The Challenge of Treating Superbugs

David L. Paterson, MBBS, FRACP, FRCPA, PhD

1 University of Queensland Centre for Clinical Research, Brisbane, Australia

Semin Respir Crit Care Med 2015;36:1–2.

Infections are a major cause of mortality in critically ill patients. It has been estimated that more than 100,000 health care-associated infections occur annually in intensive care units (ICUs) in the United States.1 This includes 50,000 cases of ventilator-associated pneumonia, 35,000 cases of catheter-associated urinary tract infections, and more than 15,000 cases of central catheter-associated primary bloodstream infection annually.1 In many ICUs, bacteria causing health care-associated infections are typically resistant to multiple antibiotics. In some situations, these bacteria are susceptible to three or fewer antibiotics (extensively drug resistant—XDR) and occasionally to all antibiotics (pan drug resistant—PDR).2 Thus, these might be truly termed as “superbugs.”

In this issue of Seminars of Respiratory and Critical Care Medicine, we focus on the management of these superbugs.

Foremost in the minds of many as a superbug, is methicillin-resistant Staphylococcus aureus (MRSA). It is estimated that 10,000 cases of hospital-acquired MRSA bloodstream infections occur annually in the United States.1 In addition, there has been a dramatic increase in serious community-onset MRSA infections over the last decade. Vancomycin monotherapy has long been the standard of care for treatment of MRSA infections. In this issue of Seminars of Respiratory and Critical Care Medicine, there are reviews of emerging data on combination therapy for MRSA and also the multitude of new antibiotics now are reviews of emerging data on combination therapy for critically ill is further explored in another review in this series. Finally, a highly controversial area, the use of combination antibiotic therapy, is discussed in another timely article.

I would like to thank each of the authors who have contributed to this issue of Seminars of Respiratory and Critical Care Medicine. I am very grateful for the Australian Society for Infectious Diseases which hosted a highly successful “Gram Negative Superbugs” meeting in 2013 at the Gold Coast, Queensland, Australia. Presentations given at this meeting form the basis for many of the reviews in this issue. I trust that the information contained in these reviews will help optimize antibiotic therapy for the critically ill, and will contribute to saving lives around the world.

Address for correspondence
David L. Paterson, MBBS, FRACP, FRCPA, PhD, University of Queensland Centre for Clinical Research, Royal Brisbane and Women’s Hospital Campus, Brisbane, Australia (e-mail: david.antibiotics@gmail.com).

Issue Theme Antimicrobial Resistance: Management of Superbugs; Guest Editor, David L. Paterson, MBBS, PhD, FRACP, FRCPA

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Tel: +1(212) 584-4662.
ISSN 1069-3424.
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