Editorial

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What constitutes environmental health?

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Many people view "environmental health" as a relatively limited discipline, but I do not agree with that. Let us take several examples. Everyone would agree that mosquito-borne diseases, like malaria, Zika and dengue, are environmental diseases because they are transmitted by a vector. But what infectious disease is not transmitted by a vector? Granted that many infectious diseases are transmitted from person to person, but in those cases the vector is a human. Still others are transmitted by contaminated water, air or food, again via an environmental medium. So almost all infectious diseases are "environmental"! Endocrine disruption resulting from exposure to chemicals that alter sex hormones and thyroid function, and probably other hormonal systems as well, are being found to have life-long perturbations of hormonal physiology, especially when exposure is prenatal or early in life. Air pollution and its associated adverse health effects are clearly "environmental", and cause human disease ranging from allergy and asthma to respiratory infections and cancer.

What about cancer? It is generally accepted that only a small percentage of cancer can be explained solely based on genetics. That is not to say that genetics is unimportant, but many (perhaps most) cancers are a result of gene-environment interactions. We have increasing understanding of epigenetic changes, often reflected as DNA methylation patterns that in many cases are a consequence of exposure to environmental contaminants. Many other chemicals cause gene inductions and have the potential to lead to cancer and many other diseases. So most cancers are "environmental".

Diseases that have previously not been considered to be at all related to environmental exposures are now being reported to have chemicals as major risk factors. This includes diabetes, cardiovascular disease, hypertension, disorders of immune system function, altered reproduction and even diseases of bones and joint. We find that many chemicals can act as "obesogens", altering function of adipocytes and causing obesity, often acting early in life to lead to life-long health problems. Many of these diseases, including cancer, are often ascribed to "life-style". But what is life-style but things like smoking (an enormous chemical exposure), eating foods that contain dangerous chemicals and choosing to be exposed to sources of environmental pollutants. This is certainly not to deny non-environmental factors in the cause of human disease, but only to emphasize how important environmental exposures are.

This issue of *Reviews on Environmental Health* contains papers that cover the whole range of environmental exposures that cause human disease. Three papers focus on respiratory diseases, one from particulates and volatile organic chemicals association with the process of fracking, another with asbestos, a disease-causing chemical that everyone must agree to be environmental, and one on the range of respiratory diseases resulting from air pollution. One review focuses on kidney disease resulting from chemical exposure – yet another example of an organ disease not usually considered to be environmental. Injury is clearly an environmental disease and we have one paper on musculoskeletal injury in the film and motion picture industry. We have one paper on diseases of environmental intolerance, in this case fibromyalgia. And finally we have a publication on the environmental health impacts of war. The tragedy of war is not only the immediate death and destruction but also the long lasting exposure to the chemicals of war. These manuscripts demonstrate the breadth and importance of the field of environmental health.

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