

## COVID-19 Resource Desk

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### New Research

\*note, **PREPRINTS** have not undergone formal peer review

**COVID-19 related publications by Providence caregivers – see [Digital Commons](#)**

### Clinical Syndrome

1. **Multidrug-resistant infection in COVID-19 patients: a meta-analysis.** Hu S et al. *J Infect.* 2022 Nov 5;S0163-4453(22)00640-5. doi: 10.1016/j.jinf.2022.10.043.

<https://www.sciencedirect.com/science/article/pii/S0163445322006405>

COVID-19 is a newly emerging disease in the human population. The World Health Organization classified COVID-19 as a pandemic on March 11, 2020. The disease is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Some affected patients need hospitalization in the intensive care unit (ICU) for critical care and mechanical ventilation, increasing the risk of secondary infection. The cause of this secondary infection may be MDR bacterial infection.

### Epidemiology & Public Health

2. **A multinational Delphi consensus to end the COVID-19 public health threat.** Lazarus JV et al. *Nature.* 2022 Nov 3. doi: 10.1038/s41586-022-05398-2.

<https://www.nature.com/articles/s41586-022-05398-2>

Despite notable scientific and medical advances, broader political, socioeconomic and behavioural factors continue to undercut the response to the COVID-19 pandemic<sup>1,2</sup>. Here we convened, as part of this Delphi study, a diverse, multidisciplinary panel of 386 academic, health, non-governmental organization, government and other experts in COVID-19 response from 112 countries and territories to recommend specific actions to end this persistent global threat to public health. The panel developed a set of 41 consensus statements and 57 recommendations to governments, health systems, industry and other key stakeholders across six domains: communication; health systems; vaccination; prevention; treatment and care; and inequities. In the wake of nearly three years of fragmented global and national responses, it is instructive to note that three of the highest-ranked recommendations call for the adoption of whole-of-society and whole-of-government approaches<sup>1</sup>, while maintaining proven prevention measures using a vaccines-plus approach<sup>2</sup> that employs a range of public health and financial support measures to complement vaccination. Other recommendations with at least 99% combined agreement advise governments and other stakeholders to improve communication, rebuild public trust and engage communities<sup>3</sup> in the management of pandemic responses. The findings of the study, which have been further endorsed by 184 organizations globally,

include points of unanimous agreement, as well as six recommendations with >5% disagreement, that provide health and social policy actions to address inadequacies in the pandemic response and help to bring this public health threat to an end.

- 3. Lifting Universal Masking in Schools - Covid-19 Incidence among Students and Staff.** Cowger TL, et al. *N Engl J Med.* 2022 Nov 9. doi: 10.1056/NEJMoa2211029.  
<https://www.nejm.org/doi/10.1056/NEJMoa2211029>

Among school districts in the greater Boston area, the lifting of masking requirements was associated with an additional 44.9 Covid-19 cases per 1000 students and staff during the 15 weeks after the statewide masking policy was rescinded.

### Healthcare Delivery & Healthcare Workers

- 4. Characteristics and Outcomes of 360 Consecutive COVID-19 Patients Discharged from the Emergency Department with Supplemental Oxygen.** Terp S et al. *Ann Emerg Med.* 2022 Nov 2:S0196-0644(22)01037-X. doi: 10.1016/j.annemergmed.2022.08.449.  
[https://www.annemergmed.com/article/S0196-0644\(22\)01037-X/fulltext](https://www.annemergmed.com/article/S0196-0644(22)01037-X/fulltext)

COVID-19 patients with new supplemental oxygen requirements discharged from the ED had survival comparable to COVID-19 ED patients with mild exertional hypoxia treated with supplemental oxygen in other settings, and this held true when the analysis was restricted to patients with nadir ED index visit oxygen saturations <90%. Discharge of select COVID-19 patients with supplemental oxygen from the ED may provide a viable alternative to hospitalization, particularly when inpatient capacity is limited.

### Prognosis

- 5. Acute and postacute sequelae associated with SARS-CoV-2 reinfection.** Bowe B, Xie Y, Al-Aly Z. *Nat Med.* 2022 Nov 10. doi: 10.1038/s41591-022-02051-3.  
<https://www.nature.com/articles/s41591-022-02051-3>

We used the US Department of Veterans Affairs' national healthcare database to build a cohort of individuals with one SARS-CoV-2 infection (n = 443,588), reinfection (two or more infections, n = 40,947) and a noninfected control (n = 5,334,729). Compared to no reinfection, reinfection contributed additional risks of death (hazard ratio (HR) = 2.17, 95% confidence intervals (CI) 1.93-2.45), hospitalization (HR = 3.32, 95% CI 3.13-3.51) and sequelae including pulmonary, cardiovascular, hematological, diabetes, gastrointestinal, kidney, mental health, musculoskeletal and neurological disorders. The risks were evident regardless of vaccination status. The risks were most pronounced in the acute phase but persisted in the postacute phase at 6 months. Compared to noninfected controls, cumulative risks and burdens of repeat infection increased according to the number of infections. Limitations included a cohort of mostly white males. The evidence shows that reinfection further increases risks of death, hospitalization and sequelae in multiple organ systems in the acute and postacute phase. Reducing overall burden of death and disease due to SARS-CoV-2 will require strategies for reinfection prevention.

### Survivorship & Rehabilitation

- 6. Long-lasting Symptoms After an Acute COVID-19 Infection and Factors Associated With Their Resolution.** Robineau O et al. *JAMA Netw Open*. 2022 Nov 1;5(11):e2240985. doi: 10.1001/jamanetworkopen.2022.40985.

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2798224>

In this cross-sectional study, persistent symptoms were still present in 10.1% of infected individuals at 1 year after SARS-CoV-2 infection. Given the high level of cumulative incidence of COVID-19, the absolute prevalent number of people with persistent symptoms is a public health concern.

## Therapeutics

- 7. Respiratory system mechanics, gas exchange, and outcomes in mechanically ventilated patients with COVID-19-related acute respiratory distress syndrome: a systematic review and meta-analysis.** Reddy MP, et al. *Lancet Respir Med*. 2022 Nov 3:S2213-2600(22)00393-9. doi: 10.1016/S2213-2600(22)00393-9. [https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(22\)00393-9/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(22)00393-9/fulltext)

The association of respiratory mechanics, particularly respiratory system static compliance (CRS), with severity of hypoxaemia in patients with COVID-19-related acute respiratory distress syndrome (ARDS) has been widely debated, with some studies reporting distinct ARDS phenotypes based on CRS. Ascertaining whether such phenotypes exist is important, because they might indicate the need for ventilation strategies that differ from those used in patients with ARDS due to other causes. In a systematic review and meta-analysis of studies published between Dec 1, 2019, and March 14, 2022, we evaluated respiratory system mechanics, ventilator parameters, gas exchange parameters, and clinical outcomes in patients with COVID-19-related ARDS. Among 11 356 patients in 37 studies, mean reported CRS, measured close to the time of endotracheal intubation, was 35.8 mL/cm H<sub>2</sub>O (95% CI 33.9-37.8; I<sup>2</sup>=96.9%, τ<sup>2</sup>=32.6). Pooled mean CRS was normally distributed. Increasing ARDS severity (assessed by PaO<sub>2</sub>/FiO<sub>2</sub> ratio as mild, moderate, or severe) was associated with decreasing CRS. We found no evidence for distinct CRS-based clinical phenotypes in patients with COVID-19-related ARDS, and we therefore conclude that no change in conventional lung-protective ventilation strategies is warranted. Future studies should explore the personalisation of mechanical ventilation strategies according to factors including respiratory system mechanics and haemodynamic status in patients with ARDS.

See also: **COVID-19-related acute respiratory distress syndrome: lessons learned during the pandemic.** Schultz MJ, van Meenen DM, Bos LD. *Lancet Respir Med*. 2022 Nov 3:S2213-2600(22)00401-5. doi: 10.1016/S2213-2600(22)00401-5. Online ahead of print.

[https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(22\)00401-5/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(22)00401-5/fulltext)

- 8. Noninvasive Ventilation Reduces Rates of Intubation Compared With High Flow Oxygenation in Patients With Severe COVID-19.** Gordon DH, Bracey A. *Ann Emerg Med*. 2022 Nov 2:S0196-0644(22)00486-3. doi: 10.1016/j.annemergmed.2022.06.028.

[https://www.annemergmed.com/article/S0196-0644\(22\)00486-3/fulltext](https://www.annemergmed.com/article/S0196-0644(22)00486-3/fulltext)

COVID-19, as a novel pathogen, has brought about unprecedented challenges and strained our health care system to the brink. Traditionally, acute hypoxemic respiratory failure is managed with oxygen therapy, though the optimal modality for oxygen delivery remains unclear. Before the COVID-19 pandemic, the High Flow Nasal Oxygen in the Resuscitation of patients with Acute Lung Injury

(FLORALI) trial suggested that high flow oxygenation is the respiratory support of choice in patients with acute hypoxemic respiratory failure.<sup>1</sup> However, the ideal respiratory support for acute hypoxemic respiratory failure because of COVID-19 has yet to be defined.

9. **Association between treatment failure and hospitalization after receipt of neutralizing monoclonal antibody treatment for COVID-19 outpatients.** Douin DJ et al. *BMC Infect Dis.* 2022 Nov 7;22(1):818. doi: 10.1186/s12879-022-07819-z.  
<https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-022-07819-z>

Comorbidities, lack of prior SARS-CoV-2 vaccination, non-Hispanic black race/ethnicity, obesity, age ≥ 65 years, and male sex are associated with treatment failure of mAbs.

10. **Prolonged prone position ventilation is associated with reduced mortality in intubated COVID-19 patients.** Okin D et al. *Chest.* 2022 Nov 4:S0012-3692(22)04050-8. doi: 10.1016/j.chest.2022.10.034. [https://journal.chestnet.org/article/S0012-3692\(22\)04050-8/pdf](https://journal.chestnet.org/article/S0012-3692(22)04050-8/pdf)

Among intubated COVID-19 patients who received PPV, prolonged PPV was associated with reduced mortality. Prolonged PPV was associated with fewer pronation and supination events and a small increase in rates of facial edema. These findings suggest that prolonged PPV is a safe, effective strategy for mortality reduction in intubated COVID-19 patients.

11. **Rate of Recurrence After Discontinuing Anticoagulation Therapy in Patients With COVID-19-Associated Venous Thromboembolism.** Jara-Palomares L, et al. *JAMA Intern Med.* 2022 Nov 7. doi:10.1001/jamainternmed.2022.4954.  
<https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2797777>

Plain Language Summary: This cohort study assesses the rate of recurrence of venous thromboembolism (VTE) in patients with COVID-19–associated VTE who discontinued anticoagulation therapy.

## Vaccines / Immunology

12. **Comparative Risk of Myocarditis/Pericarditis Following Second Doses of BNT162b2 and mRNA-1273 Coronavirus Vaccines.** Canadian Immunization Research Network (CIRN) Provincial Collaborative Network (PCN) Investigators. *J Am Coll Cardiol.* 2022 Nov 15;80(20):1900-1908. doi: 10.1016/j.jacc.2022.08.799. <https://doi.org/10.1016/j.jacc.2022.08.799>

Myocarditis/pericarditis following mRNA COVID-19 vaccines is rare, but we observed a 2- to 3-fold higher odds among individuals who received mRNA-1273 vs BNT162b2. The rate of myocarditis following mRNA-1273 receipt is highest among younger men (age 18-39 years) and does not seem to be present at older ages. Our findings may have policy implications regarding the choice of vaccine offered.

13. **Omicron BA.5 Neutralization among Vaccine-Boosted Persons with Prior Omicron BA.1/BA.2 Infections.** Pedersen RM, et al. *Emerg Infect Dis.* 2022 Nov 8;28(12). doi: 10.3201/eid2812.221304. [https://wwwnc.cdc.gov/eid/article/28/12/22-1304\\_article](https://wwwnc.cdc.gov/eid/article/28/12/22-1304_article)

Worldwide, millions of persons have received multiple COVID-19 vaccinations and subsequently recovered from SARS-CoV-2 Omicron breakthrough infections. In 2 small, matched cohorts (n = 12, n =

24) in Denmark, we found Omicron BA.1/BA.2 breakthrough infection after 3-dose BNT162b2 vaccination provided improved Omicron BA.5 neutralization over 3-dose vaccination alone.

## Women & Children

14. **Reductions in stillbirths and preterm birth in COVID-19 vaccinated women: a multi-center cohort study of vaccination uptake and perinatal outcomes.** Hui L et al. *Am J Obstet Gynecol.* 2022 Nov 3:S0002-9378(22)00882-1. doi: 10.1016/j.ajog.2022.10.040.

[https://www.ajog.org/article/S0002-9378\(22\)00882-1/pdf](https://www.ajog.org/article/S0002-9378(22)00882-1/pdf)

COVID-19 vaccination during pregnancy was associated with a reduction in stillbirth and preterm birth, and not associated with any adverse impacts on fetal growth or development. Vaccine coverage was significantly influenced by known social determinants of health.

15. **Changes in Distribution of Severe Neurologic Involvement in US Pediatric Inpatients With COVID-19 or Multisystem Inflammatory Syndrome in Children in 2021 vs 2020.** LaRovere KL et al. *JAMA Neurol.* 2022 Nov 7. doi: 10.1001/jamaneurol.2022.3881.

<https://jamanetwork.com/journals/jamaneurology/fullarticle/2798383>

SARS-CoV-2-related neurologic involvement persisted in US children and adolescents hospitalized for COVID-19 or MIS-C in 2021 and was again mostly transient. Central nervous system infection/demyelination accounted for a higher proportion of life-threatening conditions, and most vaccine-eligible patients were unvaccinated. COVID-19 vaccination may prevent some SARS-CoV-2-related neurologic complications and merits further study.

16. **Comparison of Maternal and Neonatal Antibody Levels After COVID-19 Vaccination vs SARS-CoV-2 Infection.** Flannery DD et al. *JAMA Netw Open.* 2022 Nov 1;5(11):e2240993. doi: 10.1001/jamanetworkopen.2022.40993.

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2798223>

This study found that maternal and cord blood IgG antibody levels were higher after COVID-19 vaccination compared with after SARS-CoV-2 infection, with slightly lower placental transfer ratios after vaccination than after infection. The findings suggest that time from infection or vaccination to delivery was the most important factor in transfer efficiency.

17. **COVID-19-Associated Hospitalizations Among U.S. Infants Aged <6 Months - COVID-NET, 13 States, June 2021-August 2022.** COVID-NET Surveillance Team. *MMWR Morb Mortal Wkly Rep.* 2022 Nov 11;71(45):1442-1448. doi: 10.15585/mmwr.mm7145a3.

<https://doi.org/10.15585/mmwr.mm7145a3>

During the Omicron BA.2/BA.5-predominant periods (December 19-August 31, 2021), weekly hospitalizations per 100,000 infants aged <6 months increased from a nadir of 2.2 (week ending April 9, 2022) to a peak of 26.0 (week ending July 23, 2022), and the average weekly hospitalization rate among these infants (13.7) was similar to that among adults aged 65-74 years (13.8). However, the prevalence of indicators of severe disease among hospitalized infants did not increase since the B.1.617.2 (Delta)-predominant period. To help protect infants too young to be vaccinated, prevention should focus on nonpharmaceutical interventions and vaccination of pregnant women, which might provide protection through transplacental transfer of antibodies.

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## GUIDELINES & CONSENSUS STATEMENTS

[American College of Rheumatology Guidance for COVID-19 Vaccination in Patients With Rheumatic and Musculoskeletal Diseases: Version 5](#). Curtis JR et al. *Arthritis Rheumatol*. 2022 Nov 8. doi: 10.1002/art.42372.

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## FDA / CDC / NIH / WHO Updates

CDC - [Interim Recommendations from the Advisory Committee on Immunization Practices for the Use of Bivalent Booster Doses of COVID-19 Vaccines - United States, October 2022](#). MMWR Morb Mortal Wkly Rep. 2022 Nov 11;71(45):1436-1441. doi: 10.15585/mmwr.mm7145a2.

FDA - [Kineret LOA 11082022 \(fda.gov\)](#)

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## Commentary & News

[Pfizer and BioNTech Announce Updated Clinical Data for Omicron BA.4/BA.5-Adapted Bivalent Booster Demonstrating Substantially Higher Immune Response in Adults Compared to the Original COVID-19 Vaccine | Pfizer](#)

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