Antimicrobial Stewardship Strategy:

Scheduled antimicrobial reassessments ("antibiotic time outs")

"An antibiotic 'time out' prompts a reassessment of the continuing need and choice of antibiotics when the clinical picture is clearer and more diagnostic information is available."[1]

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Priority Level: **B**

Difficulty Level: **2**

Program Stage:

- Early
- ✓ Intermediate
- Advanced

Antimicrobial Stewardship Outcomes:

- Drug utilization outcomes
- Reduction in antimicrobial-resistant organisms

For more information on these criteria and how they were developed, please see the Antimicrobial Stewardship Strategy Criteria Reference Guide.

Description

This is an overview and not intended to be an all-inclusive summary. As a general principle, patients must be monitored by the health care team after changes to therapy resulting from recommendations made by the antimicrobial stewardship team.

Rationale

Broad-spectrum antimicrobial therapy is often started empirically in hospitalized patients with uncertain diagnoses while diagnostic information is being obtained. However, often prescribers do not reassess the initial choice of antimicrobial or the continued need for it, once additional clinical and laboratory data become available. An antibiotic "time out" is a term used by the Centers for Disease Control and Prevention[1] and is listed as a key intervention for improving antibiotic use. It involves a formal reassessment by the most responsible physician at a predetermined point (often 48 to 72 hours after the initiation of therapy) to determine the continued need for and choice of antimicrobial. The idea is that the most responsible physician takes the time (i.e., a "time out") to reassess antimicrobial therapy based on the patient's current clinical status and at a point when culture results and susceptibilities would be available to better inform clinical decisions. Reassessments may be scheduled for additional intervals, such as at day 5, 7 etc. of therapy.

Implementation

Assessment should include the following:

- Whether the antimicrobial can be stopped (in cases where there is no evidence of infection or an alternative diagnosis that explains symptoms is determined, such as congestive heart failure or a pulmonary embolus in a patient thought to have pneumonia).
- Whether the antimicrobial should be changed (de-escalation, substitution or addition of agents) or continued.
- Whether the antimicrobial can be switched from intravenous to oral administration.
- The expected duration of therapy.
- Whether the dose is appropriate for the patient and infection being treated.
- When another reassessment should take place (often after another 72 hours of therapy).
- Whether the patient should receive outpatient parenteral antibiotic therapy.

This strategy entails the development of a process for "time outs" and/or providing education to encourage the most responsible physician or health care team to integrate regular antibiotic reassessment into their practice. At some institutions, "time outs" are facilitated or conducted by the antimicrobial stewardship team.

Methods to formalize the "time out" process include a campaign blitz (e.g., "antibiotic time outs" are recommended by the Centers for Disease Control[1] and Public Health England's "Start Smart—Then Focus"[2] program), reminder stickers in the chart and asking other health professionals, such as pharmacists or nurses, to remind physicians on the appropriate day of therapy. Audits to assess compliance with the "time out" or reassessment should be conducted, with feedback to the most responsible physician.

Advantages

- Antibiotic "time out" is listed as a key intervention to improve antibiotic use by the Centers for Disease Control.[1]
- Less resource-intensive than prospective audit and feedback.
- Can result in integration into the most responsible physician's clinical practice translating to routine evaluation of patients on antimicrobials.
- The most responsible physician maintains prescribing autonomy.
- Promotes the concept of "self-stewardship."
- Allows time for culture results and additional information to become available so that more informed decisions can be made.

Disadvantages

- Relies on the most responsible physician to implement intervention and re-evaluate therapy—may not occur consistently without prompting, and/or the physician may not always be comfortable making changes independently.
- May result in unnecessary exposure to antimicrobials if it would have been appropriate to discontinue or de-escalate before the scheduled assessment.

- Does not address initial choice of therapy (unless the "Start Smart" portion of Public Health England's "Start Smart—Then Focus" program is incorporated into the process).

Requirements

- Development of education and tools for most responsible physician to perform reassessment.
- Resources to promote and reinforce the practice, especially initially, and to perform audits to assess compliance.

Associated Metrics

- Compliance with the "time out" process.
- Same measures as with Prospective audit with intervention and feedback: antimicrobial use (defined daily doses or days of therapy) and clinical outcomes (length of stay, *Clostridium difficile* infection etc.)

References

1. Centers for Disease Control. Core elements of hospital antibiotic stewardship programs [Internet]. Atlanta, GA: US Department of Health and Human Services, CDC; 2014; [cited 2015 Sep 24]. Available from: http://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html

2. Start smart—then focus antimicrobial stewardship toolkit for English hospitals [Internet]. London: Public Health England; 2015 [cited 2015 Sep 24]. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/417032/Start_Smart_Then_Focus_FINAL.PDF

3. Department of Health Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection. Secondary care prescriber's checklist [Internet]. London, UK: Department of Health Advisory Committee on ARHAI; 2011 Nov 18 [cited 2015 Aug 19]. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216963/5-SC-dh_130288.pdf

Additional Useful References

Select articles to provide supplemental information and insight into the strategy described and/or examples of how the strategy was applied; not a comprehensive reference list. URLs are provided when materials are freely available on the Internet.

- Pulcini C, Defres S, Aggarwal I, Nathwani D, Davey P. Design of a "day 3 bundle" to improve the reassessment of inpatient empirical antibiotic prescriptions. J Antimicrob Chemother. 2008;61:1384–88. Available from: http://jac.oxfordjournals.org/content/61/6/1384.long

- Lee TC, Frenette C, Jayaraman D, Green L, Pilote L. Antibiotic self-stewardship: trainee-led structured antibiotic time-outs to improve antimicrobial use. Ann Intern Med. 2014;161(10 Suppl):S53–8.

Tools and Resources

- Srinivasan A. CDC expert commentary. Three steps to antibiotic stewardship [video recording]. New York, NY: Medscape; Nov 15, 2010. Online video: 4 min 56 sec. Available from: http://www.medscape.com/viewarticle/731784

  Centers for Disease Control video includes concept of "time out."

- Start smart—then focus antimicrobial stewardship toolkit for English hospitals [Internet]. London: Public Health England; 2015 [cited 2015 Sep 24]. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/417032/Start_Smart_Then_Focus_FINAL.PDF

  United Kingdom best-practice campaign that emphasizes formal review of antimicrobial prescriptions at 48 to 72 hours.

- Start smart—then focus. Appendix 1: Resource materials: examples of audit tools, review stickers and drug charts [Internet]. London: Public Health England; 2015 [cited 2015 Sep 24]. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/417041/Revised_SSTF_Tools_Annex_FINAL.pdf

  Examples of audit tools and review of therapy prompts.

- Antimicrobial Stewardship Backgrounder. The "Day 3 Bundle"; Tailoring Empiric Antimicrobial Therapy for Inpatients on Day 3 [Internet]. Alberta, CAN: Alberta Health Services; Mar 2015 [cited 2015 Sep 24]. Available from: http://www.albertahealthservices.ca/assets/info/hp/as/if-hp-asb-2015-03-issue-6.pdf

- Department of Health Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection. Secondary care prescriber's checklist [Internet]. London, UK: Department of Health Advisory Committee on ARHAI; 2011 Nov 18 [cited 2015 Aug 19]. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216963/5-SC-dh_130288.pdf

- Stanford University School of Medicine (CME) and Tufts University School of Medicine (CPE). Optimizing antimicrobial therapy with timeouts [online course]. Stanford, CA: Stanford University School of Medicine; 2015 Nov 2 [cited 2016 Mar 10]. Available from: http://online.stanford.edu/course/optimizing-antimicrobial-therapy-time-outs

  A free online CE course produced by Stanford University School of Medicine (CME) and Tufts University School of Medicine. Using practical patient cases, it provides instruction on how to perform "Antibiotic Timeouts" in the hospital setting. Registration required. Course expires November 2, 2017.

Samples/Examples

- Example: Royal Victoria Regional Health Centre - “Start Smart - Then Focus" Algorithm

These documents have been generously shared by various health care institutions to help others develop and build their antimicrobial stewardship programs. We recommend crediting an institution when adopting a specific tool/form/pathway in its original form.

Examples that contain clinical or therapeutic recommendations may not necessarily be consistent with published guidelines, or be appropriate or directly applicable to other institutions. All examples should be considered in the context of the institution’s population, setting and local antibiogram.

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Links with Other Strategies

- Checklists
- De-escalation and streamlining
- Dose optimization
- Improved antimicrobial documentation
- Intravenous to oral conversion
- Prospective audit with intervention and feedback

Disclaimer

Citation

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For further information

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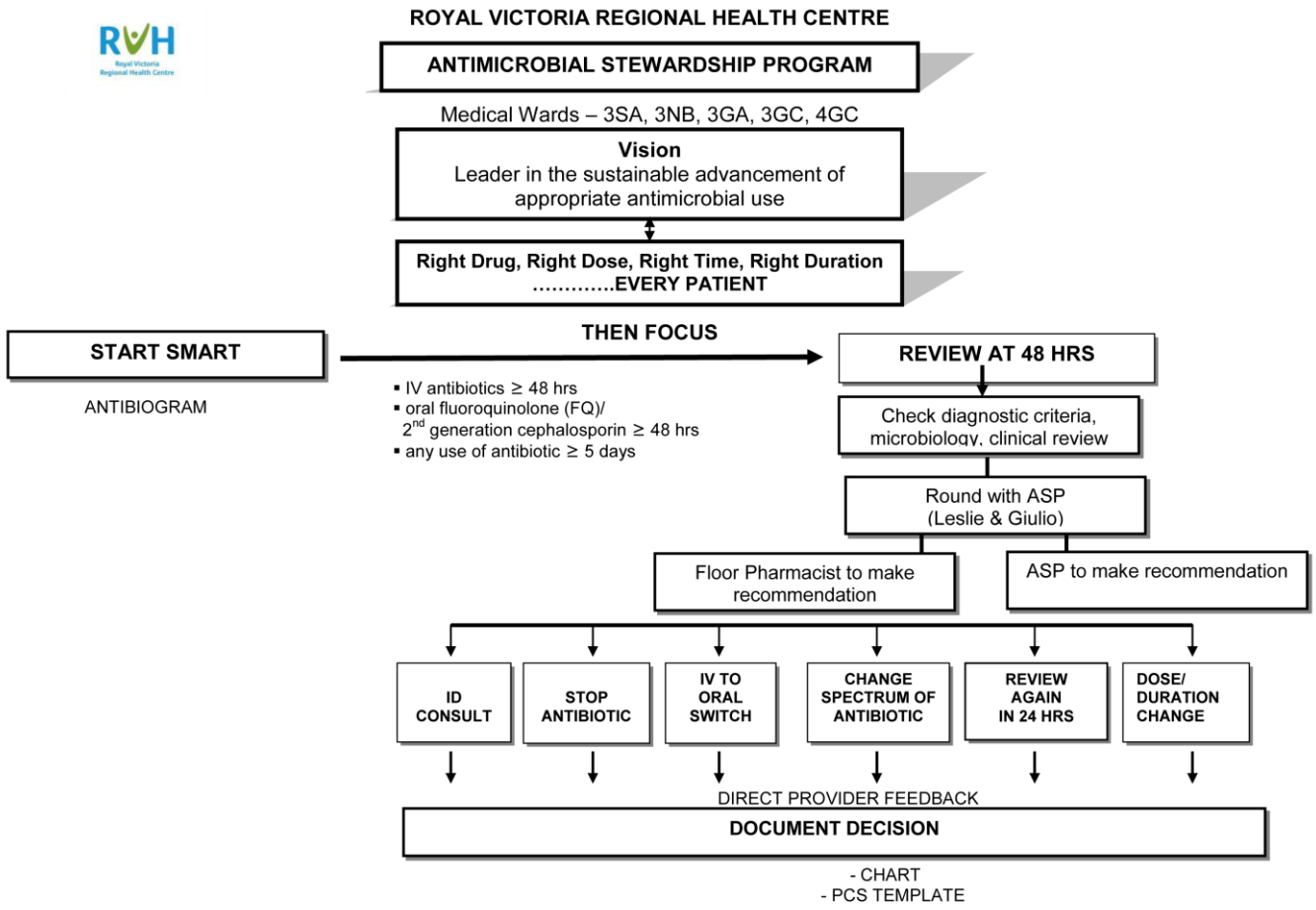
Agency for Health Protection and Promotion
Agence de protection et de promotion de la santé

Example: Royal Victoria Regional Health Centre - “Start Smart - Then Focus" Algorithm



Adapted from: Department of Health Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) Nov 2011 March 2015