

# **IDSA**

Infectious Diseases Society of America

## **Ranking Antimicrobial Drugs According to Their Importance in Human Medicine**

**U.S. Food and Drug Administration Public Meeting**

**November 16, 2020**

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**IDSA Antimicrobial Resistance Committee**

*“There is an increasingly robust consensus that unnecessary use of antibiotics in animals and agriculture is a significant concern for human health.”*

—Jim O’Neill, The Review on Antimicrobial Resistance, May 2016

# Criteria and the tier-based framework

Organization and rationale are clear and straightforward

# Changes to criteria and tiers

Additional criteria that should be included among the criteria for ranking antimicrobials:

- the *toxicity of an antimicrobial agent and the availability of better alternative therapies*
- the *potential for development of resistance to a drug or class of drugs*

# Application of criteria to antimicrobial classes

## First Generation Cephalosporins

-Sole or one of limited therapies

- Cephalexin and cefadroxil: cellulitis and streptococcal pharyngitis
- UTIs (fluoroquinolone and sulfa resistance rates)
- Osteomyelitis and septic arthritis

Sources:

Stapleton A et al. *Escherichia coli* Resistance to Fluoroquinolones in Community-Acquired Uncomplicated Urinary Tract Infection in Women: a Systematic Review. Antimicrobial Agents and Chemotherapy Sep 2020. <https://aac.asm.org/content/64/10/e00862-20.abstract>

Wagenlehner, F.M., Naber, K.G. Understanding clinical variables to improve empirical antibiotic therapy for UTI. Nat Rev Urol 2019. <https://www.nature.com/articles/s41585-019-0240-0>

Ramchandar N et al. Frequency of Dosing of Cephalexin for Oral Step-Down Therapy of Pediatric Osteoarticular Infections Caused by Methicillin-Sensitive *Staphylococcus Aureus*. The Pediatric Infectious Diseases Journal. June 2020.

[https://journals.lww.com/pidj/Abstract/2020/06000/Frequency\\_of\\_Dosing\\_of\\_Cephalexin\\_for\\_Oral.13.aspx](https://journals.lww.com/pidj/Abstract/2020/06000/Frequency_of_Dosing_of_Cephalexin_for_Oral.13.aspx)

# Application of criteria to antimicrobial classes

## Sulfonamides

- Sole or one of limited therapies
- Potential for development of resistance
  - Toxoplasmosis treatment

Source:

Zhang Y et al. Current treatment of ocular toxoplasmosis in immunocompetent patients: a network meta-analysis

Acta Tropica. September 2018. <https://www.sciencedirect.com/science/article/abs/pii/S0001706X17315267>

# Add additional: Category (antifungals) and Classes (azoles)

Clinical Infectious Diseases

MAJOR ARTICLE



## Voriconazole Resistance and Mortality in Invasive Aspergillosis: A Multicenter Retrospective Cohort Study

Pieter P. Lestrade,<sup>1,2,a,b</sup> Robbert G. Bentvelsen,<sup>3,a</sup> Alexander F. A. D. Schauwvlieghe,<sup>4,a</sup> Steven Schalekamp,<sup>5</sup> Walter J. F. M. van der Velden,<sup>2,6</sup> Ed J. Kuiper,<sup>3</sup> Judith van Paassen,<sup>7</sup> Ben van der Hoven,<sup>8</sup> Henrich A. van der Lee,<sup>1,2</sup> Willem J. G. Melchers,<sup>1,2</sup> Anton F. de Haan,<sup>9</sup> Hans L. van der Hoeven,<sup>2,10</sup> Bart J. A. Rijnders,<sup>4</sup> Martha T. van der Beek,<sup>3</sup> and Paul E. Verweij<sup>1,2,c</sup>

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Morbidity and Mortality Weekly Report

## Multidrug-Resistant *Aspergillus fumigatus* Carrying Mutations Linked to Environmental Fungicide Exposure — Three States, 2010–2017

Karlyn D. Beer, PhD<sup>1</sup>; Eileen C. Farnon, MD<sup>2</sup>; Seema Jain, MD<sup>3</sup>; Carol Jamerson<sup>4</sup>; Sarah Lineberger, MPH<sup>4</sup>; Jeffrey Miller, MD<sup>5,6</sup>; Elizabeth L. Berkow, PhD<sup>1</sup>; Shawn R. Lockhart, PhD<sup>1</sup>; Tom Chiller, MD<sup>1</sup>; Brendan R. Jackson, MD<sup>1</sup>



# Updating the Ranking of Medically Important Antimicrobials

Review of data every two-three years

Formal updates every five years

Ability for medical experts to call for review as needed





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