

# 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 their 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. CDC conducted outreach to partner organizations to ensure awareness of the recommendations. During this outreach, CDC received feedback from professional societies that supplemental implementation guidance and additional details would help them incorporate the principles into their guidelines. At the December 2016 HICPAC meeting, CDC requested additional

professional societies that develop clinical practice guidelines and recommendations. 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 diagnostic testing and treatment** directly into the recommendations included in their treatment guidelines. Recommendations for diagnostic testing and treatment choices should consider optimal effective treatment, minimal adverse consequences including the development of antibiotic resistance, and healthcare value.

### a. Principles of Testing

- i. Diagnostic tests should be used wisely to avoid unnecessary antibiotic therapy or therapy that is unnecessarily broad-spectrum, with consideration of healthcare value.
- 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, a hierarchy of antibiotic treatment recommendations should be provided with “first choice” options being those with adequate therapeutic efficacy, the

lowest risk of facilitating antimicrobial resistance, and the lowest risk of promoting *C. difficile* and other adverse events, with consideration of healthcare value.

- iii. Recommendations for optimal dosing of antibiotics should be based on efficacy studies and pharmacokinetic and pharmacodynamics principles.
  - iv. Recommendations for duration of therapy should be made, emphasizing the shortest effective duration.
  - 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 diagnostic tests and antibiotic treatment choices with respect to efficacy and adverse consequences, including antibiotic resistance, with consideration of healthcare value, either in the text or a table.
  - 3) Recommendations for patient education regarding diagnostic testing, antibiotic therapy, and duration of therapy should be provided when feasible and appropriate.

## Implementation Considerations

To ensure that these principles are incorporated into the recommendations of clinical practice guidelines, organizations and guideline panels review the principles at multiple stages of the guideline development process, including:

- 1) Establishment of the Guideline Panel and Writing Group
  - a. Include the Antibiotic Stewardship Principles in the training and education of the guideline panel or writing group chairs.
- 2) Scoping of the Guideline
  - a. Provide panel chairs with a [checklist](#) of the principles at the scoping phase of the development process so that the principles inform the guideline's scope.
- 3) Development of PICO(T) Guideline Questions

- a. Review the principles at each step of the development of PICO(T) questions to determine which of the Principles should be applied.
- 4) Review of Draft Recommendations and Evidence Summaries
  - a. Include a [checklist](#) of the Principles in the instructions for outside reviewers, society boards, and expert panels so that their review of draft recommendations or guidelines will include an assessment of the incorporation of the Principles.

## References

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

## Additional Resources

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