AAMC Novel Coronavirus Update
August 5, 2020

To help filter through the large volume of news about the novel coronavirus, Ross McKinney Jr., MD, AAMC chief scientific officer, with assistance from his team in the Scientific Affairs unit at the AAMC, has initiated this science-focused newsletter. This newsletter will be published once per week on Wednesdays.

Opt-in to receive future updates.

Contact AAMC Senior Science Policy Specialist Amanda Field, PhD, with any other questions or requests.

To access the latest AAMC updates and resources on COVID-19, visit aamc.org/coronavirus. For resources on COVID-19 medical research, read more here.

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Today’s Numbers

- World: 18,585,774 confirmed cases (701,665 deaths)
  - 1,800,000 new cases this week (1,740,000 new cases last week)
- United States: 4,775,621 (156,906)
  - 415,000 new cases this week (453,000 new cases last week)
  - 7,417 deaths this week (7,143 deaths last week)
  - 58,239,438 total tests
- U.S. Hot Spots
  - Hawaii: 726 new cases in the past week (39% increase in the past week)
  - Virgin Islands: 96 (25%)
  - Puerto Rico: 3,590 (22%)
  - Alaska: 597 (21%)
  - Montana: 638 (17%)

For the most up-to-date data, refer to the Johns Hopkins COVID-19 Map. Details of other U.S. hot spots can be found at the Washington Post's coronavirus data webpage.

The Institute for Health Metrics and Evaluation at the University of Washington Medicine is projecting hospital resource use in the United States based on COVID-19 deaths.

Lead News

The question of reopening schools this fall might have been resolved by a Centers for Disease Control and Prevention evaluation of a summer camp outbreak in Georgia.
children attended the overnight camp that opened June 17, but on June 24, after an index case (the case that exposes others) of a staffer was identified, the camp was closed and many campers were tested. Test results were available for 344 attendees, of which 260 (76%) were positive. The overall attack rate (the percentage of people who are infected in an at-risk population during a specific period of time) was 51% for children 6-10 years old, 44% for children 11-17 years old, and 33% for young adults 18-21 years old. [Editor’s comment: The attack rate was calculated based on the total camp population, not just children who were tested. The actual attack rate was certainly higher since many children were not tested. At this camp, the campers were not required to wear masks. It is now unequivocal that children can spread SARS-CoV-2 rapidly and efficiently. I very much doubt schools should, or will, reopen to normal schedules until the epidemic is under better control.]

Layered onto the demonstration that SARS-CoV-2 can spread in youth camps, schools across the country have been challenged by efforts to open. Schools in Indiana and Georgia have encountered difficulties as they tried to open. In Israel, a country where COVID-19 was well controlled, the reopening of schools catalyzed an outbreak of 180 students and staff.

Treatment News

The Johnson & Johnson adenovirus 26 vector-based vaccine was able to produce protective immune responses after a single dose in rhesus macaques. The researchers correlated vaccine-induced neutralizing antibody with protective efficacy, but human studies are underway that will better define the nature of the vaccine’s potential.

Novavax’s adjuvanted-spike protein COVID-19 vaccine completed its Phase 1/2 study. The vaccine was studied in a two-dose regimen, and like most of the SARS-CoV-2 vaccines tested to date, it had some side effects, including local pain, headache, fatigue, and myalgias. After two doses, all subjects had detectable neutralizing antibody responses. The spike protein administered with an adjuvant was effective at lower doses than the spike protein alone. [Editor’s comment: Again, this is a case of data mostly presented in a press release rather than in an article. The company reports the data has been submitted for publication in both a peer-reviewed journal and a preprint server.]

The National Institutes of Health (NIH) has begun a Phase 3 trial under its Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) program “designed to expand to test multiple different kinds of monoclonal antibody treatments." COVID-19 patients at select hospitals can now volunteer to participate, and if a treatment is showing promise, more volunteers can be enrolled mid-trial.

Four former Food and Drug Administration (FDA) commissioners called for controlled clinical trials to demonstrate that convalescent plasma might be an effective treatment for COVID-19. [Editor’s comment: The commissioners are exactly right. The standard of care has evolved so quickly that doing an appropriate study is nearly impossible in the United States, but in this case, the standard of care lacks a solid foundation of evidence. If convalescent plasma works, the benefits should be obvious quickly, including when to use it and how to use it (i.e., dosage).]

The administration’s “Operation Warp Speed” initiative will fund Sanofi and GlaxoSmithKline to develop and produce their vaccine candidate, which begins human trials in September.

Washington Post: Getting a Coronavirus Vaccine in Record Time Is Hard. Distributing It to
Tens of Millions May Be Equally Daunting.

New York Times: Scientists Worry About Political Influence Over Coronavirus Vaccine Project

New York Times: ‘The Biggest Monster’ Is Spreading. And It’s Not the Coronavirus. (Tuberculosis Kills 1.5 Million People Each Year, Lockdowns and Supply-Chain Disruptions Threaten Progress Against the Disease As Well As H.I.V. and Malaria.)

Clinical News

Experts weighed in on the most effective mask-wearing practices, the psychology behind not masking, and how to communicate its importance for AAMCNews.

Because research suggests that SARS-CoV-2 can likely be passed through tiny aerosolized droplets as well as through larger, heavier droplets, efforts to promote good ventilation indoors could be just as important as social distancing, mask-wearing, and hand-washing. [Editor’s comment: The discussion about whether aerosols are as important as larger droplets is essentially an argument about where to draw a cutoff line in a bell curve. There’s always going to be a tail. Tiny aerosolized droplets (aerosols) dry more quickly and are more susceptible to ultraviolet (UV) light inactivation than larger droplets, which fall to the Earth more rapidly. This fragility is one reason the outdoors is a safer environment. The light aerosols dry quickly, are quickly dispersed, and are more easily UV-inactivated. Indoor ventilation and filtration are probably useful, although wearing masks and engaging in fewer activities that generate aerosols (such as singing and loud speaking) is also useful.]

Evidence is mounting that a significant number of COVID-19 patients will have persistent symptoms after the initial phases of the disease. Some problems, like heart damage, are particularly alarming since they may be permanent. Others, like “brain fog,” make life particularly difficult and their duration is ill-defined.

Researchers from the University of California, San Francisco, School of Medicine and Johns Hopkins Bloomberg School of Public Health discussed the theory that masks affect virus inoculum size as a means to decrease symptomatic COVID-19 disease.

NIH Director’s Blog: What We Know About COVID-19’s Effects on Child and Maternal Health

Policy News

A study in JAMA examined whether statewide school closure was associated with decreased incidence and mortality of COVID-19. A model derived from a U.S. population-based time series analysis from early March to early May found that there were “128.7 fewer cases per 100,000 population over 26 days and ... 1.5 fewer deaths per 100,000 population over 16 days.” The AAMC’s Road Map to Reset the Nation’s Approach to the Pandemic addresses school reopening.

Another study in JAMA found that in order for students to return to college safely, they should be tested every two days.

The National Academies of Sciences, Engineering, and Medicine provided promising
strategies based on rapid expert consultation on encouraging protective barriers to mitigate the spread of COVID-19 and staffing considerations for crisis standards of care.

**Science: Global Plan Seeks to Promote Vaccine Equity, Spread Risks**

Melinda Gates made recommendations for the government to address how the pandemic is affecting women and girls.

**Governors of Maryland, Louisiana, Massachusetts, Michigan, Ohio, and Virginia Announce Major Bipartisan Interstate Compact for Three Million Rapid Antigen Tests**

## Coronavirus and Health Equity

New data and analyses continue to highlight the disproportionate health and economic impacts COVID-19 is having on members of diverse, marginalized communities, including minority and socioeconomically disadvantaged children. The Centers for Medicare & Medicaid Services released new data on July 28 that confirms “the COVID-19 public health emergency (PHE) is disproportionately affecting vulnerable populations, particularly racial and ethnic minorities ... due, in part, to the higher rates of chronic health conditions in these populations and issues related to the social determinants of health.” Mainstream media continue to chronicle the lack of testing in Latinx communities, the intensification of economic racism against Black Americans, the lack of intensive care unit beds in low-income neighborhoods, and how the nation has overlooked the devastation in Native American populations. Two new Perspectives in *JAMA Internal Medicine* summarize the risks, data, and potential interventions for carceral populations and immigrant communities.

During an interview with BET, Anthony Fauci, MD, director of the National Institute of Allergy and Infectious Diseases, acknowledged COVID-19’s “double whammy” against minority communities. He noted, “The African American community is more likely to be in a job that does not allow them to stay at home and do teleworking most of the time, they’re in essential jobs. You may be in a financial or economic or employment situation where you don’t have as much control or physical separation, which is one of the ways that you prevent infection.”

In an recent letter to *Nature Ecology and Evolution*, a group of international researchers warned that COVID-19-related job losses could pose “disproportionate existential threats” to scientists from groups underrepresented in STEM, including racial and ethnic minorities and those from lower socioeconomic backgrounds. Iris Wagstaff, director-at-large of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, says, “Across the board, our students, postdocs and early-career researchers of colour who study science, technology, engineering or maths (STEM) are losing funding, and their job searches are interrupted.”

**Metro Weekly: California Starts Tracking LBTQ Data for COVID-19 Patients**

**Washington Post: Health Illiteracy Is Nothing New in America. But the Pandemic Magnifies How Troubling It Is.**

**AP: Virus Testing Turnaround Times Reveal Wide Disparity**

**National Center for Advancing Translational Sciences Director’s Corner: Translation for All**
A research letter in *JAMA Pediatrics* found that children younger than 5 years old had high titers of SARS-CoV-2 in their nasopharyngeal samples, as much as 10-100 times the titer levels of older children or adults (who were comparable). [Editor’s comment: The article, which drew considerable attention, has several shortcomings. First, there is no prevalence data. To be included in the study, the entrance criteria were to be infected and to have mild to moderate symptoms. The researchers found 46 children younger than 5 years old who were infected — but they did not provide data on the proportion of pediatric samples that were positive or negative in the time interval studied. Second, it’s unknown if there were differences in how the pediatric samples were acquired and transported. The researchers received samples from several sources, which raises a question of whether the pediatric samples were transferred more efficiently to the pediatric lab than the adult samples, since SARS-CoV-2 titers can decline in samples with time and temperature. Third, many patients (55 subjects) were excluded for a variety of reasons. However, given all those concerns, it is still significant that some children have high titers of SARS-CoV-2 RNA in their nasopharynx. With most viral diseases, these high titers would be associated with more transmission, though this is not yet known for SARS-CoV-2. We don’t know whether these high titer children were the exception or the norm. Most previous studies have found that relatively fewer young children are infected than teenagers or adults and that their infections are not drivers of intrafamilial spread.]

A paper in *Nature* found that T cells, an essential part of the immune system, that are equipped to attack SARS-CoV-2 exist in 83% of people with COVID-19 and also exist in 35% of healthy people. Previous infections by related coronaviruses may have primed these T cells against SARS-CoV-2. It is still unknown whether these primed T cells protect against SARS-CoV-2 in the real world.

A study from Yale characterized the contribution of immunological “misfiring” in the pathogenesis of COVID-19. The researchers performed serial studies on 113 patients with moderate or severe COVID-19 and found that an early elevation in cytokine concentrations was associated with worse disease outcomes.

*NIH Clinical Trial to Test Antibodies and Other Experimental Therapeutics for Mild and Moderate COVID-19*

*NIH Director’s Blog: Exploring Drug Repurposing for COVID-19 Treatment*

A study in *JAMA* that collected data from videos in public places found that mandatory mask policies increased mask-wearing and, by doing so, decreased face touching.

*Science* offered an excellent short review of the pathogenesis of SARS-CoV-2 written by Nicholas Matheson and Paul Lehner.

*STAT: ‘A Huge Experiment’: How the World Made So Much Progress on a COVID-19 Vaccine So Fast*

*JAMA Internal Medicine: Experiences of Home Health Care Workers in New York City During the Coronavirus Disease 2019 Pandemic*


*Science: Genomic Surveillance Reveals Multiple Introductions of SARS-CoV-2 into...*
Testing News

The NIH’s Rapid Acceleration of Diagnostics (RADx) initiative has awarded $248.7 million in contracts to diagnostic companies for the timely development of novel SARS-CoV-2 testing technologies. The contracts have been awarded to seven biomedical diagnostic testing companies to support the development of several different testing platforms with the hope that this will substantially increase U.S. testing capacity.

The FDA issued emergency use authorizations (EUAs) for two new indications of COVID-19 testing — screening of people without symptoms and surveillance screening. The EUA includes the option to use pooled samples, which are useful when the prevalence of COVID-19 is low in a population.

Other COVID-19 News

The United States is in worse shape than it was in March, with several COVID-19 epicenters. Ambassador Deborah Birx, MD, White House Coronavirus Task Force coordinator, stated that the coronavirus is “extraordinarily widespread” now and that because it is in both rural and urban areas, everyone in the United States should be wearing masks and social distancing. July marked the worst month on record for new infections and cases are increasing in the Midwest.

Atlantic: How the Pandemic Defeated America (A Virus Has Brought the World’s Most Powerful Country to Its Knees.) [Editor’s comment: Read this superb article!]

Don’t be fooled into thinking you are safe if you see a well-scrubbed facility — evidence points to COVID-19 being mostly spread through the air. Wiped-down gym equipment does not protect against airborne particles.

Front-line health workers, elected officials, and experts in Houston, South Florida, and other new COVID-19 hot spots are reporting that young people who work outside their houses or visited bars and restaurants when states relaxed shutdowns are infecting the older people they share homes with, especially family members.

STAT: Medical Nonprofits Are Hard-hit as the Pandemic Upends Crucial Fundraising

GAO Watchblog: The Tech Behind COVID-19 Contact Tracing

STAT: COVID-19 Apps and Wearables Are Everywhere. Can They Actually Benefit Patients?

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