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A New AAC Section: Translating Resistance to the Bedside

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Antibiotic resistance is an urgent public health threat that impacts the daily practice of clinicians worldwide. In the last 2 years, we have witnessed the emergence of reports from high-profile governmental agencies confirming the alarming trends and financial impact of rising antimicrobial resistance rates among common pathogens. According to a recent report from the United Kingdom, resistance not only causes a major human toll but also has the potential to greatly affect the world's economy. Indeed, it is estimated that if resistance continues to increase, 10 million people will die annually by 2050, costing the world economy up to $100 trillion (1). The U.S. Centers for Disease Control and Prevention conservatively estimates that antibiotic resistance causes 23,000 deaths per year in the United States (2), prompting the President's Council for Science and Technology to issue specific recommendations to tackle this problem (3). All these high-profile reports have echoed earlier warning messages from the Infectious Diseases Society of America (4) and other scientific societies regarding the rising tide of antibiotic resistance. Reversal of the problem will require an important investment to "boost" the development of new antibiotics (5).

The emergence of infections caused by "superbugs" has put clinicians in the dire situation of using treatment alternatives that have not been properly tested in controlled, prospective, and randomized clinical trials. Moreover, the difficult choices of antimicrobials or antimicrobial combinations to treat the most recalcitrant cases are often based on scant clinical data supported by *in vitro* and, in a few cases, animal data. Additionally, resistance is a complex process that is influenced by many factors, including the remarkable genetic plasticity that allows microorganisms to adapt and respond to the antimicrobial challenge. Thus, an understanding of the molecular strategies used by microbes to overcome the antimicrobial attack becomes of paramount importance in designing novel therapeutic strategies to treat patients with life-threatening infections.

In order to bring these complex and diverse resistance issues into clinical focus, *Antimicrobial Agents and Chemotherapy* introduces in this issue a new section designated "Challenging Clinical Cases in Antimicrobial Resistance" (CCCAR) (6). Our aim is to fill the gap between the basic science of resistance mechanisms and the treatment of patients in the clinical setting. CCCAR aims to familiarize the reader with important resistance issues and provide guidance regarding the clinical approach to the treatment of real, challenging cases involving multidrug-resistant organisms (bacteria, viruses [excluding HIV], fungi, and parasites). Important objectives of the CCCAR section will be to provide up-to-date scientific rationales for choosing specific antimicrobials based on available clinical, microbiological, molecular, and pharmacological data and to discuss the impact of different mechanisms of resistance on the outcomes of infected patients. These articles may also discuss novel and untested therapeutic strategies for treating patients infected with multidrug-resistant organisms.

We expect this new and exciting section to help clinicians make therapeutic decisions in "desperate" cases and to fill the gap between bench research and the bedside, providing a truly translational approach to help treat patients with almost untreatable infections.

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