

# Antibiotic Stewardship Statement for Antibiotic Guidelines – Recommendations of the Healthcare Infection Control Practices Advisory Committee

## Preface

The Healthcare Infection Control Practices Advisory Committee (HICPAC) is a federal advisory committee chartered to provide advice and guidance to the Centers for Disease Control and Prevention (CDC) and the Secretary of the Department of Health and Human Services (HHS) regarding the practice of infection control and strategies for surveillance, prevention, and control of healthcare-associated infections, antimicrobial resistance and related events in United States healthcare settings. **At the November 2015 HICPAC Meeting, CDC asked HICPAC for guidance to help professional organizations incorporate antibiotic stewardship principles into treatment guidelines.** HICPAC formed a workgroup to develop recommendations. The Workgroup provided updates and obtained HICPAC input at the March and July 2016 HICPAC Meetings. HICPAC voted to finalize the recommendations at the July 2016 meeting. Additional information about HICPAC is available at the [HICPAC website](#).

## Introduction

Antibiotic resistance and the scarce antibiotic choices for multi-drug resistant organisms are urgent worldwide public health problems. Consequently, antibiotic stewardship has become a critical responsibility for all healthcare institutions and antibiotic prescribers. Professional societies and other organizations developing guidelines for management of infectious diseases that include recommendations for antibiotic prescribing also have an important responsibility in incorporating antibiotic stewardship principles in their recommendations. An antibiotic stewardship program that incorporates the CDC Core Elements (see reference #1) as appropriate for the type of infection and treatment setting should be cited in guidelines as a valued resource for determining the optimal antibiotic selection, dose, route, and duration of treatment. Accordingly, we recommend that guidelines for treatment of infectious diseases include explicit recommendations for antibiotic stewardship relevant to the infections addressed in the guidelines.

## Recommendations

- 1) Professional societies and guideline developers should incorporate the **principles of testing and treatment** directly into the recommendations included in their treatment guidelines by creating a hierarchy of antibiotic treatment

recommendations with “first choice” antibiotics representing those that **both** optimize effective treatment **and** minimize adverse consequences, including the development of antibiotic resistance.

**a. Principles of Testing**

- i. Diagnostic tests should be used wisely to avoid unnecessary antibiotic therapy or therapy that is unnecessarily broad-spectrum.
- ii. Rapid diagnostic tests, biomarkers, and decision rules that have acceptable performance characteristics to differentiate bacterial vs. non-bacterial infection should be used to avoid use of unnecessary antibiotic therapy.
- iii. Bacterial cultures with susceptibility testing should be collected, handled and processed promptly and appropriately to identify specific bacteria causing infection and facilitate use of narrow-spectrum antibiotics whenever possible.
- iv. When available and appropriate for the infection and the bacterial isolate, molecular testing to identify specific resistance genes (for example, *mec* in *Staphylococcus*, *van* in *Enterococcus*) or novel non-culture based phenotypic assays of susceptibility may be used to target antibiotic therapy toward susceptible or resistant isolates.
- v. Avoid diagnostic testing without an appropriate clinical indication when the results may have unintended consequences. For instance, a urine culture, rapid strep test, or *C. difficile* testing should not be performed unless the patient meets criteria for testing.

**b. Principles of Treatment**

- i. When appropriate for the infection, source removal (e.g., drainage of abscess, removal of an implicated device) should be accomplished early in the course of treatment.
- ii. Recommendations for initial empiric antibiotic therapy choices should balance treatment efficacy, severity of illness (i.e., sepsis), and the potential for adverse events including the development of antibiotic resistance. When multiple therapeutic options are available, the option with the narrowest therapeutic range and least risk of promoting *C. difficile* and other adverse events should be prioritized.
- iii. Recommendations for optimal dosing of antibiotics should be based on efficacy studies and pharmacokinetic and pharmacodynamics principles.
- iv. Recommendations for the minimum effective duration of antibiotic therapy should be provided.

- v. Recommendations for de-escalation of initial empiric antibiotic therapy should be provided, including:
    1. Using the results of bacterial cultures and diagnostic tests to discontinue or narrow unnecessarily broad-spectrum antibiotic therapy.
    2. Using other stewardship tools, such as consultation with an antibiotic stewardship team and/or infectious diseases specialist, daily review of antibiotic therapy, and automatic stop orders after adequate treatment duration.
  - vi. Potential adverse events related to antibiotic treatment should be noted in the guideline so that providers may opt not to prescribe an antibiotic, or to choose a recommended agent that has a lower potential for adverse events.
- 2) Professional societies and guideline developers should consider presenting advantages and disadvantages of antibiotic treatment choices with respect to efficacy and adverse consequences, including antibiotic resistance, either in the text or a table.

## References

1. CDC, "[Core Elements of Antibiotic Stewardship Programs](#)," 2014. [Accessed 22 February 2016].

## Additional Resources

- Barlam TF, Cosgrove SE, Abbo LM, et al., “Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America” *Clinical Infectious Diseases*; 2016 May 15;62(10):e51-77.
- Dellinger RD. [Guidelines for management of severe sepsis and septic shock: 2012](#). *Critical Care Medicine* 2013;41:580. [Accessed 6 September 2016]
- Dellit, TH, Owens, RC, McGowan, JE, et al,; Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship”; *Clinical Infectious Diseases*; 2007; 44:159-77.
- National Quality Forum “[National Action Plan for Combating Antibiotic Resistant Bacteria](#)” September 2014. . [Accessed 22 February 2016]
- Society for Healthcare Epidemiology of America, Infectious Diseases Society of America and Pediatric Infectious Diseases Society ; “Policy Statement on Antimicrobial Stewardship by

the Society for Healthcare Epidemiology of America (SHEA), the Infectious Diseases Society of America (IDSA), and the Pediatric Infectious Diseases Society (PIDS)” *Infection Control and Hospital Epidemiology*; 33(4 - Special Topic Issue: Antimicrobial Stewardship (April 2012): 322-327.

- Society for Hospital Medicine “[Fight the Resistance](#)” 2015. [Accessed 22 February 2016]
- Spellberg B, Srinivasn A, Chambers HF, “New Societal Approaches to Empowering Antibiotic Stewardship”; *JAMA*. 2016 Feb 25; E1-E2. [Epub ahead of print]
- The Joint Commission; “[Antimicrobial Stewardship Toolkit](#).” [Accessed 22 February 2016]
- Vaughn VM, Chopra V. [Revisiting the panculture](#). *BMJ Quality and Safety*. 2016;0:1-4. [epub ahead of print]. [Accessed 6 September 2016]
- The Joint Commission; “[New Antimicrobial Stewardship Standard; Standard MM.09.01.01](#)” Issued June 22, 2016. [Last Accessed July 14, 2016]
- The National Institute for Health and Care and Excellence (NICE); “[Antimicrobial Stewardship Quality Standard; NICE quality standard \[QS121 published April 2016.\]](#)” [Accessed August 22,2016]

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