

Antimicrobial Stewardship Strategy:

Promotion of timely and appropriate microbiologic sampling

Implementing strategies to promote the appropriate and timely collection of cultures, ideally before antimicrobials are started, to help direct therapy and avoid unnecessary prescribing.



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Priority Level: **A**

Difficulty Level: **2**

Program Stage:

- Early
- ✓ Intermediate
- Advanced

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.

Taking cultures using the appropriate technique, at the appropriate time (ideally before antimicrobials are started), improves the chance of identifying causative pathogens in patients with infection, and this can result in optimized and directed therapy. Timely and reliable cultures can facilitate antimicrobial [de-escalation](#) as well as discontinuation if the prescriber has confidence in the result. Minimizing unnecessary or inappropriate cultures can also help limit unnecessary prescribing. Education and promotion of timely and optimal diagnostics is an important aspect of antimicrobial stewardship.

Examples of promoting timely and appropriate microbiologic sampling include taking blood and additional required cultures before starting empiric antimicrobials in a patient with sepsis; ordering/taking urine cultures only for patients who meet the clinical criteria for a urinary tract infection; and taking cultures of diabetic foot ulcers from deeper tissue after the wound is cleaned.

Promotion of timely and appropriate microbiologic sampling can entail:

- Integrating the ordering and obtaining of cultures and other diagnostic tests into standardized [disease-specific treatment guidelines, pathways, algorithms and/or associated order forms](#).
- Implementing medical directives for nurses to obtain cultures/specimens if not ordered or not already taken in certain situations (e.g., stool samples in patients with diarrhea and suspected *Clostridium difficile* infection).

- Using flags or other signals in the chart, check boxes, or emergency department–unit transfer checklists to indicate whether or not cultures have been obtained.
- Providing clinicians with guidance on appropriate specimen collection techniques and documentation (e.g., for blood cultures: number of sites, volume of blood, whether drawn from central line or peripheral site, and timing).
- Implementing a process to ensure cultures are transported and processed promptly and properly.

Advantages

- Culture results will be more reliable and better able to inform appropriate treatment options.

Disadvantages

- Challenging to integrate into practice in a systematic way.

Requirements

- Personnel to incorporate recommendations into guidelines, clinical pathways, order forms or computerized physician order entry software.

Associated Metrics

- Audit of microbiologic sampling of interest to assess the following:
 - If the appropriate specimen has been ordered (i.e., indicated for clinical scenario).
 - If the specimen was collected at the correct time (i.e., before antibiotics were started).
 - Time for transport of specimens to laboratory.
 - Time from receipt of specimen in laboratory to start of processing.

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.

- Institute for Healthcare Improvement, Centers for Disease Control. Antibiotic stewardship drivers and change package [Internet]. Atlanta, GA: US Department of Health and Human Services, CDC; 2012 [cited 2015 July 24]. 12 p. Available from: http://www.cdc.gov/getsmart/healthcare/pdfs/antibiotic_stewardship_change_package.pdf
- Septimus E, Centers for Disease Control. Get smart for healthcare. Clinician guide for collecting cultures [Internet]. Atlanta, GA: US Department of Health and Human Services, CDC; 2015 [cited 2015 Oct 1]. Available from: <http://www.cdc.gov/getsmart/healthcare/implementation/clinicianguide.html>

Links with Other Strategies

- [Disease-specific treatment guidelines, pathways, algorithms and/or associated order forms](#)
- [Prescriber education](#)

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For further information

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