Naval Medical Center Portsmouth (NMCP) COVID-19 Literature Report #100: Friday, 19 August 2022

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Purpose: These reports, which were published twice a week then biweekly from March 2020 until August 2022, were curated collections of current research, special reports, and news regarding the COVID-19 pandemic that may be of interest to medical providers, leadership, and decision makers. All reports are available online at https://nmcp.libguides.com/covidreport. Archived reports are also available through the Medical Heritage Library and BUMED's Office of Medical History collection at archive.org.

Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, I cannot cover everything in the literature on COVID-19. Due to the rapid evolution of the literature, I will not update past reports when new information arises; for retracted papers specific to COVID-19, see the list of retracted papers from Retraction Watch.

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An End Has a Start

Reflecting on the NMCP COVID-19 Literature Reports

The novel coronavirus cases caught my attention early. On 21 January 2020, I asked my fellow medical librarian colleagues on social media about it: "#medlibs: Do you pull together resources (articles, websites, etc) for your patrons on emerging or newsworthy medical topics? For example, new coronovirus [sic] outbreak in China, major new studies. Do you have demand for that sort of thing?"

Only a few people responded and no one really discussed it. Still, my gut told me there was something there, so I set up some literature alerts and kept an eye out for notable news items. In my role as a medical librarian, I had done something similar for 2009 H1N1 pandemic, the 2015 Zika virus outbreak, and other health threats. I assumed it would be more for my personal interest and maybe a few providers might ask for information.

Soon after the World Health Organization declared the novel coronavirus outbreak a pandemic on 11 March 2020, the library's immediate leadership approached me about putting together something that could be disseminated to leaders and decision makers. My initial interest and monitoring morphed into these reports; it was a relatively easy transition.

The first report went out on Tuesday, 31 March 2020 and was only 8 pages (which seemed ridiculously long at the time). Already there were over 165,000 cases of COVID-19 in the United States and the pandemic was barely underway. I thought I would do these reports for a short time — maybe a few months at best — and we would adjust to a new "normal". I was too optimistic by far, even in my pessimism. The reports would span weeks, then months, then years.

Now, two and half years later, this is the last NMCP COVID-19 Literature Report. I compiled the reports, sent to my leadership, and really never knew if anyone read them, if they mattered or made a difference. I kept at it though, and in doing so became an "expert" at covid literature. There are things I wish I didn't know about this disease and pandemic, things I wish I had never seen or read, and so many things I wish had been done differently.

In many ways ending this project is a relief, but it is also bittersweet. This project has consumed untold hours of my professional life and given me a front-row seat to documenting the covid pandemic. It has been a depressing yet invigorating learning experience. It's time I focused on other efforts.

The covid pandemic continues as there are new, emerging, and ongoing threats to public health: monkeypox; polio; Langya virus; climate change and its impact on human health and infectious diseases. I will monitor those events as well — and hope there will not be a need for another set of reports like these.

The Big Picture

News in Brief

"CDC unveils streamlined COVID-19 guidance" (CIDRAP).

"A 'staggering' number of people couldn't get care during the pandemic, poll finds" (NPR).

CDC

"In an effort to address its missteps during Covid, CDC plans an 'ambitious' agency overhaul" (STAT).

"CDC, under fire, lays out plan to become more nimble and accountable" (WP).

Beyond COVID

"Abortion bans complicate access to drugs for cancer, arthritis, even ulcers" (WP).

Journal Articles

MMWR: Summary of Guidance for Minimizing the Impact of COVID-19 on Individual Persons, Communities, and Health Care Systems — United States, August 2022 (19 August 2022)

> "What is already known about this topic? High levels of immunity and availability of effective COVID-19 prevention and management tools have reduced the risk for medically significant illness and death.
>
> What is added by this report? To prevent medically significant COVID-19 illness and death, persons must understand their risk, take steps to protect themselves and others with vaccines, therapeutics, and nonpharmaceutical interventions when needed, receive testing and wear masks when exposed, receive testing if symptomatic, and isolate for ≥5 days if infected.
>
> What are the implications for public health practice? Medically significant illness, death, and health care system strain can be reduced through vaccination and therapeutics to prevent severe illness, complemented by use of multiple prevention methods to reduce exposure risk and an emphasis on protecting persons at high risk for severe illness."

COVID-19 Vaccines

News in Brief

"Pending regulatory approval, Pfizer/BioNTech's Omicron-specific COVID vaccine could be ready to roll out as soon as October, BioNTech announced" (Medpage; see also: BioNTech press release).

"What's behind the FDA's controversial strategy for evaluating new COVID boosters" (NPR).

"A complicated fall vaccine campaign: Updated Covid boosters, flu shots, and how to time the jabs" (STAT).

Journal Articles

Cell Rep Med: Multiple BCG vaccinations for prevention of COVID-19 and other infectious diseases in Type 1 diabetes (15 August 2022)

> "There is a need for safe and effective platform vaccines to protect against COVID-19 and other infectious diseases. In this randomized, double-blinded, placebo-controlled Phase 2/3 trial, we evaluate the safety and efficacy of multi-dose Bacillus Calmette-Guerin (BCG) vaccine for prevention of COVID-19 and other infectious disease in a COVID-19-unvaccinated, at-risk-community-based cohort. The at-risk population are adults with type 1 diabetes. We enrolled 144 subjects and randomized 96 to BCG and 48 to placebo. There were no drop-outs over the 15-month trial. A cumulative incidence of 12.5% of placebo-treated and 1% of BCG-treated participants meets criteria for confirmed COVID-19, yielding an efficacy of 92%. The BCG group also displays fewer infectious disease symptoms and lesser severity, and fewer infectious disease events per patient, including COVID-19. There were no BCG-related systemic adverse events. BCG's broad-based infection protection suggests that it may provide platform protection against new SARS-CoV-2 variants and other pathogens."

JAMA Netw Open: Health Care Utilization in the 6 Months Following SARS-CoV-2 Infection (12 August 2022)

> "Question: Is SARS-CoV-2 associated with health care utilization 6 months after the acute stage of infection?
>
> Findings: In this cohort study of 127 859 patients with positive SARS-CoV-2 test results matched to 127 859 patients with negative SARS-CoV-2 test results, health care utilization was elevated in patients with positive SARS-CoV-2 results 6 months after the acute infection. Other than COVID-19 and infectious disease sequelae, the most notable post–

COVID-19 conditions associated with elevated health care utilization over 6 months included alopecia (hair loss), bronchitis, pulmonary embolism or deep vein thrombosis, and dyspnea.

Meaning: These findings suggest that health care systems should consider long-term strategic resource allocation in response to the expected elevated health care utilization experienced by patients with SARS-CoV-2 infection for at least 6 months following the acute stage of infection."

JAMA Ophthalmol: COVID-19 Vaccination Rates Among US Adults With Vision or Hearing Disabilities (11 August 2022)

"Question: What is the prevalence of COVID-19 vaccination among US adults with vision or hearing disabilities?

Findings: In this cross-sectional study of 916 085 participants, adults with blindness were less likely to initiate COVID-19 vaccination compared with adults with little to no vision impairment. Adults with deafness were also less likely to initiate the COVID-19 vaccination compared with adults with little to no hearing impairment.

Meaning: The findings suggest that, compared with adults without vision or hearing impairment, COVID-19 vaccination rates were lower among adults with vision or hearing disabilities, and additional research may be needed to monitor COVID-19 vaccination disparities among this population."

JAMA Netw Open: Durability of Heterologous and Homologous COVID-19 Vaccine Boosts (10 August 2022)

"Question: What is the durability of humoral and cellular immune responses in individuals who originally received the BNT162b2 vaccine and were boosted with Ad26.COV2.S or BNT162b2?

Findings: In this cohort study of 68 adults, both Ad26.COV2.S and BNT162b2 were associated with increased humoral and cellular immune responses. Boosting with Ad26.COV2.S was associated with durable antibody and T-cell responses for at least 4 months.

Meaning: A heterologous mix-and-match vaccine strategy was associated with durable antibody and T-cell responses against the SARS-CoV-2 Omicron variant."

Vaccine: COVID-19 vaccine hesitancy cannot fully explain disparities in vaccination coverage across the contiguous United States (08 August 2022)

> "Vaccine hesitancy has been identified as a major obstacle preventing comprehensive coverage against the COVID-19 pandemic. However, few studies have analyzed the association between ex-ante vaccine hesitancy and ex-post vaccination coverage.
>
> This study leveraged one-year county-level data across the contiguous United States to examine whether the prospective vaccine hesitancy eventually translates into differential vaccination rates, and whether vaccine hesitancy can explain socioeconomic, racial, and partisan disparities in vaccine uptake. A set of structural equation modeling was fitted with vaccine hesitancy and vaccination rate as endogenous variables, controlling for various potential confounders.
>
> The results demonstrated a significant negative link between vaccine hesitancy and vaccination rate, with the difference between the two continuously widening over time. Counties with higher socioeconomic statuses, more Asian and Hispanic populations, more elderly residents, greater health insurance coverage, and more Democrats presented lower vaccine hesitancy and higher vaccination rates. However, underlying determinants of vaccination coverage and vaccine hesitancy were divergent regarding their different associations with exogenous variables. Mediation analysis further demonstrated that indirect effects from exogenous variables to vaccination coverage via vaccine hesitancy only partially explained corresponding total effects, challenging the popular narrative that portrays vaccine hesitancy as a root cause of disparities in vaccination.
>
> Our study highlights the need of well-funded, targeted, and ongoing initiatives to reduce persisting vaccination inequities."

Transmission, Exposure, and Surveillance

News in Brief

"How much virus does a person with COVID exhale? New research has answers" (Nature).

Opinion: "PCR testing can help clarify confusion over Covid-19 rebound and isolation" (STAT).

"When you have covid, here's how you know you are no longer contagious" (WP).

"Tens of thousands of people exposed to bat coronaviruses each year" (Nature).

"How many animal species have caught COVID? First global tracker has (partial) answers" (NPR).

Journal Articles

JAMA Netw Open: Awareness of SARS-CoV-2 Omicron Variant Infection Among Adults With Recent COVID-19 Seropositivity (17 August 2022)

> "Question: What proportion of individuals who recently contracted the SARS-CoV-2 Omicron variant were aware of their infectious status?
>
> Findings: In this cohort study of 210 adults with evidence of seroconversion during a regional Omicron variant surge, 56% reported being unaware of any recent Omicron variant infection.
>
> Meaning: Findings of this study suggest that low rates of Omicron variant infection awareness may be a key contributor to rapid transmission of the virus within communities."

JAMA Netw Open: Risk of SARS-CoV-2 Acquisition in Health Care Workers According to Cumulative Patient Exposure and Preferred Mask Type (15 August 2022)

> "In this follow-up study, we analyzed the SARS-CoV-2 risk for HCWs depending on cumulative exposure to patients with COVID-19 and assessed whether this risk can be modulated by the use of respirator compared with surgical masks….
>
> In this study, SARS-CoV-2 positivity in HCWs was associated with cumulative COVID-19 patient exposure. The odds of being SARS-CoV-2–positive were reduced by more than 40% in individuals using respirators irrespective of cumulative exposure, even after adjusting for multiple work- and nonwork-related covariables."

MMWR: COVID-19 Self-Test Data: Challenges and Opportunities — United States, October 31, 2021–June 11, 2022 (12 August 2022)

> "What is already known about this topic? COVID-19 self-test use has increased but reporting of results is not required.
>
> What is added by this report? During October 31, 2021–June 11, 2022, 10.7 million test results were voluntarily reported by users of four manufacturers' self-tests; during that period, 361.9 million laboratory-based and point-of-care test results were reported. Completeness of reporting demographic variables and trends in percent positivity were similar across test types.
>
> What are the implications for public health practice? Self-tests are a valuable risk-reduction tool that can guide individual actions, but they currently offer limited utility in enhancing public health surveillance. Laboratory-based and point-of-care test result data, in combination with other COVID-19 surveillance information, continue to provide strong situational awareness."

Treatments and Management

News in Brief

"COVID rebound is surprisingly common — even without Paxlovid" (Nature).

Journal Articles

JAMA Intern Med: Clinical and Genetic Risk Factors for Acute Incident Venous Thromboembolism in Ambulatory Patients With COVID-19 (18 August 2022)

> "Question: What is the 30-day acute risk of venous thromboembolism (VTE) among ambulatory patients with COVID-19, and what are the clinical and genetic risk factors predisposing them to developing post–COVID-19 VTE?
>
> Findings: In this retrospective cohort study of 18 818 outpatients with COVID-19 and 93 179 propensity score–matched noninfected participants, a higher VTE incidence was observed in the former (hazard ratio, 21.42); however, this risk was considerably attenuated among the fully vaccinated, after breakthrough infection. Older age, male sex, obesity, no vaccination or partial vaccination, and inherited thrombophilia were independent risk factors for COVID-19–associated VTE.
>
> Meaning: The results of this study suggest that ambulatory patients with COVID-19, either vaccinated or not, present a clinically relevant increased risk of incident VTE during the acute phase, with the risk pronounced by factors of older age, male sex, obesity, incomplete vaccination, and factor V Leiden thrombophilia."

JAMA Netw Open: Institutional Surgical Response and Associated Volume Trends Throughout the COVID-19 Pandemic and Postvaccination Recovery Period (18 August 2022)

> "Question: How did surgical volumes change with respect to subspecialty and patient acuity during the COVID-19 pandemic, and did they recover after the peak and vaccine release periods?
>
> Findings: In this cohort study, a retrospective analysis of 129 956 records of weekly surgical procedures from January 6, 2019, to December 31, 2021, revealed that the overall volume did not fully recover to pre–COVID-19 levels well into 2021. Recovery rates were inconsistent across surgical subspecialties and case classes.
>
> Meaning: Further research and hospital-level changes are needed to address the backlog of surgical services and muted recovery of surgical procedures to pre–COVID-19 volumes."

NEJM: Randomized Trial of Metformin, Ivermectin, and Fluvoxamine for Covid-19 (18 August 2022)

> "BACKGROUND: Early treatment to prevent severe coronavirus disease 2019 (Covid-19) is an important component of the comprehensive response to the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic.
>
> METHODS: In this phase 3, double-blind, randomized, placebo-controlled trial, we used a 2-by-3 factorial design to test the effectiveness of three repurposed drugs — metformin, ivermectin, and fluvoxamine — in preventing serious SARS-CoV-2 infection in nonhospitalized adults who had been enrolled within 3 days after a confirmed diagnosis of infection and less than 7 days after the onset of symptoms. The patients were between the ages of 30 and 85 years, and all had either overweight or obesity. The primary composite end point was hypoxemia (≤93% oxygen saturation on home oximetry), emergency department visit, hospitalization, or death. All analyses used controls who had undergone concurrent randomization and were adjusted for SARS-CoV-2 vaccination and receipt of other trial medications.
>
> RESULTS: A total of 1431 patients underwent randomization; of these patients, 1323 were included in the primary analysis. The median age of the patients was 46 years; 56% were female (6% of whom were pregnant), and 52% had been vaccinated. The adjusted odds ratio for a primary event was 0.84 (95% confidence interval [CI], 0.66 to 1.09; P=0.19) with metformin, 1.05 (95% CI, 0.76 to 1.45; P=0.78) with ivermectin, and 0.94 (95% CI, 0.66 to 1.36; P=0.75) with fluvoxamine. In prespecified secondary analyses, the adjusted odds ratio for emergency department visit, hospitalization, or death was 0.58 (95% CI, 0.35 to 0.94) with metformin, 1.39 (95% CI, 0.72 to 2.69) with ivermectin, and 1.17 (95% CI, 0.57 to 2.40) with fluvoxamine. The adjusted odds ratio for hospitalization or death was 0.47 (95% CI, 0.20 to 1.11) with metformin, 0.73 (95% CI, 0.19 to 2.77) with ivermectin, and 1.11 (95% CI, 0.33 to 3.76) with fluvoxamine.
>
> CONCLUSIONS: None of the three medications that were evaluated prevented the occurrence of hypoxemia, an emergency department visit, hospitalization, or death associated with Covid-19."

JAMA: Association of COVID-19 vs Influenza With Risk of Arterial and Venous Thrombotic Events Among Hospitalized Patients (16 August 2022)

> "Question: Is the 90-day incidence of arterial thromboembolism and venous thromboembolism higher in patients hospitalized with COVID-19 vs in patients hospitalized with influenza?
>
> Findings: In this retrospective cohort study that included 93 906 patients, hospitalization with COVID-19 before vaccine availability and during vaccine availability was significantly

associated with higher 90-day risk of venous thromboembolism (adjusted hazard ratios, 1.60 and 1.89, respectively) vs hospitalization with influenza in 2018-2019, but there was no significant difference in the risk of arterial thromboembolism among those hospitalized with COVID-19 during either period (adjusted hazard ratios, 1.04 and 1.07) vs those hospitalized with influenza.

Meaning: Hospitalization with COVID-19 both before and during vaccine availability was significantly associated with a higher risk of venous thromboembolism, but not arterial thromboembolism, vs hospitalization with influenza in 2018-2019."

Emerg infect Dis: Rapid Increase in Suspected SARS-CoV-2 Reinfections, Clark County, Nevada, USA, December 2021 (15 August 2022)

"Genetic differences between SARS-CoV-2 variants raise concerns about reinfection. Public health authorities monitored the incidence of suspected reinfection in Clark County, Nevada, USA, during March 2020-March 2022. Suspected reinfections, defined as a second positive PCR test collected >90 days after an initial positive test, were monitored through an electronic disease surveillance system.

We calculated the proportion of all new cases per week that were suspected reinfections and rates per 1,000 previously infected persons by demographic groups. The rate of suspected reinfection remained <2.7% until December 2021, then increased to ≈11%, corresponding with local Omicron variant detection. Reinfection rates were higher among adults 18-50 years of age, women, and minority groups, especially persons identifying as American Indian/Alaska Native. Suspected reinfection became more common in Clark County after introduction of the Omicron variant, and some demographic groups are disproportionately affected. Public health surveillance could clarify the SARS-CoV-2 reinfection burden in communities."

JAMA Netw Open: Virologic Efficacy of Casirivimab and Imdevimab COVID-19 Antibody Combination in Outpatients With SARS-CoV-2 Infection: A Phase 2 Dose-Ranging Randomized Clinical Trial (15 August 2022)

"Question: Can casirivimab and imdevimab effectively reduce the viral load of SARS-CoV-2 with lower doses and a subcutaneous route of administration?

Findings: In this phase 2 randomized clinical trial of outpatients with SARS-CoV-2, all casirivimab and imdevimab doses and routes of administration showed statistically significant and comparable reductions in viral load through day 7 vs placebo in those who were seronegative at baseline.

Meaning: These findings, combined with the results from additional studies examining clinical efficacy, justify lowering the dose of casirivimab and imdevimab from 2400 mg to

> 1200 mg and suggest that subcutaneous administration is a viable alternative to intravenous administration."

Clin Infect Dis: Readmissions, post-discharge mortality and sustained recovery among patients admitted to hospital with COVID-19 (08 August 2022)

> "Background: Many interventional in-patient COVID-19 trials assess primary outcomes through day 28 post-randomization. Since a proportion of patients experience protracted disease or relapse, such follow-up period may not fully capture the course of the disease, even when randomization occurs a few days after hospitalization.
>
> Methods: Among adults hospitalized with COVID-19 in Eastern Denmark from March 18, 2020 - January 12, 2021 we assessed: all-cause mortality, recovery and sustained recovery 90 days after admission, and readmission and all-cause mortality 90 days after discharge. Recovery was defined as hospital discharge and sustained recovery as recovery and alive without readmissions for 14 consecutive days.
>
> Results: Among 3,386 patients included in the study 2,796 (82.6%) reached recovery and 2,600 (77.0%) achieved sustained recovery. Of those discharged from hospital, 556 (19.9%) were readmitted, and 289 (10.3%) died. Overall, the median time to recovery was 6 days (Interquartile range (IQR), 3-10), and 19 days (IQR, 11-33) among patients in intensive care in the first two days of admission.
>
> Conclusions: Post-discharge readmission and mortality rates were substantial. Therefore, sustained recovery should be favored to recovery outcomes in clinical COVID-19 trials. A 28-day follow-up period may be too short the critically ill."

Long COVID and Other Post-Infectious Findings

News in Brief

"Long-COVID treatments: why the world is still waiting" (Nature).

"It's not just long COVID — Society has been underestimating the long-term consequences of viruses, bacterial infections, and parasites for ages" (Atlantic).

"Risk of 'brain fog' and other conditions persists up to two years after Covid infection" (STAT).

Journal Articles

Lancet Psychiatry: Neurological and psychiatric risk trajectories after SARS-CoV-2 infection: an analysis of 2-year retrospective cohort studies including 1 284 437 patients (17 August 2022)

> "Background: COVID-19 is associated with increased risks of neurological and psychiatric sequelae in the weeks and months thereafter. How long these risks remain, whether they affect children and adults similarly, and whether SARS-CoV-2 variants differ in their risk profiles remains unclear.
>
> Methods: In this analysis of 2-year retrospective cohort studies, we extracted data from the TriNetX electronic health records network, an international network of de-identified data from health-care records of approximately 89 million patients collected from hospital, primary care, and specialist providers (mostly from the USA, but also from Australia, the UK, Spain, Bulgaria, India, Malaysia, and Taiwan). A cohort of patients of any age with COVID-19 diagnosed between Jan 20, 2020, and April 13, 2022, was identified and propensity-score matched (1:1) to a contemporaneous cohort of patients with any other respiratory infection. Matching was done on the basis of demographic factors, risk factors for COVID-19 and severe COVID-19 illness, and vaccination status. Analyses were stratified by age group (age <18 years [children], 18–64 years [adults], and ≥65 years [older adults]) and date of diagnosis. We assessed the risks of 14 neurological and psychiatric diagnoses after SARS-CoV-2 infection and compared these risks with the matched comparator cohort. The 2-year risk trajectories were represented by time-varying hazard ratios (HRs) and summarised using the 6-month constant HRs (representing the risks in the earlier phase of follow-up, which have not yet been well characterised in children), the risk horizon for each outcome (ie, the time at which the HR returns to 1), and the time to equal incidence in the two cohorts. We also estimated how many people died after a neurological or psychiatric diagnosis during follow-up in each age group. Finally, we compared matched cohorts of patients diagnosed with COVID-19 directly before and after the emergence of the alpha (B.1.1.7), delta (B.1.617.2), and omicron (B.1.1.529) variants.
>
> Findings: We identified 1 487 712 patients with a recorded diagnosis of COVID-19 during the study period, of whom 1 284 437 (185 748 children, 856 588 adults, and 242 101 older adults; overall mean age 42·5 years [SD 21·9]; 741 806 [57·8%] were female and 542 192 [42·2%] were male) were adequately matched with an equal number of patients with another respiratory infection. The risk trajectories of outcomes after SARS-CoV-2 infection in the whole cohort differed substantially. While most outcomes had HRs significantly greater than 1 after 6 months (with the exception of encephalitis; Guillain-Barré syndrome; nerve, nerve root, and plexus disorder; and parkinsonism), their risk horizons and time to equal incidence varied greatly. Risks of the common psychiatric disorders returned to baseline after 1–2 months (mood disorders at 43 days, anxiety disorders at 58 days) and subsequently reached an equal overall incidence to the matched comparison group (mood

disorders at 457 days, anxiety disorders at 417 days). By contrast, risks of cognitive deficit (known as brain fog), dementia, psychotic disorders, and epilepsy or seizures were still increased at the end of the 2-year follow-up period. Post-COVID-19 risk trajectories differed in children compared with adults: in the 6 months after SARS-CoV-2 infection, children were not at an increased risk of mood (HR 1·02 [95% CI 0·94–1·10) or anxiety (1·00 [0·94–1·06]) disorders, but did have an increased risk of cognitive deficit, insomnia, intracranial haemorrhage, ischaemic stroke, nerve, nerve root, and plexus disorders, psychotic disorders, and epilepsy or seizures (HRs ranging from 1·20 [1·09–1·33] to 2·16 [1·46–3·19]). Unlike adults, cognitive deficit in children had a finite risk horizon (75 days) and a finite time to equal incidence (491 days). A sizeable proportion of older adults who received a neurological or psychiatric diagnosis, in either cohort, subsequently died, especially those diagnosed with dementia or epilepsy or seizures. Risk profiles were similar just before versus just after the emergence of the alpha variant (n=47 675 in each cohort). Just after (vs just before) the emergence of the delta variant (n=44 835 in each cohort), increased risks of ischaemic stroke, epilepsy or seizures, cognitive deficit, insomnia, and anxiety disorders were observed, compounded by an increased death rate. With omicron (n=39 845 in each cohort), there was a lower death rate than just before emergence of the variant, but the risks of neurological and psychiatric outcomes remained similar.

Interpretation: This analysis of 2-year retrospective cohort studies of individuals diagnosed with COVID-19 showed that the increased incidence of mood and anxiety disorders was transient, with no overall excess of these diagnoses compared with other respiratory infections. In contrast, the increased risk of psychotic disorder, cognitive deficit, dementia, and epilepsy or seizures persisted throughout. The differing trajectories suggest a different pathogenesis for these outcomes. Children have a more benign overall profile of psychiatric risk than do adults and older adults, but their sustained higher risk of some diagnoses is of concern. The fact that neurological and psychiatric outcomes were similar during the delta and omicron waves indicates that the burden on the health-care system might continue even with variants that are less severe in other respects. Our findings are relevant to understanding individual-level and population-level risks of neurological and psychiatric disorders after SARS-CoV-2 infection and can help inform our responses to them."

Clin Infect Dis: Symptom burden and immune dynamics 6 to 18 months following mild SARS-CoV-2 infection -a case-control study (12 August 2022)

"Background: The burden and duration of persistent symptoms after non-severe COVID-19 remains uncertain. This study aimed to assess post-infection symptom trajectories in home-isolated COVID-19 cases compared to age- and time-period matched seronegative controls, and investigate immunological correlates of long COVID.

Methods: A prospective case-control study conducted between February 28th and April 4th 2020 included home-isolated COVID-19 cases followed for 12 (n = 233) to 18 (n = 149)

months, and 189 age-matched SARS-CoV-2 naive controls. We collected clinical data at baseline, 6, 12 and 18 months post-infection, and blood samples at 2, 4, 6 and 12 months for analysis of SARS-CoV-2 specific humoral and cellular responses.

Results: Overall, 46% (108/233) had persisting symptoms 12 months after COVID-19. Compared to controls, adult cases had a high risk of fatigue (27% excess risk, gender and comorbidity adjusted odds ratio [aOR] 5.86, 95% confidence interval [CI]3.27-10.5), memory problems (21% excess risk, aOR 7.42, CI 3.51-15.67), concentration problems (20% excess risk, aOR 8.88, CI 3.88-20.35), and dyspnea (10% excess risk, aOR 2.66, CI 1.22-5.79). The prevalence of memory problems increased overall from 6 to 18 months (excess risk 11.5%, CI 1.5, 21.5, p = 0.024) and among women (excess risk 18.7%, CI 4.4, 32.9, p = 0.010). Longitudinal spike IgG was significantly associated with dyspnea at 12 months. The spike-specific clonal CD4 + TCRβ depth was significantly associated with both dyspnea and number of symptoms at 12 months.

Conclusions: This study documents a high burden of persisting symptoms after mild COVID-19, and suggest that infection induced SARS-CoV-2 specific immune responses may influence long-term symptoms."

Pregnancy and Postpartum Period

Journal Articles

Clin Infect Dis: SARS-CoV-2 testing and detection during peripartum hospitalizations among a multi-center cohort of pregnant persons, March 2020–February 2021 (12 August 2022)

"Background: Identifying SARS-CoV-2 infections during peripartum hospitalizations is important to guide care, implement prevention measures, and understand infection burden.

Methods: This cross-sectional analysis used electronic health record data from hospitalizations during which pregnancies ended (peripartum hospitalizations) among a cohort of pregnant persons at 3 U.S. integrated healthcare networks (Sites 1-3). Maternal demographic, medical encounter, SARS-CoV-2 testing, and pregnancy and neonatal outcome information was extracted for persons with estimated delivery and pregnancy end dates during March 2020-February 2021 and ≥1 prenatal care record. Site-stratified multivariable logistic regression was used to identify factors associated with testing and compare pregnancy and neonatal outcomes among persons tested.

Results: Among 17,858 pregnant persons, 10,863 (60.8%) had peripartum SARS-CoV-2 testing; 222/10,683 (2.0%) had positive results. Testing prevalence varied by site and was

lower during March-May 2020. Factors associated with higher peripartum SARS-CoV-2 testing odds were Asian race (adjusted odds ratio [aOR]: 1.36; 95% CI: 1.03-1.79; referent: White) (Site 1), Hispanic or Latina ethnicity (aOR: 1.33; 95% CI: 1.08-1.64) (Site 2), peripartum Medicaid coverage (aOR: 1.33; 95% CI: 1.06-1.66) (Site 1), and preterm hospitalization (aOR: 1.69; 95% CI: 1.19-2.39 [Site 1]; aOR: 1.39; 95% CI: 1.03-1.88 [Site 2]).

Conclusions: Findings highlight potential disparities in SARS-CoV-2 peripartum testing by demographic and pregnancy characteristics. Testing practice variations should be considered when interpreting studies relying on convenience samples of pregnant persons testing positive for SARS-CoV-2. Efforts to address testing differences between groups could improve equitable testing practices and care for pregnant persons with SARS-CoV-2 infections."

JAMA Netw Open: Comparison of Severe Maternal Morbidities Associated With Delivery During Periods of Circulation of Specific SARS-CoV-2 Variants (12 August 2022)

"Question: Does the association between SARS-CoV-2 infection and severe maternal morbidity (SMM), including nonrespiratory complications, vary by viral strain?

Findings: In this retrospective cohort study of 3129 patients with SARS-CoV-2 infection and 12 504 patients without infection giving birth in a large US health system between March 2020 and January 2022, the risk of SMM associated with SARS-CoV-2 infection was significantly higher during the phase of the pandemic when the Delta variant was predominant (July 2021-November 2021). This association was also noted specifically for both respiratory and nonrespiratory SMM.

Meaning: These findings highlight the importance of the prevention of SARS-CoV-2 infection in pregnant individuals and the consideration of infection as a risk factor for adverse peripartum maternal outcomes."

JAMA Netw Open: Comparison of Pregnancy and Birth Outcomes Before vs During the COVID-19 Pandemic (12 August 2022)

"Question: Was the COVID-19 pandemic associated with changes in pregnancy-related outcomes?

Findings: In a cohort of more than 1.6 million pregnant patients across 463 US hospitals, the number of live births decreased by 5.2% during the COVID-19 pandemic (March 2020 to April 2021) compared with the 14 months prior. While live-birth outcomes and mode of delivery remained stable, small but significant increases in pregnancy-related complications and maternal death during delivery hospitalization were observed.

Meaning: In this study, the COVID-19 pandemic was associated with increases in pregnancy-related complications and maternal deaths during delivery hospitalization."

Lancet Infect Dis: Safety of COVID-19 vaccines in pregnancy: a Canadian National Vaccine Safety (CANVAS) network cohort study (11 August 2022)

"Background: Pregnant individuals have been receiving COVID-19 vaccines following pre-authorisation clinical trials in non-pregnant people. This study aimed to determine the frequency and nature of significant health events among pregnant females after COVID-19 vaccination, compared with unvaccinated pregnant controls and vaccinated non-pregnant individuals.

Methods: We did an observational cohort study, set in seven Canadian provinces and territories including Ontario, Quebec, British Columbia, Alberta, Nova Scotia, Yukon, and Prince Edward Island. Eligibility criteria for vaccinated individuals were a first dose of a COVID-19 vaccine within the previous 7 days; an active email address and telephone number; ability to communicate in English or French; and residence in the aforementioned provinces or territories. Study participants were pregnant and non-pregnant females aged 15-49 years. Individuals were able to participate as controls if they were unvaccinated and fulfilled the other criteria. Data were collected primarily by self-reported survey after both vaccine doses, with telephone follow-up for those reporting any medically attended event. Participants reported significant health events (new or worsening of a health event sufficient to cause work or school absenteeism, medical consultation, or prevent daily activities) occurring within 7 days of vaccination or within the past 7 days for unvaccinated individuals. We employed multivariable logistic regression to examine significant health events associated with mRNA vaccines, adjusting for age group, previous SARS-CoV-2 infection, and trimester, as appropriate.

Findings: As of Nov 4, 2021, 191 360 women aged 15-49 years with known pregnancy status had completed the first vaccine dose survey and 94 937 had completed the second dose survey. 180 388 received one dose and 94 262 received a second dose of an mRNA vaccine, with 5597 pregnant participants receiving dose one and 3108 receiving dose two, and 174 765 non-pregnant participants receiving dose one and 91 131 receiving dose two. Of 6179 included unvaccinated control participants, 339 were pregnant and 5840 were not pregnant. Overall, 226 (4·0%) of 5597 vaccinated pregnant females reported a significant health event after dose one of an mRNA vaccine, and 227 (7·3%) of 3108 after dose two, compared with 11 (3·2%) of 339 pregnant unvaccinated females. Pregnant vaccinated females had an increased odds of a significant health event within 7 days of the vaccine after dose two of mRNA-1273 (adjusted odds ratio [aOR] 4·4 [95% CI 2·4-8·3]) compared with pregnant unvaccinated controls within the past 7 days, but not after dose one of mRNA-1273 or any dose of BNT162b2. Pregnant vaccinated females had decreased odds of a significant health event compared with non-pregnant vaccinated females after both dose one (aOR 0·63 [95% CI 0·55-0·72]) and dose two (aOR 0·62 [0·54-0·71]) of any mRNA

vaccination. There were no significant differences in any analyses when restricted to events which led to medical attention.

Interpretation: COVID-19 mRNA vaccines have a good safety profile in pregnancy. These data can be used to appropriately inform pregnant people regarding reactogenicity of COVID-19 vaccines during pregnancy, and should be considered alongside effectiveness and immunogenicity data to make appropriate recommendations about best use of COVID-19 vaccines in pregnancy."

Pediatric Population

News in Brief

"Should parents delay kids' second COVID vaccine? Here's what the research says" (Nature).

Journal Articles

Vaccines and Boosters

MMWR: Safety Monitoring of Pfizer-BioNTech COVID-19 Vaccine Booster Doses Among Children Aged 5–11 Years — United States, May 17–July 31, 2022 (19 August 2022)

"What is already known about this topic? A Pfizer-BioNTech COVID-19 vaccine booster dose is recommended for children aged 5–11 years; approximately 657,302 third doses were administered to children in this age group during May–July 2022.

What is added by this report? Among children aged 5–11 years, local and systemic reactions were reported to v-safe with similar frequency after doses 2 and 3; specific reactions differed in severity. Vaccine administration errors were the most common events reported to the Vaccine Adverse Event Reporting System. No reports of myocarditis or death after receipt of dose 3 were received.

What are the implications for public health practice? Among children aged 5–11 years, serious adverse events after dose 3 are rare. Additional provider education might prevent vaccine administration errors."

JAMA Netw Open: Long-term Effectiveness Associated With the BNT162b2 Vaccine Against SARS-CoV-2 Infection Among Adolescents in South Korea (17 August 2022)

"Our results suggest that after vaccination with BNT162b2, the effectiveness of the vaccine against SARS-CoV-2 infection among adolescents waned over time, with limited protection

observed 30 to 59 days after administration of a second dose of the vaccine. Regardless, our findings suggest an association between the BNT162b2 vaccine and sustained effectiveness against critical SARS-CoV-2 infection, as reported previously."

NEJM: Effectiveness of BNT162b2 Vaccine against Omicron in Children 5 to 11 Years of Age (11 August 2022)

"Background: Since it was first identified in early November 2021, the B.1.1.529 (omicron) variant of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has spread quickly and replaced the B.1.617.2 (delta) variant as the dominant variant in many countries. Data on the real-world effectiveness of vaccines against the omicron variant in children are lacking.

Methods: In a study conducted from January 21, 2022, through April 8, 2022, when the omicron variant was spreading rapidly, we analyzed data on children in Singapore who were 5 to 11 years of age. We assessed the incidences of all reported SARS-CoV-2 infections (confirmed on polymerase-chain-reaction [PCR] assay, rapid antigen testing, or both), SARS-CoV-2 infections confirmed on PCR assay, and coronavirus disease 2019 (Covid-19)-related hospitalizations among unvaccinated, partially vaccinated (≥1 day after the first dose of vaccine and up to 6 days after the second dose), and fully vaccinated children (≥7 days after the second dose). Poisson regression was used to estimate vaccine effectiveness from the incidence rate ratio of outcomes.

Results: A total of 255,936 children were included in the analysis. Among unvaccinated children, the crude incidence rates of all reported SARS-CoV-2 infections, PCR-confirmed SARS-CoV-2 infections, and Covid-19-related hospitalizations were 3303.5, 473.8, and 30.0 per 1 million person-days, respectively. Among partially vaccinated children, vaccine effectiveness was 13.6% (95% confidence interval [CI], 11.7 to 15.5) against all SARS-CoV-2 infections, 24.3% (95% CI, 19.5 to 28.9) against PCR-confirmed SARS-CoV-2 infection, and 42.3% (95% CI, 24.9 to 55.7) against Covid-19-related hospitalization; in fully vaccinated children, vaccine effectiveness was 36.8% (95% CI, 35.3 to 38.2), 65.3% (95% CI, 62.0 to 68.3), and 82.7% (95% CI, 74.8 to 88.2), respectively.

Conclusions: During a period when the omicron variant was predominant, BNT162b2 vaccination reduced the risks of SARS-CoV-2 infection and Covid-19-related hospitalization among children 5 to 11 years of age."

Lancet: Vaccine effectiveness of two-dose BNT162b2 against symptomatic and severe COVID-19 among adolescents in Brazil and Scotland over time: a test-negative case-control study (08 August 2022)

"Background: Little is known about vaccine effectiveness over time among adolescents, especially against the SARS-CoV-2 omicron (B.1.1.529) variant. This study assessed the

associations between time since two-dose vaccination with BNT162b2 and the occurrence of symptomatic SARS-CoV-2 infection and severe COVID-19 among adolescents in Brazil and Scotland.

Methods: We did test-negative, case-control studies in adolescents aged 12-17 years with COVID-19-related symptoms in Brazil and Scotland. We linked records of SARS-CoV-2 RT-PCR and antigen tests to national vaccination and clinical records. We excluded tests from individuals who did not have symptoms, were vaccinated before the start of the national vaccination programme, received vaccines other than BNT162b2 or a SARS-CoV-2 booster dose of any kind, or had an interval between their first and second dose of fewer than 21 days. Additionally, we excluded negative SARS-CoV-2 tests recorded within 14 days of a previous negative test, negative tests recorded within 7 days after a positive test, any test done within 90 days after a positive test, and tests with missing sex and location information. Cases (SARS-CoV-2 test-positive adolescents) and controls (test-negative adolescents) were drawn from a sample of individuals in whom tests were collected within 10 days of symptom onset. We estimated the adjusted odds ratio and vaccine effectiveness against symptomatic COVID-19 for both countries and against severe COVID-19 (hospitalisation or death) for Brazil across fortnightly periods.

Findings: We analysed 503 776 tests from 2 948 538 adolescents in Brazil between Sept 2, 2021, and April 19, 2022, and 127 168 tests from 404 673 adolescents in Scotland between Aug 6, 2021, and April 19, 2022. Vaccine effectiveness peaked at 14-27 days after the second dose in both countries during both waves, and was significantly lower against symptomatic infection during the omicron-dominant period in Brazil (64·7% [95% CI 63·0-66·3]) and in Scotland (82·6% [80·6-84·5]), than it was in the delta-dominant period (80·7% [95% CI 77·8-83·3] in Brazil and 92·8% [85·7-96·4] in Scotland). Vaccine efficacy started to decline from 27 days after the second dose for both countries, reducing to 5·9% (95% CI 2·2-9·4) in Brazil and 50·6% (42·7-57·4) in Scotland at 98 days or more during the omicron-dominant period. In Brazil, protection against severe disease remained above 80% from 28 days after the second dose and was 82·7% (95% CI 68·8-90·4) at 98 days or more after receiving the second dose.

Interpretation: We found waning vaccine protection of BNT162b2 against symptomatic COVID-19 infection among adolescents in Brazil and Scotland from 27 days after the second dose. However, protection against severe COVID-19 outcomes remained high at 98 days or more after the second dose in the omicron-dominant period. Booster doses for adolescents need to be considered."

COVID Complications

Pediatrics: Health Impairments in Children and Adolescents After Hospitalization for Acute COVID-19 or MIS-C (11 August 2022)

> "Objective: To evaluate risk factors for post-discharge sequelae in children and adolescents after hospitalization for acute COVID-19 or multisystem inflammatory syndrome in children (MIS-C).
>
> Methods: Multicenter prospective observational cohort study conducted in 25 US pediatric hospitals. Patients <21-years-old, hospitalized May 2020 to May 2021 for acute COVID-19 or MIS-C with follow-up 2-4 months after admission. We assessed readmissions, caregiver-reported persistent symptoms or activity impairment, and new morbidities identified by the Functional Status Scale. Multivariable regression was used to calculate adjusted risk ratios (aRR).
>
> Results: Of 358 eligible patients, 2-4 month survey data were available for 119/155 (76.8%) with acute COVID-19 and 160/203 (78.8%) with MIS-C. Thirteen (11%) patients with acute COVID-19 and 12 (8%) with MIS-C had a readmission. Thirty-two (26.9%) patients with acute COVID-19 had persistent symptoms (22.7%) or activity impairment (14.3%) and 48 (30.0%) patients with MIS-C had persistent symptoms (20.0%) or activity impairment (21.3%). For patients with acute COVID-19, persistent symptoms (aRR, 1.29[95% CI, 1.04-1.59]) and activity impairment (aRR, 1.37[95% CI, 1.06-1.78]) were associated with more organs systems involved. Patients with MIS-C and pre-existing respiratory conditions more frequently had persistent symptoms (aRR, 3.09[95% CI, 1.55-6.14]) and those with obesity more frequently had activity impairment (aRR, 2.52[95% CI, 1.35-4.69]). New morbidities were infrequent (9% COVID-19 and 1% MIS-C).
>
> Conclusions: Over one in four children hospitalized with acute COVID-19 or MIS-C experienced persistent symptoms or activity impairment for at least 2 months. Patients with MIS-C and respiratory conditions or obesity are at higher risk of prolonged recovery."

Pediatrics: COVID-19 and Acute Neurologic Complications in Children (11 August 2022)

> "Background: Little is known about the epidemiology and outcomes of neurologic complications associated with COVID-19 in children.
>
> Methods: We performed a cross-sectional study of children 2 months to <18 years with COVID-19 discharged from 52 children's hospitals from March 2020-March 2022. Neurologic complications were defined as encephalopathy, encephalitis, aseptic meningitis, febrile seizure, non-febrile seizure, brain abscess and bacterial meningitis, Reye's syndrome, and cerebral infarction. We assessed length of stay (LOS), intensive care unit (ICU) admission, 30-day readmissions, deaths, and hospital costs. We used multivariable logistic regression to identify factors associated with neurologic complications.

Results: Of 15,137 children hospitalized with COVID-19, 1060 (7.0%) had a concurrent diagnosis of a neurologic complication. The most frequent neurologic complications were febrile seizures (3.9%), non-febrile seizures (2.3%) and encephalopathy (2.2%). Hospital LOS, ICU admission, ICU LOS, 30-day readmissions, deaths, and hospital costs were higher in children with neurologic complications compared to those without complications. Factors associated with lower odds of neurologic complications included: younger age (aOR 0.97, 95% CI 0.96, 0.98), occurrence during Delta variant predominant time period (aOR 0.71, 95% CI 0.57, 0.87), presence of a non-neurologic complex chronic condition (CCC) (aOR 0.80, 95% CI 0.69, 0.94). Presence of a neurologic CCC was associated with a higher odds of neurologic complication (aOR 4.14, 95% CI 3.48, 4.92).

Conclusions: Neurologic complications are common in children hospitalized with COVID-19 and are associated with worse hospital outcomes. Our findings emphasize the importance of COVID-19 immunization in children, especially in high-risk populations, such as those with neurologic co-morbidity."

Beyond COVID

NEJM: A Case Series of Children with Acute Hepatitis and Human Adenovirus Infection (18 August 2022)

"Background: Human adenoviruses typically cause self-limited respiratory, gastrointestinal, and conjunctival infections in healthy children. In late 2021 and early 2022, several previously healthy children were identified with acute hepatitis and human adenovirus viremia.

Methods: We used International Classification of Diseases, 10th Revision, codes to identify all children (<18 years of age) with hepatitis who were admitted to Children's of Alabama hospital between October 1, 2021, and February 28, 2022; those with acute hepatitis who also tested positive for human adenovirus by whole-blood quantitative polymerase chain reaction (PCR) were included in our case series. Demographic, clinical, laboratory, and treatment data were obtained from medical records. Residual blood specimens were sent for diagnostic confirmation and human adenovirus typing.

Results: A total of 15 children were identified with acute hepatitis - 6 (40%) who had hepatitis with an identified cause and 9 (60%) who had hepatitis without a known cause. Eight (89%) of the patients with hepatitis of unknown cause tested positive for human adenovirus. These 8 patients plus 1 additional patient referred to this facility for follow-up were included in this case series (median age, 2 years 11 months; age range, 1 year 1 month to 6 years 5 months). Liver biopsies indicated mild-to-moderate active hepatitis in 6 children, some with and some without cholestasis, but did not show evidence of human

adenovirus on immunohistochemical examination or electron microscopy. PCR testing of liver tissue for human adenovirus was positive in 3 children (50%). Sequencing of specimens from 5 children showed three distinct human adenovirus type 41 hexon variants. Two children underwent liver transplantation; all the others recovered with supportive care.

Conclusions: Human adenovirus viremia was present in the majority of children with acute hepatitis of unknown cause admitted to Children's of Alabama from October 1, 2021, to February 28, 2022, but whether human adenovirus was causative remains unclear. Sequencing results suggest that if human adenovirus was causative, this was not an outbreak driven by a single strain."

NEJM: Clinical Spectrum of Children with Acute Hepatitis of Unknown Cause (18 August 2022)

"Background: Since January 2022, there has been an increase in reports of cases of acute hepatitis of unknown cause in children. Although cases have been reported across multiple continents, most have been reported in the United Kingdom. Investigations are ongoing to identify the causative agent or agents.

Methods: We conducted a retrospective study involving children referred to a single pediatric liver-transplantation center in the United Kingdom between January 1 and April 11, 2022. These children were 10 years of age or younger and had hepatitis that met the case definition of the U.K. Health Security Agency for confirmed acute hepatitis that was not hepatitis A through E and did not have a metabolic, inherited or genetic, congenital, or mechanical cause, in the context of a serum aminotransferase level greater than 500 IU per liter. We reviewed medical records and documented demographic characteristics, clinical features, and results of liver biochemical, serologic, and molecular tests for hepatotropic and other viruses, as well as radiologic and clinical outcomes. The outcomes were classified as an improving condition, liver transplantation, or death.

Results: A total of 44 children had hepatitis that met the confirmed case definition, and most were previously healthy. The median age was 4 years (range, 1 to 7). Common presenting features were jaundice (in 93% of the children), vomiting (in 54%), and diarrhea (in 32%). Among the 30 patients who underwent molecular testing for human adenovirus, 27 (90%) were positive. Fulminant liver failure developed in 6 patients (14%), all of whom received a liver transplant. None of the patients died. All the children, including the 6 who received liver transplants, were discharged home.

Conclusions: In this series involving 44 young children with acute hepatitis of uncertain cause, human adenovirus was isolated in most of the children, but its role in the pathogenesis of this illness has not been established."

Other Infectious Diseases and Public Health Threats

News in Brief

"A rapidly spreading E. coli outbreak in Michigan and Ohio is raising health alarms" (NPR).

"New Langya virus that may have spilled over from animals infects dozens" (WP; see also: NEJM study, noted below).

"As of 8 August, the United Republic of Tanzania has reported 20 cases of leptospirosis in two districts in Lindi Region, including three deaths" (WHO).

"Zimbabwe blames measles surge on sect gatherings after 80 children die" (Reuters).

"Major test of first possible Lyme vaccine in 20 years begins" (AP).

Polio

"Wastewater monitoring identifies polioviruses in New York City" (STAT).

"New York Health Department says hundreds of people may be infected with polio virus" (CBS).

"CDC sends team to New York to investigate polio case" (ABC).

Journal Articles

MMWR: Public Health Response to a Case of Paralytic Poliomyelitis in an Unvaccinated Person and Detection of Poliovirus in Wastewater — New York, June–August 2022 (19 August 2022)

> "What is already known about this topic? Sustained poliovirus transmission has been eliminated from the United States for approximately 40 years; vaccines are highly effective in preventing paralysis after exposure.
>
> What is added by this report? In June 2022, poliovirus was confirmed in an unvaccinated immunocompetent adult resident of New York hospitalized with flaccid lower limb weakness. Vaccine-derived poliovirus type 2 was isolated from the patient and identified from wastewater samples in two neighboring New York counties.
>
> What are the implications for public health practice? Unvaccinated persons in the United States remain at risk for paralytic poliomyelitis if they are exposed to either wild or vaccine-derived poliovirus; all persons in the United States should stay up to date on recommended poliovirus vaccination."

Nat Clim Change: Over half of known human pathogenic diseases can be aggravated by climate change (08 August 2022)

> "It is relatively well accepted that climate change can affect human pathogenic diseases; however, the full extent of this risk remains poorly quantified. Here we carried out a systematic search for empirical examples about the impacts of ten climatic hazards sensitive to greenhouse gas (GHG) emissions on each known human pathogenic disease. We found that 58% (that is, 218 out of 375) of infectious diseases confronted by humanity worldwide have been at some point aggravated by climatic hazards; 16% were at times diminished. Empirical cases revealed 1,006 unique pathways in which climatic hazards, via different transmission types, led to pathogenic diseases. The human pathogenic diseases and transmission pathways aggravated by climatic hazards are too numerous for comprehensive societal adaptations, highlighting the urgent need to work at the source of the problem: reducing GHG emissions."

NEJM: A Zoonotic Henipavirus in Febrile Patients in China (04 August 2022)

> summary from CIDRAP: "Chinese researchers who were conducting routine surveillance in people with fevers who had recent contact with animals have identified Langya henipavirus (LayV), a distinct henipavirus and relative of Hendra and Nipah viruses, in a throat swab of one patient. In correspondence last week to the *New England Journal of Medicine*, they said their investigation turned up 35 suspected acute infections in Shandong and Henan provinces. The surveillance for potential zoonotic infections took place in three hospitals, two in Henan province and one in Shandong province, between Apr 2018 and Aug 2021.
>
> The first patient was a 53-year-old woman who sought care at one of the hospitals in December 2018. Patients' symptoms were mainly mild and included fever, fatigue, cough, loss of appetite, myalgia, nausea, and headache. However, a few had more serious illness that included pneumonia and abnormalities in liver and kidney function.
>
> When the researchers investigated potential animal sources, they found serologic evidence of exposure in a few goats and dogs. Of 25 wildlife species they tested, LayV was mainly found in shrews, suggesting that the species might harbor the virus.
>
> They found no evidence of human-to-human spread or common exposures among patients, which they said suggests infections in humans may be sporadic. They concluded that the newly identified henipavirus, which is most closely related to Mojiang henipavirus detected in southern China, warrants more investigation to better understand human infections."

Special Topic: Monkeypox

News in Brief

"Monkeypox: experts give virus variants new names" (WHO).

"WHO vows nothing 'ridiculous' as public submits ideas to rename monkeypox" (Reuters).

Vaccines

"Bavarian Nordic A/S, the only company with an approved vaccine for monkeypox, said it's no longer certain it can meet demand and is talking to multiple production partners as cases rise across the world" (Bloomberg).

"FDA authorizes emergency use of JYNNEOS vaccine to increase vaccine supply" (FDA).

"The chaotic monkeypox vaccine pipeline is leaving everyone short — A Danish company that's the sole producer of the only approved vaccine has sold nearly all its supplies to the US, and it won't be making new doses until 2023" (Wired).

"Fractional monkeypox vaccine dosing comes under scrutiny" (CIDRAP).

"Monkeypox vaccine not 'a silver bullet,' WHO says, as breakthrough cases emerge" (ABC).

Transmission and Surveillance

"What scientists know — and don't know — about how monkeypox spreads" (STAT).

"World ignored monkeypox threats, including signs of sexual transmission" (WP).

"COVID sewage surveillance labs join the hunt for monkeypox" (NPR).

"New data from several states show racial disparities in monkeypox infections" (STAT).

Webinars and Other Events

WHAT: Monkeypox: The State of the Science
American Public Health Association and the National Academy of Medicine

"A panel of experts will discuss the current state of the science of monkeypox, the disease epidemiology as we understand it today, available and emergent prevention options, critical research questions we need to answer, and what we should consider and plan for as we respond to this public health emergency."

WHEN: Thursday 18 August 2022, 1500-1630 ET
(recording and transcript will be available on site following event)

LINK: https://nam.edu/event/monkeypox-the-state-of-the-science/

WHAT: CDC and FDA Update: Interim Clinical Considerations for Monkeypox Vaccination
CDC Clinician Outreach and Communication Activity (COCA)

"The U.S. Food and Drug Administration (FDA) has issued an emergency use authorization (EUA) for the JYNNEOS vaccine. The EUA allows healthcare providers to administer the vaccine by intradermal injection for individuals 18 years of age and older who are at high risk for monkeypox infection, which will result in up to a five-fold increase in the total number of doses available for use. In addition, the Centers for Disease Control and Prevention (CDC) has released Interim Clinical Considerations for Use of JYNNEOS and ACAM2000 Vaccines during the 2022 U.S. Monkeypox Outbreak that provides guidance for using the alternative (intradermal) regimen, as well as the standard (subcutaneous) regimen for JYNNEOS vaccine.

During this COCA Call, presenters from FDA and CDC will provide updates on FDA's EUA of the JYNNEOS vaccine and CDC's Interim Clinical Considerations for using the JYNNEOS and ACAM2000 Vaccines during the 2022 U.S. Monkeypox Outbreak. Presenters will also provide training on how to administer the vaccines using the interim clinical considerations."

WHEN: Recorded Thursday 11 August 2022, 1500-1600 ET
(recording, transcript, and call materials available on site)

LINK: https://emergency.cdc.gov/coca/calls/2022/callinfo_081122.asp

Journal Articles

Ann Intern Med: Detection of Monkeypox Virus in Anorectal Swabs From Asymptomatic Men Who Have Sex With Men in a Sexually Transmitted Infection Screening Program in Paris, France (16 August 2022)

"Objective: To assess the presence of MPXV in anorectal samples among asymptomatic MSM routinely tested for bacterial sexually transmitted infections (2).

Methods and Findings: We retrospectively performed testing for MPXV on all anorectal swabs that were collected in our center as part of a screening program for *Neisseria gonorrhoeae* and *Chlamydia trachomatis*…. Of the 187 asymptomatic participants who tested negative for MPXV, 3 presented to our clinic more than 3 weeks after the initial MPXV-negative anal swab with symptoms suggestive of MPXV infection and tested positive."

Emerg Infect Dis: Human Monkeypox without Viral Prodrome or Sexual Exposure, California, USA, 2022 (15 August 2022)

> "We report human monkeypox in a man who returned to the United States from the United Kingdom and reported no sexual contact. He had vesicular and pustular skin lesions but no anogenital involvement. The potential modes of transmission may have implications for the risk of spread and for epidemic control."

MMWR: Epidemiologic and Clinical Characteristics of Monkeypox Cases — United States, May 17–July 22, 2022 (12 August 2022)

> "What is already known about this topic? A global monkeypox outbreak began in 2022.
>
> What is added by this report? Among U.S. monkeypox cases with available data, 99% occurred in men, 94% of whom reported recent male-to-male sexual or close intimate contact; racial and ethnic minority groups appear to be disproportionately affected. Clinical presentations differed from typical monkeypox, with fewer persons experiencing prodrome and more experiencing genital rashes.
>
> What are the implications for public health practice? Public health efforts should prioritize gay, bisexual, and other men who have sex with men, who are currently disproportionately affected, for prevention and testing, address equity, and minimize stigma, while maintaining vigilance for transmission in other populations. Clinicians should test persons with rash consistent with monkeypox, regardless of whether the rash is disseminated or was preceded by prodrome."

MMWR: Interim Guidance for Prevention and Treatment of Monkeypox in Persons with HIV Infection — United States, August 2022 (12 August 2022)

> "What is already known about this topic? A multinational monkeypox outbreak disproportionately affecting men who have sex with men, including persons with HIV infection, is ongoing worldwide.
>
> What is added by this report? CDC has developed clinical considerations for prevention and treatment of monkeypox in persons with HIV infection, including pre-exposure and postexposure prophylaxis with JYNNEOS vaccine, treatment with tecovirimat, and infection control.
>
> What are the implications for public health practice? Persons with advanced HIV might be at increased risk for severe monkeypox. Postexposure prophylaxis and antiviral treatments are available for persons with HIV infection. Prompt diagnosis and treatment and enhanced prevention efforts might reduce the risk for severe outcomes."

Emerg Infect Dis: Environmental Persistence of Monkeypox Virus on Surfaces in Household of Person with Travel-Associated Infection, Dallas, Texas, USA, 2021 (11 August 2022)

> "In July 2021, we conducted environmental sampling at the residence of a person in Dallas, Texas, USA, who had travel-associated human West African monkeypox virus (MPXV-WA). Targeted environmental swab sampling was conducted 15 days after the person who had monkeypox left the household. Results indicate extensive MPXV-WA DNA contamination, and viable virus from 7 samples was successfully isolated in cell culture. There was no statistical difference ($p = 0.94$) between MPXV-WA PCR positivity of porous (9/10, 90%) vs. nonporous (19/21, 90.5%) surfaces, but there was a significant difference ($p<0.01$) between viable virus detected in cultures of porous (6/10, 60%) vs. nonporous (1/21, 5%) surfaces. These findings indicate that porous surfaces (e.g., bedding, clothing) may pose more of a MPXV exposure risk than nonporous surfaces (e.g., metal, plastic). Viable MPXV was detected on household surfaces after at least 15 days. However, low titers (<102 PFU) indicate a limited potential for indirect transmission."

Lancet: Evidence of human-to-dog transmission of monkeypox virus (10 August 2022)

> "Whether domesticated cats and dogs could be a vector for monkeypox virus is unknown. Here we describe the first case of a dog with confirmed monkeypox virus infection that might have been acquired through human transmission."

Lancet: Clinical presentation and virological assessment of confirmed human monkeypox virus cases in Spain: a prospective observational cohort study (08 August 2022)

> "Background: In May, 2022, several European countries reported autochthonous cases of monkeypox, which rapidly spread globally. Early reports suggest atypical presentations. We aimed to investigate clinical and virological characteristics of cases of human monkeypox in Spain.
>
> Methods: This multicentre, prospective, observational cohort study was done in three sexual health clinics in Madrid and Barcelona, Spain. We enrolled all consecutive patients with laboratory-confirmed monkeypox from May 11 to June 29, 2022. Participants were offered lesion, anal, and oropharynx swabs for PCR testing. Participant data were collected by means of interviews conducted by dermatologists or specialists in sexually transmitted infections and were recorded using a standard case report form. Outcomes assessed in all participants with a confirmed diagnosis were demographics, smallpox vaccination, HIV status, exposure to someone with monkeypox, travel, mass gathering attendance, risk factors for sexually transmitted infections, sexual behaviour, signs and symptoms on first presentation, virological results at multiple body sites, co-infection with other sexually transmitted pathogens, and clinical outcomes 14 days after the initial presentation. Clinical outcomes were followed up until July 13, 2022.

Findings: 181 patients had a confirmed monkeypox diagnosis and were enrolled in the study. 166 (92%) identified as gay men, bisexual men, or other men who have sex with men (MSM) and 15 (8%) identified as heterosexual men or heterosexual women. Median age was 37·0 years (IQR 31·0–42·0). 32 (18%) patients reported previous smallpox vaccination, 72 (40%) were HIV-positive, eight (11%) had a CD4 cell count less than 500 cells per µL, and 31 (17%) were diagnosed with a concurrent sexually transmitted infection. Median incubation was 7·0 days (IQR 5·0–10·0). All participants presented with skin lesions; 141 (78%) participants had lesions in the anogenital region, and 78 (43%) in the oral and perioral region. 70 (39%) participants had complications requiring treatment: 45 (25%) had a proctitis, 19 (10%) had tonsillitis, 15 (8%) had penile oedema, six (3%) an abscess, and eight (4%) had an exanthem. Three (2%) patients required hospital admission. 178 (99%) of 180 swabs from skin lesions collected tested positive, as did 82 (70%) of 117 throat swabs. Viral load was higher in lesion swabs than in pharyngeal specimens (mean cycle threshold value 23 [SD 4] vs 32 [6], absolute difference 9 [95% CI 8–10]; p<0·0001). 108 (65%) of 166 MSM reported anal-receptive sex. MSM who engaged in anal-receptive sex presented with proctitis (41 [38%] of 108 vs four [7%] of 58, absolute difference 31% [95% CI 19–44]; p<0·0001) and systemic symptoms before the rash (67 [62%] vs 16 [28%], absolute difference 34% [28–62]; p<0·0001) more frequently than MSM who did not engage in anal-receptive sex. 18 (95%) of 19 participants with tonsillitis reported practising oral-receptive sex. The median time from onset of lesions to formation of a dry crust was 10 days (IQR 7–13).

Interpretation: In our cohort, monkeypox caused genital, perianal, and oral lesions and complications including proctitis and tonsillitis. Because of the variability of presentations, clinicians should have a low threshold for suspicion of monkeypox. Lesion swabs showed the highest viral loads, which, combined with the history of sexual exposure and the distribution of lesions, suggests close contact is probably the dominant transmission route in the current outbreak."

References

Journal Articles

Ann Intern Med: Ferré VM, Bachelard A, Zaidi M, Armand-Lefevre L, Descamps D, Charpentier C, Ghosn J. Detection of Monkeypox Virus in Anorectal Swabs From Asymptomatic Men Who Have Sex With Men in a Sexually Transmitted Infection Screening Program in Paris, France. Ann Intern Med. 2022 Aug 16. doi: 10.7326/M22-2183. Epub ahead of print. PMID: 35969863. Link: https://www.acpjournals.org/doi/10.7326/M22-2183

Cell Rep Med: Faustman DL, Lee A, Hostetter ER, et al. Multiple BCG vaccinations for prevention of COVID-19 and other infectious diseases in Type 1 diabetes. Cell Rep Med. Published: August 15, 2022 DOI: https://doi.org/10.1016/j.xcrm.2022.100728 Link: https://www.cell.com/cell-reports-medicine/fulltext/S2666-3791(22)00271-3

Clin Infect Dis: Delahoy MJ, Munoz F, Li K, Arriola CS, Bond NL, Daugherty M, Ferber J, Ferguson N, Hadden L, Henderson JT, Irving SA, Juergens M, Kancharla V, Greenberg M, Odouli R, Newes-Adeyi G, Nicholson EG, Reichle L, Sanyang M, Snead M, Dawood FS, Naleway AL. SARS-CoV-2 testing and detection during peripartum hospitalizations among a multi-center cohort of pregnant persons, March 2020-February 2021. Clin Infect Dis. 2022 Aug 12:ciac657. doi: 10.1093/cid/ciac657. Epub ahead of print. PMID: 35959949; PMCID: PMC9384720. Link: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac657/6663759

Clin Infect Dis: Fjelltveit EB, Blomberg B, Kuwelker K, Zhou F, Onyango TB, Brokstad KA, Elyanow R, Kaplan IM, Tøndel C, Mohn KGI, Özgümüş T, Cox RJ, Langeland N; Bergen COVID-19 Research Group. Symptom burden and immune dynamics 6 to 18 months following mild SARS-CoV-2 infection -a case-control study. Clin Infect Dis. 2022 Aug 12:ciac655. doi: 10.1093/cid/ciac655. Epub ahead of print. PMID: 35959897. Link: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac655/6663664

Clin Infect Dis: Moestrup KS, Reekie J, Zucco AG, Jensen TØ, Jensen JUS, Wiese L, Ostrowski SR, Niemann CU, MacPherson C, Lundgren J, Helleberg M. Readmissions, post-discharge mortality and sustained recovery among patients admitted to hospital with COVID-19. Clin Infect Dis. 2022 Aug 8:ciac639. doi: 10.1093/cid/ciac639. Epub ahead of print. PMID: 35938291; PMCID: PMC9384687.Link: https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac639/6658187

Emerg Infect Dis: Karan A, Styczynski AR, Huang CH, Sahoo MK, Srinivasan K, Pinsky BA, et al. Human monkeypox without viral prodrome or sexual exposure, California, USA, 2022. Emerg Infect Dis. 2022 Oct [15 August 2022]. https://doi.org/10.3201/eid2810.221191 Link: https://wwwnc.cdc.gov/eid/article/28/10/22-1191_article

Emerg Infect Dis: Morgan CN, Whitehill F, Doty JB, Schulte J, Matheny A, Stringer J, et al. Environmental persistence of monkeypox virus on surfaces in household of person with travel-associated infection, Dallas, Texas, USA, 2021. Emerg Infect Dis. 2022 Oct [date cited]. https://doi.org/10.3201/eid2810.221047 Link: https://wwwnc.cdc.gov/eid/article/28/10/22-1047_article

Emerg Infect Dis: Ruff J, Zhang Y, Kappel M, Rathi S, Watkins K, Zhang L, Lockett C. Rapid Increase in Suspected SARS-CoV-2 Reinfections, Clark County, Nevada, USA, December 2021. Emerg Infect Dis. 2022 Aug 15;28(10). doi: 10.3201/eid2810.221045. Epub ahead of print. PMID: 35969420. Link: https://wwwnc.cdc.gov/eid/article/28/10/22-1045_article

JAMA: Lo Re V 3rd, Dutcher SK, Connolly JG, Perez-Vilar S, Carbonari DM, DeFor TA, Djibo DA, Harrington LB, Hou L, Hennessy S, Hubbard RA, Kempner ME, Kuntz JL, McMahill-Walraven CN, Mosley J, Pawloski PA, Petrone AB, Pishko AM, Driscoll MR, Steiner CA, Zhou Y, Cocoros NM. Association of COVID-19 vs Influenza With Risk of Arterial and Venous Thrombotic Events Among Hospitalized Patients. JAMA. 2022 Aug 16;328(7):637-651. doi: 10.1001/jama.2022.13072. PMID: 35972486. Link: https://jamanetwork.com/journals/jama/fullarticle/2795268

JAMA Intern Med: Xie J, Prats-Uribe A, Feng Q, Wang Y, Gill D, Paredes R, Prieto-Alhambra D. Clinical and Genetic Risk Factors for Acute Incident Venous Thromboembolism in Ambulatory Patients With COVID-19. JAMA Intern Med. 2022 Aug 18. doi: 10.1001/jamainternmed.2022.3858. Epub ahead of print. PMID: 35980616. Link: https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2795466

JAMA Netw Open: Dörr T, Haller S, Müller MF, Friedl A, Vuichard D, Kahlert CR, Kohler P. Risk of SARS-CoV-2 Acquisition in Health Care Workers According to Cumulative Patient Exposure and Preferred Mask Type. JAMA Netw Open. 2022 Aug 1;5(8):e2226816. doi: 10.1001/jamanetworkopen.2022.26816. PMID: 35969403. Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2795150

JAMA Netw Open: Ghoshal S, Rigney G, Cheng D, Brumit R, Gee MS, Hodin RA, Lillemoe KD, Levine WC, Succi MD. Institutional Surgical Response and Associated Volume Trends Throughout the COVID-19 Pandemic and Postvaccination Recovery Period. JAMA Netw Open. 2022 Aug 1;5(8):e2227443. doi: 10.1001/jamanetworkopen.2022.27443. PMID: 35980636. Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2795296

JAMA Netw Open: Joung SY, Ebinger JE, Sun N, Liu Y, Wu M, Tang AB, Prostko JC, Frias EC, Stewart JL, Sobhani K, Cheng S. Awareness of SARS-CoV-2 Omicron Variant Infection Among Adults With Recent COVID-19 Seropositivity. JAMA Netw Open. 2022 Aug 1;5(8):e2227241. doi: 10.1001/jamanetworkopen.2022.27241. PMID: 35976645. Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2795246

JAMA Netw Open: Kim J, Choe YJ, Lee H, Choi EH, Jang EJ, Kim RK, Park YJ. Long-term Effectiveness Associated With the BNT162b2 Vaccine Against SARS-CoV-2 Infection Among Adolescents in South Korea. JAMA Netw Open. 2022 Aug 1;5(8):e2227205. doi: 10.1001/jamanetworkopen.2022.27205. PMID: 35976652. Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2795253

JAMA Netw Open: Molina RL, Tsai TC, Dai D, Soto M, Rosenthal N, Orav EJ, Figueroa JF. Comparison of Pregnancy and Birth Outcomes Before vs During the COVID-19 Pandemic. JAMA Netw Open. 2022 Aug 1;5(8):e2226531. doi: 10.1001/jamanetworkopen.2022.26531. PMID: 35960517. Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2795158

JAMA Netw Open: Mupanomunda M, Fakih MG, Miller C, Ottenbacher A, Winegar AL, Roberts P, Kimathi M, Gianopoulos JG, Cahill AG, Cacchione JG, Fogel RI, Aloia TA, Masoudi FA. Comparison of Severe Maternal Morbidities Associated With Delivery During Periods of Circulation of Specific SARS-CoV-2 Variants. JAMA Netw Open. 2022 Aug 1;5(8):e2226436. doi: 10.1001/jamanetworkopen.2022.26436. PMID: 35960519. Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2795160

JAMA Netw Open: Portal-Celhay C, Forleo-Neto E, Eagan W, Musser BJ, Davis JD, Turner KC, Norton T, Hooper AT, Hamilton JD, Pan C, Mahmood A, Baum A, Kyratsous CA, Kim Y, Parrino J, Kampman W, Roque-Guerrero L, Stoici R, Fatakia A, Soo Y, Geba GP, Kowal B, DiCioccio AT, Stahl N, Lipsich L, Braunstein N, Herman GA, Yancopoulos GD, Weinreich DM; COVID-19 Phase 2 Dose-Ranging Study Team. Virologic Efficacy of Casirivimab and Imdevimab COVID-19 Antibody Combination in Outpatients With SARS-CoV-2 Infection: A Phase 2 Dose-Ranging Randomized Clinical Trial. JAMA Netw Open. 2022 Aug 1;5(8):e2225411. doi: 10.1001/jamanetworkopen.2022.25411. PMID: 35969402. Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2795149

JAMA Netw Open: Tan CS, Collier AY, Yu J, Liu J, Chandrashekar A, McMahan K, Jacob-Dolan C, He X, Roy V, Hauser BM, Munt JE, Mallory ML, Mattocks M, Powers JM, Meganck RM, Rowe M, Hemond R, Bondzie EA, Jaegle KH, Baric RS, Schmidt AG, Alter G, Le Gars M, Sadoff J, Barouch DH. Durability of Heterologous and Homologous COVID-19 Vaccine Boosts. JAMA Netw Open. 2022 Aug 1;5(8):e2226335. doi: 10.1001/jamanetworkopen.2022.26335. PMID: 35947380. Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2794985

JAMA Netw Open: Tartof SY, Malden DE, Liu IA, Sy LS, Lewin BJ, Williams JTB, Hambidge SJ, Alpern JD, Daley MF, Nelson JC, McClure D, Zerbo O, Henninger ML, Fuller C, Weintraub E, Saydah S, Qian L. Health Care Utilization in the 6 Months Following SARS-CoV-2 Infection. JAMA Netw Open. 2022 Aug 1;5(8):e2225657. doi: 10.1001/jamanetworkopen.2022.25657. PMID: 35960522. Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2795163

JAMA Ophthalmol: Turner K, Nguyen OT, Alishahi Tabriz A, Islam JY, Hong YR. COVID-19 Vaccination Rates Among US Adults With Vision or Hearing Disabilities. JAMA Ophthalmol. 2022 Aug 11. doi: 10.1001/jamaophthalmol.2022.3041. Epub ahead of print. PMID: 35951319. Link: https://jamanetwork.com/journals/jamaophthalmology/fullarticle/2795317

Lancet: Florentino PTV, Millington T, Cerqueira-Silva T, Robertson C, de Araújo Oliveira V, Júnior JBS, Alves FJO, Penna GO, Vital Katikireddi S, Boaventura VS, Werneck GL, Pearce N, McCowan C, Sullivan C, Agrawal U, Grange Z, Ritchie LD, Simpson CR, Sheikh A, Barreto ML, Rudan I, Barral-Netto M, Paixão ES. Vaccine effectiveness of two-dose BNT162b2 against symptomatic and severe COVID-19 among adolescents in Brazil and Scotland over time: a test-negative case-control study. Lancet Infect Dis. 2022 Aug 8:S1473-3099(22)00451-0. doi: 10.1016/S1473-

3099(22)00451-0. Epub ahead of print. PMID: 35952702; PMCID: PMC9359673. Link: https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(22)00451-0/fulltext

Lancet: Seang S, Burrel S, Todesco E, Leducq V, Monsel G, Le Pluart D, Cordevant C, Pourcher V, Palich R. Evidence of human-to-dog transmission of monkeypox virus. Lancet. 2022 Aug 10:S0140-6736(22)01487-8. doi: 10.1016/S0140-6736(22)01487-8. Epub ahead of print. PMID: 35963267. Link: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)01487-8/fulltext

Lancet: Tarín-Vicente EJ, Alemany A, Agud-Dios M, et al. Clinical presentation and virological assessment of confirmed human monkeypox virus cases in Spain: a prospective observational cohort study. Lancet. 2022 Aug 8:S0140-6736(22)01436-2. doi: 10.1016/S0140-6736(22)01436-2. Epub ahead of print. PMID: 35952705.Link: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)01436-2/fulltext

Lancet Infect Dis: Sadarangani M, Soe P, Shulha HP, Valiquette L, Vanderkooi OG, Kellner JD, Muller MP, Top KA, Isenor JE, McGeer A, Irvine M, De Serres G, Marty K, Bettinger JA; Canadian Immunization Research Network. Safety of COVID-19 vaccines in pregnancy: a Canadian National Vaccine Safety (CANVAS) network cohort study. Lancet Infect Dis. 2022 Aug 11:S1473-3099(22)00426-1. doi: 10.1016/S1473-3099(22)00426-1. Epub ahead of print. PMID: 35964614. Link: https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(22)00426-1/fulltext

Lancet Psychiatry: Taquet M, Sillett R, Zhu L, et al. Neurological and psychiatric risk trajectories after SARS-CoV-2 infection: an analysis of 2-year retrospective cohort studies including 1 284 437 patients. Lancet Psychiatry. Published: August 17, 2022 DOI: https://doi.org/10.1016/S2215-0366(22)00260-7 Link: https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(22)00260-7/fulltext

MMWR: Hause AM, Baggs J, Marquez P, et al. Safety Monitoring of Pfizer-BioNTech COVID-19 Vaccine Booster Doses Among Children Aged 5–11 Years — United States, May 17–July 31, 2022. MMWR Morb Mortal Wkly Rep 2022;71:1047–1051. DOI: http://dx.doi.org/10.15585/mmwr.mm7133a3 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7133a3.htm

MMWR: Link-Gelles R, Lutterloh E, Schnabel Ruppert P, et al. Public Health Response to a Case of Paralytic Poliomyelitis in an Unvaccinated Person and Detection of Poliovirus in Wastewater — New York, June–August 2022. MMWR Morb Mortal Wkly Rep. ePub: 16 August 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7133e2 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7133e2.htm

MMWR: Massetti GM, Jackson BR, Brooks JT, et al. Summary of Guidance for Minimizing the Impact of COVID-19 on Individual Persons, Communities, and Health Care Systems — United States, August 2022. MMWR Morb Mortal Wkly Rep. ePub: 11 August 2022. DOI:

http://dx.doi.org/10.15585/mmwr.mm7133e1 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7133e1.htm

MMWR: O'Shea J, Filardo TD, Morris SB, Weiser J, Petersen B, Brooks JT. Interim Guidance for Prevention and Treatment of Monkeypox in Persons with HIV Infection — United States, August 2022. MMWR Morb Mortal Wkly Rep 2022;71:1023-1028. DOI: http://dx.doi.org/10.15585/mmwr.mm7132e4 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7132e4.htm

MMWR: Philpott D, Hughes CM, Alroy KA, et al. Epidemiologic and Clinical Characteristics of Monkeypox Cases — United States, May 17–July 22, 2022. MMWR Morb Mortal Wkly Rep 2022;71:1018-1022. DOI: http://dx.doi.org/10.15585/mmwr.mm7132e3 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7132e3.htm

MMWR: Ritchey MD, Rosenblum HG, Del Guercio K, et al. COVID-19 Self-Test Data: Challenges and Opportunities — United States, October 31, 2021–June 11, 2022. MMWR Morb Mortal Wkly Rep 2022;71:1005–1010. DOI: http://dx.doi.org/10.15585/mmwr.mm7132a1 Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7132a1.htm

Nat Clim Change: Mora C, McKenzie T, Gaw IM, et al. Over half of known human pathogenic diseases can be aggravated by climate change. Nat Clin Change. https://doi.org/10.1038/s41558-022-01426-1 Link: https://www.nature.com/articles/s41558-022-01426-1

NEJM: Bramante CT, Huling JD, Tignanelli CJ, et al. Randomized Trial of Metformin, Ivermectin, and Fluvoxamine for Covid-19. N Engl J Med 2022; 387:599-610 DOI: 10.1056/NEJMoa2201662 Link: https://www.nejm.org/doi/10.1056/NEJMoa2201662

NEJM: Gutierrez Sanchez LH, Shiau H, Baker JM, Saaybi S, Buchfellner M, Britt W, Sanchez V, Potter JL, Ingram LA, Kelly D, Lu X, Ayers-Millsap S, Willeford WG, Rassaei N, Bhatnagar J, Bullock H, Reagan-Steiner S, Martin A, Rogers ME, Banc-Husu AM, Harpavat S, Leung DH, Moulton EA, Lamson DM, St George K, Hall AJ, Parashar U, MacNeil A, Tate JE, Kirking HL. A Case Series of Children with Acute Hepatitis and Human Adenovirus Infection. N Engl J Med. 2022 Jul 13. doi: 10.1056/NEJMoa2206294. Epub ahead of print. PMID: 35830653. Link: https://www.nejm.org/doi/full/10.1056/NEJMoa2206294

NEJM: Kelgeri C, Couper M, Gupte GL, Brant A, Patel M, Johansen L, Valamparampil J, Ong E, Hartog H, Perera MTPR, Mirza D, van Mourik I, Sharif K, Hartley J. Clinical Spectrum of Children with Acute Hepatitis of Unknown Cause. N Engl J Med. 2022 Jul 13. doi: 10.1056/NEJMoa2206704. Epub ahead of print. PMID: 35830627. Link: https://www.nejm.org/doi/full/10.1056/NEJMoa2206704

NEJM: Tan SHX, Cook AR, Heng D, Ong B, Lye DC, Tan KB. Effectiveness of BNT162b2 Vaccine against Omicron in Children 5 to 11 Years of Age. N Engl J Med. 2022 Aug 11;387(6):525-532.

doi: 10.1056/NEJMoa2203209. Epub 2022 Jul 20. PMID: 35857701; PMCID: PMC9342421. Link: https://www.nejm.org/doi/full/10.1056/NEJMoa2203209

NEJM: Zhang XA, Li H, Jiang FC, Zhu F, Zhang YF, Chen JJ, Tan CW, Anderson DE, Fan H, Dong LY, Li C, Zhang PH, Li Y, Ding H, Fang LQ, Wang LF, Liu W. A Zoonotic Henipavirus in Febrile Patients in China. N Engl J Med. 2022 Aug 4;387(5):470-472. doi: 10.1056/NEJMc2202705. PMID: 35921459. Link: https://www.nejm.org/doi/full/10.1056/NEJMc2202705

Pediatrics: Antoon JW, Hall M, Howard LM, Herndon A, Freundlich KL, Grijalva CG, Williams DJ. COVID-19 and Acute Neurologic Complications in Children. Pediatrics. 2022 Aug 11. doi: 10.1542/peds.2022-058167. Epub ahead of print. PMID: 35949041. Link: https://publications.aap.org/pediatrics/article/doi/10.1542/peds.2022-058167/188743/COVID-19-and-Acute-Neurologic-Complications-in

Pediatrics: Maddux AB, Berbert L, Young CC, et al. Health Impairments in Children and Adolescents After Hospitalization for Acute COVID-19 or MIS-C. Pediatrics. 2022 Jun 29. doi: 10.1542/peds.2022-057798. Epub ahead of print. PMID: 35765138. Link: https://publications.aap.org/pediatrics/article/doi/10.1542/peds.2022-057798/188356/Health-Impairments-in-Children-and-Adolescents

Vaccine: Hu S, Xiong C, Li Q, Wang Z, Jiang Y. COVID-19 vaccine hesitancy cannot fully explain disparities in vaccination coverage across the contiguous United States. Vaccine. 2022 Aug 8:S0264-410X(22)00947-1. doi: 10.1016/j.vaccine.2022.07.051. Epub ahead of print. PMID: 35953322. Link: https://www.sciencedirect.com/science/article/pii/S0264410X22009471

News in Brief

ABC: ABC News. Mary Kekatos. CDC sends team to New York to investigate polio case (08 August 2022). Link: https://abcnews.go.com/Health/cdc-sends-team-york-investigate-polio-case/story?id=88095468

ABC: ABC News. Arielle Mitropoulos. Monkeypox vaccine not 'a silver bullet,' WHO says, as breakthrough cases emerge (17 August 2022). Link: https://abcnews.go.com/Health/monkeypox-vaccine-silver-bullet-breakthrough-cases-emerge/story?id=88510794

AP: Associated Press. Lauran Neergaard and Shelby Lum. Major test of first possible Lyme vaccine in 20 years begins (08 August 2022). Link: https://apnews.com/article/science-health-ticks-73fab8e29f3e2243c2db5bc33b3265e1

Atlantic: The Atlantic. Hank Balfour and William Hoffman. It's Not Just Long COVID (12 August 2022). Link: https://www.theatlantic.com/ideas/archive/2022/08/long-covid-monovirus-ebv/671080/

Bloomberg: Bloomberg News. Christian Wienberg and Madison Muller. Monkeypox Vaccine Maker Seeks Partners in Race to Meet Demand (17 August 2022). Link: https://www.bloomberg.com/news/articles/2022-08-17/monkeypox-vaccine-maker-no-longer-certain-it-can-meet-demand

CBS: CBS News. Sophie Reardon. New York Health Department says hundreds of people may be infected with polio virus (05 August 2022). Link: https://www.cbsnews.com/news/polio-virus-hundreds-of-infections-possible-new-york-health-department/

CIDRAP: Center for Infectious Disease Research and Policy. Lisa Schnirring. CDC unveils streamlined COVID-19 guidance (11 August 2022). Link: https://www.cidrap.umn.edu/news-perspective/2022/08/cdc-unveils-streamlined-covid-19-guidance

CIDRAP: Center for Infectious Disease Research and Policy. Stephanie Soucheray. Fractional monkeypox vaccine dosing comes under scrutiny (11 August 2022). Link: https://www.cidrap.umn.edu/news-perspective/2022/08/fractional-monkeypox-vaccine-dosing-comes-under-scrutiny

FDA: US Food & Drug Administration. FDA Authorizes Emergency Use of JYNNEOS Vaccine to Increase Vaccine Supply (09 August 2022) Link: https://www.fda.gov/news-events/press-announcements/monkeypox-update-fda-authorizes-emergency-use-jynneos-vaccine-increase-vaccine-supply

Medpage: Medpage Today. Amanda D'Ambrosio. States vs Masks; Lyme Vax Trial Begins; Weapons Stockpile in Hospital Closet (09 August 2022). Link: https://www.medpagetoday.com/infectiousdisease/covid19/100126

Nature: Nature. Ewen Callaway. COVID rebound is surprisingly common — even without Paxlovid (11 August 2022). Link: https://www.nature.com/articles/d41586-022-02121-z

Nature: Nature. Shannon Hall. Should parents delay kids' second COVID vaccine? Here's what the research says (16 August 2022). Link: https://www.nature.com/articles/d41586-022-02159-z

Nature: Nature. Heidi Ledford. Long-COVID treatments: why the world is still waiting (09 August 2022). Link: https://www.nature.com/articles/d41586-022-02140-w

Nature: Nature. Smriti Mallapaty. Tens of thousands of people exposed to bat coronaviruses each year (09 August 2022). Link: https://www.nature.com/articles/d41586-022-02153-5

Nature: Nature. McKenzie Prillaman. How much virus does a person with COVID exhale? New research has answers (17 August 2022). Link: https://www.nature.com/articles/d41586-022-02202-z

NPR: National Public Radio. Max Barnhart. How many animal species have caught COVID? First global tracker has (partial) answers (05 August 2022). Link:

https://www.npr.org/sections/goatsandsoda/2022/08/05/1114357154/how-many-animal-species-have-caught-covid-first-global-tracker-has-partial-answe

NPR: National Public Radio. Rhitu Chatterjee. A 'staggering' number of people couldn't get care during the pandemic, poll finds (08 August 2022). Link: https://www.npr.org/sections/health-shots/2022/08/08/1116264151/poll-1-in-5-seriously-ill-black-americans-had-a-hard-time-getting-medical-care

NPR: National Public Radio. Wynne Davis. A rapidly spreading E. coli outbreak in Michigan and Ohio is raising health alarms (18 August 2022). Link: https://www.npr.org/2022/08/18/1118141019/e-coli-outbreak-michigan-ohio

NPR: National Public Radio. Mark Kreidler. COVID sewage surveillance labs join the hunt for monkeypox (08 August 2022). Link: https://www.npr.org/sections/health-shots/2022/08/08/1115455190/covid-sewage-surveillance-labs-join-the-hunt-for-monkeypox

NPR: National Public Radio. Rob Stein. What's behind the FDA's controversial strategy for evaluating new COVID boosters (18 August 2022). Link: https://www.npr.org/sections/health-shots/2022/08/18/1117778748/whats-behind-the-fdas-controversial-strategy-for-evaluating-new-covid-boosters

Reuters: Reuters. Zimbabwe blames measles surge on sect gatherings after 80 children die (15 August 2022). Link: https://www.reuters.com/business/healthcare-pharmaceuticals/zimbabwe-blames-measles-surge-sect-gatherings-after-80-children-die-2022-08-14/

Reuters: Reuters. Emma Farge and Jennifer Rigby. WHO vows nothing 'ridiculous' as public submits ideas to rename monkeypox (16 August 2022). Link: https://www.reuters.com/business/healthcare-pharmaceuticals/who-vows-nothing-ridiculous-public-submits-ideas-rename-monkeypox-2022-08-16/

STAT: STATnews. Helen Branswell. Wastewater monitoring identifies polioviruses in New York City (12 August 2022). Link: https://www.statnews.com/2022/08/12/polio-virus-new-york-city/

STAT: STATnews. Helen Branswell. In an effort to address its missteps during Covid, CDC plans an 'ambitious' agency overhaul (17 August 2022). Link: https://www.statnews.com/2022/08/17/cdc-ambitious-overhaul-covid-missteps/

STAT: STATnews. Elizabeth Cooney. Risk of 'brain fog' and other conditions persists up to two years after Covid infection (17 August 2022). Link: https://www.statnews.com/2022/08/17/risk-of-brain-fog-and-other-conditions-persists-up-to-two-years-after-covid-infection/

STAT: STATnews. Robert B. Darnell. PCR testing can help clarify confusion over Covid-19 rebound and isolation (10 August 2022). Link: https://www.statnews.com/2022/08/10/pcr-testing-help-clarify-confusion-covid-19-rebound-and-isolation/

STAT: STATnews. Andrew Joseph. A complicated fall vaccine campaign: Updated Covid boosters, flu shots, and how to time the jabs (16 August 2022). Link: https://www.statnews.com/2022/08/16/a-complicated-fall-vaccine-campaign-updated-covid-boosters-flu-shots-and-how-to-time-the-jabs/

STAT: STATnews. Usha Lee McFarling, Katherine Gilyard, and Akila Muthukumar. New data from several states show racial disparities in monkeypox infections (11 August 2022). Link: https://www.statnews.com/2022/08/11/new-data-from-several-states-show-racial-disparities-in-monkeypox-infections/

STAT: STATnews. Megan Molteni. What scientists know — and don't know — about how monkeypox spreads (10 August 2022). Link: https://www.statnews.com/2022/08/10/what-scientists-know-and-dont-know-about-how-monkeypox-spreads/

WHO: World Health Organization. Monkeypox: experts give virus variants new names (12 August 2022). Link: https://www.who.int/news/item/12-08-2022-monkeypox--experts-give-virus-variants-new-names

WHO: World Health Organization. Leptospirosis - United Republic of Tanzania (12 August 2022). Link: https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON403

Wired: Wired. Grace Browne. The Chaotic Monkeypox Vaccine Pipeline Is Leaving Everyone Short (08 August 2022). Link: https://www.wired.com/story/monkeypox-vaccine-supply-chain/

WP: Washington Post. Amy Cheng. New Langya virus that may have spilled over from animals infects dozens (10 August 2022). Link: https://www.washingtonpost.com/health/2022/08/10/langya-virus-china-shrews-henipavirus/

WP: Washington Post. Mark Johnson. World ignored monkeypox threats, including signs of sexual transmission (12 August 2022). Link: https://www.washingtonpost.com/health/2022/08/12/monkeypox-virus-origins-nigeria-sexual-transmission/

WP: Washington Post. Katie Shepherd and Frances Stead Sellers. Abortion bans complicate access to drugs for cancer, arthritis, even ulcers (08 August 2022). Link: https://www.washingtonpost.com/health/2022/08/08/abortion-bans-methotrexate-mifepristone-rheumatoid-arthritis/

WP: Washington Post. Lena H. Sun and Joel Achenbach. When you have covid, here's how you know you are no longer contagious (updated 11 August 2022). Link: https://www.washingtonpost.com/health/2022/08/01/covid-contagious-period-isolation/

WP: Washington Post. Lena H. Sun and Dan Diamond. CDC, under fire, lays out plan to become more nimble and accountable (17 August 2022). Link: https://www.washingtonpost.com/health/2022/08/17/walensky-revamp-cdc-culture-covid/