

Health and environment: What are the links?

Since the time of Hippocrates, physicians have been aware of the environment as a factor affecting human health. More recently, the physical environment has been recognized as one of the determinants of health. In recent decades there has been a substantial increase in the number of research studies linking environmental factors to effects on human health. Traditional environmental health

between contaminants in drinking water and human health, we really have little or no idea of the burden of illness in Canadians that is attributable to exposure to pathogens, chemicals, or radionuclides in drinking water.

Our knowledge of the extent of illness attributable to food is hardly better. Periodically, outbreaks of food-borne illnesses resulting from contaminants, generally pathogens, are

adverse effects on health. Although we know most people spend over 90% of their time in indoor environments breathing indoor air, our knowledge of the effects of indoor air on human health lags that of that of outdoor pollutants.

Yet, despite societal interest about the effects of the environment on human health, and an ever-expanding body of research studies linking agents commonly found in our environment with adverse effects on health, we still have difficulty in answering questions about how large a public health problem is created by environmental pollutants.

Why? With the possible exception of our monitoring of air pollutants, we still lack any comprehensive surveillance systems for environmental exposures and risk factors. We do not have consistent national databases that track trends in contaminants in drinking water, foods, or the indoor environment. Unlike many other countries, including the United States, there is no tracking of contaminant levels in the blood and other body fluids of Canadians. Without this type of tracking of exposures, it is difficult to know what is getting better and what is getting worse. Where are our regulations and other interventions having an effect; where are they ineffective? Which exposures and sources should take on higher priority? Are there places where we can relax our efforts because we have done all that is useful to do?

These are important questions for the health of Canadians and ones where more action is required to generate an adequate information base for sound decision making.

—Ray Copès, MD
Council on Health Promotion

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programs—dealing with food, drinking water, and sanitation—have been supplemented and in some cases overshadowed by regulations and programs addressing air pollutants and discharges to water and soil.

Given the level of scientific activity, societal interest, and government response to environmental issues with implications for human health, it is surprising how little is known about the health outcomes in the Canadian population that can be attributed to environmental factors, both in absolute and relative terms.

We are well aware that drinking water can affect human health; the still-recent example of Walkerton bears eloquent and tragic testimony to this. Epidemiologic studies carried out in Canada and elsewhere have established links between disinfectant by-product levels in drinking water and the risk of bladder and colorectal cancer. However, despite clear links

detected. The contaminants are introduced during production, processing, or preparation of food. However, this really does not present a complete picture of the burden of illness from food contaminants in Canada. Diet is an often underappreciated source of exposure to chemical contaminants originating in the environment; over 95% of the general population's exposure to substances such as dioxins and many other chlorinated organic compounds comes through diet, yet our understanding of how these substances enter the food supply is relatively weak.

Our understanding of the effects of outdoor air pollutants on human health has undergone a radical reappraisal in the last couple of decades. Levels of common air pollutants such as fine particulate matter are now linked to hospitalization and mortality from cardio-respiratory diseases at levels frequently found in many cities, and previously believed to be without any