COVID-19 Resource Desk


Prepared by System Library Services

Retraction Watch

New Research

*note, PREPRINTS have not undergone formal peer review

COVID-19 related publications by Providence caregivers – see Digital Commons

Epidemiology & Public Health


Fungal deaths increased during 2020-2021 compared with previous years, primarily driven by COVID-19-associated fungal deaths, particularly those involving Aspergillus and Candida. Our findings may inform efforts to prevent, identify, and treat severe fungal infections in COVID-19 patients, especially in certain racial/ethnic groups and geographic areas.


COVID-19 was in NYC before being classified as a PHEIC, and eluded surveillance for another month. The delay in recognition limited mitigation efforts; by the time city and state-wide mandates were enacted, 16 and 22 days later, there was already widespread community transmission.


Recurrence of COVID-19 symptoms and positive SARS-CoV-2 test results have been reported after completion of Paxlovid oral antiviral treatment for COVID-19, but real-world evidence of severe illness following Paxlovid is lacking. COVID-19–related hospital admissions and emergency department (ED) encounters occurring 5–15 days after Paxlovid treatment were described using data from a large integrated health care system. Reports of such hospitalizations or ED encounters occurred infrequently, representing <1% of Paxlovid-treated patients over the study period. When administered as an early-stage treatment, Paxlovid might prevent COVID-19–related hospitalization among persons with mild-to-moderate COVID-19 who are at risk for progression to severe disease.

Lagevrio and Paxlovid are oral antiviral drugs effective at preventing hospitalization and death in patients with mild to moderate COVID-19 who are at risk for progression to severe disease. During December 23, 2021–May 21, 2022, 1,076,762 oral antiviral prescriptions were dispensed in the United States. The overall number of antivirals dispensed increased; however, by the end of the study period, dispensing rates were lowest in high vulnerability zip codes, despite these zip codes having the largest number of dispensing sites. Additional public health, regulatory, and policy efforts might help decrease barriers to oral antiviral access, particularly in communities with high social vulnerability.


Illustrated by a clinical case supplemented by epidemiologic data, early reinfections with SARS-CoV-2 Omicron BA.1 after infection with Delta variant, and reinfection with Omicron BA.2 after Omicron BA.1 infection, can occur within 60 days, especially in young, unvaccinated persons. The case definition of reinfection, which influences retesting policies, should be reconsidered.

**Survivorship & Rehabilitation**


The literature search yielded 8373 publications, of which 21 studies met the inclusion criteria, and a total of 80,071 children and adolescents were included. The prevalence of long-COVID was 25.24%, and the most prevalent clinical manifestations were mood symptoms (16.50%), fatigue (9.66%), and sleep disorders (8.42%). Children infected by SARS-CoV-2 had a higher risk of persistent dyspnea, anosmia/ageusia, and/or fever compared to controls. Limitations of the studies analyzed include lack of standardized definitions, recall, selection, misclassification, nonresponse and/or loss of follow-up, and a high level of heterogeneity.


Overall, we found a reduction in odds of long COVID with the omicron variant versus the delta variant of 0·24–0·50 depending on age and time since vaccination. However, the absolute number of people experiencing long COVID at a given time depends on the shape and amplitude of the pandemic curve. For example, given the high numbers of people infected with omicron in the UK from December, 2021, to February, 2022, our data are consistent with the UK Office for National Statistics, who estimated that the numbers of people experiencing long COVID actually increased from 1·3 million in January, 2022, to 1·7 million in March, 2022.4 Considering the UK omicron peak of more than 350 000 new symptomatic COVID-19 cases per day estimated on March 26, 2022, by the ZOE app model and 4% of cases being long COVID, future numbers with long COVID will inevitably rise.
Therapeutics


   Among patients with established cardiovascular disease who were hospitalized with COVID-19, preadmission statin therapy was associated with improved in-hospital outcome, an association that was negated once inflammation and myocardial injury were considered.


   In hospitalised individuals with moderate to severe COVID-19, moderate-certainty evidence shows that systemic JAK inhibitors probably decrease all-cause mortality. Baricitinib was the most often evaluated JAK inhibitor. Moderate-certainty evidence suggests that they probably make little or no difference in improvement in clinical status. Moderate-certainty evidence indicates that systemic JAK inhibitors probably decrease the risk of worsening of clinical status and make little or no difference in the rate of adverse events of any grade, whilst they probably decrease the occurrence of serious adverse events. Based on low-certainty evidence, JAK inhibitors may make little or no difference in the rate of secondary infection. Subgroup analysis by severity of COVID-19 or type of agent failed to identify specific subgroups which benefit more or less from systemic JAK inhibitors. Currently, there is no evidence on the efficacy and safety of systemic JAK inhibitors for individuals with asymptomatic or mild disease (non-hospitalised individuals).


   In patients hospitalized with COVID-19, venous thromboembolism (VTE) has been recognized as an important complication despite the use of prophylactic anticoagulation. The causes of this hypercoagulability in COVID-19 include a hyperinflammatory state, endothelial injury, platelet and complement activation, and coagulopathy.


   We isolated a SARS-CoV-2 BA.2 variant from a person with COVID-19 recrudescence after nirmatrelvir/ritonavir treatment. Antiviral sensitivity and neutralizing antibody testing were performed with both parental SARS-CoV-2 and multiple variants of concern. We found that neither NM resistance nor absence of neutralizing immunity were likely causes of the recrudescence.

There have been no prior meta-analyses describing the association between the usage of regdanvimab and patient prognosis following COVID-19 infection to the best of our knowledge. We perform in this study the first meta-analysis in the literature to evaluate the relationship between regdanvimab administration and patient outcomes following COVID-19 infection.


Corticosteroid in ICU-admitted patients with COVID-19 may be administered based on age, severity, baseline inflammation, and invasive mechanical ventilation. Early administration since symptom onset may prove harmful.


PAC and aspirin was associated with lower mortality risk among patients hospitalized with COVID-19 in a propensity score matched population compared to PAC alone.


We enrolled seven individuals with recurrent symptoms or antigen test conversion following nirmatrelvir-ritonavir treatment. High viral loads (median 6.1 log10 copies/mL) were detected after rebound for a median of 17 days after initial diagnosis. Three had culturable virus for up to 16 days after initial diagnosis. No known resistance-associated mutations were identified.

Vaccines / Immunology


VLA2001 was well tolerated in all tested dose groups, and no safety signal of concern was identified. The highest dose group showed statistically significantly stronger immunogenicity with similar tolerability and safety, and was selected for phase 3 clinical development.

CanSino vaccine was effective at preventing COVID-19 illness and highly effective at preventing hospitalization and death. It will be useful to further evaluate duration of protection and assess the value of booster doses to prevent COVID-19 and severe outcomes.


Here, coupled with Spike structural comparisons, we show that BA.2.12.1 and BA.4/BA.5 exhibit comparable ACE2-binding affinities to BA.2. Importantly, BA.2.12.1 and BA.4/BA.5 display stronger neutralization evasion than BA.2 against the plasma from 3-dose vaccination and, most strikingly, from post-vaccination BA.1 infections. To delineate the underlying antibody evasion mechanism, we determined the escaping mutation profiles, epitope distribution and Omicron neutralization efficacy of 1640 RBD-directed neutralizing antibodies (NAbs), including 614 isolated from BA.1 convalescents. Interestingly, post-vaccination BA.1 infection mainly recalls wildtype-induced humoral memory. The resulting elicited antibodies could neutralize both wildtype and BA.1 and are enriched on non-ACE2-competing epitopes. However, most of these cross-reactive NAbs are heavily escaped by L452Q, L452R and F486V. BA.1 infection can also induce new clones of BA.1-specific antibodies that potently neutralize BA.1; nevertheless, these NAbs are largely escaped by BA.2/BA.4/BA.5 due to D405N and F486V, and react weakly to pre-Omicron variants, exhibiting poor neutralization breadths. As for therapeutic NAbs, Bebtelovimab4 and Cilgavimab5 can effectively neutralize BA.2.12.1 and BA.4/BA.5, while the S371F, D405N and R408S mutations would undermine most broad sarbecovirus NAbs. Together, our results indicate that Omicron may evolve mutations to evade the humoral immunity elicited by BA.1 infection, suggesting that BA.1-derived vaccine boosters may not achieve broad-spectrum protection against new Omicron variants.


Among hospitalized patients with severe/critical breakthrough COVID-19, a recent fourth dose was associated with significant protection against mechanical ventilation or death, compared to three doses.


Proven IgE-mediated hypersensitivity to SARS-CoV-2 vaccines is extremely rare and not increased in comparison with reported hypersensitivity to other vaccines. The value of skin tests is unclear and nonspecific reactions, in particular when intradermal testing is applied, should be considered.

21. **Neutralization Escape by SARS-CoV-2 Omicron Subvariants BA.2.12.1, BA.4, and BA.5.**

In recent months, multiple lineages of the omicron (B.1.1.529) variant of SARS-CoV-2 have emerged, with subvariants BA.1 and BA.2 showing substantial escape from neutralizing antibodies. Subvariant BA.2.12.1 is now the dominant strain in the United States, and BA.4 and BA.5 are dominant in South Africa. Subvariants BA.4 and BA.5 have identical sequences of the spike protein.


The results of this cohort study suggest that receipt of a fourth BNT162b2 dose conferred high protection against COVID-19 hospitalizations and deaths among LTCF residents during a substantial Omicron variant surge, but protection was modest against infection. These findings are relevant to the control of COVID-19 pandemic globally, especially among the population of LTCFs.

23. **Characterising the background incidence rates of adverse events of special interest for covid-19 vaccines in eight countries: multinational network cohort study.** Li X et al. *BMJ.* 2021 Jun 14;373:n1435. doi: 10.1136/bmj.n1435. [https://www.bmj.com/content/373/bmj.n1435](https://www.bmj.com/content/373/bmj.n1435)

This study found large variations in the observed rates of AESIs by age group and sex, showing the need for stratification or standardisation before using background rates for safety surveillance. Considerable population level heterogeneity in AESI rates was found between databases.

Women & Children


BBV152 was well tolerated in children aged 2-18 years, and induced higher neutralising antibody responses than those observed in adults, in whom the efficacy (ie, the prevention or decrease in the severity of COVID-19 infection) has been demonstrated.

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Compared with the pre-Delta period, pregnant and nonpregnant WRA were at increased risk for severe COVID-19 in the Delta period.

Despite differences in demographics and clinical characteristics of children with influenza or COVID-19, the frequency of life-threatening complications was similar. Our findings highlight the importance of implementing prevention measures to reduce transmission and disease severity of influenza and COVID-19.


Vaccines are safe and effective in protecting individuals and populations against infectious diseases. New vaccines are evaluated by a long-standing, rigorous, and transparent process by the US Food and Drug Administration and the Centers for Disease Control and Prevention (CDC). All available safety and efficacy data are reviewed before authorization or approval of policy recommendations.


We performed a retrospective, observational, matched-cohort study involving pregnant women between the ages of 16 and 49 years at eight Vaccine Safety Datalink sites from December 15, 2020, through July 1, 2021. We matched each dose of a Food and Drug Administration–authorized Covid-19 vaccine received by a pregnant woman to an unvaccinated pregnant woman, according to study site and pregnancy start date. Included in the pregnancy cohort were women who were subsequently found to be pregnant within 28 days after receiving the vaccine. Vaccinations were captured through electronic health records, claims data, and bidirectional linkages with state and local immunization registries.


Maternal vaccination with two doses of mRNA vaccine was associated with a reduced risk of hospitalization for Covid-19, including for critical illness, among infants younger than 6 months of age. (Funded by the Centers for Disease Control and Prevention.).


Our findings showed that for hospitalized children who had no past COVID-19 or vaccination, Omicron BA.2 was not mild. Omicron BA.2 appeared to be more neuropathogenic than influenza and parainfluenza viruses. It targeted the upper airways more than influenza virus.

31. SARS-CoV-2 co-detection with influenza A and other respiratory viruses among school-aged children and their household members- March 12, 2020, to February 22, 2022, Dane County,

Of 2,109 participants (497 index children in 497 households with 1,612 additional household members), two (0.1%) were positive for both SARS-CoV-2 and influenza A; an additional 11 (0.5%) were positive for SARS-CoV-2 and another RPP-covered respiratory virus. Co-detections predominantly affected school-aged children (12 out of 13 total) and were noted in 11 of 497 households. SARS-CoV-2 co-detections with other respiratory viruses were uncommon and predominated in school-aged children.

GUIDELINES & CONSENSUS STATEMENTS

American Academy of Pediatrics Applauds CDC Approval of Safe, Effective COVID-19 Vaccines for Children Ages 6 Months and Older

FDA / CDC / NIH / WHO Updates

CDC Recommends COVID-19 Vaccines for Young Children

CDC Recommends Moderna COVID-19 Vaccine for Children and Adolescents

Commentary & Press Releases

MODERNA ANNOUNCES BIVALENT BOOSTER MRNA-1273.214 DEMONSTRATES POTENT NEUTRALIZING ANTIBODY RESPONSE AGAINST OMICRON SUBVARIANTS BA.4 AND BA.5

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