

Evolutions and Challenges in Best Practices for Sepsis Management



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[Timing and Spectrum of Antibiotic Treatment for Suspected Sepsis and Septic Shock: Why so Controversial? Infect Dis Clin North Am. 2022;36\(4\):719-733. doi:10.1016/j.idc.2022.08.001](#)

In 2016, the Surviving Sepsis Campaign (SSC) introduced new guidelines promoting 1 h or 3 h bundles with requirements to administer empiric broad-spectrum antibiotics within a short time period for sepsis care.

The SSC guidelines were met with considerable controversy. In fact, The Infectious Diseases Society of America (IDSA) withheld their endorsement due to several concerns. A major concern was uncertainty around diagnosing sepsis, since up to 40% of patients treated with antibiotics for possible sepsis turn out to have non-infectious conditions or non-bacterial infections.

Between 2016 and 2020, conflicting guidelines on a time-to-antibiotics target and selection of optimal empiric antibiotic coverage for sepsis were produced. The SSC defined terms for antimicrobial selection in sepsis, but the IDSA felt that the terms were confusing and would not be obvious to practicing clinicians. Terms were also used inconsistently within the guidelines.

Currently, the goal is to move toward a consensus in sepsis antimicrobial guidelines. The American College of Emergency Physicians (ACEP) released a set of guidelines in July 2021, which were endorsed by IDSA, the Society of Critical Care Medicine (SCCM), and 10 other professional societies. In response to their feedback on antimicrobial management recommendations, SSC published a new version of their guidelines in November 2021 specifying that the **cohort targeted for antimicrobials within 1 h** has narrowed from all patients with suspected sepsis or septic shock to just those **patients with septic shock and possible sepsis “where likelihood of infection is high”**. For patients with intermediate likelihood of infection, a time-limited course of rapid investigation to determine a diagnosis is now suggested, concluding with the administration of antimicrobials within 3 h only if concern for infections persists.

Overall, the 2021 SSC and ACEP guidelines make significant progress towards building consensus recommendations, but the fundamental challenge in sepsis management remains. The challenge involves **how to better identify which patients at risk for sepsis will benefit from earlier antibiotics** and whether broad or narrow coverage should be used. One solution could result from translational research on **rapid diagnostics that use biomarkers for sepsis**.

Procalcitonin and C-reactive protein are commonly used biomarkers for sepsis, but as both are also upregulated in noninfectious inflammation, they are not sensitive or specific enough to reliably guide initial sepsis treatment. **Procalcitonin has shown more promise for serial testing of antibiotic response in serious infections**, leading to shorter antibiotic courses associated with lower in-hospital mortality.



“New diagnostics that rapidly quantify the likelihood of infection by bacteria, multi-drug resistant (MDR) organisms, fungi, and other pathogen groups relevant to antimicrobial selection could also have a major clinical impact, given the emphasis on these concepts in the latest guidelines.”