

Preface

THIS FOURTH EDITION OF THE ASM BOOK *BIOSAFETY: PRINCIPLES AND PRACTICES* consists of 33 chapters from over 50 authors with many decades of experience in biological safety. We especially appreciate the additional effort of seven of these authors who also served as Section Editors. Fifteen new authors provide fresh insight on biological toxins, packaging and shipping, biological safety program management, Occupational Medicine in a biomedical research setting, safety considerations in the BSL-4 maximum containment laboratory, and special considerations for agriculture pathogens. All of the other chapters have been appropriately updated. For example, the prion chapter underwent major changes to address the transmission of variant Creutzfeldt-Jakob disease via blood transfusion, which occurred since the previous edition. Of special significance are chapter 4, "Epidemiology of Laboratory-Associated Infections," and chapter 7, "Protozoa and Helminths," both of which contain previously unreported cases and reviews of previous surveys.

Since the third edition of this book, untoward events, such as the anthrax letters in 2002, have had an impact on the field of biosafety and those who work with microbial agents. Regulations have been broadened to prevent terrorists from obtaining certain microbes believed to be useful as biological weapons. These Select Agent regulations from the Centers for Disease Control and Prevention (CDC) and from the United States Department of Agriculture include stringent requirements to limit those who can obtain, store, or use these agents. Such individuals must undergo a security check, including fingerprinting, and receive a clearance from the Department of Justice. Biosafety personnel now have the additional duty of implementing key biosecurity sections of this regulation. Chapter 33 provides a discussion of the impact of regulations on biosafety and biosecurity.

One of the features of previous editions of this book has been the inclusion of the actual regulation from the Occupational Safety and Health Administration (OSHA), the National Institutes of Health (NIH) guidelines, and the CDC/NIH guidelines "Biosafety in Microbiological and Biomedical Laboratories" (BMBL). Unfortunately, the 5th edition of BMBL is still in press, with no clear date of publication. Since all of the documents are available on the Internet, we refer the reader to those sources instead.

This book is meant to be used as a resource by biosafety professionals, those who teach them, and those who work with pathogenic agents in research, production, or teaching. We have included what is known to be important today. However, biotechnology breakthroughs, such as nanotechnology and synthetic genomics, can be expected to challenge our ability to do appropriate risk assessments in the future. In the six years since the previous edition, poliovirus was synthesized by using a map of the genome which was published in the literature. The synthesis of any virus from its genetic map has become a reality. Will our efforts to recognize and assess the potentially unrecognizable hazards that could arise from combining pieces of many synthesized viruses allow us to continue to find effective methods of containment? Such challenges require that we continuously strive to share information gathered in the broad scope of biological research. We hope this book will aid in this endeavor.

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