

# New Approaches to Antibiotic Use and Review of Recently Approved Antimicrobial Agents



Andrew W. Hahn, MD<sup>a,\*</sup>, Rupali Jain, PharmD<sup>b</sup>,  
David H. Spach, MD<sup>a</sup>

## KEYWORDS

- Antimicrobial resistance • Soft tissue abscess • Intraabdominal abscess
- Dalbavancin • Oritavancin • Ceftaroline fosamil • Ceftolozane-tazobactam
- Ceftazidime-avibactam

## KEY POINTS

- The White House National Action Plan for Combating Antibiotic Resistant Bacteria outlines a multidisciplinary approach to address the urgent and serious drug-resistant bacterial threats in the United States.
- New evidence supports a lesser role with shorter-course antimicrobial therapy in the setting of adequate source control for the management of both soft tissue abscesses and complicated intraabdominal abscesses.
- The novel approach of displaying poster-sized letters of commitment to guideline-concordant antibiotic usage seems to increase clinicians' concordance with evidence-based prescribing guidelines related to antibiotic usage.
- In recent years, 5 new antimicrobials have been approved by the US Food and Drug Administration that have the potential to be used for drug-resistant bacteria: dalbavancin, oritavancin, ceftaroline, ceftolozane-tazobactam, and ceftazidime-avibactam.
- Although each of these agents has appealing properties for off-label use, the authors encourage caution because high-quality clinical data for these off-label practices are limited.

---

Disclosure Statement: The authors have nothing to disclose.

<sup>a</sup> Division of Infectious Diseases, University of Washington School of Medicine, 1959 Northeast Pacific Street, Seattle, WA 98195, USA; <sup>b</sup> University of Washington School of Pharmacy, 1959 Northeast Pacific Street, Seattle, WA 98195, USA

\* Corresponding author. 1959 Northeast Pacific Street, Box 356423, Seattle, WA 98195-6423.

*E-mail address:* [ahahn47@uw.edu](mailto:ahahn47@uw.edu)

Med Clin N Am 100 (2016) 911–926

<http://dx.doi.org/10.1016/j.mcna.2016.03.012>

[medical.theclinics.com](http://www.medical.theclinics.com)

0025-7125/16/\$ – see front matter © 2016 Elsevier Inc. All rights reserved.

## INTRODUCTION

According to the U S Centers for Disease Control and Prevention, approximately 2 million people become infected with a pathogen that is resistant to antimicrobials each year, contributing to at least 23,000 deaths annually.<sup>1</sup> The Infectious Diseases Society of America (IDSA), with support from the federal government, has proposed legislative, regulatory, and funding incentives to address this crisis.<sup>2</sup>

Strategies to address this crisis have included efforts to reduce unnecessary antimicrobial use as well as to support development of new antibiotics targeting drug-resistant pathogens. To this end, recent research has revealed several areas in which fewer and shorter courses of antimicrobials may be appropriate. In addition, as evidence and clinical practice guidelines continue to evolve and embrace judicious prescribing practices, educational efforts, and systems to help implement practice in concordance with newer guidelines have become increasingly important. This article reviews a new federal action plan to combat antibiotic-resistant bacteria, new data related to shorter-course antimicrobial therapy for skin and soft tissue abscesses as well as intraabdominal infections, and 5 antibiotics recently approved by the US Food and Drug Administration (FDA) that expand options for the management of infections caused by drug-resistant bacteria.

## WHITE HOUSE STEWARDSHIP INITIATIVE

In the past decade, the emergence of antimicrobial drug resistance has partially reversed the antibiotic advancements that have occurred during the last 80 years. In 2015, the US White House unveiled the National Action Plan for Combating Antibiotic-Resistant Bacteria, a document that provides a roadmap for combating antimicrobial resistance.<sup>3</sup> The goal of this federal document is to guide action by public health, health care, and veterinary partners in the common effort to address the urgent and serious drug-resistant threats that affect people in the United States. This includes efforts to strengthen national surveillance of resistant bacteria, advance development of innovative diagnostic tests for resistant bacteria, and accelerate research and development for new antibiotics. Specifically, the national plan recommends implementing health care policies and antibiotic stewardship programs that will improve patient outcomes and minimize development of resistance by ensuring each patient receives the appropriate antibiotic at the right time, at the correct dose, and for the appropriate duration.

## THE DIMINISHED ROLE OF ANTIBIOTICS IN SKIN AND SOFT TISSUE ABSCESES

The decision whether or not to treat skin and soft tissue abscesses with adjunctive antibiotics is important and has undergone inquiry for decades.<sup>4</sup> The nomenclature has changed during the past several decades with most earlier studies mixing in subjects with abscesses of various sizes and complexity. Subsequent studies contrasted the term simple cutaneous abscess to complicated skin and soft tissue infection, the later referring to larger, more complex abscesses. In 2013, the FDA encouraged use of the nomenclature acute bacterial skin and skin structure infection (ABSSSI) for infections with greater lesion size, presence of leukocytosis, fever, and systemic inflammatory response syndrome. They further differentiated between minor cutaneous abscess (smaller than approximately 75 cm<sup>2</sup>) and major cutaneous abscess (greater than approximately 75 cm<sup>2</sup>).<sup>5</sup>

Recent randomized controlled trials (RCTs) and observational studies have had fairly wide disagreement as to the importance of antibiotic therapy in preventing

Download English Version:

<https://daneshyari.com/en/article/3794101>

Download Persian Version:

<https://daneshyari.com/article/3794101>

[Daneshyari.com](https://daneshyari.com)