

I hope everyone is having a good week.

Today under COVID-19 News I have summarized the updated CDC on disinfection. They confirm that in most situations, the risk of infection from touching a surface is low. Second, another setback for AstraZeneca. They have put on hold their study on children due to concerns over clotting. AstraZeneca said last month it plans to ask the U.S. government by mid-April to authorize the vaccine. I am not sure this will happen. With 3 very effective vaccines do we need a 4th and Novavax is waiting in the wings.

Under Journal Review I start with an interesting article on clinical phenotypes and associated comorbidities and complications. The second article confirms that up to 30% can be reinfected with any seasonal coronavirus. Obviously, the big question, will SARS-CoV-2 follow the same pattern and what impact will vaccinations have on reinfections? The next article is a reminder that opening up settings such as bars, where mask wearing and physical distancing are challenging, can affect community spread especially in a population with low immunization rates. The last article is perhaps the largest cross-sectional analysis on MIS-C.

Have a wonderful day.

Ed

COVID-19 News

Cleaning and Disinfecting Your Facility

CDC Update April 5, 2021

The CDC on Monday updated its guidance on cleaning and disinfection. The virus that causes COVID-19 can land on surfaces. It is possible for people to become infected if they touch those surfaces and then touch their nose, mouth, or eyes. In most situations, the risk of infection from touching a surface is low.

Among the recommendations:

- If there have been no known people with COVID-19 in a space, then cleaning surfaces with soap or detergent once daily is usually sufficient to remove any virus that may be on the surface. Disinfection or more frequent cleaning may be appropriate in communities with high transmission rates or low mask usage, among other factors.
- If someone was sick or tested positive for COVID-19 in the past 24 hours, then the facility should be cleaned and disinfected. If it has been more than 24 hours since the person was in the facility, cleaning is recommended; facilities can also choose to disinfect. If it has been more than 3 days, then no action is required.
- The laundry of a COVID-19 patient can be washed and dried with laundry from healthy people in the household. People should wash their hands after handling dirty laundry.
- High-touch metal and plastic outdoor surfaces (such as playground equipment and railings) should be cleaned regularly.

In terms of what *not* to do, the CDC says that fogging, fumigation, and electrostatic spraying generally are not recommended for surface disinfection and carry several safety risks. In addition, ultrasonic waves, high-intensity UV radiation, and LED blue light do not have proven effectiveness against SARS-CoV-2.

Trial of AstraZeneca Covid-19 Vaccine in Children, Teenagers on Pause

AZ said it has paused administering doses of the Covid-19 vaccine in a small U.K. study to test the vaccine in children and teenagers, pending further information about rare blood-clotting issues in adults who have received it. The Oxford-led pediatric trial started in mid-February and is aimed at testing the vaccine in more than 200 young people aged 6 to 17 years. An Oxford spokesman said Tuesday that no safety issues have arisen in the trial itself, but broader concerns about rare clotting problems in adults have triggered further regulatory reviews in the U.K. and Europe to investigate any potential link with the vaccine.

Comment: The pause is the latest setback for the Oxford-AstraZeneca shot, which has faced questions about its efficacy and potential side effects even as tens of millions of doses have been administered following safety signoffs in more than 70 countries. European Medicines Agency has continued to recommend the shot, plans to update the public this week on its review of clotting issues. Still, there is growing evidence of a link between the rare, sometimes life-threatening conditions and the vaccine, according to a top EMA official and scientists in Europe who last month said they identified a mechanism that could lead the shot to cause potentially deadly blood clots in rare instances. There are at least 22 reports of cerebral venous sinus thrombosis, or CVST, and eight reports of other thrombosis events with low platelets.

Journal Review

Characterizing COVID-19 Clinical Phenotypes and Associated Comorbidities and Complication Profiles

PLOS ONE published online March 31, 2021

<https://doi.org/10.1371/journal.pone.0248956>

This is a retrospective analysis of COVID-19 patients from March 7, 2020 to August 25, 2020 at 14 U.S. hospitals. Ensemble clustering was performed on 33 variables collected within 72 hours of admission. Principal component analysis was performed to visualize variable contributions to clustering. Multinomial regression models were fit to compare patient comorbidities across phenotypes. Multivariable models were fit to estimate associations between phenotype and in-hospital complications and clinical outcomes.

Three clinical phenotypes were identified (I, II, III), with 236 [23.1%] patients in phenotype I, 613 [60%] patients in phenotype II, and 173 [16.9%] patients in phenotype III. Patients with respiratory comorbidities were most commonly phenotype III ($p = 0.002$), while patients with hematologic, renal, and cardiac (all $p < 0.001$) comorbidities were most commonly phenotype I. Adjusted odds of respiratory, renal, hepatic, metabolic (all $p < 0.001$), and hematological ($p = 0.02$) complications were highest for phenotype I. Phenotypes I and II were associated with 7.30-fold (HR:7.30, 95% CI:(3.11–17.17), $p < 0.001$) and 2.57-fold (HR:2.57, 95% CI:(1.10–6.00), $p = 0.03$) increases in hazard of death relative to phenotype III.

Comment: We identified three clinical COVID-19 phenotypes, reflecting patient populations with different comorbidities, complications, and clinical outcomes. Future research is needed to determine the utility of these phenotypes in clinical practice and trial design.

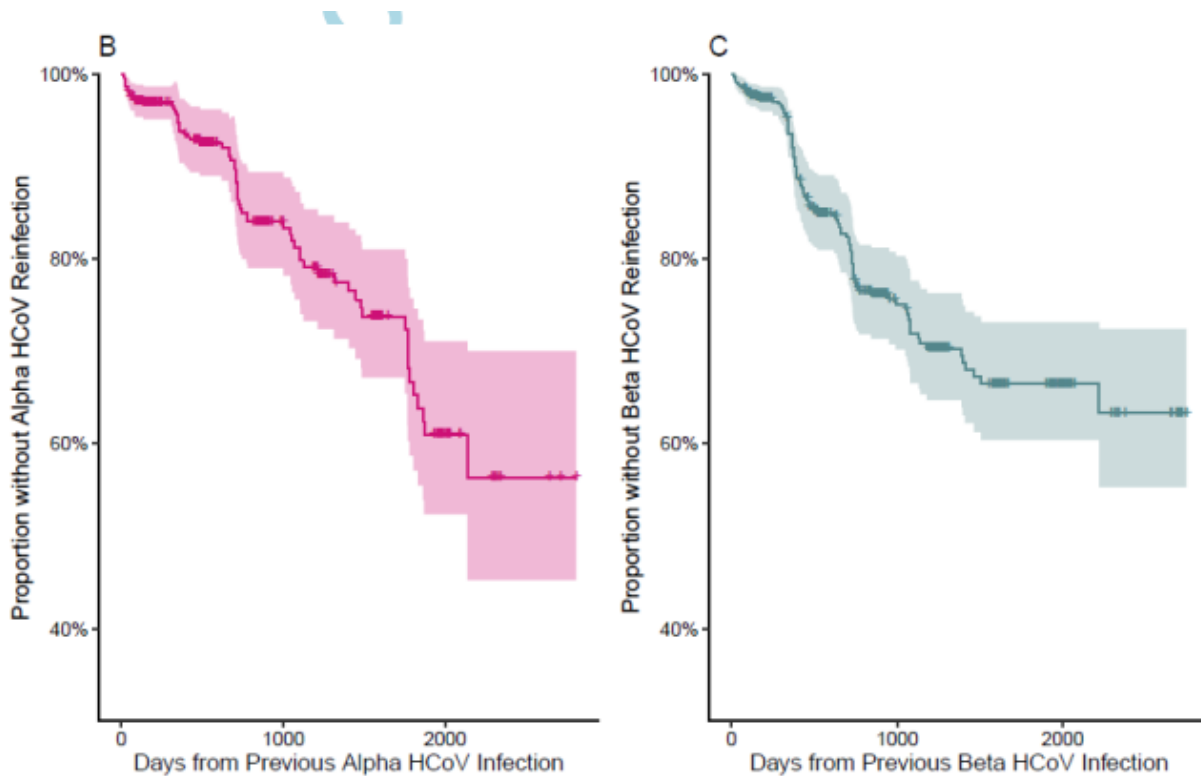
Coronavirus Occurrence in the HIVE Cohort of Michigan Households: Reinfection Frequency and Serologic Responses to Seasonal and SARS Coronaviruses

J Infect Dis published online March 24, 2021

[doi/10.1093/infdis/jiab161/6184123](https://doi.org/10.1093/infdis/jiab161/6184123)

The investigators investigated the frequency of reinfection of seasonal coronaviruses (HCoV) and antibody (anti-spike) response following infection over 8 years in the Household Influenza Vaccine cohort.

Of 3418 participants, 40% were followed for ≥ 3 years. A total of 1004 HCoV infections were documented; 303 (30%) were reinfections of any HCoV type. The number of HCoV infections ranged from 1 to 13 per individual. The mean time to reinfection with the same type was estimated at 983 days for 229E, 578 days for HKU1, 615 days for OC43, and 711 days for NL63. Binding antibody levels to seasonal HCoVs were high, with little increase post-infection, and were maintained over time. Homologous, preinfection antibody levels did not significantly correlate with odds of infection, and there was little cross response to SARS-CoV-2 proteins.



Among 1,004 patients infected with a seasonal coronavirus:



Were reinfected
with any seasonal
coronavirus

Comment: Reinfection with seasonal HCoVs is frequent. Binding anti-spike protein antibodies do not correlate with protection from seasonal HCoV infection. The authors have previously demonstrated that these HCoVs are truly seasonal, transmitting mainly in the months between November-May, peaking in December-March, and only time will tell if the SARS-CoV-2 occurrence will begin to follow the same pattern as immunity increases in the population. To date reinfection due to SARS-CoV-2 is rare for at least 3-6 months after primary infection. Will SARS-CoV-2 follow the same pattern of reinfection over time is yet to be determined and what role vaccination will have on possible reinfection.

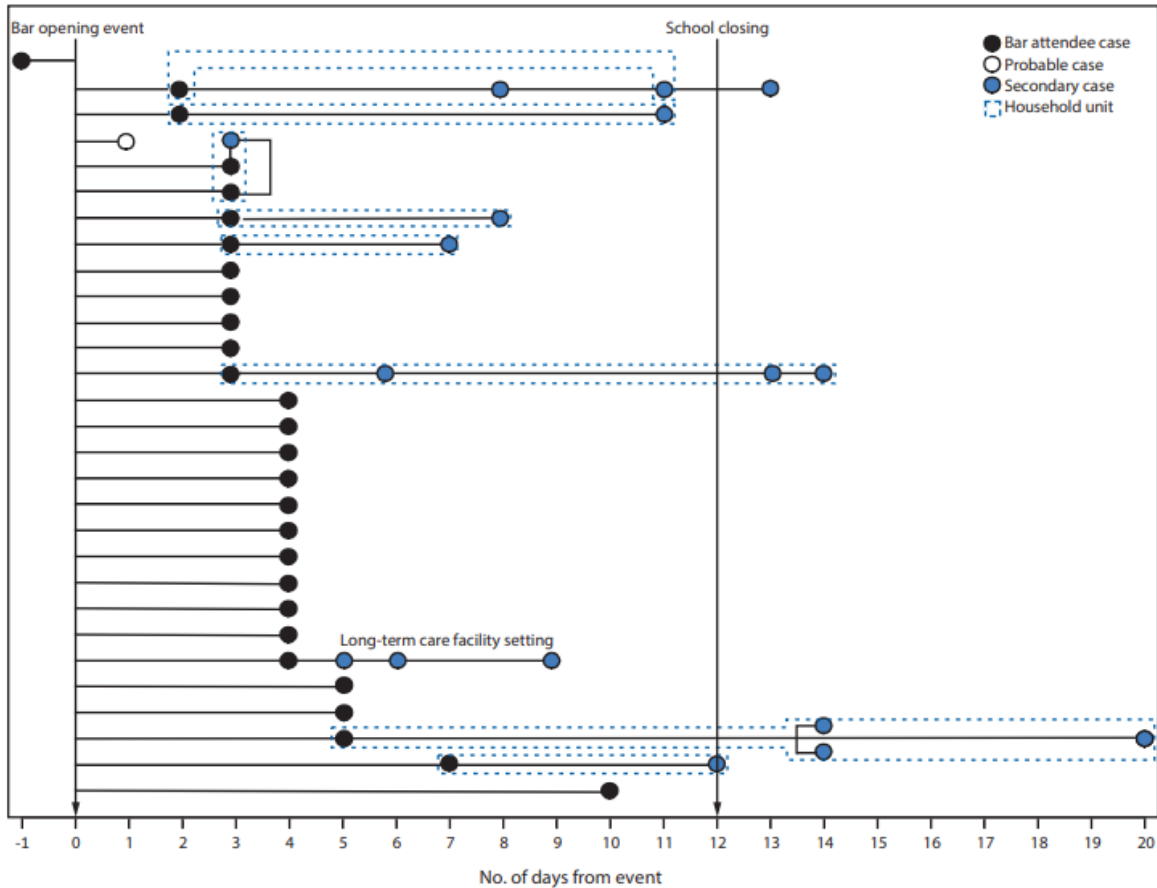
Community Transmission of SARS-CoV-2 Associated with a Local Bar Opening Event — Illinois, February 2021

MMWR published online April 5, 2021

At least 46 cases were traced back to a bar opening in rural Illinois. The bar, which had an indoor capacity of 100 people, held an opening event in February 2021. Four people who attended had COVID-19 symptoms that day. [amazing!] One attendee tested positive for COVID-19 the day before but did not have symptoms. In all, 26 bar patrons and three employees tested positive. Seventeen secondary cases were identified. One attendee who tested positive worked at a long-term-care facility. Three people at the facility subsequently tested positive, one of whom was hospitalized. None of the COVID-19 patients linked to the long-term-care facility had been vaccinated, though vaccination had been offered. In addition, a school closed because of the outbreak, affecting 650 children.

These findings show that transmission originating in a business such as a bar not only affects the patrons and employees of the bar but can also affect an entire community. As bars, restaurants, businesses, and gyms begin to reopen, prevention measures are still critical including limiting building occupancy levels, improving ventilation, hand hygiene, and masking.

FIGURE. Bar attendee* (N = 29) and secondary† (N = 17) confirmed[§] and probable[¶] COVID-19 cases associated with a local bar opening event, by timing of specimen collection relative to event — Illinois, February 2021



Comment: Opening up settings such as bars, where mask wearing and physical distancing are challenging, can affect the community. As community businesses reopen, prevention measures should be emphasized, including limiting building occupancy, improving ventilation, prioritizing outdoor seating, enforcing correct mask wearing and physical distancing, staying home when ill, and encouraging COVID-19 vaccination to reduce transmission on site and within the community.

Trends in Geographic and Temporal Distribution of US Children with Multisystem Inflammatory Syndrome During the COVID-19 Pandemic

JAMA Pediatr published online April 6, 2021

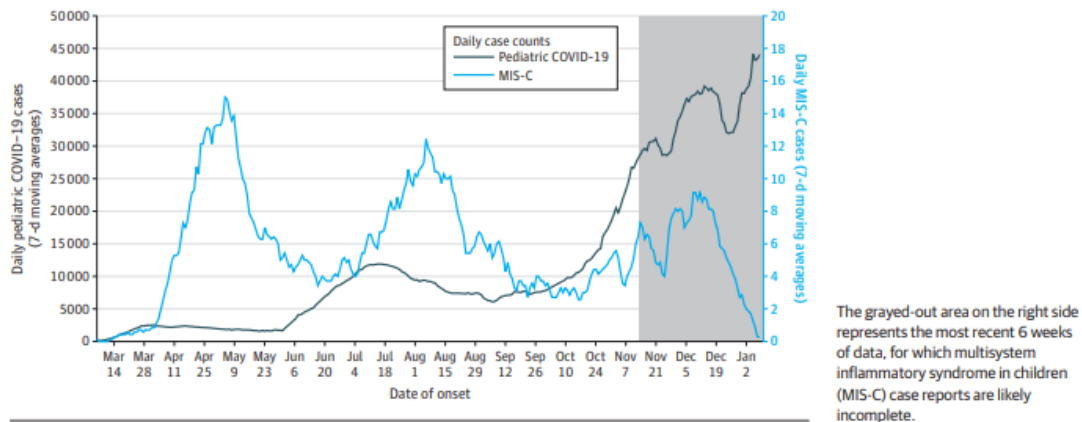
doi:10.1001/jamapediatrics.2021.0630

This study is a cross-sectional analysis conducted on clinical and laboratory data collected from patients with MIS-C. The analysis included patients with illness onset from March 2020 to January 2021 and met MIS-C case definition.

A total of 1733 patients with MIS-C were identified; 994 (57.6%) were male and 1117 (71.3%) were Hispanic or non-Hispanic Black. Gastrointestinal symptoms, rash, and conjunctival hyperemia were reported by 53% (n = 931) to 67% (n = 1153) of patients. A total of 937 patients (54%) had hypotension or shock, and 1009 (58.2%) were admitted for intensive care. Cardiac dysfunction was reported in 484 patients (31.0%), pericardial effusion in 365 (23.4%), myocarditis in 300 (17.3%), and coronary artery dilatation or aneurysms in 258 (16.5%). Patients aged 0 to 4 years had the lowest proportion of severe manifestations, although 171 patients (38.4%) had hypotension or shock and 197 (44.3%) were admitted

for intensive care. Patients aged 18 to 20 years had the highest proportions with myocarditis (17 [30.9%]), pneumonia (20 [36.4%]), acute respiratory distress syndrome (10 [18.2%]), and PCR positivity (39 [70.9%]). These older adolescents also had the highest proportion reporting preceding COVID-19-like illness (63%). Nationally, the first 2 MIS-C peaks followed the COVID-19 peaks by 2 to 5 weeks.

Figure 1. Daily Number of Patients With MIS-C and COVID-19 by 7-Day Moving Averages, United States, March 2020 to January 2021



Comments: This study expands our understanding of MIS-C. As reported here the investigators reported younger children present more frequently with conjunctival findings, rash, and abdominal pain, while adolescents present more frequently with chest pain, shortness of breath, and cough. In addition, cardiac dysfunction and a diagnosis of myocarditis was significantly more likely in adolescents. This publication provides further validation of the prevailing hypothesis that MIS-C is a postinfectious mediated disorder, given the temporal and geographic distribution of MIS-C with COVID-19. Further research is needed to assess the most effective and efficient therapies to treat serious and life-threatening presentations and long-term sequelae of MIS-C.