First congratulations to Phil Mickelson the winner of the PGA Championship. He became the oldest golfer to win a major title! An inspiration for us old folks 😊

Today under COVID-19 News the latest numbers on Covid-19 in the US which continues to show significant decline in new cases. Next, some encouraging news in a prepublication study found the risk of developing symptomatic Covid-19 from B.1.617.2 (India) was reduced by 88% after two doses of Pfizer's vaccine. Next the alarming news that Mucormycosis is infecting thousands of Covid-19 survivors in India. Next, I share the latest Kaiser study on vaccine acceptance.

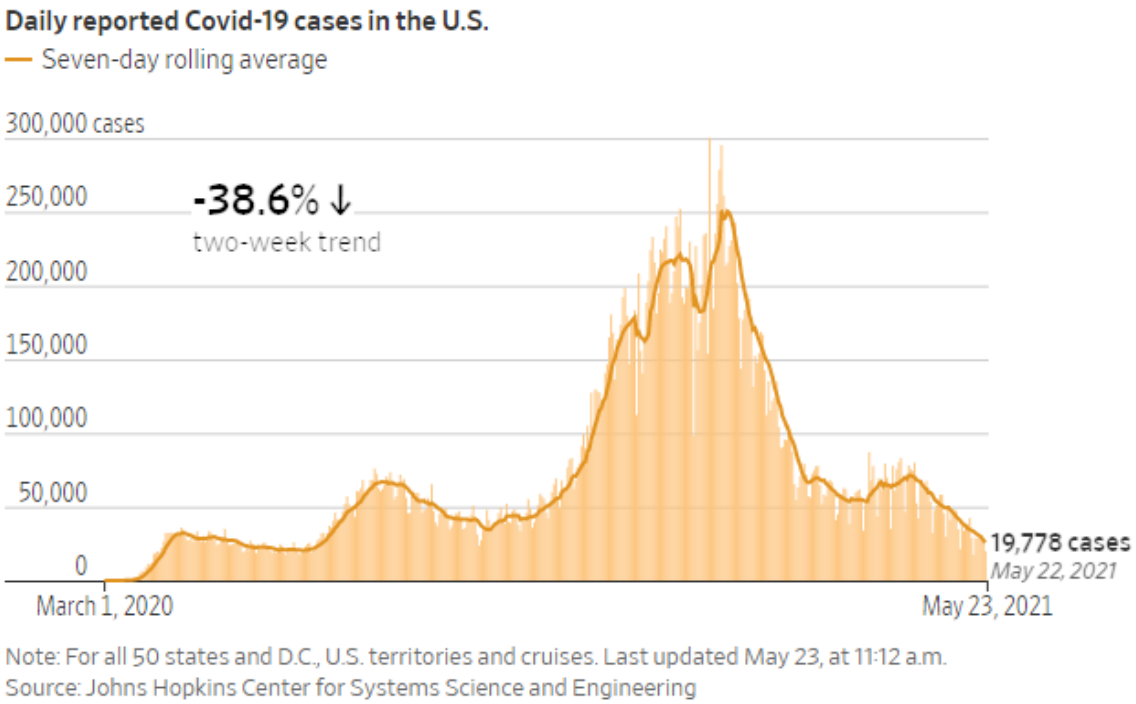
Under Journal Review I start with a review of MIS-A from Vanderbilt. The next article highlights the real-world effectiveness of the mRNA vaccines in reducing the incidence of asymptomatic and symptomatic SARS-CoV-2 infections in a vulnerable nursing home population. [very impressive] The last article looks at gray matter loss in older individuals infected with SARS-CoV-2.

Have a great day and week

Ed

COVID-19 News

- The U.S. reported fewer than 20,000 new cases for Saturday, down from more than 28,000 for Friday.



Note: For all 50 states and D.C., U.S. territories and cruises. Last updated May 23, at 11:12 a.m.
Source: Johns Hopkins Center for Systems Science and Engineering

- Two leading vaccines offer reduced but still significant protection against a variant of coronavirus first identified in India, according to a U.K. study not yet peer reviewed. The findings add to evidence that existing vaccines are broadly effective against most circulating variants of

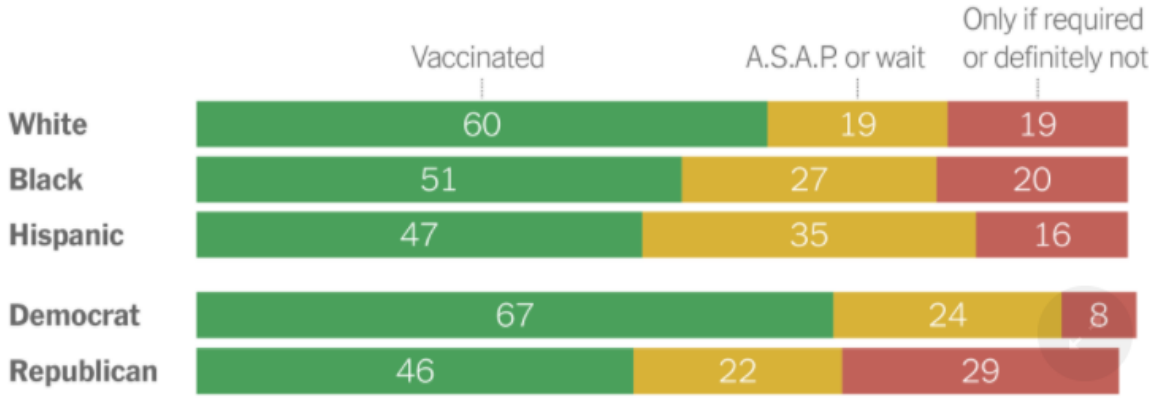
the virus, especially in preventing severe illness and death. The U.K. has recorded more than 3,000 cases of B.1.617.2 (India strain) since it was first spotted in the country in March. The study found the risk of developing symptomatic Covid-19 from B.1.617.2 was reduced by 88% after two doses of Pfizer's vaccine, and by 60% after two doses of the AstraZeneca shot.

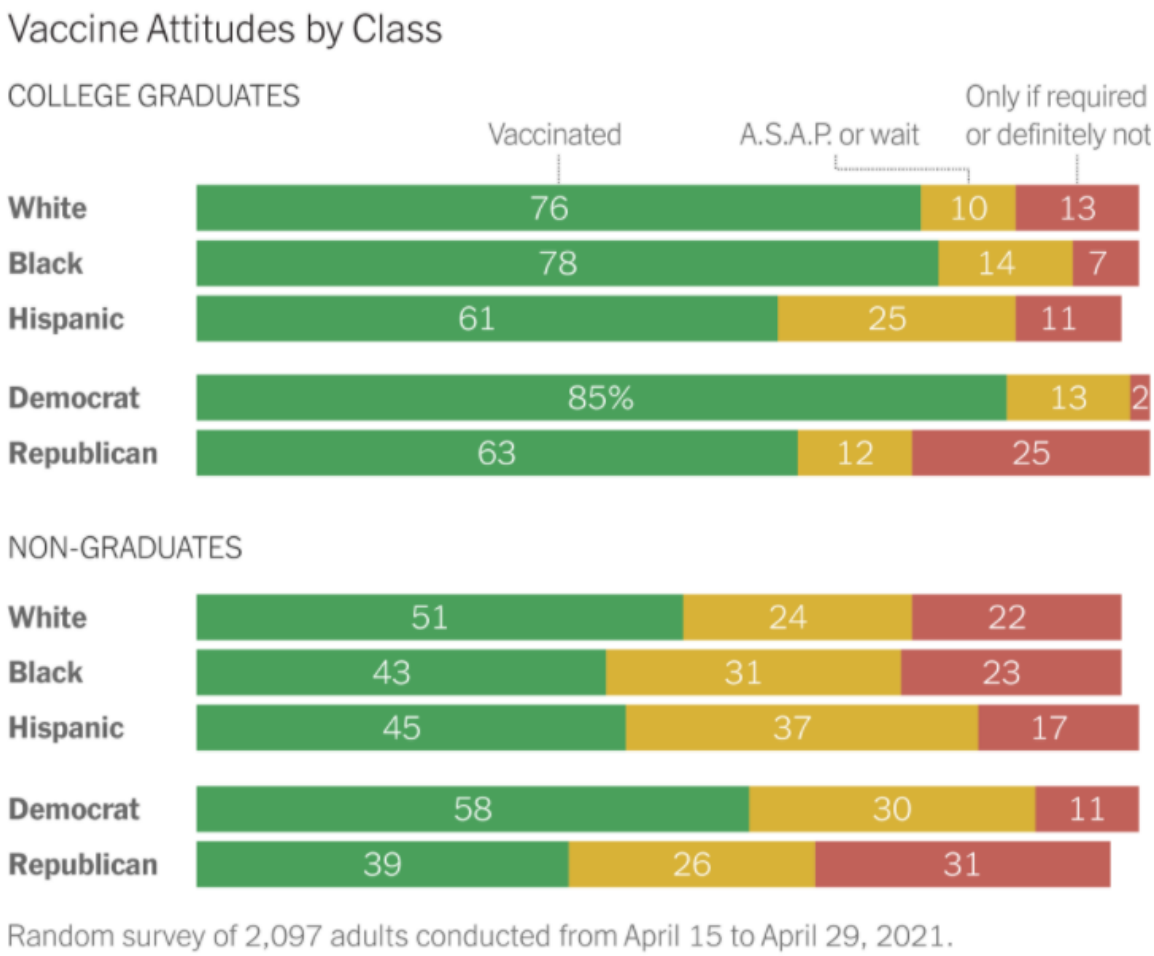
- Mucormycosis is infecting thousands of Covid-19 survivors in India. The current thought is that the risk of mucormycosis is being enhanced by sometimes excessive doses of steroids such as dexamethasone used to treat Covid-19 and the incidence of diabetes.

The Vaccine Class Gap

NY Times May 24, 2021

This article looks at vaccination behavior by racial groups and political identification, based on recent polling by the Kaiser Family Foundation.





Comment: As you can see, working-class members of every group are less likely to have received a vaccine and more likely to be skeptical. In some cases, different racial groups with the same education levels — like Black and white college graduates — look remarkably similar. This poll did not break out Asian-Americans, but other Kaiser surveys have, and it's consistent: Asian-Americans have a higher median income than Black, Hispanic, or white Americans and also a higher vaccination rate. All of this points to the fact that the class divide is bigger than the racial divide. The differences in Democrat vs Republican persist.

Journal Review

Characteristics Associated with Multisystem Inflammatory Syndrome Among Adults With SARS-CoV-2 Infection

JAMA Netw Open published online May 19, 2021

doi:10.1001/jamanetworkopen.2021.10323

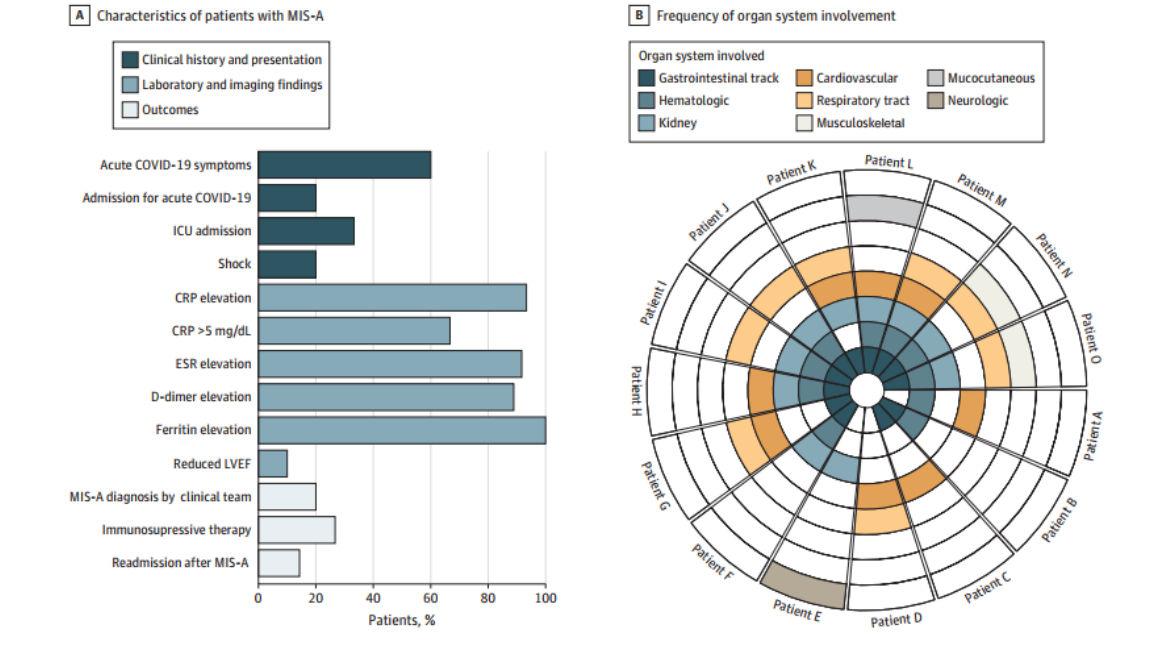
This is a single-center, retrospective cohort study was conducted at Vanderbilt University Medical Center (VU). Adults at risk of MIS-A were identified from those hospitalized with positive SARS-CoV-2 test results. They identified all adults 21 years or older with a positive SARS-CoV-2 test result and a subsequent admission from March 1 through September 30, 2020. Those with laboratory-confirmed SARS-CoV-2 infection who were admitted either (1) between 14 and 84 days after positive SARS-CoV-2

PCR or (2) 15 days before or after positive SARS-CoV-2 serologic test results were classified as being at risk for MIS-A.

A total of 7196 patients with evidence of SARS-CoV-2 infection by PCR or serologic testing were identified from electronic health records. Of those, 839 patients (11.7%) were admitted with a positive SARS-CoV-2 test result during the study's time frame. Of those admitted, 156 patients (11.7%) were classified as being at risk for MIS-A, and 683 (81.4%) were classified as having acute COVID-19. After adjudication, 15 of the 156 patients (9.6%) at risk met criteria for MIS-A4; the remaining 141 patients (90.3%) were excluded from the analyses.

Among the 698 patients included in this analysis, the median age was 55.8 years (range, 21.2-96.9 years), 372 (53.3%) were men, 326 (46.7%) were women, 406 (58.2%) were White individuals, and 169 (24.2%) were Black individuals. Patients with MIS-A were younger (median age, 45.1 years; range 21.3-84.0 years vs 56.5 years; range, 21.2-96.9 years for patients admitted for acute COVID-19 symptoms; $P = .02$) and more likely to have evidence of SARS-CoV-2 infection documented by serologic testing (9 patients [60.0%] with MIS-A vs none with COVID-19; $P < .001$). Other demographic characteristics and comorbidities did not differ from those of patients requiring admission for acute SARS-CoV-2 infection. Nine of the 15 patients with MIS-A (60.0%) had acute COVID-19 symptoms, and 3 (20.0%) required admission for acute COVID-19 before being admitted for MIS-A. For patients with prior admission for acute COVID-19, the median interval between acute COVID-19 admission and MIS-A admission was 23 days (interquartile range [IQR], 16.0-24.5 days). During MIS-A admission, 5 patients (33.3%) required intensive care treatment for hemodynamic monitoring (n = 3), vasopressor support (n = 1), or noninvasive ventilatory support (n = 1). Furthermore, during MIS-A admission, 3 patients (20.0%) had MIS-A as a clinical diagnosis, 4 (26.7%) received immunosuppressive therapy, 7 (46.6%) received antibiotic therapy, and no participants died. The median number of organ systems involved was 4 (IQR, 2.0-4.5). The gastrointestinal, hematologic, and kidney systems were most affected.

Figure. Clinical Presentation and Organ Involvement of Patients Identified With Multisystem Inflammatory Syndrome in Adults (MIS-A)



Comment: This study likely underestimates the incidence of MIS-A because many patients with COVID-19-related admissions did not have routine comprehensive clinical and laboratory assessments to screen for this syndrome. Most patients who met the MIS-A criteria were not identified as such by the primary clinical team. In addition, the patients with MIS-A identified in this study had a broader distribution of organ involvement and lower illness severity compared with those in previously published series. [MMWR 2020;69(40):1450-1456]

Incident of SARS-CoV-2 Infection among mRNA-Vaccinated and Unvaccinated Nursing Home Residents
N Engl J Med published May 19, 2021
DOI: 10.1056/NEJMc2104849
The authors used an electronic health record data from Genesis HealthCare, a large long-term care provider in the United States, we report the incidence of SARS-CoV-2 infection among vaccinated residents and unvaccinated residents of 280 nursing homes across 21 states. They identified incident SARS-CoV-2 infections through March 31, 2021, on the basis of polymerase-chain-reaction assay and antigen-test records. Residents were tested every 3 to 7 days when there were confirmed cases in their facility and were tested if they had any new symptoms or potential exposure. Residents who had been infected in the 90 days before the study window were excluded. The sample included 18,242 residents who received at least one dose of mRNA vaccine; 14,669 residents (80.4%) received the Pfizer vaccine, and 3,573 (19.6%) received the Moderna vaccine. Of these 18,242 residents, 13,048 also received the second dose of vaccine. A total of 3,990 residents were unvaccinated.

The incidence of infection decreased over time among both vaccinated residents and unvaccinated residents. After receipt of the first vaccine dose, there were 822 incident cases (4.5% of vaccinated residents) within 0 to 14 days and 250 cases (1.4%) at 15 to 28 days. Among the 13,048 residents who received both doses of vaccine, there were 130 incident cases (1.0% of vaccinated residents) within 0 to 14 days after receipt of the second dose and 38 cases (0.3%) after 14 days (which included 19 cases occurring 15 to 21 days after receipt of the second dose) (Fig. S1). Among unvaccinated residents, incident cases decreased from 173 cases (4.3% of unvaccinated residents) within 0 to 14 days after the first vaccination clinic to 12 cases (0.3%) at more than 42 days after the clinic. Across all the study groups, most infections were asymptomatic, and the incidence of both asymptomatic and symptomatic infections decreased.

Table 1. Incident SARS-CoV-2 Infection among Nursing Home Residents According to Vaccination Status.*

Variable	Total	Asymptomatic SARS-CoV-2 Infection	Symptomatic SARS-CoV-2 Infection	Percent of Infected Residents Who Were Asymptomatic
Residents vaccinated with ≥1 dose				
No. of residents	18,242			
Positive test after receipt of first dose — no. (%)				
At 0–14 days	822 (4.5)	587 (3.2)	235 (1.3)	71.4
At 15–28 days	250 (1.4)	179 (1.0)	71 (0.4)	71.6
Residents vaccinated with 2 doses				
No. of residents	13,048			
Positive test after receipt of second dose — no. (%)				
At 0–14 days	130 (1.0)	110 (0.8)	20 (0.2)	84.6
At >14 days	38 (0.3)	29 (0.2)	9 (0.1)	76.3
Unvaccinated residents				
No. of residents	3,990			
Positive test after first vaccination clinic — no. (%)				
At 0–14 days	173 (4.3)	115 (2.9)	58 (1.5)	66.5
At 15–28 days	69 (1.7)	42 (1.1)	27 (0.7)	60.9
At 29–42 days	16 (0.4)	13 (0.3)	3 (0.1)	81.2
At >42 days	12 (0.3)	10 (0.3)	2 (0.1)	83.3

Comment: These findings show the real-world effectiveness of the mRNA vaccines in reducing the incidence of asymptomatic and symptomatic SARS-CoV-2 infections in a vulnerable nursing home population. This is another powerful example of the incredible value of vaccination in a highly vulnerable population.

Alterations of Frontal-Temporal Gray Matter Volume Associated with Clinical Measures of Older Adults with COVID-19

Neurobiology Stress published online April 13, 2021

doi.org/10.1016/j.ynstr.2021.100326

In this study, the investigators leveraged source-based morphometry (SBM) analysis, a multivariate extension of VBM (voxel-based morphometry), to identify changes derived from computed tomography scans in covarying gray matter volume patterns underlying COVID-19 in 120 neurological patients (including 58 cases with COVID-19 and 62 patients without COVID-19 matched for age, gender, and diseases). CT scans from fifty-eight adults with COVID-19 (28 female, age: 73.41 ± 10.95) and sixty-two adults without COVID-19 (30 female, age: 69.46 ± 16.62) were analyzed in this study. SBM identified that lower gray matter volume (GMV) in superior/medial/middle frontal gyri was significantly associated with a higher level of disability (modified Rankin Scale-RMS) at both discharge and six months follow-up phases even when controlling for cerebrovascular diseases. GMV in superior/medial/middle frontal gyri was also significantly reduced in patients receiving oxygen therapy compared to patients not receiving oxygen therapy. Patients with fever presented significant GMV reduction in inferior/middle temporal gyri and fusiform gyrus compared to patients without fever. Patients with agitation showed GMV reduction in superior/medial/middle frontal gyri compared to patients without agitation. Patients with

COVID-19 showed no significant GMV differences from patients without COVID-19 in any other brain region.

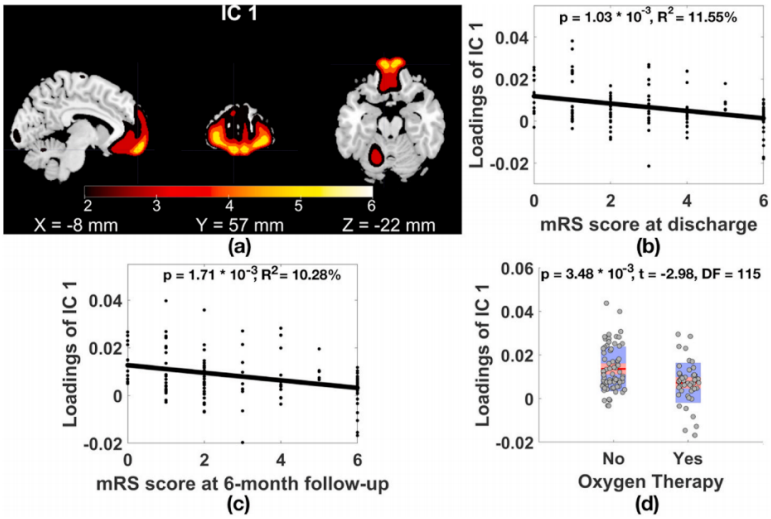


Fig. 1. (a) GMV IC 1 in superior/medial/middle frontal gyri ($|Z|>2$) significantly associated with the mRS score at (b) discharge and (c) 6-month follow-up, and (d) oxygen therapy status. Note, for loadings of GMV IC 1 in Fig. 1(b–d), effects from age, gender, and COVID-19 diagnosis were regressed out.

Comment: This study investigated CT-derived GMV alterations underlying COVID-19 in 120 older adults by using SBM analysis. No brain regions showed a significant difference between adults with COVID-19 and adults without COVID-19. However, lower GMV in superior/medial/middle frontal gyri was related to higher mRS score (i.e., a higher level of disability) at both discharge and 6-month follow-up phases. Patients who received oxygen therapy presented reduced GMV in superior/medial/middle frontal gyri compared to patients who not received oxygen therapy. GMV in inferior/middle temporal gyri and fusiform gyrus was significantly reduced in patients with fever compared to patients without fever. These associations/alterations were still significant after controlling for cerebrovascular diseases, diabetes, and hypertension. Findings presented in this study may not be generalizable to COVID-19 patients without brain complications since this study mainly included acute COVID-19 patients that more likely had neurological complications. The study may also have failed to detect some COVID-19-related focal brain alterations (for example, brainstem and cerebellum alterations since CT imaging may not evaluate these regions well). Lastly, there were no imaging data prior to COVID-19 to compare.