

COVID-19 Research Watch
May 08, 2020

CLINICAL PRESENTATION

[Bacterial and fungal co-infection in individuals with coronavirus: A rapid review to support COVID-19 antimicrobial prescribing](#)¹

This literature review of 18 publications reporting on bacterial/fungal co-infections among patients with coronavirus infections - including SARS-1, MERS, SARS-CoV-2, or other CoV infections - found nine studies of co-infections in patients with SARS-CoV-2. Among these nine studies, 8% of patients with COVID-19 were found to have fungal/bacterial co-infection (62/806); however, across all patients included in the 18 studies, 72% received antibacterial therapy (1,450/2,010). Given the findings that there are very few fungal/bacterial co-infections among COVID-19 patients, further attention to antimicrobial stewardship, including appropriate use of antibiotics, is needed during the pandemic.

[Longitudinal Change of SARS-Cov2 Antibodies in Patients with COVID-19](#)²

This study explored the association between immune antibodies and disease progression of patients diagnosed with COVID-19. Of the 112 patients included in the study, serological antibody tests found that 51.79% were IgM and IgG positive, 6.25% were IgM and IgG negative, 0.89% were positive for IgM with no IgG response, and 41.07% were IgG positive and IgM negative. Antibody tests demonstrated that IgM antibodies were detected within a week following infection and IgG antibodies were detected approximately 10 days after infection. IgM antibodies persisted in the body for a month or longer then decreased over time whereas IgG antibodies had a longer duration.

MODELS

[Clinical and laboratory predictors of in-hospital mortality in patients with COVID-19: a cohort study in Wuhan, China](#)³

Using data from 296 consecutive patients hospitalized with COVID-19 in Wuhan's First People's Hospital, the authors developed a clinical and a laboratory model to predict in-hospital mortality rates among those with SARS-CoV-2. The model was validated using a random sample of COVID-19 patients from a second hospital in Wuhan. The laboratory model, which included variables of age, high-sensitivity C-reactive protein, aspartate aminotransferase, neutrophil and lymphocyte count, D-dimer, and glomerular filtration rate, was more sensitive (100%) and specific (93%) than the clinical model, which included variables of age, history of coronary heart disease, and history of hypertension and had a sensitivity of 92% and a specificity of 77%.

[Estimated Demand for US Hospital Inpatient and Intensive Care Unit Beds for Patients With COVID-19 Based on Comparisons with Wuhan and Guangzhou, China](#)⁴

Despite the city's lockdown on January 23, 2020, the number of individuals diagnosed with COVID-19 in Wuhan increased and, as a result, caused hospitals and intensive care units in the area to operate over capacity. During the peak of the epidemic in Wuhan there were

19,425 patients hospitalized (24.5 per 10,000 adults) with 2087 of those patients requiring critical care (2.6 per 10,000 adults). Using these data, the authors estimate that a similar epidemic peak in a populous US city would result in 2.2-4.4 critically ill patients per 10,000 adults, suggesting the potential for exceeding intensive care unit capacity.

ADDITIONAL RESOURCES

[UCSF Library COVID-19 Research and Information Resources](#)
[UCSF Institute for Global Health Sciences COVID-19 Resources](#)
[UC Davis One Health Institute COVID-19 FAQs](#)
[Harvard Viswanath Lab Myths vs Facts](#)

Note on this Document: This document was assembled by graduate and doctoral students attending the University of California, San Francisco with the intent of facilitating the rapid dissemination of information to the global community in order to help during this time. Mana Anvar and Micaela Reyna contributed to these summaries. This work is volunteer based.

References:

- 1 Bacterial and fungal co-infection in individuals with coronavirus: A rapid review to support COVID-19 antimicrobial prescribing | Clinical Infectious Diseases | Oxford Academic. <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa530/5828058?searchresult=1> (accessed May 7, 2020).
- 2 Longitudinal Change of SARS-Cov2 Antibodies in Patients with COVID-19 | The Journal of Infectious Diseases | Oxford Academic. <https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiaa229/5828055> (accessed May 7, 2020).
- 3 Clinical and laboratory predictors of in-hospital mortality in patients with COVID-19: a cohort study in Wuhan, China | Clinical Infectious Diseases | Oxford Academic. <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa538/5828281?searchresult=1> (accessed May 7, 2020).
- 4 Li R, Rivers C, Tan Q, Murray MB, Toner E, Lipsitch M. Estimated Demand for US Hospital Inpatient and Intensive Care Unit Beds for Patients With COVID-19 Based on Comparisons With Wuhan and Guangzhou, China. *JAMA Netw open* 2020; **3**: e208297.