

dence of shrew infestation in certain dwellings. The Mays are in the Boston area; I have not heard of shrew infestation in the Pacific Northwest, where I live and work. Overall the Mays do a good job of not making only region-specific recommendations, and they remember to provide advice that can be applied to building environments outside of their own climate, such as in the South, where air conditioning is common.

In summary, I recommend this book as an easily readable collection of useful tips to optimize indoor air quality in the home. Based primarily on Jeff May's career experience, most of the recommendations appear to be quite practical. However, one should consider some of the book's opinions with caution, as the information doesn't always come from peer-reviewed publications.

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**Clinical Tuberculosis**, 4th edition. Peter DO Davies MA DM FRCP, Peter F Barnes MD, Stephen B Gordon MA MD FRCP DTMetH, editors. London: Hodder Arnold/Oxford University Press. 2008. Hard cover, illustrated, 576 pages, \$198.50.

When the first edition of **Clinical Tuberculosis** was published in 1994, the resurgence of tuberculosis (TB) in the western world was drawing increased attention from pulmonologists and infectious-disease specialists. Since then we have achieved more insight into the pathogenesis and treatment of mycobacterial disease. TB diagnosis and treatment has progressed, and the 4th edition of **Clinical Tuberculosis** is a valuable new reference for the TB clinician. It reviews in detail the basic tenets of mycobacterial disease, diagnosis, and treatment, including new approaches to diagnosis and therapy not covered in previous editions.

The book is divided into 7 major sections, and I will expound on each below. I will put extra emphasis on those chapters new to this edition. These 7 sections frame a logical approach to division of TB pathophysiology. They separate history, epidemiology, diagnostics, and treatment in a thoughtful way. Each chapter ends with a set of summary points. The chapters on di-

agnosis and treatment include case vignettes. In general, the figures are clear and concise, the tables are thorough and logical, and there is a subject index.

The first section focuses on the history and epidemiology of TB. The history section discusses the first evidence of TB, in human remains from North Africa, the Mediterranean region, and northern Europe. There is an excellent review of TB's origins and spread, from Egypt, around 4500 BC, through the advent of sanatoriums in the late 19th century. I found this section enjoyable to read and full of interesting historical data not commonly found in a medical text. The first section ends with a chapter on TB epidemiology, which focuses on trends in mortality, drug resistance, and efficacy of the DOTS (directly observed treatment, short-course) strategy.

The next section, which addresses TB pathology and immunology, has an abundance of new material on diagnostics. The first chapter in this section gives an overview of TB genotyping methods and transmission dynamics, and reviews the benefits and limits of restriction fragment length polymorphism analysis, spacer oligonucleotide typing, and VNTR/MIRU (variable number of tandem repeats/mycobacterial interspersed repetitive units) analysis. New insights from those genotyping methods in transmission dynamics, laboratory cross-contamination, and contact investigation are also discussed. The summary table of the tests in this section has become a useful reference in my clinical practice.

In the following chapters the focus shifts to the mycobacteria organism. There is a review of the pathways and genetics of resistance to anti-TB drugs, including the mechanisms of resistance to first-line and second-line agents. The advantages and limitations of sputum-culture-based diagnosis are also reviewed. Extra attention is given to sputum induction and fiberoptic bronchoscopy and their utility in diagnosis. A discussion of nucleic-acid amplifications in both pulmonary and extrapulmonary TB follows, and the chapter finishes with a brief review of rapid detection methods for drug resistance, including molecular beacons and phage amplification.

A new chapter on immunodiagnostic tests covers, in depth, the interferon gamma release assays and their utility in diagnosis of latent TB infection and active TB disease. The review of the ELISpot (enzyme-linked immunosorbent spot) and T-spot assays dis-

cusses the use of each in healthy adults, children, and immunosuppressed patients. An excellent table reviews many of the major interferon gamma release assay (IGRA) studies and addresses the sensitivities, specificities, and key limitations of each interferon gamma release assay. The chapter concludes with a brief mention of newer, more sensitive, immunodiagnostic tests in the development pipeline, and their possible roles in clinical care.

The second new chapter, on the human immune response to *Mycobacterium tuberculosis* infection, explores the innate and adaptive immune responses and the immune coordination in response to infection. Separate focus is given to regulatory mechanisms in host defense, humoral, and cell-mediated immunity. Also reviewed is the role of the *M. tuberculosis* strain on the human immune response. Immunogenomics are explored, though the discussion of genetic variation in susceptibility is brief. The chapter ends with a summary of host/mycobacteria interactions, and the host factors that influence effective vaccine development. Given the increase in tuberculosis immunology research publications over recent years, this chapter will grow in future editions.

The following section discusses clinical aspects of TB. A chapter on respiratory TB discusses the clinical features of primary and post-primary infections. There is a thorough discussion of complications following TB infection. The differential diagnosis of pulmonary TB is also discussed. A chapter on nonrespiratory TB reviews the clinical presentation, relative incidence, diagnosis, and treatment of TB of lymph nodes, bone, joints, gastrointestinal system, skin, and central nervous system, and miliary and rare forms of extrapulmonary TB.

The next major section of the book delves into TB treatment and the pharmacology of the first-line and second-line TB medications, including drugs in development. For each drug reviewed, pharmacokinetics, dosing, adverse effects, and drug interactions are addressed. I also find this chapter useful in practice, though a comprehensive table of drugs, dosing, clearance, and interactions is lacking.

The third new chapter in this edition calls for the development of new TB drugs to combat increasing drug resistance and reviews drugs that are in development and clinical trials. The fluoroquinolones, in addition to many of the mycobacterial drugs

in phase-1 and phase-2 trials, are discussed here. Though many of these drugs may never make it to the bedside, this chapter offers insight on current approaches to developing new targets for treatment.

The following chapters include a review of directly observed therapy, including DOTS and DOTS-Plus. International standards of therapy, and strategies for implementation of these standards are also covered; the section ends with a discussion of surgical options in treatment of TB infection.

The well-written and sobering discussion of HIV/TB co-infection outlines approaches to treatment in countries with different health-care resources. The chapter on TB in human migration is an excellent resource for the public health officer, to guide screening of immigrants from high-incidence countries.

In the section on TB prevention, a chapter reviews the history and benefits of TB-prevention therapy. Though short, this chapter follows the history of screening and treatment in low-incidence countries and gives insight into alternatives to isoniazid

monotherapy in special situations. Other chapters in this section address the use and interpretation of the tuberculin skin test and the interferon gamma release assays, and the benefits and limitations of the bacillus of Calmette and Guérin vaccine, and recommendations for its use in a TB-control strategy.

The last section, on TB control, is another excellent resource for the public-health officer. Separate chapters are devoted to control of TB in both low-incidence and high-incidence countries. There is also a chapter on the utility of the specialist TB nurse in effective screening and surveillance. An underlying theme of this edition is the need for coordinated international TB control, and this theme becomes more concrete in the last new chapter, which details the Global Plan to Stop TB.

At the book's end are chapters on non-TB mycobacterial disease and animal TB. These chapters are well written but short and somewhat out of place in this book, I thought.

The 4th edition of **Clinical Tuberculosis** is an excellent resource for the physician. The book is written by a compilation

of internationally renowned TB scientists and clinicians. This array of authors adds many perspectives on the disease not possible in a single-author text. It is a comprehensive review of the major aspects of TB epidemiology, diagnosis, and treatment, and is organized in a way that adds to its utility as a reference. At the same time, the mix of historical perspective and scientific dialogue make it manageable as a readable textbook for the TB clinician. While the subspecialist TB scientist may wish to have the book present a more specific review of a particular aspect of TB infection, the wide-ranging topics covered in this book make it an important addition to the bookshelf of any clinician who cares for patients with TB.

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