozone concentrations are usually lower indoors. Stand-alone air cleaners can reduce particulate levels, but it is important to select non-ozone-generating models. See [www.arb.ca.gov/research/indoor/o3g-list.htm](http://www.arb.ca.gov/research/indoor/o3g-list.htm).

### Air pollution, medication, and diet

Optimal use of cardiac and respiratory medications can offer some protection against air pollution related effects on health. Omega-3 fatty acids and vitamins C and E, taken as supplements, may limit the effects of exposure to high levels of air pollution. However, there are currently no established recommendations for the routine use of specific dietary supplements to prevent the effects of air pollution.

*Continued on page 290*

---

Dr Kosatsky is a community medicine specialist and acting director of the Environmental Health Services Division of the BCCDC. A fully referenced version of this article is available from the author at [tom.kosatsky@bccdc.ca](mailto:tom.kosatsky@bccdc.ca).

## Book review

***The Complete Canadian Guide to Prostate Cancer*** By Leah Jamnicky, RN, Robert Nam, MD. John Wiley and Sons Canada, Ltd., 2008. ISBN 978-0-470-15767-1. Softcover, 256 pages. \$24.95.

In a very readable and down-to-earth style, Ms Leah Jamnicky, a urology clinic coordinator at the University Health Network in Toronto, and Dr Robert Nam, a University of Toronto urologist, provide a thorough but succinct discourse on the issues faced by a man who is newly diagnosed with prostate cancer and the issues he and his spouse will have to contend with. Beginning with an explanation of the anatomy and physiology of the male urogenital tract, the authors quickly dive into a discussion of the various risk factors for prostate cancer and how both the digital rectal exam and prostate specific antigen tests can be used in screening. After briefly discussing benign prostatic hyperplasia and its management, they move onto the details of each of the treatment modalities for prostate cancer, including active surveillance, radiotherapy, surgery, and adjuvant therapies. While quite heavy on the details surrounding hospital visits leading up to and including surgery, the authors provide relatively little discussion of the cur-

rent controversy surrounding the indications for each of these modalities. However, these discussions are perhaps better had within a clinical visit between a patient and his urologist given the patient-specific nature of this issue.

A great deal of the book then discusses the fallout of prostate cancer treatment from the mundane but necessary topics of catheter care and Kegel exercises to the intricacies of male self-identity following such a procedure, with particular attention spent discussing sex following prostate cancer. The authors are systematic in their explanation of the causes of erectile dysfunction and reasonable in the expectations they lay before the reader, highlighting the role of the partner relationship in addition to medical and surgical treatments. The final discussion is on medications ranging from hormone treatment of prostate cancer to general anesthetics and medications for treating incontinence and erectile dysfunction.

The authors summarize the most pertinent information in an extremely accessible manner in helpful tables, simple diagrams, and key-point boxes. In addition, there are quotes from the authors' patients interspersed where relevant to the topic at hand. The quotes are helpful and in some cases reassuring rather than trite as I

feared they might become.

While much of the book will be overly simplistic for the general practitioner and urologist, the chapters on the sexual aspects of prostate cancer and its treatment as well as the particular issues surrounding prostate cancer for homosexual men are worthwhile reading for all health care providers who care for men with prostate cancer—medical students, nurses, GPs, and urologists alike. For the targeted audience of patients and their partners, this book hits the mark and I believe will prove to be extremely helpful in alleviating much of the fear of the unknown that comes with a diagnosis of prostate cancer. As such, I would recommend this book to friends, family, and patients.

—**Christopher J.D. Wallis**  
Class of 2011  
UBC Faculty of Medicine

---

bc centre for disease control

*Continued from page 282*

## Air-quality messaging

The Air Quality Health Index (AQHI) is a tool recently introduced to indicate the immediate risk to health of current and near-future levels of three monitored air pollutants.

---

## Acknowledgments

This primer was prepared with the assistance of Dr Michael Brauer, Dr Chris Carlsten, and Ms Nina Clark (UBC School of Environmental Health and Centre for Health and Environment Research); Drs Tom Kosatsky, Ray Copes, and Deena Hinchshaw (BCCDC); Dr Menn Biagtan (BC Lung Association); and Ms Natalie Suzuki (Ministry of Healthy Living and Sport).

## THE WHIPLASH DOCTORS



There is a need for physicians who are interested in treating patients who have soft tissue injuries from car accidents. We are a **REFERRAL SERVICE** connecting interested physicians with whiplash patients. Our referral service offers many benefits, including the following:

- + **no cost** to physicians
- + **completely obligation-free**
- + can opt out at any time
- + **non-MSP** income via report writing
- + your profile on our website
- + protected areas (1 per city)

**PLEASE CALL LISA AT (604) 583-3900** for more information.