

# Benefits and Risks of De-escalation of Antimicrobial Therapy in ICUs



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[Antimicrobial stewardship programmes focused on de-escalation: a narrative review of efficacy and risks.](#)

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A recent review summarizes the efficacy and risks of antimicrobial stewardship programs (ASPs) focused on de-escalation of antibiotic therapy in the intensive care (ICU) setting.

Multi-drug resistance is an increasing problem due to high levels of antimicrobial consumption and broad-spectrum antimicrobial use. Previous studies show that antimicrobial use in the intensive care setting has increased worldwide. Therefore, **international guidelines recommend antibiotic de-escalation as part of ASPs, in order to decrease the spectrum of empirical antimicrobial therapy.** Implementing antibiotic de-escalation should reduce ecological impacts on a patient's microbiome as well as antimicrobial resistance development.

This study aimed to provide an insight into the latest developments on antibiotic de-escalation in ICUs. Recent data on antibiotic de-escalation in the intensive care setting was researched via PubMed using the terms 'antibiotic de-escalation' and 'antimicrobial stewardship' both with and without 'intensive care' and 'antimicrobial stewardship'. Reviews, meta-analyses, randomized control trials, and observational studies with antibiotic de-escalation-related outcomes prior to and including November 2021 were selected.

Findings indicate that evidence to date is limited, but **antibiotic de-escalation appears to be a safe intervention.** However, antibiotic de-escalation should not be used alone, but alongside other antimicrobial stewardship measures. Additionally, antibiotic de-escalation is not recommended as a quality improvement indicator, as this could encourage overuse of empiric broad-spectrum antimicrobials. Evidence on resistance development is presently inconclusive and studies show mixed results on concerns over increased duration and superinfections with antibiotic de-escalation.

Thus, future well-designed studies should focus on the **benefit and risks of de-escalation of antimicrobial therapy in intensive care patients.** An ASP should include a wide range of measures and involve an infection specialist. The program should also include a review at day 2-3 with microbiology results and clinical progress. Early cessation of antibiotics in unproven infection and antibiotic de-escalation implemented where appropriate are needed in the review. **Rapid diagnostics may also contribute to good antimicrobial stewardship (AMS) in critical care.** For example, using procalcitonin as an AMS tool in COVID-19 patients may lead to antibiotic cessation in around 50% of cases without negatively impacting patient outcomes, ICU, or hospital length of stay.



***“Decreasing antibiotic exposure should be a priority of ASP, and [antibiotic de-escalation] can help reduce broad-spectrum exposure and reduce selective pressure but should not be used alone,” concluded the study authors.***