Environmental Challenges Facing Public Health in 2016

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Since the origin of academic Schools of Public Health in the 19th century, the study of our environment has been part of the public health research agenda and our teaching curriculum. In the first few months of this year, the importance of environmental health and toxicology has again come to the fore in public health debate through major public health challenges to water supplies and the environment.

This year, it is the 110th anniversary of the 1906 publication of Upton Sinclair's novel The Jungle, which described pollution and contamination in the Chicago meatworks. This book led to an expansion of food hygiene in Schools of Public Health, the enactment of food safety law in the United States, and the beginning of the Food and Drug Administration.¹ ³ This novel is a "must read" for all public health academics and students, as among other things it shows the power of the printed word.¹ More recently, scandal has erupted in the neighboring state to Chicago, in Flint, Michigan, where a contaminated water supply has exposed many to high levels of lead and other toxins. Rosner has highlighted a long history of social environmental and public health problems that have beset the community of Flint.⁴ The recent water contamination in Flint, Michigan, has shown no society is exempt from environmental hazards when costs are cut or profits maximized at the expense of public health.

As the world population continues to grow and standards of development rise, the range of chemicals that we are potentially exposed to continues to increase. Highly toxic chemicals can remain in use for many decades despite continuing morbidity and mortality. Paraquat is a highly efficient, but deadly herbicide that is banned in Europe, but still widely used in Asia.⁵ A tiny amount ingested causes an agonizing death by lung fibrosis.⁶ Another herbicide that continues to engender controversy is glyphosate, which was classified by the International Agency for Research on Cancer as a carcinogen in 2015.⁷ Since much of the world’s food supply depends on this product, the decision was reviewed by other organizations, including the European Food Safety Organisation. The latter declared the product to be safe, but was criticized for only including 6 industry-funded studies in its review.⁸ The classification of glyphosate continues to produce controversy.⁹

The use of chemicals in our environment has led to research demonstrating that some are endocrine disruptors, and there is concern about the long-term effects of exposure of children on health and even a possible role in the etiology of obesity.¹⁰,¹¹

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At first glance, there seems to be little relationship between herbicides and e-cigarettes. Yet e-cigarettes contain a number of toxic compounds that pose a public health threat that is proving difficult to evaluate. These are being pushed on the public as a safer alternative to tobacco use, which they are not. There is no evidence that they assist in giving up tobacco addiction and present the user with a whole new range of respiratory and cardiovascular hazards. Use of e-cigarettes in the home introduces children to a new range of toxic exposures. These are but a few examples of the toxic chemical environment that public health is called on to manage. It is a difficult because of the scale of human exposures and the numerical and political strength of those who profit from marketing. Risk has to be balanced with the need to promote the overall health and nutrition of our communities. This requires a strong grounding of our public health graduates in epidemiology, risk management, and environmental assessment. We call on all Schools of Public Health in our region to increase their education efforts in assessing environmental hazard exposures, to eliminate potentially risky chemicals from our water and food supplies, and to eliminate the newly emerging pollution hazard of e-cigarettes.

References