

Pharmacologic Interventions for Critically Ill Patients

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Empiric Broad-Spectrum Antimicrobial Therapy

Recommendations

- In the absence of a proven or suspected secondary infection, the COVID-19 Treatment Guidelines Panel (the Panel) **recommends against** the use of empiric broad-spectrum antimicrobials in patients with severe or critical COVID-19 (**BIII**).
- As with any hospitalized patient, patients with COVID-19 who receive antimicrobials should be reassessed daily to minimize the adverse consequences of unnecessary antimicrobial therapy (**AIII**).

Rationale

Variable rates of community- and hospital-acquired infections have been reported in adult patients with COVID-19. Bacterial coinfection at the time of hospitalization has been reported in 1% to 3.5% of patients with COVID-19.^{1,2} Secondary infections have been reported in 14% to 37% of patients in intensive care units, but the reported rates have been influenced by differences in the severity of illness, duration of hospitalization, method of diagnosis, and time period studied.^{3,4}

No clinical trials have evaluated the use of empiric broad-spectrum antimicrobials in patients with severe or critical COVID-19 or other coronavirus infections. Routine, empiric use of antimicrobials in patients with severe or critical COVID-19 **is not recommended (BIII)**. This recommendation is intended to mitigate the unintended consequences of antimicrobial side effects and resistance. The use of antimicrobials may be considered in specific situations, such as the presence of a lobar infiltrate on a chest X-ray, leukocytosis, an elevated serum lactate level, microbiologic data, or shock.

The use of antimicrobials in patients with severe or critical COVID-19 should follow guidelines established for other hospitalized patients (i.e., for hospital-acquired pneumonia, ventilator-associated pneumonia, or bloodstream infections associated with central lines). It is unclear whether using corticosteroids or other immunomodulatory agents recommended in the Guidelines should alter such approaches.

Therapeutic Management of Hospitalized Adults With COVID-19

For the Panel's recommendations on the use of abatacept, baricitinib, dexamethasone, infliximab, remdesivir, and tocilizumab, see [Therapeutic Management of Hospitalized Adults With COVID-19](#).

Immune-Based Therapy

For recommendations on the use of immunomodulators in patients with COVID-19, see [Immunomodulators](#).

Antithrombotic Therapy

For the Panel's recommendations regarding the use of antithrombotic therapy in critical care settings, see [Antithrombotic Therapy in Patients With COVID-19](#) and [Therapeutic Management of Hospitalized](#)

References

1. Langford BJ, So M, Raybardhan S, et al. Bacterial co-infection and secondary infection in patients with COVID-19: a living rapid review and meta-analysis. *Clin Microbiol Infect.* 2020;26(12):1622-1629. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32711058>.
2. Garcia-Vidal C, Sanjuan G, Moreno-García E, et al. Incidence of co-infections and superinfections in hospitalized patients with COVID-19: a retrospective cohort study. *Clin Microbiol Infect.* 2021;27(1):83-88. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32745596>.
3. Zangrillo A, Beretta L, Scandroglio AM, et al. Characteristics, treatment, outcomes and cause of death of invasively ventilated patients with COVID-19 ARDS in Milan, Italy. *Crit Care Resusc.* 2020;22(3):200-211. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32900326>.
4. Yang X, Yu Y, Xu J, et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. *Lancet Respir Med.* 2020;8(5):475-481. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32105632>.