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Hazardous Substances & Human Health: Exposure, Impact and External Cost Assessment at the European Scale, T.M. Bachmann. Elsevier, Amsterdam, The Netherlands (2006). 612 pp., US$ 135.00, ISBN: 0-444-52218-2

This book is the eighth in Elsevier's series of books entitled "Trace Metals and Other Contaminants in the Environment." It is not for the faint-hearted, as the author has produced a very detailed technical look at the subject.

In the preface, the author writes:

> "This book sets out to improve the reliability of cost-benefit analyses particularly of hazardous substances present in air, water, soil and food. It suggests that the human health risk assessment of chemicals is performed in a bottom-up analysis that is based on spatially resolved multimedia modelling approach. In order to allow for cost-benefit analyses to be conducted, this approach is accompanied by monetary valuation of human health impacts."

I would find it difficult to improve on a further description of the book which is found on the back cover. It reads:

> "There is widespread public concern about the presence of hazardous chemicals in air, soil, water and food. Policy makers have therefore adopted a series of limit or target values regulating emissions and concentration levels of these substances. Such policy decisions need to be made in a balanced way, taking environmental protection as well as a well-functioning economy into account. The main problem, however, is to compare the costs for achieving these targets with the benefits to society of having a lower exposure to hazardous substances.
>
> This book sets out to improve the reliability of cost-benefit analyses of so-called multimedia hazardous substances. It suggests that human health risk assessments of these chemicals be performed in a bottom-up analysis supplemented by monetary valuation of human health impacts, yielding so-called external costs. Results for the priority metals selected show that their external costs are small compared to those of classical air pollutants and involve rather long time horizons, touching on intergenerational equity within sustainable development. When further hazardous substances are included, the total external costs attributable to contaminants would be more substantial."

Bachmann's very detailed technical analysis of external costs is beyond the scope of my normal reading so a technical evaluation of what he presents in not included here. I note, however, that he has been very thorough in his scrutiny of the literature and provides more than 500 citations to support his conclusions.

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Bioterrorism Preparedness: Medicine-Public Health-Policy, N. Khardori (Ed.). Wiley–VCH, Weinheim, Germany (2006). 276 pp., Price: US$ 165.00, ISBN: 3-527-31235-8

All too often, the news media report another terrorism event. This review is being written just after the series of train bombings in India and the flap over potential bombing of passenger airplanes on the Britain–US route. While most of the catastrophic terror incidents to date have involved explosives, this book discusses one incident in the United States that involved anthrax. That incident and other bioterrorism incidents are the focus of this text.

Problems with microbes have long been known as the author of the chapter on anthrax notes. This biological material was discussed in writing in Egypt and Mesopotamia more than 5000 years ago. It also appeared in the Bible in the book of Exodus which describes a plague that was quite likely due to anthrax (which is more scientifically described as *Bacillus anthracis*).

"Bioterrorism has been defined by the Centers for Disease Control as 'the intentional release of viruses, bacteria, or toxins for the purpose of harming or killing civilians.'"

And given the current state of world affairs, bioterrorism may well be the next challenge to authorities. Relatives of anthrax such as botulinum (*Clostridium botulinum*), ebola, or a host of other dangerous organisms are possible agents of death.

In the preface, Khardori notes:

"The book Bioterrorism Preparedness – A Medicine – Public Health – Policy has been prepared with the hope of being useful to medical students, healthcare providers, infection control practitioners, public health professionals, and legal professionals involved in health policy issues. The first two chapters provide a historical perspective and overview of potential agents of bioterrorism and bioterrorism preparedness. These two chapters will hopefully provide a quick reference to a variety of issues related to bioterrorism. The third chapter, 'Care of Children in the Event

of Bioterrorism,' has, in my opinion, a unique quality to it. It emphasizes differences between the approach to bioterrorism-related diseases in adults and children – where they exist are important. The next six chapters (4–9) are dedicated to the Category A agents. Each chapter stands on its own and provides appropriate but no overwhelming detail on all aspects of these diseases."

Specifically discussed in this book are smallpox, anthrax, plague (caused by *Yersinia pestis*), tularemis and viral hemorrhagic fever. Each of these agents is discussed in detail. The material is exceedingly well referenced. Just to illustrate this statement, I categorized by year the references in Chapter 2 written by Khardori herself. This chapter, entitled "Bioterrorism Preparedness: Historical Perspective and an Overview," had 80 references: (1) 15 were in the 1997–1998 time span, and (2) the rest were more recent with seven published in 2005.

In summary, this is a well written, eye opening text that should be read by anyone who could potentially be involved in a terrorist attack. That list of people should include first responders as well as public health and emergency response medical personnel.

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