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Volume 30, Issue 2, 2017, Pages 231-239

## Antibiotic dosing for multidrug-resistant pathogen pneumonia (Review)

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## Abstract

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Purpose of review Nosocomial pneumonia caused by multidrug-resistant pathogens is increasing in the ICU, and these infections are negatively associated with patient outcomes. Optimization of antibiotic dosing has been suggested as a key intervention to improve clinical outcomes in patients with nosocomial pneumonia. This review describes the recent pharmacokinetic/pharmacodynamic data relevant to antibiotic dosing for nosocomial pneumonia caused by multidrug-resistant pathogens. Recent findings Optimal antibiotic treatment is challenging in critically ill patients with nosocomial pneumonia; most dosing guidelines do not consider the altered physiology and illness severity associated with severe lung infections. Antibiotic dosing can be guided by plasma drug concentrations, which do not reflect the concentrations at the site of infection. The application of aggressive dosing regimens, in accordance to the antibiotic's pharmacokinetic/pharmacodynamic characteristics, may be required to ensure rapid and effective drug exposure in infected lung tissues. Summary Conventional antibiotic dosing increases the likelihood of therapeutic failure in critically ill patients with nosocomial pneumonia. Alternative dosing strategies, which exploit the pharmacokinetic/ pharmacodynamic properties of an antibiotic, should be strongly considered to ensure optimal antibiotic exposure and better therapeutic outcomes in these patients. © 2017 Wolters Kluwer Health, Inc.

## Author keywords

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