

## Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases, Eighth Edition (2015) Eds: John E. Bennett, Raphael Dolin, Martin J. Blaser. ISBN: 13-978-1-4557-4801-3, Elsevier Saunders

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Infectious diseases are front and center in our multimedia news coverage. As health-care professionals, it is professionally, morally, and ethically required to keep informed of the latest information concerning infectious diseases, their diagnosis, treatment, and prevention. I highly recommend *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*, together with the included ExpertConsult, the on-line version of the book that is a searchable source and is available to a variety of platforms. It is updated twice each year and is an excellent solution for health-care professionals to keep informed of the latest knowledge. As the publisher's notices state: "Knowledge and best practice in this field are constantly changing. As new research and experience broaden our understanding, changes in research methods, professional practices, or medical treatment may become necessary." This edition provides new chapters on the new pandemic strains of influenza, Middle East respiratory syndrome (MERS) virus, antibiotics for resistant bacteria, antifungal drugs, new antivirals for hepatitis B and C, advances in HIV prevention and treatment, *Helicobacter pylori*, malaria, new vaccines, and new recommendations.

In the last few years, there has been the recognition of new diseases, and new pathogens have been described as well as new antibiotics and new advances in diagnostics. Pathogens continue to thrive over ever-increasing geographic areas perhaps due to global warming, flooding, war, and its public health consequences with the rise of millions of displaced persons,

poverty and social inequality, lack of political will, and the increased mobility of travelers via airplanes, trains, and boats. Pathogens know no political borders and are readily exported by people, their pets, animals, and food. Examples of new infectious diseases include the Middle East respiratory syndrome (MERS), the Heartland virus propagated by ticks in the United States, and *Exserohilum* meningitis from contaminated corticosteroid injection in the United States. The alleged spread of cholera in Haiti by United Nations' peacekeepers from Nepal who were infected is an example of the unintended spread of infectious diseases. The rapid growth of the Ebola epidemic in Africa points out the risks of worldwide transmission of infectious diseases and the lack of an early serious commitment of the world's community of nations to work to mitigate the early spread of this deadly infection. Infectious pathogens continue to develop antimicrobial resistance to pharmacological treatments via mutations; this serious public health problem is exacerbated by the over-use of antibiotics and the problem is caused and sustained, in part, by the over-zealous marketing of antibiotics by pharmaceutical companies. The result is more and more pathogens that are resistant to the standard drugs.

On the positive side, we have seen recent progress in the development of new treatment for a variety of infections including hepatitis C, tuberculosis, anthrax, human immunodeficiency virus (HIV), methicillin-resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile*, and genital herpes. Furthermore, there have been advances in diagnostic tests for a variety of infectious diseases. New and improved diagnostic tests are now widely available for *C. difficile*, norovirus, human herpesvirus 6, JC virus, respiratory pathogens, *Tropheryma whipplei*, and many other organisms.

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The book's eighth edition highlights the recent advances in several important areas. All health-care professionals have the obligation to minimize the occurrence and the spread of nosocomial infections. This is an extremely serious problem. In the USA for the year 2005, hospital-acquired infections (HAIs) developed in 1.7 million patients and caused 100,000 deaths. It is now known that proper hand hygiene is the most important means to prevent the transmission of nosocomial pathogens. The recommendations for hand hygiene state: "Before and after patient contact; before any aseptic task; after contact with body fluid, mucous membrane, or nonintact skin; after contact with inanimate objects in the immediate vicinity of the patient; after glove removal." The chapter on infection prevention in the health-care setting and the chapter on disinfection, sterilization, and control of hospital waste are especially relevant to eye-care professionals. The disinfection of health-care equipment and surfaces (i.e., medical devices that contact the eye, such as the tonometer) is critically discussed, as is the topic of sterilization. Proper knowledge of these techniques, together with their strict enforcement, result in the safe use of invasive and noninvasive medical devices; failure to do so results in a number of hospital-acquired infections. Cataract surgery should not cause orbital infections which are vision-threatening.

New knowledge had greatly increased our understanding of infections in special hosts: immunocompromised hosts, cancer patients, recipients of hematopoietic stem cells, solid-organ transplant recipients (i.e., corneal transplants), patients with spinal cord injury, asplenic patients, injection drug users, patients who receive transfusions and transplantations, the elderly (defined as those over 65 years old), and patients who will undergo surgery.

*Principles and Practice of Infectious Diseases* has many features and formats that make it a comprehensive, current, and clear source of information. Twelve of the 324 authoritative chapters are in the public domain. Each chapter is written by recognized experts in their fields. All three editors have reviewed every chapter in the book. The intended audience includes physicians, health-care providers, experts in public health, microbiologists, immunologists, and medical scientists. An extensive index is provided, but I found that searching the online book is preferred.

The first volume is organized around the basic principles in the diagnosis and management of infectious diseases. Here you will find current information together with key references (many from 2013) on host defense mechanisms, epidemiology, anti-infective therapy, and the important discussions on mechanism of action and resistance, adverse drug reactions, and drug interactions. The book begins with three chapters on the topic of microbial pathogenesis. The discussion of microbe–host interactions is critical for understanding the diversity of these relationships. Of course, not all infectious agents cause disease, and many are normally present in and on our

bodies as they constitute the human microbiome which shows compositional variety according to the anatomical site. The human microbiota consists of about 90 trillion bacteria, Archaea, microeukaryotes, and viruses that live in our bodies.

There are chapters that cover the topics of immunomodulators, hyperbaric oxygen, and complementary medicine. The chapter on antimicrobial stewardship is critical to mitigating the growing problem of drug resistance. The second part of the first volume contains comprehensive discussions of the major clinical syndromes such as fever and sepsis. The subsequent chapters are grouped according to organ systems; the six chapters on eye infections are of special interest to eye-care professionals. The 13 chapters on the topic of acquired immunodeficiency syndrome indicate its clinical prevalence and importance. Epidemiology is critical to the study of infectious diseases, and its principles are clearly presented. The terms of incidence and prevalence, as well as the terms relative risk (RR), odds ratio (OR), and attributable risk are clearly defined and explained.

Furthermore, the problem of emerging and reemerging infectious disease threats is comprehensively discussed. One only needs to study the examples of recent outbreaks, pathogen discoveries, and other notable infectious disease events during the last 15 years to appreciate the scope and the scale of these threats. The current state of our world also necessitated the inclusion of a comprehensive chapter on the topic of bioterrorism.

The second volume contains chapters on infectious diseases and their etiologic agents—viral diseases, prion diseases, chlamydial diseases, mycoplasma diseases, bacterial diseases, mycobacterial diseases, mycoses, protozoal diseases, diseases due to toxic algae, diseases due to helminths, ectoparasitic diseases—and chapters on surgical and trauma-related infections, immunization, and zoonoses. The two final chapters discuss the protection of travelers, and infections in returning travelers. The section on nosocomial infections and infections in special hosts are especially relevant for eye-care professionals.

My perusal of *Principles and Practice of Infectious Diseases* and the checking of the ExpertConsult website as well as the full color figures, the references, and the images of cell and tissue pathology lead me to conclude that these two volumes are an exemplar for a reference work in the field of infectious diseases. The chapters are filled with extremely useful tables, and full color charts and maps that make it easy to compare multiple aspects of disease, diagnosis, infectious agents, and treatments. The excellent clinical images (1,500) cover the scale from electron micrographs of viral particles, to histological images of stained cells, tissues, organs, to whole body images of people with various types of infections, and magnetic resonance images of patients with infection.

There is a good balance between chapters on the basic science of the body's defense mechanisms to

infectious agents and the clinical aspects of diagnosis, pathogenesis, disease, and treatments. Then there are useful chapters that bridge the basic science and clinical field, such as the chapter on nutrition, immunity, and infection. Nutrition and malnutrition are problems that should attract world-wide attention, as the WHO reported that one third of the people who reside in developing countries are affected by hunger and malnutrition, and protein malnutrition is the major cause of immunodeficiency in the world.

*Principles and Practice of Infectious Diseases* is a modern compendium of basic science and clinical knowledge, and its online version is critical to help the physician, health-care provider and scientist to stay informed on current knowledge, diagnostic techniques, and treatments. It also provides evidence that infectious diseases are the concern of all of us, as we live in a world that is more and more connected, not only in a physical sense but also in the ethical sense that highlights the responsibility of all members of the human family to work to aid those populations that are decimated by infectious disease.