Providence

COVID-19 Resource Desk

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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

1. **Emergence and spread of two SARS-CoV-2 variants of interest in Nigeria.** Olawoye IB et al. *Nat Commun*. 2023 Feb 13;14(1):811. doi: 10.1038/s41467-023-36449-5. https://www.nature.com/articles/s41467-023-36449-5

Identifying the dissemination patterns and impacts of a virus of economic or health importance during a pandemic is crucial, as it informs the public on policies for containment in order to reduce the spread of the virus. In this study, we integrated genomic and travel data to investigate the emergence and spread of the SARS-CoV-2 B.1.1.318 and B.1.525 (Eta) variants of interest in Nigeria and the wider Africa region. By integrating travel data and phylogeographic reconstructions, we find that these two variants that arose during the second wave in Nigeria emerged from within Africa, with the B.1.525 from Nigeria, and then spread to other parts of the world. Data from this study show how regional connectivity of Nigeria drove the spread of these variants of interest to surrounding countries and those connected by air-traffic. Our findings demonstrate the power of genomic analysis when combined with mobility and epidemiological data to identify the drivers of transmission, as bidirectional transmission within and between African nations are grossly underestimated as seen in our import risk index estimates.

2. **COVID-19 Vaccination Coverage and Demographic Characteristics of Infants and Children Aged 6 Months-4 Years - United States, June 20-December 31, 2022.** Murthy BP, et al. *MMWR Morb Mortal Wkly Rep*. 2023 Feb 17;72(7):183-189. doi: 10.15585/mmwr.mm7207a4. https://www.cdc.gov/mmwr/volumes/72/wr/mm7207a4.htm?s_cid=mm7207a4_w

To assess COVID-19 vaccination coverage among children aged 6 months-4 years in the United States, coverage with ≥1 dose* and completion of the 2-dose or 3-dose primary vaccination series† were assessed using vaccine administration data for the 50 U.S. states and District of Columbia submitted from June 20 (after COVID-19 vaccine was first authorized for this age group) through December 31, 2022. As of December 31, 2022, ≥1-dose COVID-19 vaccination coverage among children aged 6 months-4 years was 10.1% and was 5.1% for series completion. Coverage with ≥1 dose varied by jurisdiction (range = 2.1% [Mississippi] to 36.1% [District of Columbia]) as did coverage with a completed series (range = 0.7% [Mississippi] to 21.4% [District of Columbia]), respectively. By age group, 9.7 % of children aged 6-23 months and 10.2% of children aged 2-4 years received ≥1 dose;

4.5% of children aged 6-23 months and 5.4% of children aged 2-4 years completed the vaccination series. Among children aged 6 months-4 years, ≥1-dose COVID-19 vaccination coverage was lower in rural counties (3.4%) than in urban counties (10.5%). Among children aged 6 months-4 years who received at least the first dose, only 7.0% were non-Hispanic Black or African American (Black), and 19.9% were Hispanic or Latino (Hispanic), although these demographic groups constitute 13.9% and 25.9% of the population, respectively. COVID-19 vaccination coverage among children aged 6 months-4 years is substantially lower than that among older children. Efforts are needed to improve vaccination coverage among children aged 6 months-4 years to reduce COVID-19-associated morbidity and mortality.

3. **COVID-19 Bivalent Booster Vaccination Coverage and Intent to Receive Booster Vaccination Among Adolescents and Adults - United States, November-December 2022.** Lu PJ et al. *MMWR Morb Mortal Wkly Rep*. 2023 Feb 17;72(7):190-198. doi: 10.15585/mmwr.mm7207a5. https://www.cdc.gov/mmwr/volumes/72/wr/mm7207a5.htm?s_cid=mm7207a5_w

Based on data collected during October 30-December 31, 2022, from the National Immunization Survey-Child COVID Module (NIS-CCM) (4), among all adolescents aged 12-17 years who completed a primary series, 18.5% had received a bivalent booster dose, 52.0% had not yet received a bivalent booster but had parents open to booster vaccination for their child, 15.1% had not received a bivalent booster and had parents who were unsure about getting a booster vaccination for their child, and 14.4% had parents who were reluctant to seek booster vaccination for their child. Based on data collected during October 30-December 31, 2022, from the National Immunization Survey-Adult COVID Module (NIS-ACM) (4), 27.1% of adults who had completed a COVID-19 primary series had received a bivalent booster, 39.4% had not yet received a bivalent booster but were open to receiving booster vaccination, 12.4% had not yet received a bivalent booster and were unsure about getting a booster vaccination, and 21.1% were reluctant to receive a booster. Adolescents and adults in rural areas had a much lower primary series completion rate and up-to-date vaccination coverage. Bivalent booster coverage was lower among non-Hispanic Black or African American (Black) and Hispanic or Latino (Hispanic) adolescents and adults compared with non-Hispanic White (White) adolescents and adults. Among adults who were open to receiving booster vaccination, 58.9% reported not having received a provider recommendation for booster vaccination, 16.9% had safety concerns, and 4.4% reported difficulty getting a booster vaccine. Among adolescents with parents who were open to getting a booster vaccination for their child, 32.4% had not received a provider recommendation for any COVID-19 vaccination, and 11.8% had parents who reported safety concerns. Although bivalent booster vaccination coverage among adults differed by factors such as income, health insurance status, and social vulnerability index (SVI), these factors were not associated with differences in reluctance to seek booster vaccination. Health care provider recommendations for COVID-19 vaccination; dissemination of information by trusted messengers about the continued risk for COVID-19-related illness and the benefits and safety of bivalent booster vaccination; and reducing barriers to vaccination could improve COVID-19 bivalent booster coverage among adolescents and adults.

Healthcare Delivery & Healthcare Workers

4. **Creating a Comprehensive Pandemic Response to Decrease Hospitalist Burnout During COVID-19: Intervention vs Control Results in 2 Comparable Hospitals (HOSP-CPR).** James TT,

Hudon R, Merrick T, Olson L, Hanes D, Scanlan JM. **[Providence authors]**. *J Gen Intern Med.* 2023 Feb 10. doi: 10.1007/s11606-023-08041-6. https://doi.org/10.1007/s11606-023-08041-6

Three hospitalists designated as wellness warriors created weekly COVID group meetings, providing up-to-date information about COVID-19 infection rates, treatments, and work-flow changes. Discussions included coping and vaccine hesitancy, difficult case debriefs, and intensive care unit updates. Individual coaching was also offered. Meeting minutes were taken and sessions were recorded for asynchronous access. We believe the intervention resulted in substantial burnout prevention and is feasible for adoption in most hospitals and clinics.

5. **Perceived Hospital Stress, Severe Acute Respiratory Syndrome Coronavirus 2 Activity, and Care Process Temporal Variance During the COVID-19 Pandemic.** Anesi GL et al. *Crit Care Med*. 2023 Feb 15. doi: 10.1097/CCM.0000000000005802. https://journals.lww.com/ccmjournal/Fulltext/9900/Perceived_Hospital_Stress,_Severe_Acute.94.aspx

During the COVID-19 pandemic, perceived care deviations were common and potentially avoidable patient harm was rare. Perceived hospital stress persisted for weeks after surges peaked.

Survivorship & Rehabilitation

6. **Serological response to vaccination in post-acute sequelae of COVID.** Joung S et al. *BMC Infect Dis*. 2023 Feb 16;23(1):97. doi: 10.1186/s12879-023-08060-y. https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-023-08060-y

We found evidence of aberrant immune response distinguishing PASC from recovered COVID. This aberrancy is marked by excess IgG-S activation and ACE2 binding along with findings consistent with a delayed or dysfunctional immunoglobulin class switching, all of which is unmasked by vaccine provocation. These results suggest that measures of aberrant immune response may offer promise as tools for diagnosing and distinguishing PASC from non-PASC phenotypes, in addition to serving as potential targets for intervention.

Therapeutics

7. **Real-world use of nirmatrelvir-ritonavir in outpatients with COVID-19 during the era of omicron variants including BA.4 and BA.5 in Colorado, USA: a retrospective cohort study.** Aggarwal NR et al. *Lancet Infect Dis*. 2023 Feb 10:S1473-3099(23)00011-7. doi: 10.1016/S1473-3099(23)00011-7. https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(23)00011-7/fulltext

Real-world evidence reported during a BA.2, BA2.12.1, BA.4, and BA.5 omicron surge showed an association between nirmatrelvir-ritonavir treatment and reduced 28-day all-cause hospitalisation, all-cause mortality, and visits to the emergency department. With results that are among the first to suggest effectiveness of nirmatrelvir-ritonavir for non-hospitalised patients during an omicron period inclusive of BA.4 and BA.5 subvariants, these data support nirmatrelvir-ritonavir as an ongoing first-line treatment for adults acutely infected with SARS-CoV-2.

FUNDING: US National Institutes of Health.

8. **Early Treatment with Pegylated Interferon Lambda for Covid-19.** Reis G et al. *N Engl J Med*. 2023 Feb 9;388(6):518-528. doi: 10.1056/NEJMoa2209760. https://www.nejm.org/doi/10.1056/NEJMoa2209760

Among predominantly vaccinated outpatients with Covid-19, the incidence of hospitalization or an emergency department visit (observation for >6 hours) was significantly lower among those who received a single dose of pegylated interferon lambda than among those who received placebo. (Funded by FastGrants and others; TOGETHER ClinicalTrials.gov number, NCT04727424.).

9. **How long is too long: A retrospective study evaluating the impact of the duration of noninvasive oxygenation support strategies (high flow nasal cannula & BiPAP) on mortality in invasive mechanically ventilated patients with COVID-19.** Kasarabada A et al. *PLoS One*. 2023 Feb 16;18(2):e0281859. doi: 10.1371/journal.pone.0281859. eCollection 2023. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0281859

Time spent on noninvasive oxygenation support [as defined by high flow nasal cannula (HFNC) and BiPAP] prior to IMV increased mortality risk. Research for the generalizability of our findings to other respiratory failure patient populations is needed.

10. **Viral burden rebound in hospitalised patients with COVID-19 receiving oral antivirals in Hong Kong: a population-wide retrospective cohort study.** Wong CKH, Lau KTK, Au ICH, Lau EHY, Poon LLM, et al. *Lancet Infect Dis*. 2023 Feb 13:S1473-3099(22)00873-8. doi: 10.1016/S1473-3099(22)00873-8. https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(22)00873-8/fulltext

Viral burden rebound rates are similar between patients with antiviral treatment and those without. Importantly, viral burden rebound was not associated with adverse clinical outcomes.
FUNDING: Health and Medical Research Fund, Health Bureau, The Government of the Hong Kong Special Administrative Region, China.

Vaccines / Immunology

11. **Long-term effectiveness of COVID-19 vaccines against infections, hospitalisations, and mortality in adults: findings from a rapid living systematic evidence synthesis and meta-analysis up to December, 2022.** Wu N, et al. *Lancet Respir Med*. 2023 Feb 10:S2213-2600(23)00015-2. doi: 10.1016/S2213-2600(23)00015-2. https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(23)00015-2/fulltext

Our analyses indicate that vaccine effectiveness generally decreases over time against SARS-CoV-2 infections, hospitalisations, and mortality. The baseline vaccine effectiveness levels for the omicron variant were notably lower than for other variants. Therefore, other preventive measures (eg, face-mask wearing and physical distancing) might be necessary to manage the pandemic in the long term.
FUNDING: Canadian Institutes of Health Research and the Public Health Agency of Canada.

Women & Children

12. **Evaluation of BNT162b2 Covid-19 Vaccine in Children Younger than 5 Years of Age.** Muñoz FM et al. *N Engl J Med*. 2023 Feb 16;388(7):621-634. doi: 10.1056/NEJMoa2211031. https://www.nejm.org/doi/10.1056/NEJMoa2211031

A three-dose primary series of 3-µg BNT162b2 was safe, immunogenic, and efficacious in children 6 months to 4 years of age. (Funded by BioNTech and Pfizer; ClinicalTrials.gov number, NCT04816643.).

13. **Preliminary Estimates of Effectiveness of Monovalent mRNA Vaccines in Preventing Symptomatic SARS-CoV-2 Infection Among Children Aged 3-5 Years - Increasing Community Access to Testing Program, United States, July 2022-February 2023.** Fleming-Dutra KE, et al. *MMWR Morb Mortal Wkly Rep*. 2023 Feb 17;72(7):177-182. doi: 10.15585/mmwr.mm7207a3. https://www.cdc.gov/mmwr/volumes/72/wr/mm7207a3.htm?s_cid=mm7207a3_w

Monovalent mRNA vaccine effectiveness (VE) against symptomatic SARS-CoV-2 infection was evaluated using the ICATT program, which provides SARS-CoV-2 testing to persons aged ≥3 years at pharmacy and community-based testing sites nationwide. Among children aged 3-5 years with one or more COVID-19-like illness symptoms¶ for whom a nucleic acid amplification test (NAAT) was performed during August 1, 2022-February 5, 2023, VE of 2 monovalent Moderna doses (complete primary series) against symptomatic infection was 60% (95% CI = 49% to 68%) 2 weeks-2 months after receipt of the second dose and 36% (95% CI = 15% to 52%) 3-4 months after receipt of the second dose. Among symptomatic children aged 3-4 years with NAATs performed during September 19, 2022-February 5, 2023, VE of 3 monovalent Pfizer-BioNTech doses (complete primary series) against symptomatic infection was 31% (95% CI = 7% to 49%) 2 weeks-4 months after receipt of the third dose; statistical power was not sufficient to estimate VE stratified by time since receipt of the third dose. Complete monovalent Moderna and Pfizer-BioNTech primary series vaccination provides protection for children aged 3-5 and 3-4 years, respectively, against symptomatic infection for at least the first 4 months after vaccination. CDC expanded recommendations for use of updated bivalent vaccines to children aged ≥6 months on December 9, 2022, which might provide increased protection against currently circulating SARS-CoV-2 variants. Children should stay up to date with recommended COVID-19 vaccines, including completing the primary series; those who are eligible should receive a bivalent vaccine dose.

FDA / CDC / NIH / WHO Updates

CDC and FDA Identify Preliminary COVID-19 Vaccine Safety Signal for Persons Aged 65 Years and Older

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