AAMC Novel Coronavirus Update
June 24, 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.

If you would like to opt-in to receive future updates, add your name, email, and institution to this survey.

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.

Please share/forward this newsletter freely.

Today's Numbers

- World: 9,295,365 (478,289 deaths)
  - 1.13 times the number of cases and 1.07 times the number of deaths over the past week
- United States: 2,348,956 (121,279)
  - 1.10 times the number of cases and 1.04 times the number of deaths over the past week
  - 28,065,065 total tests
- U.S. Hotspots
  - Arizona: 17,255 new cases in the past week (42% increase in the past week)
  - South Carolina: 6,021 (29%)
  - Florida: 20,784 (25%)
  - Texas: 24,035 (25%)
  - Oklahoma: 2,124 (24%)

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

The Institute for Health Metrics and Evaluation (IHME) at the University of Washington Medicine is projecting hospital resource use in the United States based on COVID-19 deaths.
[Editor’s comment: Politically motivated claims that the COVID-19 wave is passing are clearly false, as evidenced by rising numbers of coronavirus hospitalizations in many states, with seven having record hospitalization numbers. This surge is making it difficult to reconcile a strong desire to return to “normal.” If we all wore masks in public places, combined with social distancing, we could probably reopen the economy and still have fewer cases. The failure of government leadership to promote mask use has been lethal, as hospitalization and fatality rates demonstrate.]

Public health and research experts say that discussion about whether the United States has entered a second wave of the coronavirus is irrelevant, as the first wave has not yet ended. “[U]nfortunately for us, we still are in the first wave [of COVID-19] because even though there’s variability throughout the country, where some places like New York City are going very nicely down, staying down so that they can start to reopen, simultaneously, we’re seeing in certain states an increase in cases and even now an increase in some of the states of hospitalization,” said National Institute of Allergy and Infectious Diseases Director Anthony Fauci, MD.

* Bloomberg: We Will Be Living With the Coronavirus Pandemic Well Into 2021 *

** Treatment News **

Gilead Sciences is about to start Phase I safety clinical trials of an inhaled version of remdesivir. Because the drug is currently only administered intravenously, an inhaled version of the drug would make it easier to take it outside of the hospital and at earlier stages of the disease. [Editor’s comment: While an inhaled version of the drug might be convenient, a technical challenge exists to generate appropriately sized droplets to reach the absorptive surfaces of the alveoli. Some patients might find the drug to be an irritant.]

In the United Kingdom, scientists at Imperial College London will begin a trial of their experimental coronavirus vaccine in 300 healthy people. The Imperial College vaccine uses a technology called “self-amplifying RNA” to induce production of SARS-CoV-2 spike proteins to which the individual then produces antibodies. The technology is novel and has not been used in an approved vaccine before. The study will begin with 15 healthy volunteers who will receive escalating doses. After a safe dose is established, the larger trial will begin enrollment.

A study of 20,000 hospitalized COVID-19 patients who were given transfusions of blood plasma from people who recovered from the virus has shown that the convalescent plasma treatment was safe and could be beneficial if administered to patients early during the infection. [Editor’s comment: Unfortunately, the study was done with no control group, so it’s not clear whether the use of convalescent plasma has any benefit. It is, however, apparently safe.]

Gilead Sciences has announced that it will soon begin a Phase 2/3 clinical trial of remdesivir in 50 hospitalized pediatric patients. Pediatric patients generally have a milder course of COVID-19, so this study is primarily to gather data about the drug’s safety and pharmacokinetics in children. [Editor’s conflict of interest comment: The editor of this newsletter is a Data and Safety Monitoring Board member for this study.]
Sanofi Pasteur and GlaxoSmithKline (GSK) will begin Phase 1/2 clinical trial testing of their coronavirus vaccine candidate in September rather than December. The Sanofi-GSK vaccine uses a purified protein in combination with an adjuvant (immune response booster). Sanofi is also planning a human trial of an mRNA vaccine candidate it has developed with TranslateBio late in the year.

*Science* compares the vaccine testing strategies of the Trump administration’s “Warp Speed” initiative and the World Health Organization (WHO).

While dexamethasone appears to be beneficial for the treatment of lung inflammation during a COVID-19 infection, physicians raise cautions against *embracing the drug too quickly*. Part of the issue is that the success of the treatment was only announced through a press release, so *the research community has not yet had a chance to scrutinize the data* outside of the peer review process. The WHO advises that *dexamethasone only be used for severe cases*.

*Medscape: WHO Recommends Breastfeeding, Says No Live Coronavirus Found in Mothers’ Milk*

*Nature Reviews Drug Discovery: Immune Status Could Determine Efficacy of COVID-19 Therapies*

**Clinical News**

In some cases, *COVID-19 symptoms can last for several months* in patients who have dubbed themselves “long-haulers.” While these patients do not need to be hospitalized and so their cases are considered mild, “their lives have nonetheless been flattened by relentless and rolling waves of symptoms that make it hard to concentrate, exercise, or perform simple physical tasks.” Long-haulers not only contend with a difficult disease, they often must deal with disbelief from their doctors or friends and family.

Several studies have evaluated antibody generation during the immune response to SARS-CoV-2 infection, including a recent study in *Nature Medicine* that found that *neutralizing antibodies may only be present for two to three months after infection*, especially in asymptomatic patients. [Editor’s comment: The degree of antibody response in all patients appears to correlate with the degree of symptomatology, with the assumption that there is less viral replication and a lower antibody response as a result. Evaluating pathogenesis questions, such as how antibody production is stimulated, will be important in vaccine development. It will be critical to determine what actually constitutes protective immunity and how to measure that protection has been achieved.]

A study published online in *Science* last week describes the potential for an antibody drug cocktail to attack multiple sites on the SARS-CoV-2 spike protein, blocking the virus’s ability to infect host cells. Multiple, noncompeting antibodies affecting different sites on the spike protein make it more difficult for viral mutations to evade or escape the neutralizing action of a single antibody — a principle successfully demonstrated in drug cocktails for HIV and Ebola. A separate paper describes the use of *humanized mice to generate SARS-CoV-2 antibodies*, which are compared to antibodies from human convalescent serum. Both papers were published by researchers at the firm Regeneron, which this month began human trials of its antibody cocktail. [Editor’s comment: We described this in principle in last week’s edition of this newsletter but did not cite the
**STAT: How Likely Are Kids to Get COVID-19? Scientists See a ‘Huge Puzzle’ Without Easy Answers**

The National Institutes of Health (NIH) National Cancer Institute director Ned Sharpless, MD, wrote an editorial on how to minimize the pandemic’s effect on cancer outcomes. Cancer physicians agree that screenings should continue during the pandemic to avoid a second health crisis.

**Policy News**

The Food and Drug Administration (FDA) has issued an advisory that consumers should not use hand sanitizer products manufactured by Eskbiochem. The sanitizers contain the toxic chemical methanol instead of the safer and more widely used ethanol.

A report from the Centers for Disease Control and Prevention (CDC) about public attitudes in early May “found widespread support of stay-at-home orders and nonessential business closures and high degree of adherence to COVID-19 mitigation guidelines. Most respondents reported that they would feel unsafe if restrictions were lifted at the time of the survey.”

A study in the BMJ about Sweden’s unusual approach to COVID-19, which has been to stay open but encourage social distancing and other mitigating practices with the hopes of creating herd immunity, shows that the strategy has resulted in the highest number of deaths per capita in Europe from May 25 to June 2 while remaining far from achieving herd immunity.

A study in Health Affairs examined the natural experiment of states’ mask mandates on community spread of COVID-19. The study estimates that between 230,000 and 450,000 potential COVID-19 cases were averted by May 22 from the imposition of state mandates.

**NIH Director’s Blog: Public Health Policies Have Prevented Hundreds of Millions of Coronavirus Infections**

**Coronavirus and Health Equity**

The Centers for Medicare & Medicaid Services has released new billing data that showed that both race and poverty are predictors of who tests positive and gets hospitalized for COVID-19. Patients who are dually eligible for both Medicare and Medicaid, often used as a proxy for poverty, were four times as likely to have been infected or hospitalized than those on Medicare alone. The same data set shows that racial inequities persist even among similarly insured patients: Black Americans enrolled in Medicare were hospitalized for COVID-19 at almost four times the rate of White Medicare beneficiaries.

Using data from Coders Against COVID, a new analysis by Axios finds continued racial/ethnic inequities in access to coronavirus testing. ZIP codes where the population is at least 75% White have an average of 1 testing site per 14,500 residents. Conversely,
ZIP codes that are at least 75% people of color only have 1 site per 23,300 people. Importantly, these data only include ZIP codes with at least 1 testing site — as a recent analysis by the Surgo Foundation found, nearly 2/3 of all rural counties have no testing sites at all, exacerbating rural/urban inequities in testing.

JAMA recently published one study documenting that SARS-CoV-2 transmission among pregnant women in New York City was associated with economic and housing factors, and another study which found that more than 42% of Latinx people tested for the disease in the Baltimore-Washington, D.C., metro area were positive — a significantly higher proportion than for other racial/ethnic groups.

Two Science letters look at the historical role of creating inequality and comparing that to how COVID-19 is affecting Native American populations and U.S. immigrants.

HHS Announces Partnership with Morehouse School of Medicine to Fight COVID-19 in Racial and Ethnic Minority and Vulnerable Communities

New York Times: Coronavirus Cases Rise Sharply in Prisons Even as They Plateau Nationwide

Research News

The CDC has issued a statement forecasting that by July 11 there could be as many as 145,000 total reported deaths in the United States from COVID-19, according to its modeling. The statement offers an assessment by state, suggesting that the number of new deaths over the next four weeks in Alaska, Arizona, Arkansas, Florida, Hawaii, North Carolina, Oregon, South Carolina, and Utah will likely exceed the number reported over the previous four weeks. Additionally, the IHME at the University of Washington Medicine has forecasted over 200,000 U.S. deaths by October.

A non-peer-reviewed preprint used CRISPR-Cas9 gene editing in monkey cells to identify new genes that might be involved in coronavirus infection. This information could lead to new therapies and help explain why some people are more susceptible to COVID-19 than others.

The CDC presented a useful analysis of case clusters in Japan. They identified 61 clusters and 22 primary-case patients, most of whom were asymptomatic (or pre-symptomatic) 20- to 29-year-old patients.

JAMA: Effects of Sterilization with Hydrogen Peroxide and Chlorine Dioxide on the Filtration Efficiency of N95, KN95, and Surgical Face Masks

IHE: Study Examines How Spring Break Spread COVID-19

Nature: Coronavirus Misinformation, and How Scientists Can Help to Fight It

STAT: An App for Football Fans Became a Digital Contact Tracing Tool — and Could be a Litmus Test for COVID-19 Technology
News

The FDA has released a template on the validation of molecular tests for developers intending to use assays for pooling patient samples/screening asymptomatic individuals for COVID-19. The FDA outlines the steps for a test to be authorized for broad screening of asymptomatic individuals, including the agency's validation expectations.

Scientists from the NIH and the CDC determined during a workshop on serology tests that “additional research is needed to determine if and to what extent a positive antibody test means a person may be protected from reinfection with SARS-CoV-2,” and that until more is known, “serology tests should not be used as a stand-alone tool to make decisions about personal safety related to SARS-CoV-2 exposure.”

Scientific American gives a good explanation of false positive and negative tests and how even low percentages of each can cause big problems.

Other COVID-19 News

The WHO reported “the largest single-day increase in coronavirus cases” globally on June 21, “at more than 183,000 new cases in [the previous] 24 hours.” According to the WHO’s count, in the United States, “the virus appears to be spreading across the West and South. Arizona reported over 3,100 new infections, just short of Friday’s record, and 26 deaths. Nevada also reported a new high of 445 cases.” Latin America is also seeing a rapid increase in the number of cases.

New York Times: Nursing Homes Represent More Than 1 in 4 COVID-19 Deaths

The New England Journal of Medicine offers an excellent summary article on the manifold challenges of reopening workplaces.


Vox: Remember the N95 Mask Shortage? It’s Still a Problem.

Wired: What Minnesota’s Protests Are Revealing About COVID-19 Spread

Reuters: Italy Sewage Study Suggests COVID-19 Was There in December 2019


For questions, contact Amanda Field, PhD, AAMC senior science policy specialist.

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