

NMCP COVID-19 Literature Report #79: Friday, 22 October 2021

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Purpose: These reports, published every other week on Fridays, are curated collections of current research, evidence reviews, special reports, grey literature, 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>. Access is private; you will need to use the direct link or bookmark the URL.

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. Please feel free to reach out with questions, suggestions for future topics, or any other feedback.

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The Big Picture

News in Brief

A new report recommends that the WHO's Access to COVID-19 Tools Accelerator (ACT-A) program, which focuses on diagnostics, therapeutics, and vaccines, should likely continue through 2022 ([CIDRAP](#); see also: [strategic review of WHO's ACT-A program](#)).

"'I hope you die': how the COVID pandemic unleashed attacks on scientists — Dozens of researchers tell *Nature* they have received death threats, or threats of physical or sexual violence" ([Nature](#)).

"Who really has the authority to write about the pandemic?" ([LitHub](#))

"Addressing biocrises after COVID-19: Is deterrence an option?" ([War on the Rocks](#)).

Webinars and Events

WHAT: [The Next Season of Pandemic Response: What Leaders Need to Know this Fall and Winter](#) — Center for Homeland Defense and Security (CHDS)

WHEN: Wednesday, 27 October 2021; 1400–1530 ET

DETAILS: "In this webinar, national experts will discuss what local and state leaders might expect next in the U.S. response to COVID-19. Panelists will address the latest developments in vaccine expansion for youth populations, challenges in maintaining a resilient healthcare workforce, and endgame strategies for the pandemic. Please join us as we explore collaboration opportunities for homeland security, emergency management, public health and public safety officials in the months to come."

Special Reports and Other Resources

DHS OIG: [Lessons Learned from FEMA's Initial Response to COVID-19\[pdf\]](#) (21 September 2021)

"In response to the COVID-19 pandemic, FEMA worked closely with the U.S. Department of Health and Human Services and other Federal agencies to facilitate the shipment of PPE and ventilators. However, the magnitude of the global event exposed weaknesses in FEMA's resource request system and allocation processes. Specifically, WebEOC — the system FEMA used to process resource requests including those for PPE and ventilators — contained unreliable data to inform allocation decisions and ensure requests were accurately adjudicated. This occurred because FEMA did not develop controls to validate requests and prevent incomplete, inaccurate, or duplicate data entries; nor did FEMA

ensure WebEOC users received training on proper use of the system. In addition, although FEMA developed a process to allocate the limited supply of ventilators, it did not have a similarly documented process for PPE.

Finally, FEMA did not have strategic guidance clearly outlining the roles and responsibilities used to lead the Federal response. FEMA's decision to prioritize ongoing pandemic response efforts without updating its written guidance and strategic plans hindered FEMA's coordination efforts.

To its credit, FEMA evaluated its COVID-19 response operations, identifying similar key findings and recommendations aimed at improving current and future responses, including making updates to its WebEOC system."

Journal Articles

PLoS One: [The impact of the COVID-19 response on the provision of other public health services in the U.S.: A cross sectional study](#) (14 October 2021)

"Introduction: Funding and staff formerly dedicated to routine public health tasks (e.g., responding to communicable and non-communicable diseases, investigating foodborne outbreaks, conducting routine surveillance) and services (e.g., environmental health, substance abuse, maternal-child health) may no longer be available in many public health departments due to the COVID-19 response. The objective of this study was to assess the extent to which staffing for essential public health services has been redirected to the COVID-19 response.

Materials and methods: This is a cross-sectional study using a survey distributed through the Qualtrics platform. Individuals (N = 298) working in public health across governmental and academic public health departments in the U.S. during the ongoing COVID-19 pandemic response were surveyed. Survey items measured multiple domains including professional experience (i.e., training, years of experience, content expertise, job functions, hours worked), mental and physical health status (i.e., generalized anxiety, depression, burnout), and career plans (i.e., pre-pandemic vs. current career plans).

Results: The total number of content expertise areas and programmatic functions covered by individual public health workers increased between January and September of 2020, with 26% (73 of 282) of respondents reporting an increase in both. The total number of respondents working in infectious disease and preparedness remained constant, while declines were reported in program evaluation (-36%) and health education (-27%) and increases were reported in disease investigation (+35%).

Conclusions: The provision of many essential public health functions and tasks have been limited or eliminated while the U.S. public health workforce responds to the COVID-19 pandemic. These findings highlight opportunities for funding and professional development of public health systems, both during and after the COVID-19 response, to help ensure the continuity of essential public health services, staffing sustainability, and preparedness for future public health emergencies in the U.S."

Interface Focus: [How did we get here: what are droplets and aerosols and how far do they go? A historical perspective on the transmission of respiratory infectious diseases](#) (12 October 2021)

"The COVID-19 pandemic has exposed major gaps in our understanding of the transmission of viruses through the air. These gaps slowed recognition of airborne transmission of the disease, contributed to muddled public health policies and impeded clear messaging on how best to slow transmission of COVID-19. In particular, current recommendations have been based on four tenets: (i) respiratory disease transmission routes can be viewed mostly in a binary manner of 'droplets' versus 'aerosols'; (ii) this dichotomy depends on droplet size alone; (iii) the cut-off size between these routes of transmission is 5 μm ; and (iv) there is a dichotomy in the distance at which transmission by each route is relevant. Yet, a relationship between these assertions is not supported by current scientific knowledge. Here, we revisit the historical foundation of these notions, and how they became entangled from the 1800s to today, with a complex interplay among various fields of science and medicine. This journey into the past highlights potential solutions for better collaboration and integration of scientific results into practice for building a more resilient society with more sound, far-sighted and effective public health policies."

Modeling

PLoS One: [Mechanistic modelling of COVID-19 and the impact of lockdowns on a short-time scale](#) (18 October 2021)

"Background: To mitigate the spread of the COVID-19 coronavirus, some countries have adopted more stringent non-pharmaceutical interventions in contrast to those widely used. In addition to standard practices such as enforcing curfews, social distancing, and closure of non-essential service industries, other non-conventional policies also have been implemented, such as the total lockdown of fragmented regions, which are composed of sparsely and highly populated areas.

Methods: In this paper, we model the movement of a host population using a mechanistic approach based on random walks, which are either diffusive or super-diffusive. Infections are realised through a contact process, whereby a susceptible host is infected if in close spatial proximity of the infectious host with an assigned transmission probability. Our focus is on a short-time scale (~ 3 days), which is the average time lag time before an infected individual becomes infectious.

Results: We find that the level of infection remains approximately constant with an increase in population diffusion, and also in the case of faster population dispersal (super-diffusion). Moreover, we demonstrate how the efficacy of imposing a lockdown depends heavily on how susceptible and infectious individuals are distributed over space.

Conclusion: Our results indicate that on a short-time scale, the type of movement behaviour does not play an important role in rising infection levels. Also, lock-down restrictions are ineffective if the population distribution is homogeneous. However, in the case of a heterogeneous population, lockdowns are effective if a large proportion of infectious carriers are distributed in sparsely populated sub-regions."

JAMA Netw Open: [A Continuously Benchmarked and Crowdsourced Challenge for Rapid Development and Evaluation of Models to Predict COVID-19 Diagnosis and Hospitalization](#) (11 October 2021)

"Question: What can be learned from a crowdsourced challenge for the prediction of COVID-19 diagnosis and hospitalization?"

Findings: This diagnostic and prognostic study used a model-to-data approach to implement a continuous benchmarking challenge that has enabled 482 participants to join in the effort to use regularly updated COVID-19 patient data to build machine learning models for COVID-19 diagnosis and hospitalization prediction. Machine learning models showed high accuracy in COVID-19 outcome prediction, but analysis of subgroups and prospective data revealed limitations and bias in the models.

Meaning: This study suggests that crowdsourced clinical algorithms can predict COVID-19 diagnosis and hospitalization, but evaluation of the submitted models using reserved data sets is necessary to avoid self-assessment traps."

Hawaii J Health Soc Welf: [COVID-19 Containment Ship Model: A Case Study for Pacific Island Response](#) (September 2021)

"The Republic of the Marshall Islands, American Samoa, the Federated States of Micronesia, and the Republic of Palau have been without any COVID-19 community transmission since the beginning of the global pandemic. The Commonwealth of the Northern Mariana Islands has experienced modest community transmission, and Guam has had significant COVID-19 community transmission and morbidity. Although several of these United States Affiliated Pacific Island jurisdictions made difficult strategic choices to prevent the spread of COVID-19 which have been largely successful, the built environment and the population density in the urban areas of the Pacific remain inherently conducive to rapid COVID-19 transmission. Rapid transmission could result in devastating health and economic consequences in the absence of continued vigilance and long-term strategic measures. The unique COVID-19 vulnerability of islands in the Pacific can be modeled through examination of recent

outbreaks onboard several United States Naval ships and other marine vessels. The environmental characteristics that pose challenges to infection control on an isolated naval ship are analogous to the environmental characteristics of these Pacific island communities. Considering a collection of case studies of COVID-19 transmission on ships and applying to Pacific Island environments, provides a heuristic, easily accessible epidemiologic framework to identify methods for interventions that are practical and reliable towards COVID-19 containment, prevention, and control. Using accessible evidence based public health policies, infection risk can be decreased with the objective of maintaining in-country health and social stability. These case studies have also been examined for their relevance to current discussions of health care infrastructure and policy in the Pacific Islands, especially that of vaccination and repatriation of citizens marooned in other countries. The need for aggressive preparation on the parts of territories and nations not yet heavily exposed to the virus is critical to avoid a rapid "burn-through" of disease across the islands, which would likely result in catastrophic consequences."

SARS-CoV-2 Virus and Variants

News in Brief

"WHO names researchers to reboot outbreak origin investigations — The group, called SAGO, will create a permanent framework for probing epidemics, and initiate the next phase of the COVID origins hunt" ([Nature](#)).

Meanwhile... "WHO announces new expert group to investigate origins of covid-19 and other outbreaks" ([WP](#)).

Long Reads

"The mysterious case of the COVID-19 lab-leak theory — Did the virus spring from nature or from human error?" ([New Yorker](#))

"The origin of COVID-19: Evidence piles up, but the jury's still out" ([Bull Atomic Sci](#)).

Journal Articles

Science: [Defining variant-resistant epitopes targeted by SARS-CoV-2 antibodies: A global consortium study](#) (22 October 2021; online 23 September 2021)

"Antibody-based therapeutics and vaccines are essential to combat COVID-19 morbidity and mortality after severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection.

Multiple mutations in SARS-CoV-2 that could impair antibody defenses propagated in human-to-human transmission and spillover or spillback events between humans and animals. To develop prevention and therapeutic strategies, we formed an international consortium to map the epitope landscape on the SARS-CoV-2 spike protein, defining and structurally illustrating seven receptor binding domain (RBD)-directed antibody communities with distinct footprints and competition profiles. Pseudovirion-based neutralization assays reveal spike mutations, individually and clustered together in variants, that affect antibody function among the communities. Key classes of RBD-targeted antibodies maintain neutralization activity against these emerging SARS-CoV-2 variants. These results provide a framework for selecting antibody treatment cocktails and understanding how viral variants might affect antibody therapeutic efficacy."

Nat Rev Immunol: [The immunology of asymptomatic SARS-CoV-2 infection: what are the key questions?](#) (19 October 2021)

"An important challenge during the COVID-19 pandemic has been to understand asymptomatic disease and the extent to which this may be a source of transmission. As asymptomatic disease is by definition hard to screen for, there is a lack of clarity about this aspect of the COVID-19 spectrum. Studies have considered whether the prevalence of asymptomatic disease is determined by differences in age, demographics, viral load, duration of shedding, and magnitude or durability of immunity. It is clear that adaptive immunity is strongly activated during asymptomatic infection, but some features of the T cell and antibody response may differ from those in symptomatic disease. Areas that need greater clarity include the extent to which asymptomatic disease leads to persistent symptoms (long COVID), and the quality, quantity and durability of immune priming required to confer subsequent protection."

Clin Infect Dis: [Severity, criticality, and fatality of the SARS-CoV-2 Beta variant](#) (17 October 2021)

"Beta (B.1.351) variant COVID-19 disease was investigated in Qatar. Compared to Alpha (B.1.1.7) variant, odds of progressing to severe disease were 1.24-fold (95% CI: 1.11-1.39) higher for Beta. Odds of progressing to critical disease were 1.49-fold (95% CI: 1.13-1.97) higher. Odds of COVID-19 death were 1.57-fold (95% CI: 1.03-2.43) higher."

!!! Clin Infect Dis: [SARS-CoV-2 Dose, Infection, and Disease Outcomes for COVID-19 – A Review](#) (15 October 2021)

"The relationship between SARS-CoV-2 dose, infection, and COVID-19 outcomes remains poorly understood. This review summarizes the existing literature regarding this issue, identifies gaps in current knowledge, and suggests opportunities for future research. In humans, host characteristics including age, sex, comorbidities, smoking, and pregnancy are associated with severe COVID-19. Similarly in animals, host factors are strong determinants

of disease severity although most animal infection models manifest clinically with mild to moderate respiratory disease. The influence of variants of concern as it relates to minimal infectious dose, consequence of overall pathogenicity, and disease outcome in dose-response remain unknown. Epidemiologic data suggest a dose-response relationship for infection contrasting with limited and inconsistent surrogate-based evidence between dose and disease severity. Recommendations include the design of future infection studies in animal models to investigate inoculating dose on outcomes and the use of better proxies for dose in human epidemiology studies."

Euro Surveill: [Effectiveness of COVID-19 vaccines against SARS-CoV-2 infection with the Delta \(B.1.617.2\) variant: second interim results of a living systematic review and meta-analysis, 1 January to 25 August 2021](#) (14 October 2021)

"The Delta variant has become the dominant strain of SARS-CoV-2. We summarised the evidence on COVID-19 vaccine effectiveness (VE) identified in 17 studies that investigated VE against different endpoints. Pooled VE was 63.1% (95% confidence interval (CI): 40.9-76.9) against asymptomatic infection, 75.7% (95% CI: 69.3-80.8) against symptomatic infection and 90.9% (95% CI: 84.5-94.7) against hospitalisation. Compared with the Alpha variant, VE against mild outcomes was reduced by 10-20%, but fully maintained against severe COVID-19."

Science: [Genomic characterization and epidemiology of an emerging SARS-CoV-2 variant in Delhi, India](#) (14 October 2021)

"Delhi, the national capital of India, has experienced multiple SARS-CoV-2 outbreaks in 2020 and reached population seropositivity of over 50% by 2021. During April 2021, the city became overwhelmed by COVID-19 cases and fatalities, as a new variant B.1.617.2 (Delta) replaced B.1.1.7 (Alpha). A Bayesian model explains the growth advantage of Delta through a combination of increased transmissibility and reduced sensitivity to immune responses generated against earlier variants (median estimates; $\times 1.5$ -fold, 20% reduction). Seropositivity of an employee and family cohort increased from 42% to 87.5% between March and July 2021, with 27% reinfections, as judged by increased antibody concentration after a previous decline. The likely high transmissibility and partial evasion of immunity by the Delta variant contributed to an overwhelming surge in Delhi."

Emerg Infect Dis: [SARS-CoV-2 Shedding in Semen and Oligozoospermia of Patient with Severe Coronavirus Disease 11 Weeks after Infection](#) (13 October 2021)

"We report severe acute respiratory syndrome coronavirus 2 in semen by using quantitative reverse transcription PCR during the late convalescent phase. Virus was associated with adequate humoral and cell-mediated responses, suggesting possible seeding of the immune-privileged testes. We provide longitudinal semen quality data for 6 other men, including 3 who had oligozoospermia."

COVID-19 Vaccines

News in Brief

The FDA now recommends a booster dose for Moderna vaccine in those 65 years and older or 18-64 if at high risk of severe COVID-19 or with frequent exposure; they also suggest a booster dose for anyone who got the J&J vaccine ([FDA](#)).

"A primer on what we know about mixing and matching Covid vaccines" ([STAT](#)).

"Pfizer-BioNTech say children's vaccine is 91 percent effective in documents ahead of FDA meeting" ([WP](#); see also: [FDA documents \[pdf\]](#)).

"You're not 'fully vaccinated.' You never will be. And that's okay. It's a goal for communities or nations, not for individuals" ([WP](#)).

"COVID vaccine makers brace for a variant worse than Delta — Companies are updating vaccines and testing them on people to prepare for whatever comes next in the pandemic" ([Nature](#)).

Mandates

"Hundreds of thousands of U.S. troops have not yet complied with vaccine mandate as deadlines near" ([WP](#)).

"Catholic troops can refuse COVID Vaccine, archbishop declares" ([Defense One](#); see also: [statement from Archbishop for the Military Services \[pdf\]](#)).

Long Reads

"How Covax failed on its promise to vaccinate the world: ([Bureau Invest Journ](#)).

Webinars and Events

WHAT: CDC COCA — [What Clinicians Need to Know about the Recent Updates to CDC's Recommendations for COVID-19 Boosters](#)

WHEN: Tuesday, 26 October 2021; 1400–1500 ET

DETAILS: "This COCA call will provide an overview of the most recent recommendations for administering COVID-19 booster vaccines. The Centers for Disease Control and Prevention will provide updates about the latest recommendations and clinical considerations for administering COVID-19 boosters, including an update on early safety monitoring for additional COVID-19 vaccine doses."

Journal Articles

MMWR: [COVID-19 Vaccination and Non-COVID-19 Mortality Risk — Seven Integrated Health Care Organizations, United States, December 14, 2020–July 31, 2021](#) (22 October 2021)

"What is already known about this topic? Although deaths after COVID-19 vaccination have been reported to the Vaccine Adverse Events Reporting System, few studies have been conducted to evaluate mortality not associated with COVID-19 among vaccinated and unvaccinated groups.

What is added by this report? During December 2020–July 2021, COVID-19 vaccine recipients had lower rates of non-COVID-19 mortality than did unvaccinated persons after adjusting for age, sex, race and ethnicity, and study site.

What are the implications for public health practice? There is no increased risk for mortality among COVID-19 vaccine recipients. This finding reinforces the safety profile of currently approved COVID-19 vaccines in the United States. All persons aged ≥ 12 years should receive a COVID-19 vaccine."

NEJM: [BNT162b2 and ChAdOx1 nCoV-19 Vaccine Effectiveness against Death from the Delta Variant](#) (20 October 2021)

Summary from [CIDRAP](#): "In the most recent results of the UK observational study, a team led by a University of Edinburgh researcher estimated the odds of COVID-19 death among 114,706 vaccinated and unvaccinated Scottish adults (plus teens aged 16 and 17) who tested positive for COVID-19 from Apr 1 to Aug 16, 2021, and were followed up until Sep 27.

Vaccinees had received one or two doses of the Pfizer/BioNTech or AstraZeneca/Oxford COVID-19 vaccines. Relative to the vaccinated, unvaccinated adults tended to be much younger, have fewer chronic conditions, have lower socioeconomic status, and be men. Whole-genome sequencing showed that nearly all infections were caused by Delta.

Of 201 total COVID-19 deaths, none occurred among the 7,180 fully vaccinated participants 16 to 39 years old, compared with 17 among the 35,449 unvaccinated participants in that age-group (0.05%). Of participants aged 40 to 59, 33 deaths occurred among the 4,803 unvaccinated participants (0.69%), versus 18 among 12,905 in the fully vaccinated group (0.14%) (16 with AstraZeneca, 2 with Pfizer).

Overall effectiveness against death from Delta infections at least 14 days after the second vaccine dose was 90% (95% confidence interval [CI], 83% to 94%) for Pfizer and 91% (95% CI, 86% to 94%) for AstraZeneca.

Among 40- to 59-year-olds, the vaccines were 88% effective (95% CI, 76% to 93%) against death for AstraZeneca and 95% (95% CI, 79% to 99%) for Pfizer. Overall effectiveness

against death was 90% (95% CI, 84% to 94%) with AstraZeneca and 87% (95% CI, 77% to 93%) with Pfizer among those 60 years and older.

First author Aziz Sheikh, MD, said in a University of Edinburgh news release that although the research must be repeated in other settings with longer follow-up time, the results are encouraging."

Emerg Infect Dis: [Guillain-Barré Syndrome Associated with COVID-19 Vaccination](#) (14 October 2021)

"We conducted a multi-institutional study in Taiwan and a systematic review of the literature for reports of Guillain-Barré syndrome after coronavirus disease vaccination. This condition, mostly the classic form and the acute inflammatory demyelinating polyneuropathy subtype, has been reported in 39 cases and has occurred within 2 weeks of vaccine administration."

JAMA Netw Open: [COVID-19 Vaccine Acceptance and Access Among Black and Latinx Communities](#) (13 October 2021)

"Question: What factors are associated with facilitating and obstructing COVID-19 vaccine acceptance and access among Black and Latinx communities?"

Findings: This qualitative study of 72 participants who identified as Black and/or Latinx identified 3 themes to understanding factors associated with facilitating or obstructing COVID-19 vaccination: pervasive mistreatment of Black and Latinx communities and associated distrust; informing trust via trusted messengers and messages, choice, social support, and diversity; and addressing structural barriers to vaccination access.

Meaning: These findings suggest that community-informed insights may inform health care strategies to maximize vaccine acceptance and access in communities hardest hit by the COVID-19 pandemic."

Am J Public Health: [Vaccine Coverage Across the Life Course in Michigan During the COVID-19 Pandemic: January–September 2020](#) (07 October 2021)

"Objectives. To assess the impact of the COVID-19 pandemic on immunization services across the life course.

Methods. In this retrospective study, we used Michigan immunization registry data from 2018 through September 2020 to assess the number of vaccine doses administered, number of sites providing immunization services to the Vaccines for Children population, provider location types that administer adult vaccines, and vaccination coverage for children.

Results. Of 12 004 384 individual vaccine doses assessed, 48.6%, 15.6%, and 35.8% were administered to children (aged 0–8 years), adolescents (aged 9–18 years), and adults (aged 19–105 years), respectively. Doses administered overall decreased beginning in February 2020, with peak declines observed in April 2020 (63.3%). Overall decreases in adult doses were observed in all settings except obstetrics and gynecology provider offices and pharmacies. Local health departments reported a 66.4% decrease in doses reported. For children, the total number of sites administering pediatric vaccines decreased while childhood vaccination coverage decreased 4.4% overall and 5.8% in Medicaid-enrolled children.

Conclusions. The critical challenge is to return to prepandemic levels of vaccine doses administered as well as to catch up individuals for vaccinations missed."

Breakthrough Infections, Reinfections, and Coinfections

News in Brief

"COVID reinfections likely within one or two years, models propose — Estimates based on viral evolution forecast a 50% risk 17 months after a first infection without measures such as masking and vaccination" ([Nature](#)).

"COVID super-immunity: one of the pandemic's great puzzles — People who have previously recovered from COVID-19 have a stronger immune response after being vaccinated than those who have never been infected. Scientists are trying to find out why" ([Nature](#)).

Journal Articles

Emerg Infect Dis: [Fatal Co-infections with SARS-CoV-2 and *Legionella pneumophila*, England](#) (19 October 2021)

"Both *Legionella pneumophila* and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) can cause pneumonia. *L. pneumophila* is acquired from water sources, sometimes in healthcare settings. We report 2 fatal cases of *L. pneumophila* and SARS-CoV-2 co-infection in England. Clinicians should be aware of possible *L. pneumophila* infections among SARS-CoV-2 patients."

BMC Infect Dis: [Recurrent SARS-CoV-2 RNA positivity and prolonged viral shedding in a patient with COVID-19: a case report](#) (18 October 2021)

"Background: The ongoing coronavirus disease 2019 (COVID-19) global pandemic caused by the SARS-CoV-2 virus remains a major threat to public health. At present, it is recommended that patients with known or suspected COVID-19 undergo quarantine or medical observation for 14 days. However, recurrent SARS-CoV-2 RNA positivity and prolonged viral shedding have been documented in convalescent COVID-19 patients, complicating efforts to control viral spread and ensure patient recovery.

Case presentation: We report the case of a patient who experienced two recurrent episodes of SARS-CoV-2 RNA and IgM positivity and viral shedding over 60 days during hospitalization.

Conclusions: This case report demonstrates that relapses of SARS-CoV-2 RNA and IgM positivity may occur even after COVID-19 symptoms have resolved, possibly as a consequence of prolonged viral shedding rather than re-infection."

Rev Bras Enferm: [Clinical progression of COVID-19 coinfection in people living with the human immunodeficiency virus: scoping review](#) (18 October 2021)

"Objectives: to map the production of scientific knowledge on the clinical progression of COVID-19 coinfection in people living with the human immunodeficiency virus (HIV).

Methods: scoping review, with search strategies in MEDLINE, Scopus, Embase, Web of Science, and LILACS. Dual independent data extraction and analysis of the material with similarity compilation and narrative synthesis.

Results: sample consisted of 35 articles. Fever, cough, and dyspnea were the most prevalent signs/symptoms. Recurrent complications involved desaturation/worsening of oxygen desaturation and pneumonia. No standard pharmacological treatment was identified, and the main interventions involved the provision of supplemental oxygen and mechanical ventilation. The studies recommended preventive, care, and pharmacological practices.

Conclusions: the clinical manifestations, complications, and treatments/assistance care for people coinfecting with SARS CoV-2/HIV are similar to those of the general population. Coinfection, overall, does not infer a worse prognosis."

Treatments and Management

News in Brief

"How antiviral pill molnupiravir shot ahead in the COVID drug hunt — The Merck pill, which could become the first oral antiviral COVID treatment, forces the SARS-CoV-2 coronavirus to mutate itself to death" ([Nature](#)).

The FDA will have an Advisory Committee meeting about molnupiravir's EUA on 30 November 2021 ([FDA](#)).

"Gates Foundation will provide \$120 million to ensure generic production of Merck's Covid-19 pill" ([STAT](#)).

If you take ivermectin to avoid hospitalization for COVID-19, you might still be hospitalized because of the toxic effects of ivermectin. Maybe don't take ivermectin for covid, okay? ([NEJM](#))

Special Reports and Other Resources

TML: [Treatment Considered for COVID-19 \[pdf\]](#) (updated 21 October 2021)

"[This table] lists pertinent evidence on the clinical effectiveness and safety of some drugs and other therapies being considered for COVID-19. Most authorities recommend use of these drugs only in the setting of a clinical trial or when access via clinical trial is not available."

Journal Articles

MMWR: [Severity of Disease Among Adults Hospitalized with Laboratory-Confirmed COVID-19 Before and During the Period of SARS-CoV-2 B.1.617.2 \(Delta\) Predominance — COVID-NET, 14 States, January–August 2021](#) (22 October 2021)

"What is already known about this topic? The SARS-CoV-2 B.1.617.2 (Delta) variant is highly transmissible; however, whether it causes more severe disease in adults has been uncertain.

What is added by this report? Analysis of COVID-NET data from 14 states found no significant increases in the proportion of hospitalized COVID-19 patients with severe outcomes during the Delta period. The proportion of hospitalized unvaccinated COVID-19 patients aged 18–49 years significantly increased during the Delta period.

What are the implications for public health practice? Lower vaccination coverage in adults aged 18–49 years likely contributed to the increase in hospitalized patients during the Delta

period. COVID-19 vaccination is critical for all eligible adults, including adults aged <50 years who have relatively low vaccination rates compared with older adults."

JAMA: [Effect of 12 mg vs 6 mg of Dexamethasone on the Number of Days Alive Without Life Support in Adults With COVID-19 and Severe Hypoxemia: The COVID STEROID 2 Randomized Trial](#) (21 October 2021)

"Question: What is the effect of 12 mg vs 6 mg of dexamethasone on the number of days alive without life support at 28 days in patients with COVID-19 and severe hypoxemia?

Findings: In this randomized trial that included 1000 patients with COVID-19 and severe hypoxemia, treatment with 12 mg/d of dexamethasone resulted in 22.0 days alive without life support at 28 days compared with 20.5 days in those receiving 6 mg/d of dexamethasone. This difference was not statistically significant.

Meaning: Compared with 6 mg of dexamethasone, 12 mg of dexamethasone did not statistically significantly reduce the number of days alive without life support at 28 days."

Clin Infect Dis: [Lessons learned from COVID-19 therapies: Critical perspectives from the IDSA COVID-19 treatment guideline panel](#) (20 October 2021)

"Despite the challenges of the pandemic, there has been substantial progress with COVID-19 therapies. Pivotal COVID-19 trials like SOLIDARITY, RECOVERY and ACCT-1 were rapidly conducted and data disseminated to support effective therapies.. However, critical shortcomings remain on trial conduct, dissemination and interpretation of study results, and regulatory guidance in pandemic settings. The lessons we learned have implications for both the current pandemic and future emerging infectious diseases. There is a need for establishing and standardizing clinical meaningful outcomes in therapeutic trials and for targeting defined populations and phenotypes that will most benefit from specific therapies. Standardized processes should be established for rapid and critical data review and dissemination to ensure scientific integrity. Clarity around the evidence standards needed for issuance of both Emergency Use Authorization (EUA) and Biologic License Application (BLA) should be established and an infrastructure for executing rapid trials in epidemic settings maintained."

Lancet Respir Med: [Efficacy of interferon beta-1a plus remdesivir compared with remdesivir alone in hospitalised adults with COVID-19: a double-blind, randomised, placebo-controlled, phase 3 trial](#) (18 October 2021)

"Background: Functional impairment of interferon, a natural antiviral component of the immune system, is associated with the pathogenesis and severity of COVID-19. We aimed to compare the efficacy of interferon beta-1a in combination with remdesivir compared with remdesivir alone in hospitalised patients with COVID-19.

Methods: We did a double-blind, randomised, placebo-controlled trial at 63 hospitals across five countries (Japan, Mexico, Singapore, South Korea, and the USA). Eligible patients were hospitalised adults (aged ≥ 18 years) with SARS-CoV-2 infection, as confirmed by a positive RT-PCR test, and who met one of the following criteria suggestive of lower respiratory tract infection: the presence of radiographic infiltrates on imaging, a peripheral oxygen saturation on room air of 94% or less, or requiring supplemental oxygen. Patients were excluded if they had either an alanine aminotransferase or an aspartate aminotransferase concentration more than five times the upper limit of normal; had impaired renal function; were allergic to the study product; were pregnant or breast feeding; were already on mechanical ventilation; or were anticipating discharge from the hospital or transfer to another hospital within 72 h of enrolment. Patients were randomly assigned (1:1) to receive intravenous remdesivir as a 200 mg loading dose on day 1 followed by a 100 mg maintenance dose administered daily for up to 9 days and up to four doses of either 44 μg interferon beta-1a (interferon beta-1a group plus remdesivir group) or placebo (placebo plus remdesivir group) administered subcutaneously every other day. Randomisation was stratified by study site and disease severity at enrolment. Patients, investigators, and site staff were masked to interferon beta-1a and placebo treatment; remdesivir treatment was given to all patients without masking. The primary outcome was time to recovery, defined as the first day that a patient attained a category 1, 2, or 3 score on the eight-category ordinal scale within 28 days, assessed in the modified intention-to-treat population, defined as all randomised patients who were classified according to actual clinical severity. Safety was assessed in the as-treated population, defined as all patients who received at least one dose of the assigned treatment. This trial is registered with ClinicalTrials.gov, NCT04492475.

Findings: Between Aug 5, 2020, and Nov 11, 2020, 969 patients were enrolled and randomly assigned to the interferon beta-1a plus remdesivir group ($n=487$) or to the placebo plus remdesivir group ($n=482$). The mean duration of symptoms before enrolment was 8.7 days (SD 4.4) in the interferon beta-1a plus remdesivir group and 8.5 days (SD 4.3) days in the placebo plus remdesivir group. Patients in both groups had a time to recovery of 5 days (95% CI not estimable) (rate ratio of interferon beta-1a plus remdesivir group vs placebo plus remdesivir 0.99 [95% CI 0.87–1.13]; $p=0.88$). The Kaplan-Meier estimate of mortality at 28 days was 5% (95% CI 3–7%) in the interferon beta-1a plus remdesivir group and 3% (2–6%) in the placebo plus remdesivir group (hazard ratio 1.33 [95% CI 0.69–2.55]; $p=0.39$). Patients who did not require high-flow oxygen at baseline were more likely to have at least one related adverse event in the interferon beta-1a plus remdesivir group (33 [7%] of 442 patients) than in the placebo plus remdesivir group (15 [3%] of 435). In patients who required high-flow oxygen at baseline, 24 (69%) of 35 had an adverse event and 21 (60%) had a serious adverse event in the interferon beta-1a plus remdesivir group compared with 13 (39%) of 33 who had an adverse event and eight (24%) who had a serious adverse event in the placebo plus remdesivir group.

Interpretation: Interferon beta-1a plus remdesivir was not superior to remdesivir alone in hospitalised patients with COVID-19 pneumonia. Patients who required high-flow oxygen at baseline had worse outcomes after treatment with interferon beta-1a compared with those given placebo."

Lancet Respir Med: [Colchicine in patients admitted to hospital with COVID-19 \(RECOVERY\): a randomised, controlled, open-label, platform trial](#) (18 October 2021)

"Background: Colchicine has been proposed as a treatment for COVID-19 based on its anti-inflammatory actions. We aimed to evaluate the efficacy and safety of colchicine in patients admitted to hospital with COVID-19.

Methods: In this streamlined, randomised, controlled, open-label trial, underway at 177 hospitals in the UK, two hospitals in Indonesia, and two hospitals in Nepal, several possible treatments were compared with usual care in patients hospitalised with COVID-19. Patients were eligible for inclusion in the study if they were admitted to hospital with clinically suspected or laboratory confirmed SARS-CoV-2 infection and had no medical history that might, in the opinion of the attending clinician, put the patient at significant risk if they were to participate in the trial. Eligible and consenting adults were randomly assigned (1:1) to receive either usual standard of care alone (usual care group) or usual standard of care plus colchicine (colchicine group) using web-based simple (unstratified) randomisation with allocation concealment. Participants received colchicine 1 mg after randomisation followed by 500 µg 12 h later and then 500 µg twice a day by mouth or nasogastric tube for 10 days in total or until discharge. Dose frequency was halved for patients receiving a moderate CYP3A4 inhibitor (eg, diltiazem), patients with an estimated glomerular filtration rate of less than 30 mL/min per 1.73m², and those with an estimated bodyweight of less than 70 kg. The primary outcome was 28-day mortality, secondary endpoints included time to discharge, the proportion of patients discharged from hospital within 28 days, and, in patients not on invasive mechanical ventilation at randomisation, a composite endpoint of invasive mechanical ventilation or death. All analyses were by intention-to-treat. The trial is registered with ISRCTN, 50189673, and ClinicalTrials.gov, NCT04381936.

Findings: Between Nov 27, 2020, and March 4, 2021, 11 340 (58%) of 19 423 patients enrolled into the RECOVERY trial were eligible to receive colchicine; 5610 (49%) patients were randomly assigned to the colchicine group and 5730 (51%) to the usual care group. Overall, 1173 (21%) patients in the colchicine group and 1190 (21%) patients in the usual care group died within 28 days (rate ratio 1.01 [95% CI 0.93 to 1.10]; p=0.77). Consistent results were seen in all prespecified subgroups of patients. Median time to discharge alive (10 days [IQR 5 to >28]) was the same in both groups, and there was no significant difference in the proportion of patients discharged from hospital alive within 28 days (3901 [70%] patients in the colchicine group and 4032 [70%] usual care group; rate ratio 0.98 [95% CI 0.94 to 1.03]; p=0.44). In those not on invasive mechanical ventilation at baseline, there

was no significant difference in the proportion meeting the composite endpoint of invasive mechanical ventilation or death (1344 [25%] in the colchicine group vs 1343 [25%] patients in the usual care group; risk ratio 1.02 [95% CI 0.96 to 1.09]; $p=0.47$).

Interpretation: In adults hospitalised with COVID-19, colchicine was not associated with reductions in 28-day mortality, duration of hospital stay, or risk of progressing to invasive mechanical ventilation or death."

JAMA: [Effect of Antithrombotic Therapy on Clinical Outcomes in Outpatients With Clinically Stable Symptomatic COVID-19: The ACTIV-4B Randomized Clinical Trial](#) (11 October 2021)

"Question: Among symptomatic but clinically stable outpatients with COVID-19, does adding antithrombotic therapy, compared with placebo, reduce major cardiopulmonary adverse outcomes over a 45-day treatment period?

Findings: This randomized trial of 657 symptomatic outpatients with COVID-19 conducted in the US was stopped early because of an unanticipated low event rate. Among randomized participants who initiated trial treatment with aspirin (81 mg once daily), apixaban (2.5 mg twice daily), apixaban (5.0 mg twice daily), or placebo, the rates of an adjudicated composite outcome (all-cause mortality, symptomatic venous or arterial thromboembolism, myocardial infarction, stroke, or hospitalization for cardiovascular or pulmonary cause) after 45 days were 0.0%, 0.7%, 1.4%, and 0.0%, respectively; there were no significant differences between the active groups and the placebo group.

Meaning: These data do not support the use of aspirin or apixaban in the outpatient setting to reduce the major adverse cardiovascular or pulmonary consequences associated with symptomatic but clinically stable SARS-CoV-2 infection."

JMIR: [International Changes in COVID-19 Clinical Trajectories Across 315 Hospitals and 6 Countries: Retrospective Cohort Study](#) (11 October 2021)

"Background: Many countries have experienced 2 predominant waves of COVID-19-related hospitalizations. Comparing the clinical trajectories of patients hospitalized in separate waves of the pandemic enables further understanding of the evolving epidemiology, pathophysiology, and health care dynamics of the COVID-19 pandemic.

Objective: In this retrospective cohort study, we analyzed electronic health record (EHR) data from patients with SARS-CoV-2 infections hospitalized in participating health care systems representing 315 hospitals across 6 countries. We compared hospitalization rates, severe COVID-19 risk, and mean laboratory values between patients hospitalized during the first and second waves of the pandemic.

Methods: Using a federated approach, each participating health care system extracted patient-level clinical data on their first and second wave cohorts and submitted aggregated

data to the central site. Data quality control steps were adopted at the central site to correct for implausible values and harmonize units. Statistical analyses were performed by computing individual health care system effect sizes and synthesizing these using random effect meta-analyses to account for heterogeneity. We focused the laboratory analysis on C-reactive protein (CRP), ferritin, fibrinogen, procalcitonin, D-dimer, and creatinine based on their reported associations with severe COVID-19.

Results: Data were available for 79,613 patients, of which 32,467 were hospitalized in the first wave and 47,146 in the second wave. The prevalence of male patients and patients aged 50 to 69 years decreased significantly between the first and second waves. Patients hospitalized in the second wave had a 9.9% reduction in the risk of severe COVID-19 compared to patients hospitalized in the first wave (95% CI 8.5%-11.3%). Demographic subgroup analyses indicated that patients aged 26 to 49 years and 50 to 69 years; male and female patients; and black patients had significantly lower risk for severe disease in the second wave than in the first wave. At admission, the mean values of CRP were significantly lower in the second wave than in the first wave. On the seventh hospital day, the mean values of CRP, ferritin, fibrinogen, and procalcitonin were significantly lower in the second wave than in the first wave. In general, countries exhibited variable changes in laboratory testing rates from the first to the second wave. At admission, there was a significantly higher testing rate for D-dimer in France, Germany, and Spain.

Conclusions: Patients hospitalized in the second wave were at significantly lower risk for severe COVID-19. This corresponded to mean laboratory values in the second wave that were more likely to be in typical physiological ranges on the seventh hospital day compared to the first wave. Our federated approach demonstrated the feasibility and power of harmonizing heterogeneous EHR data from multiple international health care systems to rapidly conduct large-scale studies to characterize how COVID-19 clinical trajectories evolve."

JAMA Netw Open: [D-Dimer Testing for the Exclusion of Pulmonary Embolism Among Hospitalized Patients With COVID-19](#) (08 October 2021)

"This prognostic study evaluates the use of plasma D-dimer concentrations to rule out pulmonary embolism among patients hospitalized with COVID-19....

This diagnostic study found that all hospitalized patients with COVID-19 and radiographic evidence of PE had plasma D-dimer levels of 0.05 µg/mL or greater. If using D-dimer to exclude patients with PE, the increased values we found among 92.3% of patients suggest that this assay would be less useful than in the populations in which it was originally validated, among which a minority of patients had increased D-dimer values. Setting higher D-dimer thresholds was associated with improved specificity at the cost of an increased false-negative rate that could be associated with an unacceptable patient safety risk."

Open Forum Infect Dis: [Real-world Assessment of 2,879 COVID-19 Patients Treated with Monoclonal Antibody Therapy: A Propensity Score-Matched Cohort Study](#) (08 October 2021)

"Background: SARS-CoV-2 continues to spread globally and cause significant morbidity and mortality. Anti-spike protein monoclonal antibody (mAb) therapy has been shown to prevent progression to severe COVID-19 disease. The objective of this study was to report the outcomes of high-risk, SARS-CoV-2-positive patients infused with one of the three mAb available through FDA emergency use authorization (EUA).

Methods: A total of 4,328 SARS-CoV-2-positive patients that satisfied EUA criteria for eligibility for receiving mAb therapy were infused with bamlanivimab or combination therapies bamlanivimab-etesevimab or casirivimab-imdevimab from November 22, 2020, to May 31, 2021, at six infusion clinics and multiple emergency departments within the eight Houston Methodist Hospitals in Houston, Texas. The primary outcome of hospital admission within 14- and 28-days post-infusion was assessed relative to a propensity-score matched cohort, matched based on age, race/ethnicity, median income by zip code, body mass index, comorbidities, and positive PCR date. Secondary outcomes included ICU admission and mortality.

Results: A total of 2,879 infused patients and matched controls were included in the analysis, including 1,718 patients infused with bamlanivimab, 346 patients infused with bamlanivimab-etesevimab, and 815 patients infused with casirivimab-imdevimab. Hospital admission and mortality rates were significantly decreased overall in mAb-infused patients relative to matched controls. Among the infused cohort, those who received casirivimab-imdevimab had significantly decreased rate of admission relative to the other two mAbs groups (aRR = 0.51, p=0.001).

Conclusions: Treatment with bamlanivimab, bamlanivimab-etesevimab, or casirivimab-imdevimab significantly decreased the number of patients who progressed to severe COVID-19 disease and required hospitalization."

Lancet Respir Med: [Physical, cognitive, and mental health impacts of COVID-19 after hospitalisation \(PHOSP-COVID\): a UK multicentre, prospective cohort study](#) (07 October 2021)

"Background: The impact of COVID-19 on physical and mental health and employment after hospitalisation with acute disease is not well understood. The aim of this study was to determine the effects of COVID-19-related hospitalisation on health and employment, to identify factors associated with recovery, and to describe recovery phenotypes.

Methods: The Post-hospitalisation COVID-19 study (PHOSP-COVID) is a multicentre, long-term follow-up study of adults (aged ≥ 18 years) discharged from hospital in the UK with a clinical diagnosis of COVID-19, involving an assessment between 2 and 7 months after discharge, including detailed recording of symptoms, and physiological and biochemical

testing. Multivariable logistic regression was done for the primary outcome of patient-perceived recovery, with age, sex, ethnicity, body-mass index, comorbidities, and severity of acute illness as covariates. A post-hoc cluster analysis of outcomes for breathlessness, fatigue, mental health, cognitive impairment, and physical performance was done using the clustering large applications k-medoids approach. The study is registered on the ISRCTN Registry (ISRCTN10980107).

Findings: We report findings for 1077 patients discharged from hospital between March 5 and Nov 30, 2020, who underwent assessment at a median of 5.9 months (IQR 4.9-6.5) after discharge. Participants had a mean age of 58 years (SD 13); 384 (36%) were female, 710 (69%) were of white ethnicity, 288 (27%) had received mechanical ventilation, and 540 (50%) had at least two comorbidities. At follow-up, only 239 (29%) of 830 participants felt fully recovered, 158 (20%) of 806 had a new disability (assessed by the Washington Group Short Set on Functioning), and 124 (19%) of 641 experienced a health-related change in occupation. Factors associated with not recovering were female sex, middle age (40-59 years), two or more comorbidities, and more severe acute illness.

The magnitude of the persistent health burden was substantial but only weakly associated with the severity of acute illness. Four clusters were identified with different severities of mental and physical health impairment (n=767): very severe (131 patients, 17%), severe (159, 21%), moderate along with cognitive impairment (127, 17%), and mild (350, 46%). Of the outcomes used in the cluster analysis, all were closely related except for cognitive impairment. Three (3%) of 113 patients in the very severe cluster, nine (7%) of 129 in the severe cluster, 36 (36%) of 99 in the moderate cluster, and 114 (43%) of 267 in the mild cluster reported feeling fully recovered. Persistently elevated serum C-reactive protein was positively associated with cluster severity.

Interpretation: We identified factors related to not recovering after hospital admission with COVID-19 at 6 months after discharge (eg, female sex, middle age, two or more comorbidities, and more acute severe illness), and four different recovery phenotypes. The severity of physical and mental health impairments were closely related, whereas cognitive health impairments were independent. In clinical care, a proactive approach is needed across the acute severity spectrum, with interdisciplinary working, wide access to COVID-19 holistic clinical services, and the potential to stratify care."

Pre-Existing Conditions, Comorbidities, and Impact on Other Health Issues

News in Brief

"Organ centers to transplant patients: get a covid shot or move down on waitlist" ([KHN](#)).

Journal Articles

Influenza Other Respir Viruses: [Clinical manifestations of COVID-19 differ by age and obesity status](#) (19 October 2021)

"Background: Age and obesity status are associated with severe outcomes among hospitalized individuals with COVID-19. It remains unclear whether age and obesity are risk factors for milder COVID-19 illness.

Methods: We prospectively enrolled SARS-CoV-2-exposed individuals. Participants recorded symptoms for 28 days and were tested for SARS-CoV-2 by reverse transcription polymerase chain reaction (RT-PCR) and serology. Type, number, and duration of symptoms and SARS-CoV-2 laboratory parameters were compared by age and obesity status.

Results: Of 552 individuals enrolled from June 2020 to January 2021, 470 (85.1%) tested positive for SARS-CoV-2 including 261 (55.5%) adults ≥ 18 years, 61 (13.0%) adolescents 12-17 years, and 148 (31.5%) children < 12 years. Children had fewer symptoms (median 2 vs. 3, $p < 0.001$) lasting fewer days (median 5 vs. 7, $p < 0.001$) compared with adolescents/adults. Body mass index of 300 (63.8%) individuals classified with overweight or obesity (OWOB). Individuals with OWOB suffered more symptoms compared with individuals without OWOB (median 3 vs. 2, $p = 0.037$), including more cough and shortness of breath ($p = 0.023$ and 0.026 , respectively). Adolescents with OWOB were more likely to be symptomatic (66.7% vs. 34.2%, $p = 0.008$) and have longer respiratory symptoms (median 7 vs. 4 days, $p = 0.049$) compared with adolescents without OWOB. Lower RT-PCR Ct values were found in children and symptomatic individuals compared with adolescent and adults and asymptomatic individuals, respectively ($p = 0.001$ and 0.022).

Conclusions: Adolescents and adults with OWOB experience more respiratory symptoms from COVID-19 despite similar viral loads. These findings underscore the importance of vaccinating individuals with OWOB."

JAMA Netw Open: [Association Between Tumor Necrosis Factor Inhibitors and the Risk of Hospitalization or Death Among Patients With Immune-Mediated Inflammatory Disease and COVID-19](#) (18 October 2021)

"Question: Is receipt of tumor necrosis factor (TNF) inhibitor monotherapy at the time of COVID-19 diagnosis associated with adverse COVID-19 outcomes compared with other treatment regimens among patients with immune-mediated inflammatory diseases (IMIDs)?

Findings: In this cohort study of 6077 patients with IMIDs and COVID-19, TNF inhibitors in combination with azathioprine/6-mercaptopurine therapy, methotrexate monotherapy, azathioprine/6-mercaptopurine monotherapy, or Janus kinase inhibitor monotherapy were

each associated with significantly higher odds of hospitalization or death compared with TNF inhibitor monotherapy.

Meaning: This study's findings support the continued use of TNF inhibitor monotherapy among individuals with IMIDs during the pandemic."

JAMA Netw Open: [Cervical Cancer Screening Among Medicaid Patients During Natural Disasters and the COVID-19 Pandemic in Puerto Rico, 2016 to 2020](#) (15 October 2021)

"This cohort study examines rates of cervical cancer screening in Puerto Rico among women with Medicaid health coverage following the 2017 hurricanes, earthquakes in late 2019-2020, and the 2020 COVID-19 lockdown....

Cervical cancer screening rates declined among Medicaid enrollees in PR from 2016 to 2020. The greatest reductions coincided with the occurrence of the hurricanes (September 2017) and with the events that affected PR in the first quarter of 2020 (earthquakes in January and the COVID-19-related lockdown in March). Although some improvements in screening rates were observed after January 2018, these never reached the 2016 levels and plummeted with the COVID-19 pandemic. These findings are concerning because cervical cancer incidence has increased in PR in recent years (from 9.2 to 13.0 per 100 000 during 2001 to 2017). Public health efforts should focus on increasing systems of infrastructure and resilience, including the inclusion of goals and objectives that will help maintain cancer prevention and treatment services during and after disasters."

PLoS One: [Impact of obesity on intensive care outcomes in patients with COVID-19 in Sweden—A cohort study](#) (13 October 2021)

"Background: Previous studies have shown that a high body mass index (BMI) is a risk factor for severe COVID-19. The aim of the present study was to assess whether a high BMI affects the risk of death or prolonged length of stay (LOS) in patients with COVID-19 during intensive care in Sweden.

Methods and findings: In this observational, register-based study, we included patients with COVID-19 from the Swedish Intensive Care Registry admitted to intensive care units (ICUs) in Sweden. Outcomes assessed were death during intensive care and ICU LOS ≥ 14 days. We used logistic regression models to evaluate the association (odds ratio [OR] and 95% confidence interval [CI]) between BMI and the outcomes. Valid weight and height information could be retrieved in 1,649 patients (1,227 (74.4%) males) with COVID-19. We found a significant association between BMI and the risk of the composite outcome death or LOS ≥ 14 days in survivors (OR per standard deviation [SD] increase 1.30, 95%CI 1.16-1.44, adjusted for sex, age and comorbidities), and this association remained after further adjustment for severity of illness (simplified acute physiology score; SAPS3) at ICU admission (OR 1.30 per SD, 95%CI 1.17-1.45). Individuals with a BMI ≥ 35 kg/m² had a

doubled risk of the composite outcome. A high BMI was also associated with death during intensive care and a prolonged LOS in survivors assessed as separate outcomes. The main limitations were the restriction to the first wave of the pandemic, and the lack of information on socioeconomic status as well as smoking.

Conclusions: In this large cohort of Swedish ICU patients with COVID-19, a high BMI was associated with increasing risk of death and prolonged length of stay in the ICU. Based on our findings, we suggest that individuals with obesity should be more closely monitored when hospitalized for COVID-19."

JAMA Intern Med: [Association Between Risk of COVID-19 Infection in Nonimmune Individuals and COVID-19 Immunity in Their Family Members](#) (11 October 2021)

"Question: How is COVID-19 immunity within families associated with the risk for infection in family members without immunity?

Findings: In this cohort study of 1 789 728 individuals from 814 806 families in Sweden, family members without immunity had a 45% to 97% lower risk of contracting COVID-19 as the number of immune family members increased.

Meaning: These results suggest that COVID-19 vaccines play a key role in reducing the transmission of the virus within families, which likely has implications for herd immunity and pandemic control."

Am J Prev Med: [Smoking and E-Cigarette Use Among U.S. Adults During the COVID-19 Pandemic](#) (05 October 2021)

"Introduction: With concerns about tobacco use being a risk factor for severe disease from coronavirus disease 2019 (COVID-19), understanding nicotine and tobacco use patterns is important for preventive efforts. This study aims to understand changes in combustible cigarette and e-cigarette use among U.S. adults.

Methods: In August 2020, a cross-sectional survey of a nationally representative sample of adults aged ≥ 18 years in the National Opinion Research Center's AmeriSpeak Panel who reported past 6-month use of combustible cigarettes or e-cigarettes was conducted. Multivariable logistic regression assessed factors associated with increased product use and quit attempts since hearing about COVID-19.

Results: A total of 1,024 past 6-month cigarette smokers/e-cigarette users were surveyed. Among cigarette smokers, 45% reported no change in cigarette smoking and 33% increased cigarette smoking since hearing about COVID-19. Higher stress was associated with increased cigarette smoking. Among e-cigarette users, 41% reported no change in and 23% reported increasing e-cigarette use. Twenty-six percent of cigarette smokers and 41% of e-cigarette users tried to quit because of COVID-19. Higher perceived risk of COVID-19 was

associated with attempts to quit combustible cigarettes (AOR=2.37, 95% CI=1.59, 3.55) and e-cigarettes (AOR=3.14, 95% CI=1.73, 5.70).

Conclusions: Cigarette and e-cigarette use patterns varied in response to the COVID-19 pandemic. Most cigarette smokers and e-cigarette users perceived product use as increasing COVID-19-related health risks, and this was associated with attempts to quit. Some cigarette smokers, especially those reporting higher stress, increased product use. Proactive provision of cessation support to smokers and e-cigarette users may help mitigate stress-related increases in product use during the COVID-19 pandemic."

Long COVID / Post-COVID Period

News in Brief

Opinion: "Don't give Covid-19 long-haulers the silent treatment" ([STAT](#)).

"Long COVID in kids is worrying the experts: 'It affects everybody differently and at different timescales'" ([Fortune](#)).

Journal Articles

JAMA Netw Open: [Short-term and Long-term Rates of Postacute Sequelae of SARS-CoV-2 Infection: A Systematic Review](#) (13 October 2021)

"Importance: Short-term and long-term persistent postacute sequelae of COVID-19 (PASC) have not been systematically evaluated. The incidence and evolution of PASC are dependent on time from infection, organ systems and tissue affected, vaccination status, variant of the virus, and geographic region.

Objective: To estimate organ system-specific frequency and evolution of PASC.

Evidence review: PubMed (MEDLINE), Scopus, the World Health Organization Global Literature on Coronavirus Disease, and CoronaCentral databases were searched from December 2019 through March 2021. A total of 2100 studies were identified from databases and through cited references. Studies providing data on PASC in children and adults were included. The Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines for abstracting data were followed and performed independently by 2 reviewers. Quality was assessed using the Newcastle-Ottawa Scale for cohort studies. The main outcome was frequency of PASC diagnosed by (1) laboratory investigation, (2) radiologic pathology, and (3) clinical signs and symptoms. PASC were

classified by organ system, ie, neurologic; cardiovascular; respiratory; digestive; dermatologic; and ear, nose, and throat as well as mental health, constitutional symptoms, and functional mobility.

Findings: From a total of 2100 studies identified, 57 studies with 250 351 survivors of COVID-19 met inclusion criteria. The mean (SD) age of survivors was 54.4 (8.9) years, 140 196 (56%) were male, and 197 777 (79%) were hospitalized during acute COVID-19. High-income countries contributed 45 studies (79%). The median (IQR) proportion of COVID-19 survivors experiencing at least 1 PASC was 54.0% (45.0%-69.0%; 13 studies) at 1 month (short-term), 55.0% (34.8%-65.5%; 38 studies) at 2 to 5 months (intermediate-term), and 54.0% (31.0%-67.0%; 9 studies) at 6 or more months (long-term). Most prevalent pulmonary sequelae, neurologic disorders, mental health disorders, functional mobility impairments, and general and constitutional symptoms were chest imaging abnormality (median [IQR], 62.2% [45.8%-76.5%]), difficulty concentrating (median [IQR], 23.8% [20.4%-25.9%]), generalized anxiety disorder (median [IQR], 29.6% [14.0%-44.0%]), general functional impairments (median [IQR], 44.0% [23.4%-62.6%]), and fatigue or muscle weakness (median [IQR], 37.5% [25.4%-54.5%]), respectively. Other frequently reported symptoms included cardiac, dermatologic, digestive, and ear, nose, and throat disorders.

Conclusions and relevance: In this systematic review, more than half of COVID-19 survivors experienced PASC 6 months after recovery. The most common PASC involved functional mobility impairments, pulmonary abnormalities, and mental health disorders. These long-term PASC effects occur on a scale that could overwhelm existing health care capacity, particularly in low- and middle-income countries."

Women's Health, Pregnancy, and Perinatal Care

News in Brief

"Among England's most critically ill covid patients, 1 in 5 is pregnant and unvaccinated" ([WP](#)).

"COVID-19 and pregnancy: Women regret not getting the vaccine" ([AP](#)).

Journal Articles

NEJM: [Covid-19 Vaccination during Pregnancy and First-Trimester Miscarriage](#) (20 October 2021)

Summary from CIDRAP: "COVID-19 vaccination does not increase the risk of miscarriage during the first trimester of pregnancy, according to a Norwegian case-control study that

involved 13,956 women, 5.5% of whom were vaccinated against the virus. The results were published yesterday as a letter to the editor in the *New England Journal of Medicine*.

The study consisted of 13,956 pregnant women, 5.5% of whom were vaccinated. In total, 4,521 women had miscarriages, and 5.1% of those were vaccinated. A median of 19 days occurred between vaccination and either miscarriage or confirmation of ongoing pregnancy. (In Norway, pregnant women are not recommended to receive any vaccinations during their first trimester, but the researchers reason that some women may have gotten vaccinated against COVID-19 before they knew they were pregnant.)

Women vaccinated against COVID-19 did not show increased odds of miscarriage (adjusted odds ratios, 0.91 at 3 weeks and 0.81 at 5 weeks post-vaccination). Even after the researchers analyzed data via available vaccine types, number of doses, and conducted a sensitivity analysis limited to healthcare professionals or women with at least 8 weeks of follow-up after confirmed pregnancy, the results remained similar."

See also: [podcast](#)

Sci Transl Med: [Maternal SARS-CoV-2 infection elicits sexually dimorphic placental immune responses](#) (19 October 2021)

"There is a persistent bias toward higher prevalence and increased severity of coronavirus disease 2019 (COVID-19) in males. Underlying mechanisms accounting for this sex difference remain incompletely understood. Interferon responses have been implicated as a modulator of COVID-19 disease in adults, and play a key role in the placental antiviral response. Moreover, the interferon response has been shown to alter Fc receptor expression, and therefore may impact placental antibody transfer. Here we examined the intersection of maternal-fetal antibody transfer, viral-induced placental interferon responses, and fetal sex in pregnant women infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Placental Fc receptor abundance, interferon stimulated gene (ISG) expression, and SARS-CoV-2 antibody transfer were interrogated in 68 human pregnancies. Sexually dimorphic expression of placental Fc receptors, ISGs and proteins, and interleukin-10 was observed following maternal SARS-CoV-2 infection, with up-regulation of these features in placental tissue of pregnant individuals with male fetuses. Reduced maternal SARS-CoV-2-specific antibody titers and impaired placental antibody transfer were also observed in pregnancies with a male fetus. These results demonstrate fetal sex-specific maternal and placental adaptive and innate immune responses to SARS-CoV-2."

See also: [Pregnancy Influences Immune Responses to SARS-CoV-2](#)

Sci Transl Med: [COVID-19 mRNA vaccines drive differential antibody Fc-functional profiles in pregnant, lactating, and non-pregnant women](#) (19 October 2021)

"Substantial immunological changes occur throughout pregnancy to render the mother immunologically tolerant to the fetus and allow fetal growth. However, additional local and systemic immunological adaptations also occur, allowing the maternal immune system to continue to protect the dyad against pathogens both during pregnancy and after birth through lactation. This fine balance of tolerance and immunity, along with physiological and hormonal changes, contribute to increased susceptibility to particular infections in pregnancy, including more severe coronavirus disease 2019 (COVID-19). Whether these changes also make pregnant women less responsive to vaccination or induce altered immune responses to vaccination remains incompletely understood. To define potential changes in vaccine response during pregnancy and lactation, we undertook deep sequencing of the humoral vaccine response in a group of pregnant and lactating women and non-pregnant age-matched controls. Vaccine-specific titers were comparable between pregnant women, lactating women, and non-pregnant controls. However, Fc receptor (FcR)-binding and antibody effector functions were induced with delayed kinetics in both pregnant and lactating women compared to non-pregnant women after the first vaccine dose, which normalized after the second dose. Vaccine boosting resulted in high FcR-binding titers in breastmilk. These data suggest that pregnancy promotes resistance to generating pro-inflammatory antibodies and indicates that there is a critical need to follow prime-boost timelines in this vulnerable population to ensure full immunity is attained."

See also: [Pregnancy Influences Immune Responses to SARS-CoV-2](#)

JAMA Netw Open: [Changes in Adverse Pregnancy Outcomes Associated With the COVID-19 Pandemic in the United States](#) (18 October 2021)

"This cross-sectional study evaluates the change in rates of pregnancy complications during the COVID-19 pandemic among pregnant women with commercial health insurance across the US....

To our knowledge, this is the largest and most comprehensive study to date of the impact of the COVID-19 pandemic on adverse pregnancy outcomes. Our finding that the pandemic period was not associated with a changing risk of stillbirth and provided only modest evidence of a lower risk of preterm birth is broadly consistent with the existing literature. Our study provides novel evidence of the association of the pandemic with the risk of complications that have rarely been documented, including gestational hypertension, poor fetal growth, and preeclampsia."

NEJM: [Receipt of mRNA Covid-19 Vaccines and Risk of Spontaneous Abortion](#) (14 October 2021)

"We analyzed data from the Centers for Disease Control and Prevention (CDC) v-safe Covid-19 vaccine pregnancy registry to determine the cumulative risk of spontaneous abortion from 6 to less than 20 weeks of gestation."

Pediatric Population

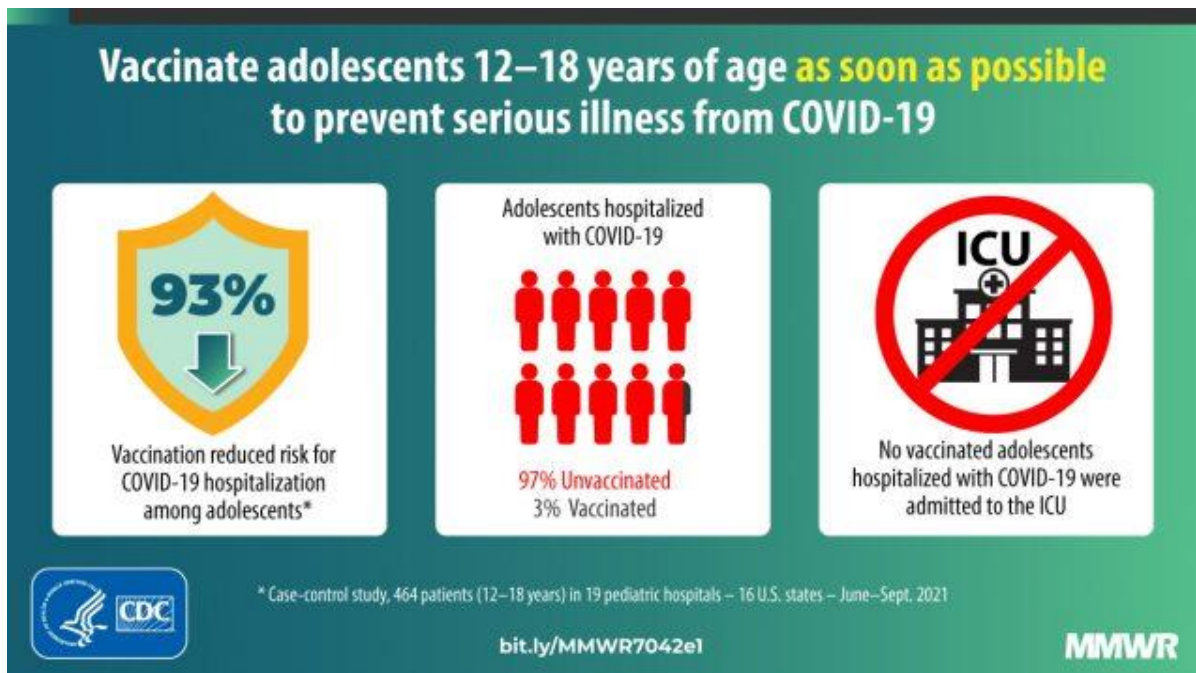
News in Brief

"White House unveils plans to roll out coronavirus vaccines for children ages 5 to 11— The campaign will be tailored to children and families, emphasizing smaller settings such as pediatricians' offices and outreach to parents" ([WP](#)).

"AAP, AACAP, CHA declare national emergency in children's mental health" ([AAP](#); see also: [UNICEF report on youth mental health](#)).

Journal Articles

MMWR: [Effectiveness of Pfizer-BioNTech mRNA Vaccination Against COVID-19 Hospitalization Among Persons Aged 12–18 Years — United States, June–September 2021](#) (22 October 2021)



"What is already known about this topic? Persons aged 12–18 years are eligible to receive COVID-19 vaccine. Currently, data are lacking on real-world vaccine effectiveness against COVID-19 hospitalization in adolescents.

What is added by this report? Among hospitalized U.S. patients aged 12–18 years, vaccine effectiveness of 2 doses of Pfizer-BioNTech vaccine against COVID-19 hospitalization during June–September 2021, was 93% (95% confidence interval = 83%–97%).

What are the implications for public health practice? This evaluation demonstrated that 2 doses of Pfizer-BioNTech vaccine were highly effective in preventing COVID-19

hospitalization among persons aged 12–18 years. Findings reinforce the importance of vaccination to protect U.S. youths against severe COVID-19."

NEJM: [Effectiveness of BNT162b2 Vaccine against Delta Variant in Adolescents](#) (20 October 2021)

Summary from [CIDRAP](#): "In Israel, the Clalit Research Institute, in conjunction with Harvard University, conducted an observational study involving 130,464 COVID-19–naïve adolescents aged 12 to 18 years, half of whom were vaccinated with the Pfizer COVID-19 vaccine from Jun 8 to Sep 14, 2021; matched participants were unvaccinated. During the study, 13,423 unvaccinated participants were vaccinated.

At the time of the study, Delta was responsible for more than 95% of new infections in Israel. The study is the largest peer-reviewed look at COVID-19 vaccine efficacy among adolescents in a nationwide setting and the first such study conducted at a time when Delta was the dominant circulating strain.

Over a median of 27 days after receipt of the first vaccine dose, Kaplan-Meier curves for infection showed a similar incidence of infection in the first few days after the vaccinated group received their first dose, after which the rise in incidence slowed among the vaccinated.

Estimated effectiveness of the Pfizer vaccine against infection was 59% (95% confidence interval [CI], 52% to 65%) 14 to 20 days after the first dose, climbing to 66% (95% CI, 59% to 72%) on days 21 to 27 and 90% (95% CI, 88% to 92%) 7 to 21 days after the second dose.

Efficacy against symptomatic COVID-19 was estimated at 57% (95% CI, 39% to 71%) 14 to 20 days after the first vaccine dose, rising to 82% (95% CI, 73% to 91%) on days 21 to 27 and to 93% (95% CI, 88% to 97%) 7 to 21 days after the second dose."

EClinicalMedicine: [Risk factors for poor prognosis in children and adolescents with COVID-19: A systematic review and meta-analysis](#) (18 October 2021)

"Background: This study provides the first systematic review and meta-analysis to identify the predictors of unfavorable prognosis of COVID-19 in children and adolescents.

Methods: We searched literature databases until July 2021 for studies that investigated risk factors for unfavorable prognosis of children and adolescents with COVID-19. We used random-effects models to estimate the effect size with 95% confidence interval (CI).

Findings: We identified 56 studies comprising 79,104 individuals. Mortality was higher in patients with multisystem inflammatory syndrome (MIS-C) (odds ratio [OR]=58.00, 95% CI 6.39–526.79) and who were admitted to intensive care (OR=12.64, 95% CI 3.42–46.68). Acute respiratory distress syndrome (ARDS) (OR=29.54, 95% CI 12.69–68.78) and acute kidney injury (AKI) (OR=55.02, 95% CI 6.26–483.35) increased the odds to be admitted to intensive

care; shortness of breath (OR=16.96, 95% CI 7.66–37.51) increased the need of respiratory support; and neurological diseases (OR=5.16, 95% CI 2.30–11.60), C-reactive protein (CRP) level ≥ 80 mg/L (OR=11.70, 95% CI 4.37–31.37) and D-dimer level ≥ 0.5 ug/mL (OR=20.40, 95% CI 1.76–236.44) increased the odds of progression to severe or critical disease.

Interpretation: Congenital heart disease, chronic pulmonary disease, neurological diseases, obesity, MIS-C, shortness of breath, ARDS, AKI, gastrointestinal symptoms, elevated CRP and D-dimer are associated with unfavourable prognosis in children and adolescents with COVID-19."

MMWR: [Vaccination Coverage by Age 24 Months Among Children Born in 2017 and 2018 — National Immunization Survey-Child, United States, 2018–2020](#) (15 October 2021)

"What is already known about this topic? The National Immunization Survey-Child monitors coverage with vaccines recommended by the Advisory Committee on Immunization Practices for children during the first 24 months of life to prevent 14 diseases.

What is added by this report? Coverage with most childhood vaccines among children born in 2017 and 2018 was lower among those who were uninsured, Black, Hispanic, or living below the federal poverty level than it was among those who were privately insured, White, or living at or above the poverty level.

What are the implications for public health practice? Persistent disparities in vaccination coverage by health insurance status, race and ethnicity, and poverty status indicate that improvement is needed to achieve equity in the national childhood vaccination program. Efforts by health care providers and parents are needed to ensure that all children are protected from vaccine-preventable diseases."

J Infect Dis: [Virologic features of SARS-CoV-2 infection in children](#) (14 October 2021)

"Background: Data on pediatric COVID-19 has lagged behind adults throughout the pandemic. An understanding of SARS-CoV-2 viral dynamics in children would enable data-driven public health guidance.

Methods: Respiratory swabs were collected from children with COVID-19. Viral load was quantified by RT-PCR; viral culture was assessed by direct observation of cytopathic effects and semiquantitative viral titers. Correlations with age, symptom duration, and disease severity were analyzed. SARS-CoV-2 whole genome sequences were compared with contemporaneous sequences.

Results: 110 children with COVID-19 (median age 10 years, range 2 weeks–21 years) were included in this study. Age did not impact SARS-CoV-2 viral load. Children were most infectious within the first five days of illness, and severe disease did not correlate with

increased viral loads. Pediatric SARS-CoV-2 sequences were representative of those in the community and novel variants were identified.

Conclusions: Symptomatic and asymptomatic children can carry high quantities of live, replicating SARS-CoV-2, creating a potential reservoir for transmission and evolution of genetic variants. As guidance around social distancing and masking evolves following vaccine uptake in older populations, a clear understanding of SARS-CoV-2 infection dynamics in children is critical for rational development of public health policies and vaccination strategies to mitigate the impact of COVID-19."

Curr Psychiatry Rep: Mann M, McMillan JE, Silver EJ, Stein REK. [Children and Adolescents with Disabilities and Exposure to Disasters, Terrorism, and the COVID-19 Pandemic: a Scoping Review](#) (13 October 2021)

"Purpose of review: This paper reviews the empirical literature on exposures to disaster or terrorism and their impacts on the health and well-being of children with disabilities and their families since the last published update in 2017. We also review the literature on studies examining the mental health and functioning of children with disabilities during the COVID-19 pandemic.

Recent findings: Few studies have examined the effects of disaster or terrorism on children with disabilities. Research shows that children with disabilities and their families have higher levels of disaster exposure, lower levels of disaster preparedness, and less recovery support due to longstanding discriminatory practices. Similarly, many reports of the COVID-19 pandemic have documented its negative and disproportionate impacts on children with disabilities and their families.

Summary: In the setting of climate change, environmental disasters are expected to increase in frequency and severity. Future studies identifying mitigating factors to disasters, including COVID-19; increasing preparedness on an individual, community, and global level; and evaluating post-disaster trauma-informed treatment practices are imperative to support the health and well-being of children with disabilities and their families."

Healthcare Workers

News in Brief

"WHO and partners call for action to better protect health and care workers from COVID-19" ([WHO](#)).

"Hospitals brace for an onslaught this winter, from flu as well as COVID" ([NPR](#)).

"Why a literary magazine at the nation's oldest public hospital matters more than ever" ([NPR](#)).

Workforce Shortages

"The federal government pledges \$100 million to address health care worker shortages" ([NPR](#)).

"Rebuilding the nation's health care workforce during and after Covid-19: Lessons from disaster management" ([STAT](#)).

"Many doctors are switching to concierge medicine, exacerbating physician shortages" ([Sci Am](#)).

Long Reads

"'Are you going to keep me safe?' Hospital workers sound alarm on rising violence" ([KHN](#)).

Journal Articles

Microbiol Spectr: [Risk Factors for Being Seronegative following SARS-CoV-2 Infection in a Large Cohort of Health Care Workers in Denmark](#) (20 October 2021)

"Most individuals seroconvert after infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), but being seronegative is observed in 1 to 9%. We aimed to investigate the risk factors associated with being seronegative following PCR-confirmed SARS-CoV-2 infection. In a prospective cohort study, we screened health care workers (HCW) in the Capital Region of Denmark for SARS-CoV-2 antibodies. We performed three rounds of screening from April to October 2020 using an enzyme-linked immunosorbent assay (ELISA) method targeting SARS-CoV-2 total antibodies. Data on all participants' PCR for SARS-CoV-2 RNA were captured from national registries. The Kaplan-Meier method and Cox proportional hazards models were applied to investigate the probability of being seronegative and the related risk factors, respectively. Of 36,583 HCW, 866 (2.4%) had a positive PCR before or during the study period. The median (interquartile range [IQR]) age of 866 HCW was 42 (31 to 53) years, and 666 (77%) were female. After a median of 132 (range, 35 to 180) days, 21 (2.4%) of 866 were seronegative. In a multivariable model, independent risk factors for being seronegative were self-reported asymptomatic or mild infection hazard ratio (HR) of 6.6 (95% confidence interval [CI], 2.6 to 17; $P < 0.001$) and body mass index (BMI) of ≥ 30 , HR 3.1 (95% CI, 1.1 to 8.8; $P = 0.039$). Only a few (2.4%) HCW were not seropositive. Asymptomatic or mild infection as well as a BMI above 30 were associated with being seronegative. Since the presence of antibodies against SARS-CoV-2 reduces the risk of reinfection, efforts to protect HCW with risk factors for being seronegative may be needed in future COVID-19 surges.

IMPORTANCE Most individuals seroconvert after infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), but negative serology is observed in 1 to 9%. We

found that asymptomatic or mild infection as well as a BMI above 30 were associated with being seronegative. Since the presence of antibodies against SARS-CoV-2 reduces the risk of reinfection, efforts to protect HCW with risk factors for being seronegative may be needed in future COVID-19 surges."

Clin Infect Dis: [Clinical and Genomic Characterization of SARS CoV-2 infections in mRNA Vaccinated Health Care Personnel in New York City](#) (13 October 2021)

"Background: Vaccine-induced clinical protection against SARS CoV-2 variants is an evolving target. There is limited genomic level data on SARS CoV-2 breakthrough infections and vaccine effectiveness (VE) since the global spread of the B.1.617.2 (Delta) variant.

Methods: In a retrospective study from November 1st, 2020 - August 31st, 2021, divided as pre-Delta and Delta-dominant periods, laboratory-confirmed SARS CoV-2 infections among Healthcare personnel (HCP) at a large tertiary cancer center in New York City (NYC) were examined to compare the weekly infection rate-ratio in vaccinated, partially vaccinated, and unvaccinated HCP. We describe the clinical and genomic epidemiologic features of post-vaccine infections to assess for selection of VOC/VOI in the early post-vaccine period and impact of B.1.617.2 (Delta) variant domination on VE.

Results: Among 13,658 HCP in our cohort, 12,379 received at least one dose of an mRNA vaccine. In the pre-Delta period overall VE was 94.5%. WGS of 369 isolates in the pre-Delta period did not reveal a clade bias for VOC/VOI specific to post-vaccine infections. VE in the Delta dominant phase was 75.6%. No hospitalizations occurred among vaccinated HCP in the entire study period, compared to 17 hospitalizations and one death among unvaccinated HCP.

Conclusions: Findings show high VE among HCP in NYC in the pre-Delta phase, with moderate decline in VE post-Delta emergence. SARS CoV-2 clades were similarly distributed among vaccinated and unvaccinated infected HCP without apparent clustering during the pre-Delta period of diverse clade circulation. Strong vaccine protection against hospitalization was maintained through the entire study period."

Am J Infect Control: [COVID-19 Vaccination Hesitancy among Health Care Workers, Communication, and Policy-Making](#) (12 October 2021)

"Background: Coronavirus disease 2019 (COVID-19) vaccine hesitancy in healthcare workers (HCWs) contributes to personal and patient risk in contracting COVID-19. Reasons behind hesitancy and how best to improve vaccination rates in HCWs are not clear.

Methods: We adapted a survey using the Health Belief Model framework to evaluate HCW vaccine hesitancy and reasons for choosing for or against COVID-19 vaccination. The survey was sent to three large academic medical centers in the Chicagoland area between March and May 2021.

Results: We received 1974 completed responses with 85% of HCWs receiving or anticipating receiving COVID-19 vaccination. Multivariable logistic regression found HCWs were less likely to receive COVID-19 vaccination if they were Black (OR 0.34, 95% CI 0.15-0.80), Republican (OR 0.54, 95% CI 0.31-0.91), or allergic to any vaccine component (OR 0.27, 95% CI 0.10-0.70) and more likely to receive if they believed people close to them thought it was important for them to receive the vaccine (OR 5.2, 95% CI 3-8).

Conclusions: A sizable number of HCWs remain vaccine hesitant one year into the COVID-19 pandemic. As HCWs are positively influenced by colleagues who believe COVID-19 vaccination, development of improved communication across HCW departments and roles may improve vaccination rates."

Mental Health, Psychosocial Issues, and Wellness

News in Brief

Memes about COVID-19 helped us cope with life in a pandemic, a new study finds" ([NPR](#); see also: [article from *Psychology of Popular Media*](#)).

Journal Articles

Lancet: [Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic](#) (08 October 2021)

"Background: Before 2020, mental disorders were leading causes of the global health-related burden, with depressive and anxiety disorders being leading contributors to this burden. The emergence of the COVID-19 pandemic has created an environment where many determinants of poor mental health are exacerbated. The need for up-to-date information on the mental health impacts of COVID-19 in a way that informs health system responses is imperative. In this study, we aimed to quantify the impact of the COVID-19 pandemic on the prevalence and burden of major depressive disorder and anxiety disorders globally in 2020.

Methods: We conducted a systematic review of data reporting the prevalence of major depressive disorder and anxiety disorders during the COVID-19 pandemic and published between Jan 1, 2020, and Jan 29, 2021. We searched PubMed, Google Scholar, preprint servers, grey literature sources, and consulted experts. Eligible studies reported prevalence of depressive or anxiety disorders that were representative of the general population during the COVID-19 pandemic and had a pre-pandemic baseline. We used the assembled data in a

meta-regression to estimate change in the prevalence of major depressive disorder and anxiety disorders between pre-pandemic and mid-pandemic (using periods as defined by each study) via COVID-19 impact indicators (human mobility, daily SARS-CoV-2 infection rate, and daily excess mortality rate). We then used this model to estimate the change from pre-pandemic prevalence (estimated using Disease Modelling Meta-Regression version 2.1 [known as DisMod-MR 2.1]) by age, sex, and location. We used final prevalence estimates and disability weights to estimate years lived with disability and disability-adjusted life-years (DALYs) for major depressive disorder and anxiety disorders.

Findings: We identified 5683 unique data sources, of which 48 met inclusion criteria (46 studies met criteria for major depressive disorder and 27 for anxiety disorders). Two COVID-19 impact indicators, specifically daily SARS-CoV-2 infection rates and reductions in human mobility, were associated with increased prevalence of major depressive disorder (regression coefficient [B] 0.9 [95% uncertainty interval 0.1 to 1.8; $p=0.029$] for human mobility, 18.1 [7.9 to 28.3; $p=0.0005$] for daily SARS-CoV-2 infection) and anxiety disorders (0.9 [0.1 to 1.7; $p=0.022$] and 13.8 [10.7 to 17.0; $p<0.0001$]). Females were affected more by the pandemic than males (B 0.1 [0.1 to 0.2; $p=0.0001$] for major depressive disorder, 0.1 [0.1 to 0.2; $p=0.0001$] for anxiety disorders) and younger age groups were more affected than older age groups (-0.007 [-0.009 to -0.006; $p=0.0001$] for major depressive disorder, -0.003 [-0.005 to -0.002; $p=0.0001$] for anxiety disorders). We estimated that the locations hit hardest by the pandemic in 2020, as measured with decreased human mobility and daily SARS-CoV-2 infection rate, had the greatest increases in prevalence of major depressive disorder and anxiety disorders. We estimated an additional 53.2 million (44.8 to 62.9) cases of major depressive disorder globally (an increase of 27.6% [25.1 to 30.3]) due to the COVID-19 pandemic, such that the total prevalence was 3152.9 cases (2722.5 to 3654.5) per 100 000 population. We also estimated an additional 76.2 million (64.3 to 90.6) cases of anxiety disorders globally (an increase of 25.6% [23.2 to 28.0]), such that the total prevalence was 4802.4 cases (4108.2 to 5588.6) per 100 000 population. Altogether, major depressive disorder caused 49.4 million (33.6 to 68.7) DALYs and anxiety disorders caused 44.5 million (30.2 to 62.5) DALYs globally in 2020.

Interpretation: This pandemic has created an increased urgency to strengthen mental health systems in most countries. Mitigation strategies could incorporate ways to promote mental wellbeing and target determinants of poor mental health and interventions to treat those with a mental disorder. Taking no action to address the burden of major depressive disorder and anxiety disorders should not be an option."

JMIR Ment Health: [Attitudes About COVID-19 and Health \(ATTACH\): Online Survey and Mixed Methods Study](#) (07 October 2021)

"Background: Behavioral mitigation strategies to slow the spread of COVID-19 have resulted in sweeping lifestyle changes, with short- and long-term psychological, well-being, and

quality of life implications. The Attitudes About COVID-19 and Health (ATTACH) study focuses on understanding attitudes and beliefs while considering the impact on mental and physical health and the influence of broader demographic and geographic factors on attitudes, beliefs, and mental health burden.

Objective: In this assessment of our first wave of data collection, we provide baseline cohort description of the ATTACH study participants in the United Kingdom, the United States, and Mexico. Additionally, we assess responses to daily poll questions related to COVID-19 and conduct a cross-sectional analysis of baseline assessments collected in the UK between June 26 and October 31, 2020.

Methods: The ATTACH study uses smartphone app technology and online survey data collection. Participants completed poll questions related to COVID-19 2 times daily and a monthly survey assessing mental health, social isolation, physical health, and quality of life. Poll question responses were graphed using 95% Clopper-Pearson (exact) tests with 95% CIs. Pearson correlations, hierarchical linear regression analyses, and generalized linear models assessed relationships, predictors of self-reported outcomes, and group differences, respectively.

Results: By October 31, 2020, 1405, 80, and 90 participants had consented to participate in the UK, United States, and Mexico, respectively. Descriptive data for the UK daily poll questions indicated that participants generally followed social distancing measures, but worry and negative impacts on families increased as the pandemic progressed. Although participants generally reported feeling that the reasons for current measures had been made clear, there was low trust that the government was doing everything in its power to meet public needs. In the UK, 1282 participants also completed a monthly survey (94.99% [1326/1396] White, 72.22% [1014/1404] female, and 20.12% [277/1377] key or essential workers); 18.88% (242/1282) of UK participants reported a preexisting mental health disorder, 31.36% (402/1282) reported a preexisting chronic medical illness, and 35.11% (493/1404) were aged over 65; 57.72% (740/1282) of participants reported being more sedentary since the pandemic began, and 41.89% (537/1282) reported reduced access to medical care. Those with poorer mental health outcomes lived in more deprived neighborhoods, in larger households ($P < .05$), had more preexisting mental health disorders and medical conditions, and were younger than 65 years (all $P < .001$).

Conclusions: Communities who have been exposed to additional harm during the COVID-19 pandemic were experiencing worse mental outcomes. Factors including having a medical condition, or living in a deprived neighborhood or larger household were associated with heightened risk. Future longitudinal studies should investigate the link between COVID-19 exposure, mental health, and sociodemographic and residential characteristics."

Lancet Reg Health Eur: [All-cause and cause-specific mortality in people with mental disorders and intellectual disabilities, before and during the COVID-19 pandemic: cohort study](#) (07 October 2021)

"BACKGROUND: People with mental disorders and intellectual disabilities experience excess mortality compared with the general population. The impact of COVID-19 on exacerbating this, and in widening ethnic inequalities, is unclear.

METHODS: Prospective data (N=167,122) from a large mental healthcare provider in London, UK, with deaths from 2019 to 2020, used to assess age- and gender-standardised mortality ratios (SMRs) across nine psychiatric conditions (schizophrenia-spectrum disorders, affective disorders, somatoform/ neurotic disorders, personality disorders, learning disabilities, eating disorders, substance use disorders, pervasive developmental disorders, dementia) and by ethnicity.

FINDINGS: Prior to the World Health Organization (WHO) declaring COVID-19 a public health emergency on 30th January 2020, all-cause SMRs across all psychiatric cohorts were more than double the general population. By the second quarter of 2020, when the UK experienced substantial peaks in COVID-19 deaths, all-cause SMRs increased further, with COVID-19 SMRs elevated across all conditions (notably: learning disabilities: SMR: 9.24 (95% CI: 5.98-13.64), pervasive developmental disorders: 5.01 (95% CI: 2.40-9.20), eating disorders: 4.81 (95% CI: 1.56-11.22), schizophrenia-spectrum disorders: 3.26 (95% CI: 2.55-4.10), dementia: 3.82 (95% CI: 3.42, 4.25) personality disorders 4.58 (95% CI: 3.09-6.53)). Deaths from other causes remained at least double the population average over the whole year. Increased SMRs were similar across ethnic groups.

INTERPRETATION: People with mental disorders and intellectual disabilities were at a greater risk of deaths relative to the general population before, during and after the first peak of COVID-19 deaths, with similar risks by ethnicity. Mortality from non-COVID-19/ other causes was elevated before/ during the pandemic, with higher COVID-19 mortality during the pandemic."

Disparities and Health Equity

News in Brief

The QuestionBuilder app is now available in Spanish to help with communication between health providers and patients ([HHS](#); see also: [AHRQ website with links to download app](#)).

Journal Articles

JAMA Netw Open: [Racial and Ethnic Disparities in Rates of COVID-19–Associated Hospitalization, Intensive Care Unit Admission, and In-Hospital Death in the United States From March 2020 to February 2021](#) (21 October 2021)

"Question: Are rates of COVID-19–associated hospitalization, intensive care unit (ICU) admission, or in-hospital death higher among individuals who belong to racial and ethnic minority groups compared with those who identify as non-Hispanic White?

Findings: In this cross-sectional study of 143 342 individuals hospitalized with COVID-19, non-Hispanic American Indian or Alaska Native, Hispanic or Latino, non-Hispanic Black, and non-Hispanic Asian or Pacific Islander persons were more likely to have a COVID-19-associated hospitalization, ICU admission, or in-hospital death compared with non-Hispanic White individuals during the first year of the pandemic.

Meaning: In this study, US residents who belong to racial and ethnic minority groups experienced severe COVID-19–associated outcomes disproportionately; equitable access to preventive measures, such as COVID-19 vaccines, is needed for these populations."

JAMA Netw Open: [Quantifying and Benchmarking Disparities in COVID-19 Vaccination Rates by Race and Ethnicity](#) (20 October 2021)

"This decision analytical model quantifies disparities in uptake of COVID-19 vaccination by race and ethnicity and models alternative scenarios of persistent differential uptake and reduced barriers to access....

The disparities in vaccination among Black and Hispanic adults seen in this study highlight the urgent need to invest in policies and interventions to promote vaccine equity. Our results additionally demonstrate the benefits of place-based targeting of efforts to promote vaccination uptake. "

Risk, Transmission, and Exposure

News in Brief

Weather probably doesn't influence COVID-19 transmission ([Nat Commun](#)).

Special Reports and Other Resources

"Commentary: What can masks do?" (CIDRAP; [part 1](#) and [part 2](#)).

"Part 1 of a two-part commentary explains the differences in cloth face coverings and surgical masks, the science of respiratory protection, and the hierarchy of disease controls.... in part 2 we spell out why not all studies involving cloth face coverings or surgical/medical masks warrant equal consideration."

Journal Articles

Scand J Work Environ Health: [COVID-19 mortality across occupations and secondary risks for elderly individuals in the household: A population register-based study](#) (19 October 2021)

"Objectives: This is the first population-level study to examine inequalities in COVID-19 mortality according to working-age individuals' occupations and the indirect occupational effects on COVID-19 mortality of older individuals who live with them.

Methods: We used early-release data for the entire population of Sweden of all recorded COVID-19 deaths from 12 March 2020 to 23 February 2021, which we linked to administrative registers and occupational measures. Cox proportional hazard models assessed relative risks of COVID-19 mortality for the working-aged population registered in an occupation in December 2018 and the older population who lived with them.

Results: Among working aged-adults, taxi/bus drivers had the highest relative risk of COVID-19 mortality: over four times that of skilled workers in IT, economics, or administration when adjusted only for basic demographic characteristics. After adjusting for socioeconomic factors (education, income and country of birth), there are no occupational groups with clearly elevated (statistically significant) COVID-19 mortality. Neither a measure of exposure within occupations nor the share that generally can work from home were related to working-aged adults' risk of COVID-19 mortality. Instead of occupational factors, traditional socioeconomic risk factors best explained variation in COVID-19 mortality. Elderly individuals, however, faced higher COVID-19 mortality risk both when living with a delivery or postal worker or worker(s) in occupations that generally work from home less, even when their socioeconomic factors are taken into account.

Conclusions: Inequalities in COVID-19 mortality of working-aged adults were mostly based on traditional risk factors and not on occupational divisions or characteristics in Sweden. However, older individuals living with those who likely cannot work from home or work in delivery or postal services were a vulnerable group."

Sci Rep: [Asymptomatic COVID-19 Adult Outpatients identified as Significant Viable SARS-CoV-2 Shedders](#) (18 October 2021)

"Differential kinetics of RNA loads and infectious viral levels in the upper respiratory tract between asymptomatic and symptomatic SARS-CoV-2 infected adult outpatients remain

unclear limiting recommendations that may guide clinical management, infection control measures and occupational health decisions. In the present investigation, 496 (2.8%) of 17,911 French adult outpatients were positive for an upper respiratory tract SARS-CoV-2 RNA detection by a quantitative RT-PCR assay, of which 180 (36.3%) were COVID-19 asymptomatic. Of these adult asymptomatic viral shedders, 75% had mean to high RNA viral loads (Ct values < 30) which median value was significantly higher than that observed in symptomatic subjects ($P = 0.029$), and 50.6% were positive by cell culture assays of their upper respiratory tract specimens. Our findings indicate that COVID-19 asymptomatic adult outpatients are significant viable SARS-CoV-2 shedders in their upper respiratory tract playing a major potential role as SARS-CoV-2 transmitters in various epidemiological transmission chains, promoting COVID-19 resurgence in populations."

Emerg Infect Dis: [Mask Effectiveness for Preventing Secondary Cases of COVID-19, Johnson County, Iowa, USA](#) (12 October 2021)

"In September of 2020, the Iowa Department of Public Health released guidance stating that persons exposed to someone with coronavirus disease (COVID-19) need not quarantine if the case-patient and the contact wore face masks at the time of exposure. This guidance differed from that issued by the Centers for Disease Control and Prevention. To determine the best action, we matched exposure information from COVID-19 case investigations with reported test results and calculated the secondary attack rates (SARs) after masked and unmasked exposures. Mask use by both parties reduced the SAR by half, from 25.6% to 12.5%. Longer exposure duration significantly increased SARs. Masks significantly reduced virus transmission when worn by both the case-patient and the contact, but SARs for each group were higher than anticipated. This finding suggests that quarantine after COVID-19 exposure is beneficial even if parties wore masks."

Phys Fluids: [Effect of co-flow on fluid dynamics of a cough jet with implications in spread of COVID-19](#) (12 October 2021)

"We discuss the temporal evolution of a cough jet of an infected subject in the context of the spread of COVID-19. Computations were carried out using large eddy simulation, and, in particular, the effect of the co-flow (5% and 10% of maximum cough velocity) on the evolution of the jet was quantified. The Reynolds number (Re) of the cough jet, based on the mouth opening diameter (D) and the average cough velocity, is 13 002. The time-varying inlet velocity profile of the cough jet is represented as a combination of gamma-probability-distribution functions. Simulations reveal the detailed structure of cough jet with and without a co-flow for the first time, to the best of our knowledge. The cough jet temporal evolution is similar to that of a continuous free-jet and follows the same routes of instability, as documented for a free-jet. The convection velocity of the cough jet decays with time and distance, following a power-law variation. The cough jet is observed to travel a distance of approximately 1.1 m in half a second. However, in the presence of 10% co-

flow, the cough jet travels faster and covers the similar distance in just 0.33 s. Therefore, in the presence of a co-flow, the probability of transmission of COVID-19 by airborne droplets and droplet nuclei increases, since they can travel a larger distance. The cough jet without the co-flow corresponds to a larger volume content compared to that with the co-flow and spreads more within the same range of distance. These simulations are significant as they help to reveal the intricate structure of the cough jet and show that the presence of a co-flow can significantly augment the risk of infection of COVID-19."

PLoS Med: [Transmission of community- and hospital-acquired SARS-CoV-2 in hospital settings in the UK: A cohort study](#) (12 October 2021)

"Why was this study done?"

- Transmission of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) in the hospital setting has been widely reported, but little is known about the incidence and pathways of transmission.
- Hospitalised patients are especially vulnerable to Coronavirus Disease 2019 (COVID-19)-associated complications, and infected patients may contribute to the further spread of SARS-CoV-2 in the community and nursing homes upon discharge.
- Healthcare workers (HCWs) are disproportionately infected with SARS-CoV-2, and a reduced staff workforce due to SARS-CoV-2 infection may compromise the clinical management of patients and infection prevention and control measures.
- Improved understanding of the drivers of hospital-acquired SARS-CoV2 infection is important to prevent and control the spread of SARS-CoV-2 in hospitals.

What did the researchers do and find?

- We collected data from 4 teaching hospitals in Oxfordshire, United Kingdom, from January to October 2020.
- The data were analysed to find the associations between infectious SARS-CoV-2 individuals (classified as community- or hospital-acquired) and infection risk posed to the susceptible individuals using statistical models.
- For susceptible patients, 1 day in the same ward with another patient with hospital-acquired SARS-CoV-2 was associated with an additional 8 infections per 1,000 susceptible patients, while exposure to an infectious patient with community-acquired COVID-19 or to an infectious HCW was associated with substantially lower infection risks of 2 per 1,000 susceptible patients.
- As for HCW infections, exposure to an infectious patient with hospital-acquired SARS-CoV-2 or to an infectious HCW were both associated with an additional 1 infection per 1,000 susceptible HCWs per day, while exposure to an infectious patient with community-acquired SARS-CoV-2 was associated with less than half this risk.

What do these findings mean?

- Our data provide strong evidence that newly infected COVID-19 patients are associated with a high risk of onward transmission to patients and HCWs in hospital.
- Our findings support enhanced strategies to prevent and identify early hospital-onset SARS-CoV-2 infection among hospitalised patients, for example, regular screening and prompt testing to identify these patients.
- Measures to ensure infected staff are not at work, including regular staff screening and adequate sick pay arrangements, are vital.
- The relatively low risk of transmission associated with patients with suspected community-acquired COVID-19 suggests that for these patients, the peak of their infectivity may have passed such that existing infection prevention and control policies including universal use of personal protective equipment, prompt testing, and isolation of suspected or known cases are sufficient to mitigate most of the remaining infectiousness.
- The main limitations were that the symptom onset dates and HCW absence days were not available, which may affect the estimation of the transmission pathways."

Pediatric Transmission Factors

JAMA Netw Open: [Transmission of SARS-CoV-2 After COVID-19 Screening and Mitigation Measures for Primary School Children Attending School in Liège, Belgium](#) (12 October 2021)

"Question: What is the possible role of children in SARS-CoV-2 transmission?

Findings: This cohort study including 63 children and 118 adults found no significant difference between the number of children and the number of adults testing positive for SARS-CoV-2 infection during the study period; children were asymptomatic significantly more often compared with adults (46% vs 13%). In addition, a reconstruction of the outbreak showed that most transmission events originated from within the school.

Meaning: These results suggest that children may play a larger role in the transmission of SARS-CoV-2 than previously assumed."

JAMA Pediatr: [Incidence Rates, Household Infection Risk, and Clinical Characteristics of SARS-CoV-2 Infection Among Children and Adults in Utah and New York City, New York](#) (08 October 2021)

"Question: What is the risk of SARS-CoV-2 infection among children compared with adults during periods of increased SARS-CoV-2 circulation in the community?

Findings: In this cohort study of 1236 participants in 310 households conducted from September 2020 through April 2021 in New York City, New York, and selected counties in

Utah, site-adjusted incidence rates per 1000 person-weeks were similar by age group: 6.3 for children aged 0 to 4 years, 4.4 for children aged 5 to 11 years, 6.0 for children aged 12 to 17 years, and 5.1 for adults (aged ≥ 18 years).

Meaning: In this study, children had similar risks of SARS-CoV-2 infection compared with adults."

Health Messaging and Misinformation

News in Brief

"Patients doing more of their own research online, often leaving doctor's office with questions" ([Fierce Healthcare](#)).

Special Reports and Other Resources

JHCHS: [COVID-19 Vaccine Misinformation and Disinformation Costs an Estimated \\$50 to \\$300 Million Each Day](#) (20 October 2021)

"The COVID-19 pandemic has shown that false or misleading health-related information can dangerously undermine the response to a public health crisis. These messages include the inadvertent spread of erroneous information (misinformation) or deliberately created and propagated false or misleading information (disinformation). Misinformation and disinformation have contributed to reduced trust in medical professionals and public health responders, increased belief in false medical cures, politicized public health countermeasures aimed at curbing transmission of the disease, and increased loss of life....

We calculate that total voluntary COVID-19 nonvaccination has caused at least \$1 billion of harm each day in the United States since vaccines became widely available. This estimate is based on the costs of hospitalizations and the valuation of lives lost and long-term morbidity due to COVID-19 calculated using the standard methodology for US Department of Health and Human Services regulatory impact analysis....

With a total nonvaccination harm of \$1 billion per day and misinformation and disinformation causing between 5% and 30% of this harm, **misinformation and disinformation have caused between \$50 and \$300 million worth of total harm every day since May 2021**, when the vaccines were freely available to most US adults—underscoring that the costs during the Delta variant surge were much higher. Misinformation and disinformation will likely continue to do this level of harm if they continue to flourish."

See also: October 20, 2021: Combating Misinformation and Disinformation for COVID-19 and Future Public Health Threats [webinar \[YouTube\]](#) and [transcript \[pdf\]](#).

Journal Articles

Soc Sci Med: [Conspiratorial thinking, selective exposure to conservative media, and response to COVID-19 in the US](#) (12 October 2021)

"Rationale: Previous research has shown that during the early months of the COVID-19 pandemic in the US, users of conservative media were more likely to accept conspiracy theories about the pandemic and less likely to accept pandemic mitigation measures such as mask-wearing and vaccination.

Objective: To test the hypothesis that during the first year of the pandemic, viewers who were prone to conspiratorial thinking engaged in selective exposure to conservative media which served to enhance pandemic-related conspiracy beliefs.

Methods: A national 3-wave longitudinal survey of 883 US respondents running from March to November 2020 assessed media-use habits, belief in COVID-related conspiracies, conspiratorial thinking, mask-wearing, intention to accept a COVID vaccine, and trust in the Centers for Disease Control and Prevention (CDC). Growth curve models were used to analyze changes in conspiracy beliefs and associated public health outcomes.

Results: Users of conservative media were disproportionately likely to engage in conspiratorial thinking, to vote for President Trump, and to be ideologically conservative. They were also less likely to use mainstream news sources and displayed increasing belief in pandemic conspiracies. Increases in conspiracy beliefs were associated with reduced support for pandemic prevention. Although users of conservative media supported vaccination and trusted the CDC at the outset of the study, continued exposure to conservative media reduced support for both. Increasing use of mainstream print was associated with less endorsement of pandemic conspiracy beliefs. Viewers of mainstream television news did not exhibit change in pandemic conspiracy beliefs over time.

Conclusion: Conservative media in the US have attracted users prone to conspiratorial thinking and conservative political views who are also less exposed to mainstream news. The selective use of these media enhances belief in conspiracies that pose challenges to the country's ability to control a public health crisis such as the COVID pandemic."

Other Infectious Diseases and Public Health Issues

News in Brief

"Second Ebola case confirmed in eastern Congo" ([Reuters](#)).

Zika outbreaks have been reported in 2 Indian states ([WHO](#)).

Meanwhile, there are 7 cases of yellow fever in Venezuela ([WHO](#)).

"Global TB deaths are rising — and COVID gets the blame" ([NPR](#)).

Speaking of tuberculosis, there may be a paradigm shift happening there... "Tuberculosis, like Covid, spreads by breathing, scientists report" ([NYT](#)).

Influenza

"Why easing COVID restrictions could prompt a fierce flu rebound — As pandemic restrictions ease, other respiratory viruses are returning in unexpected ways" ([Nature](#)).

"We accidentally solved the flu. Now what?" ([Atlantic](#)).

"mRNA flu shots move into trials — COVID-19 provided an opportunity to show that mRNA vaccines can work. Now, drug companies are racing to apply the technology platform for influenza" ([Nat Rev Drug Disc](#)).

Long Reads

"How the hunt for this deadly virus [Nipah] shaped the search for coronavirus's origins" ([WP](#)).

"To study Zika, they offered their kids. Then they were forgotten. Years after agreeing to take part in research, families of children with congenital Zika syndrome are feeling abandoned." ([Undark](#)).

"'I don't know that I would even call it meth anymore' – Different chemically than it was a decade ago, the drug is creating a wave of severe mental illness and worsening America's homelessness problem" ([Atlantic](#)).

Special Topic: Climate Change

News in Brief

"45 million health workers call for action on climate change — Letter from 300 groups part of WHO effort leading up to the COP26 climate meeting" ([Medpage](#); see also: [Healthy Climate letter](#)).

Special Reports and Other Resources

DOD: [Department of Defense Climate Risk Analysis \[pdf\]](#) (October 2021)

Executive summary: "Climate change is reshaping the geostrategic, operational, and tactical environments with significant implications for U.S. national security and defense. Increasing temperatures; changing precipitation patterns; and more frequent, intense, and unpredictable extreme weather conditions caused by climate change are exacerbating existing risks and creating new security challenges for U.S. interests. The risks of climate change to Department of Defense (DoD) strategies, plans, capabilities, missions, and equipment, as well as those of U.S. allies and partners, are growing. Global efforts to address climate change – including actions to address the causes as well as the effects – will influence DoD strategic interests, relationships, competition, and priorities. To train, fight, and win in this increasingly complex environment, DoD will consider the effects of climate change at every level of the DoD enterprise. The DoD Climate Risk Analysis (DCRA) responds to requirements specified in Executive Order (EO) 14008, "Tackling the Climate Crisis at Home and Abroad."

The DCRA is organized as follows:

- Section I introduces key security implications of climate change to DoD, including DoD's role supporting whole-of-government and international efforts in concert with allies and partners.
- Section II reviews DoD climate policy and responsibilities, highlighting key documents.
- Section III presents a review of climate hazards, risks, and security implications. Sections on specific regions have been identified as Controlled Unclassified Information (CUI) and not releasable to the public. These sections were removed to allow this to be a publicly-releasable document.

Section IV outlines how DoD will incorporate consideration of climate into relevant strategy, planning, and processes.

- Section V describes interagency scientific and intelligence products and experts, which could support future analyses of climate risk, as well as expected funding for exercises, wargames, analyses, and studies related to climate change.
- Section VI concludes the DCRA.

The DCRA is an important step towards integration of climate change considerations at DoD. To understand specific climate effects on plans, resourcing, operations, and missions, DoD Components will include climate considerations in relevant risk analyses, leveraging high-quality data, scenarios, and analytical tools tailored to DoD needs.

Working within the whole-of-government, and in coordination with allies and partners, DoD will strive to prevent, mitigate, account for, and respond to defense and security risks associated with climate change."

See also: [Secretary of Defense Lloyd J. Austin III's Statement on the DoD Climate Risk Analysis 21 October 2021](#)

Journal Articles

Lancet Reg Health Eur: [Climate change and infectious disease in Europe: Impact, projection and adaptation](#) (07 October 2021)

"Europeans are not only exposed to direct effects from climate change, but also vulnerable to indirect effects from infectious disease, many of which are climate sensitive, which is of concern because of their epidemic potential. Climatic conditions have facilitated vector-borne disease outbreaks like chikungunya, dengue, and West Nile fever and have contributed to a geographic range expansion of tick vectors that transmit Lyme disease and tick-borne encephalitis. Extreme precipitation events have caused waterborne outbreaks and longer summer seasons have contributed to increases in foodborne diseases. Under the Green Deal, The European Union aims to support climate change health policy, in order to be better prepared for the next health security threat, particularly in the aftermath of the traumatic COVID-19 experience. To bolster this policy process we discuss climate change-related hazards, exposures and vulnerabilities to infectious disease and describe observed impacts, projected risks, with policy entry points for adaptation to reduce these risks or avoid them altogether."

Statistics

	<i>Total Cases</i>	<i>Total Deaths</i>	<i>Total Vaccine Doses Administered</i>
<i>Global</i>	242,648,151	4,932,770	6,757,372,965
<i>United States</i>	45,302,711	733,228	409,314,310

[JHU CSSE](#) as of 1000 EDT 22 October 2021

<i>Virginia</i>	Total cases (state)	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	914,755	28,558	14,890	20,391	24,211	12,517	10,815	49,353
Hospitalizations	38,269	1,284	683	776	1,490	886	684	2,593
Deaths	13,668	354	237	291	335	238	231	542

[VA DOH](#) as of 1000 EDT 22 October 2021

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