

Revenge of the Microbes: How Bacterial Resistance Is Undermining the Antibiotic Miracle

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and Dixie D. Whitt

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Professional journals these days brim with new developments in the field of antimicrobial resistance, and scarcely a week goes by without a flurry of new reports on “super bugs” in popular media. Given the unrelenting blitz of information, that 2 self-proclaimed “fusty old pedants” could produce a fresh perspective in the ongoing arms race between man and microbe is all the more noteworthy.

Although their traditional milieu is microbiology textbooks, Salyers and Whitt have provided a concise yet readable history of the rise of resistant organisms, as well as the social and economic effect of “these indomitable little critters.” The history, from the first hints of penicillin resistance to the recent rise of vancomycin resistance, is as insightful as it is entertaining.

Lay readers will get a digestible dose of the basic science often missing from the mass media. And professionals will find the kind of incisive analysis—and even a touch of humor—that is often missing from scientific journals. Both audiences will find eminently compact descriptions of the major mechanisms that enable bacteria to develop and pass on resistant traits, the hurdles that pharmaceutical companies face in developing new antimicrobial drugs, the dilemmas doctors and patients face in

finding better ways to use drugs, and a thoughtful appraisal of possible future trends.

In contrast to prophecies of an approaching “post-antibiotic era,” the authors’ own “realistic vision of the future” is far from apocalyptic. Still, they worry that increasing numbers of treatment failures like those occurring in hospitals and community settings will erode confidence in the health-care system. Some diseases, they believe, will remain treatable, some new drugs will emerge, and bacteria, with 3 billion years of evolution on their side, will continue to adapt. So perhaps, they suggest, “the best we can hope for is détente, a running standoff between science and the bugs’ remarkable ability to adapt to their changing environment.”

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The Microbe-Host Interface in Respiratory Tract Infections

Jan L.L. Kimpen and
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How thoroughly can 1 book address 2 complex aspects of the host-agent-environment triad, especially

for a topic as broad as respiratory tract infections? Every author of an infectious disease topic assumes this task, at least implicitly. For example, the clinical aspects of adenovirus infection are hard to discuss without also highlighting the host factors that lead to greater susceptibility. The value of a book dedicated to the host-pathogen interaction depends on the book’s ability to focus explicitly and narrowly on this relationship as the main topic.

Common to all 13 chapters of this first edition is the subject matter expertise of the authors. In addition to their thorough treatment of each subject, extensive referencing shows clearly the authors’ command of current and past literature (in some instances, more space is devoted to references than to text). Beyond these common features, different chapters address particular facets of the host-agent relationship. Several chapters treat the host itself as the key subject, for example, the chapter on genetic background. Others place greater emphasis on the features of the microbes themselves, such as their pathogenicity and mechanisms for evading the host immune system. Still other chapters dissect and analyze every aspect of the complex relationship between host and agent, successfully making this interaction the central topic. The chapter on the pathogenesis of bacterial respiratory tract infections is a particularly strong example. Finally, some chapters look at the host-microbe interface over a period longer than the time of acute infection. For example, the chapter on atypical bacteria summarizes the evidence for a causal relationship between infection with *Mycoplasma pneumoniae* and the subsequent development of asthma.

If the authors’ expertise is the primary strength of the book, the lack of organization and focus is its principal weakness. Most infectious disease textbooks adopt a pyramidal structure,