B. R. Masters

Gerald L. Mandell, John E. Bennett, Raphael Dolin (eds): Principles and Practice of Infectious Diseases, 6th edn

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This is a well-written, abundantly illustrated, two-volume source of expert knowledge on the diagnosis, treatment and management, and prevention of infectious diseases. The editors, Gerald Mandell, Professor of Medicine at the University of Virginia School of Medicine, John Bennett, Head of the Clinical Mycology Section at the National Institutes of Health, and Raphael Dolin, Professor of Medicine at Harvard Medical School, have produced a seminal book that is uniformly of high quality across its 330 chapters.

“Principles and Practice of Infectious Diseases” is an authoritative, current reference work. It is comprehensive, and the knowledge contained is readily searchable and accessible. This book is extremely useful to clinicians due to its well thought out organization. For example, the chapters on various infectious agents are subdivided into the following sections: morphology and composition of the agent, pathogenesis and immune response, diagnosis, clinical manifestations, epidemiology, treatment, and prevention.

While the consistent format throughout the book is very helpful to the reader; the use of illustrations, summary tables, and clinical images highlights the key points, and the detailed index makes it easy to search for a particular topic. In addition, a CD-ROM is included which holds all of the figures and tables contained in the book. It can

be searched for all of the index terms. All of the book's figures can be imported into software for lectures. The references include citations from 2003 and a few from the year 2004, and they include many pointers to key web sites.

In the past few years there have been important advances in the areas of public health measures to control the spread of infectious diseases, the development of new vaccines, new antimicrobial therapies, and new diagnostic techniques that are both highly specific and sensitive. At the same time, there are rapidly increasing numbers of patients with host defenses that are diminished due to underlying diseases or medical treatments. That is why this new sixth edition is welcome. Consistent with these advances this new edition is composed of two volumes in which every chapter has been revised. New color figures and tables supplement the text. Furthermore, there are new chapters on SARS, metapneumovirus, and Nipah and Hendra viruses.

A crucial feature of this book is the quality of the figures and their integration with the text. The images include: full color images of the skin of patients, color images of the cornea and the retina, full color images of blood smears and biopsy sections viewed with light microscopy, electron microscopy images of bacteria and viruses, magnetic resonance (MR) images of brain and spinal cord, and radiologic (X-ray) images of the chest, computed tomography scans of the chest and abdom-

B. R. Masters (✉)
Arlington, VA, USA
e-mail: brmail2001@yahoo.com

inal cavities, ultrasound images of the kidneys, and radio-chemical imaging of specific organs. These medical imaging techniques are complemented by the use of biochemical markers in body fluids, immunological techniques, and the advances in molecular biological techniques to detect proteins, DNA and RNA that are specifically related to individual pathogens. For example, PCR or the ligase chain reaction provides increased sensitivity due to the amplification of target nucleic acid.

"Principles and Practice of Infectious Diseases" is divided into four parts. Part I covers the basic principles that are required for the diagnosis and management of infectious diseases. These topics include host defense mechanisms, epidemiology of infectious diseases, clinical microbiology, and the latest developments in anti-infective therapy. The discussion of the immune system is very clear and detailed; it is augmented with color diagrams of the pathways and mechanisms. Part II covers the major clinical syndromes and contains sections on various organ systems as well as tissues. In this part are the excellent chapters on eye infections. A large number of chapters cover the important topic of acquired immunodeficiency syndrome.

In the second volume, Part III is concerned with infectious diseases and their etiologic agents. Here the reader will find chapters on viral diseases, prions and prion diseases such as Creutzfeldt-Jakob disease (CJD) and its new variant, chlamydial diseases such as ocular trachoma, mycoplasma diseases, bacterial diseases, mycoses, protozoal diseases, diseases due to helminths, and ectoparasitic diseases. Part IV is devoted to special problems: nosocomial infections, infections in special hosts, surgery- and trauma-related infections, immunization, biodefense, zoonoses, and protection of travelers.

Why should the readers of *Graefe's Archive* study the "Principles and Practice of Infectious Diseases"? As the editors wrote in the preface to the first edition: "Infectious diseases traverse the usual boundaries established

by medical specialists. All organ systems may be involved, and all physicians caring for patients may have to deal with infected patients."

First, there is the matter of professional ethics. Patients deserve and expect to be cared for by a medical professional who is well versed in the latest techniques of diagnosis, treatment, and management. While many eye-care professionals took a course in infectious diseases or studied this topic as part of their studies of internal medicine, that was in the past. Medicine is a rapidly changing art and science, and medical professionals have an ethical obligation to keep updating their knowledge. While continuing-education courses may provide some condensed knowledge; they are not a substitute for intensive study of the current medical literature as well as comprehensive books such as "Principles and Practice of Infectious Diseases."

Second, there is the widespread problem of nosocomial infections and the appropriate measures to be taken for their limitation and prevention. This broad, but important topic is discussed under several titles: sterilization of medical instruments and devices, transplants (cornea) and medical implants (IOL), airborne aerosol-spread infections, and correct hand cleaning and drying between patients. An important example of the relevance of this book for the clinician is the extensive chapter on disinfection, sterilization, and control of emerging pathogens. For example, new guidelines recommend the use of waterless hand hygiene products with 90% alcohol instead of soap and water for cleaning hands before and after patient encounters. This chapter demonstrates that when properly used, modern disinfection and sterilization techniques can provide the patient with the safe use of invasive and noninvasive medical devices.

Third, there is the overuse of antibiotics and the subsequent growth of resistance to these drugs in bacteria. "Principles and Practice of Infectious Diseases" points out the continuous evolution of pathogens and their

emerging resistance to our anti-infective therapy. This problem is due to the general use of broad-spectrum antibiotics as a prophylactic measure.

Fourth, eye-care professionals will continue to see an increasing number of young, aged, and immuno-compromised patients. They should be informed about the special needs and risks of these populations.

Fifth, as more and more medical professionals travel to foreign countries for conferences, to serve as medical care providers in developing countries, or for non-work-related purposes, it is important for them to be aware of the risks and the appropriate preventive measures for themselves and their families.

"Principles and Practice of Infectious Diseases" includes topics that directly relate to eye-care professionals. For example, the chapter on microbial conjunctivitis includes descriptions of viral conjunctivitis, chlamydial conjunctivitis, and bacterial conjunctivitis. The chapter on microbial keratitis correctly points out that due to the rapid progression and virulent nature of infectious agents, any corneal inflammation should be considered a threat to vision. Contact lenses are an important risk factor for microbial keratitis. A common form of parasitic keratitis is due to *Acanthamoeba*. These organisms exist as mobile trophozoites or dormant cysts and are resistant to killing by freezing, desiccation, and the chlorination used in municipal water supplies. *Acanthamoeba* keratitis is often initially misdiagnosed as herpetic, bacterial, or fungal keratitis. Note that hydrogen peroxide treatment of contact lenses does not kill *Acanthamoeba*.

Other relevant chapters are those on endophthalmitis, infectious causes of uveitis, and periocular infections. Patients with acquired immunodeficiency syndrome have deficits in cellular immunity which are expressed by infection in many organ systems, including the eye, e.g., cytomegalovirus retinitis. The eye-care professional may diagnose eye infections with *Pseudomonas aeruginosa*. The resulting keratitis

should be considered a medical emergency since it can rapidly lead to the loss of vision. It is often associated with contact lens wear, especially extended-wear lenses.

The clinician will also be well served by the chapters on human immunodeficiency virus in health care settings, nosocomial herpesvirus infections, and infections in the elderly.

In addition to the scientific and clinical content, which are first rate, this book is very interesting to study from the historical viewpoint.

It is fascinating to learn that many diseases were mentioned in the Bible. In the chapter on *Neisseria gonorrhoeae*, we read that gonorrhea is one of the

oldest of human diseases; references to sexually acquired urethritis are found in the Old Testament (Leviticus), as well as in ancient Chinese writings. The term “gonorrhea” was introduced by Galen in about 130 AD.

Infectious diseases have had a major role in human history and will continue to affect all aspects of human life. We learn about the importance of emerging and reemerging infectious disease threats: for instance, the medieval Black Death (plague) killed one quarter of Europe’s population. In the 16th century Spanish explorers infected people in the New World with smallpox, and they took syphilis back to Europe. The 1918 influenza pandemic

killed more than 25 million persons throughout the world in little over a year. There are other interesting facts. We learn in the chapter on *Giardia lamblia* that this pathogen was first recognized in the late 1600s by van Leeuwenhoek, who used his single-lens microscope to observe the flagellated enteric protozoan in his own stool.

In summary, “Principles and Practice of Infectious Diseases” is a valuable reference book that contains knowledge on all aspects of infectious diseases, including their ocular manifestations. I highly recommend it for all eye-care professionals.