

## Efficacy, Appropriateness of Antibiotic Use in the ICU



The frequency of antibiotic-resistant pathogens continues to increase, resulting in higher community-acquired infections and high mortality rates in critically ill patients.

In this review, the researchers critically appraise available evidence through a comprehensive literature review to investigate effective empiric antibiotic administration and appropriateness on outcomes of critically ill patients who are at a higher risk of developing resistant pathogens.

Promising new agents are being developed, and some are close to approval. However, there is still a need for antibiotics that are effective against gram-negative strains. A major challenge to antibiotic drug development is that most new formulations are modifications of older agents or with new  $\beta$ -lactamase inhibitors.

There is a need to shift focus from single molecular target agent development to new chemical scaffolds or binding sites. There is also a need for more trials in settings other than complicated intra-abdominal infections and complicated urinary tract infections. In addition, assessment on current regimens for carbapenem-resistant Enterobacterales infection, *S. aureus* bloodstream infections, ventilator-associated pneumonia (VAP) and other multidrug-resistant infections is also much needed.

The researchers contend that the use of new antibiotics should be based on relevant knowledge of their spectrum and properties to ensure they provide an effective mode of action in critically ill patients.

The general consensus is that restricting access and use of new broad-spectrum empirical drugs in critically ill patients is not the right approach. Instead, the focus should be on identifying host response to infection to differentiate between colonisation and true infection and sensitivity to antibiotics used in the ICU.

Appropriate patient management requires adequate antibiotic administration and the ability to monitor patient response so as to discontinue the antibiotic treatment as appropriate. One of the most important determinants of success in a patient with severe infection is the use of the right antibiotic or complementary course of treatment. The use of the three appropriate Ds is recommended: Dosing, Duration and De-escalation to empirically assess the right antibiotic selection.

Source: [Expert Review of Anti-Infective Therapy](#)

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