



Book Reviews

Hyping Health Risks: Environmental Hazards in Daily Life and the Science of Epidemiology

By Geoffrey C. Kabat

ISBN: 978-0-231-14148-2, Columbia University Press, Irvington, New York (Telephone: 914-591-9111, Fax: 1-800-944-1844, E-mail: cup_book@columbia.edu, World Wide Web: <http://cup.columbia.edu>), 2008, 272 pp., \$27.95 Hardcover

For a scholarly book in epidemiology, *Hyping Health Risks* by Geoffrey C. Kabat is more reflective and opinionated than most and even has somewhat of a plot. Few books about epidemiology generate a visceral in addition to a solely cerebral response. On reading the book, I found passages causing offense and others eliciting support for Kabat's thoughtful and articulate laments. For the most part, the story of truth and misrepresentation of evidence on health risks was engaging, including personal portraits of good and evil intent. However, I did not always agree with the author on who belonged to which category and often found myself thinking, "that's not quite the whole story; it's more complicated than that," or "I can see why you'd interpret it that way, but I don't." Perhaps, being provocative in that way is a real credit to the author.

Kabat has written a fairly succinct treatise (272 pages, but small print) making the case that environmental health concerns have been given undue attention and too much funding and have been subjected to insufficient critical evaluation for a variety of reasons that run counter to good science. The bulk of the book consists of 4 lengthy, self-contained vignettes on the pursuit of environmental contaminants as a cause of breast cancer and the evaluation and interpretation of health effects of exposures to electromagnetic fields, indoor radon, and environmental tobacco smoke. The exaggerations by advocates to generate support for these issues and claimed censoring of critics are portrayed as the product of self-serving, funding-hungry researchers; well-intentioned, but misguided political activists; exploiters from the media or real politics; and, more broadly, societal tenacity in pursuing the wrong things in the wrong way rather than the right things in the right way. While the author does allude in passing to the countervailing arguments—that remote possibilities of harm from ubiquitous environmental agents need careful scrutiny, that the public pays the bills and has some right to influence funding priorities, that researchers believe they are serving public health—these modest attempts at balance fall short of a comprehensive appreciation of the complexity and ambiguity of the issues under discussion.

The stories of the rise and fall of the controversies are very nicely written, capturing a time in our recent history that the author (and many of the potential readers of the book) lived through. The dynamics and personalities come across vividly, with clarity and accuracy regarding the tech-

nical issues behind the controversies and a thoughtful, if highly subjective, answer to the question, What happened? The distance of at most a couple of decades and the benefits of hindsight regarding the science and politics allow the author to tell a story with a beginning, middle, and end. Though I suspect that Dr. Kabat will be flattered and offended by the comparison, it reminds me very much of Paul Brodeur, who wrote extensively with great influence for the *New Yorker*, and, to some extent, Gary Taubes, who also weaves science and personality into a compelling story.

The book provokes reflection and reexamination of our roles and motives as epidemiologists (my direct experience concerned the electromagnetic field saga, for which I was interviewed by Dr. Kabat) and, more broadly, of the intersection of epidemiology with social, political, and ideological issues. The urge to reflect on our place in society has tended to be one-sided, coming largely from the political left, focusing on the moral obligation to use our science to promote social justice and encouraging us to be activists in order to change and not just study the world. This book serves as a powerful counterbalance in reminding us that some of the causes for which epidemiologists and their advocates join forces may not be grounded in good science and therefore not likely to provide public health benefit. To be useful in advancing public health, epidemiologic findings have to be valid; when that is not the case, then the enthusiastic support of the public and regulatory agencies can be harmful to public health by diverting resources and attention from more important issues. This book forcefully examines that question—What goes wrong when the good intentions of scientists and activists are based on weak epidemiologic findings?

The specific "problem" varies across the 4 topics considered. Regarding the first one, breast cancer activists generated interest from politicians and epidemiologists about the potential role of environmental pollutants in the causation of elevated breast cancer rates, particularly on Long Island, New York. In fact, there was no elevation beyond that expected based on the demographics of the affected communities. In the case of health effects of electromagnetic fields, epidemiologists persisted despite the forceful arguments from physicists that biologic or health effects were implausible. Indoor radon and environmental tobacco smoke are both characterized by Kabat as real, but small hazards that

were exaggerated by regulatory agencies (particularly the US Environmental Protection Agency) and the antitobacco lobby, respectively. In fact, the National Academy of Sciences estimated that more than 10% of lung cancer deaths in the United States are attributable to indoor radon, but the author notes (correctly) that most of these deaths occur among smokers, such that if smoking were eliminated, the effect of radon would be markedly reduced. In the case of both indoor radon and environmental tobacco smoke, the author expresses deep concern about the distraction from addressing active smoking, the real culprit in his view. Also common to the latter 2 issues is the contention that certainty of evidence and the magnitude of possible effects were exaggerated for political reasons. In the case of environmental tobacco smoke, there is a perceived conspiracy to suppress criticism of the research or those who generate contradictory data regarding the impact of environmental tobacco smoke on risk of lung cancer, unfairly lumping such researchers with the long lineage of tobacco industry shills.

To the best of my knowledge, the author was not incorrect about any of the important technical points, yet the way he bundled the facts and drew broader inferences was incomplete and oversimplified to make his point clearer. To suggest that topics such as environmental contributors to breast cancer or lung cancer risks associated with indoor radon should not have been addressed at all or as persistently as they were, or that incomplete data should not have been used to promote regulatory action on radon and environmental tobacco smoke, fails to capture the complexity of policy decisions. Even within the purely scientific arena, how does one combine limited direct epidemiologic evidence on low-level indoor radon with compelling evidence from high exposures among uranium miners and a strong theoretical and empirical basis for extrapolation to the levels encountered in residences? Is the combination sufficient for drawing firm conclusions about indoor radon even with more uncertain evidence directly from the studies of indoor radon?

Determining which topics deserve initial and continuing attention and funding is ultimately a policy decision, a blend of science—considering a range of disciplinary perspectives—and political and societal concerns. Early in the evolution of new topics with environmental relevance, there is often a set-aside of research funding (generated by advocates), after which the scientific merit and promise either moves the topic forward or allows it to atrophy. Evidence on environmental pollutants as a major contributor to breast cancer has not taken hold, and any proposed new studies on that topic need to stand or fall based on their merits, not because there continues to be advocacy for pursuing this possibility. Similarly, electromagnetic fields continue to be of limited interest to epidemiologists after a period of extensive funding, but those advocating new proposed research must acknowledge the findings and shortcomings of the studies that have come before and make the case that the new studies will be better. The question of when the funding and attention to topics exceed their objective, public health merit is important, but we need to be wary of a stopping rule that precludes low-plausibility topics from being investigated at all, particularly when there are forceful advocates for having

a look. Topics not considered in the book have taken other courses, such as the evolution of information on particulate air pollution at levels many once thought too low to be of biologic interest. In hindsight, of course we would do well to invest exclusively in topics that will improve public health, but those cannot be predicted in advance. The question of how much to invest in novel, unexplored areas versus those of proven public health importance is complex. Some effort needs to be devoted to topics other than those representing compelling global epidemics—tobacco, HIV, and obesity, for example.

I completely concur with Dr. Kabat in his effort to stimulate more explicit examination of the issues involved in the evolution of these topics, assessing how the perspectives of epidemiologists blend and conflict with those of other scientists and how the views of scientists are integrated by advocates who call for funding and use research findings for their particular purposes. We should be more aware of the epidemiologist's important but circumscribed role in setting research and regulatory policy. Through such understanding, epidemiologists could become more effective contributors to the broader debates and more accepting when our personal perspective on the epidemiology, or even the consensus of epidemiologic thinking, does not carry the day. If the argument of activists overrides that of the epidemiologists, or the empirical epidemiologic evidence is more persuasive than the theoretical arguments of physicists or toxicologists (or vice versa), or public health activists override the views of epidemiologists, it is not necessarily an injustice. In the policy arena, where funding and regulatory decisions are made, it is presumptuous to suggest that in the face of ambiguity (common to each of the issues in the book), the current evidence from epidemiology (or physics, or toxicology, or molecular biology) should always prevail.

Those of us who have chosen to operate in the realm of research value the relative clarity of the terms of battle, drawing on the tools of evidence, new studies, and refinement of hypotheses. Science necessarily isolates and abstracts from the broader world, and, within the realm of science, epidemiology represents a further narrowing of the frame of reference. Narrower still is the direct evidence on a specific question, for example, indoor radon and lung cancer, versus the broader epidemiologic evidence on radon and lung cancer generally. By those standards, intrusions and distractions from scientific principles are harmful. On the other hand, if suggestive evidence regarding environmental tobacco smoke and lung cancer is a valuable tool for antismoking activists and those who generate scientific challenges weaken their efforts, the critics of that evidence are naturally seen as acting counter to public health even if the criticisms are scientifically valid. The ethical issues in slanting or selectively attending to the science to make wise policy are applicable more broadly than to epidemiology.

Reading and reflecting on the thesis of this book can only help epidemiologists be more aware of our place in society and thus be more effective contributors as we venture beyond the technical aspects of epidemiology into the broader, messier world. Many of us recognize that regulatory policy

requires a framework encompassing considerations other than epidemiologic evidence, and this book helps to extend that perspective to include research funding policy. Kabat identifies real issues that need closer examination and more open debate than has take place up to now. In the bipartisan spirit of the era, there is a need to examine the points of contention (between advocates and scientists, epidemiologists and physicists, regulators and researchers) to find common ground and enable good science and sound policy to move forward, if not always hand in hand.

ACKNOWLEDGMENTS

Conflict of interest: none declared.

David A. Savitz (e-mail: david.savitz@mssm.edu)
*Mount Sinai School of Medicine, Center of Excellence in
Epidemiology, Biostatistics, and Disease Prevention,
New York, NY 10029-6574*

DOI: 10.1093/aje/kwp013; Advance Access publication February 10, 2009