AAMC Novel Coronavirus Update
April 29, 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 a new, science-focused newsletter. This limited-run newsletter will be issued every Monday, Wednesday, and Friday for the foreseeable future.

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.

Please share/forward this newsletter freely.

Today's Numbers

- World: 3,141,981 (218,564 deaths)
  - 1.2 times the number of cases and 1.2 times the number of deaths over the past week
- United States: 1,014,568 (58,471)
  - 1.2 times the number of cases and 1.3 times the number of deaths over the past week
  - 5,795,728 total tests
- U.S. Hotspots:
  - New York: 295,106 (22,912)
  - New Jersey: 113,856 (6,442)
  - Massachusetts: 58,302 (3,153)
  - Illinois: 48,102 (2,125)
  - California: 46,446 (1,875)

For the most up-to-date data, refer to the Johns Hopkins COVID-19 Map.

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
Reports of rare but significant complications of COVID-19 are continuing to be released. One study found that patients with preexisting cancers that affect the blood and lungs are nearly three times more likely to die of COVID-19, and a small number of infants in Europe with COVID-19 have been admitted to hospitals with signs of severe inflammatory disease.

An analysis of recent federal data shows a high number (15,400) of excess deaths — the number beyond what would normally be expected — in the United States in March, during which time 8,128 coronavirus deaths were reported. While the researchers explain that it’s impossible to attribute all the excess deaths to COVID-19, they view it as a starting point to getting a more accurate picture of the true death toll in this time frame. [Editor’s comment: It’s important to remember that the 2019-2020 flu epidemic was particularly widespread, which likely contributes to the high number of excess deaths in this analysis. It is probably not possible to distinguish between the flu and the coronavirus when determining deaths from diseases labeled as “influenza-like illness” over this winter and spring, so this analysis may not be very helpful when trying to determine the coronavirus death toll.]

**Treatment News**

One of several candidate SARS-CoV-2 vaccines has been successfully tested on six monkeys, with this vaccine coming from Oxford University. In addition to these hopeful results, this potential vaccine has already passed the first phase of the regulatory approval process, as it was shown to be safe in a small clinical trial in humans last year when it was tested for use against another coronavirus. The research group has now scheduled trials involving more than 6,000 people in the next month to test if the potential vaccine is effective in protecting against COVID-19 in humans — the next step once a vaccine is shown to be safe. If shown to be effective in people, the researchers state they could have a few million doses ready by September. Even if this vaccine is successful, additional vaccines will likely still be necessary as different vaccines may be more effective in different populations.

Gilead Sciences says that a federal study has demonstrated efficacy in COVID-19 for its drug remdesivir, an antiviral drug, and more data and information is being released as we go to press.

**Clinical News**

Case fatality rates are a difficult marker to use in the midst of an epidemic. They reflect the number of deaths attributed to a disease divided by the number of cases of the disease. Neither figure is likely to be accurate for many reasons, only one of which is well-characterized in this article in the Hill. Deaths caused by SARS-CoV-2 may not be attributed to the virus for several possible reasons: because no one does a diagnostic test, because the diagnostic test gave a false negative, or because the individual never entered the health care system for COVID-19 care. The denominator — cases — is flawed by the same problems. In this case, the author notes that cases are found sooner than deaths because it takes a while after the diagnostic test for the patient to die. While this is true, the delay — a few weeks — is short term, while the other problems related to ascertainment are far more numerically significant.

NEJM Catalyst: Lessons from CEOs: Health Care Leaders Nationwide Respond to the Covid-19 Crisis
**Policy News**

Bipartisan public health leaders sent a letter to congressional leadership to ask for support "to allow states to track and isolate infected populations," which will be a vital part of safely reopening the economy." The letter asks that the White House back a $46.5 billion effort to hire an army of 180,000 contact-tracers, book blocks of vacant hotel rooms so Americans sick with Covid-19 can self-isolate, and pay sick individuals to stay away from work until they recover.

Credited with early testing and other measures that slowed the spread of COVID-19, Germany is wrestling with the decision of when and how to gradually reopen the nation’s economy. Several German states began lifting restrictions last week, and a leading German virologist complains, “I think that has destroyed our chances of becoming a European South Korea.” The United States is wrestling with the same decision, with several states at odds with federal recommendations. A state-by-state analysis shows that many states are nowhere near the level of testing needed for a safe reopening.

*Nature: Whose Coronavirus Strategy Worked Best? Scientists Hunt Most Effective Policies*

**Coronavirus and Health Equity**

Lack of housing or food security and exposure to trauma, stress, and other factors attendant to poverty, which have a long history in African American and other vulnerable populations in the United States, demonstrably increase the risks and burden for COVID-19, but the pandemic is also spotlighting how social determinants of health (SDOH) affect so many other illnesses or afflictions. Health care systems and providers work to integrate an understanding of the SDOH into comprehensive care.

“The food choices we make every day have a profound long-term impact on virtually every aspect of our well-being,” including COVID-19. The Centers for Disease Control and Prevention is charting how obesity and diabetes contribute to a dramatic spread of the coronavirus — and how this makes children and young people particularly vulnerable.

The Johns Hopkins coronavirus resource center, which provides up-to-date data on the number of cases, deaths, and other trends of the pandemic, is also providing a map that shows which states have released data on testing, confirmed cases, and deaths by race. While the map shows which states have reported data, the data itself is not available on the Johns Hopkins site.

*JAMA: Prevalence of SARS-CoV-2 Infection in Residents of a Large Homeless Shelter in Boston*

*Gallup Poll: In U.S., 14% With Likely COVID-19 to Avoid Care Due to Cost*

**Research News**

A non-peer-reviewed preprint study of self-reported COVID-19 symptoms collected by an app suggests that which symptoms a patient has is partly due to genetics. Researchers “employed machine-learning algorithms, together with data from the 2.7 million app users
— many of whom have been tested for coronavirus — to work out the combination of symptoms that indicate an individual is likely to have Covid-19.” They also asked thousands of twins in the United Kingdom to use the app. The researchers calculated that about 50% of the differences in symptoms that people experience is due to genetic differences, based on the greater similarity of symptoms in identical twin pairs compared to nonidentical twins.

NIH Director’s Blog: Capturing Viral Shedding in Action

Testing News

While the Trump administration released a plan on Monday “to increase capacity for coronavirus tests nationwide," “hospitals, clinics and point-of-care medical centers across the country continue to grapple with critical shortages in testing supplies" that have limited the number of tests they conduct.”

More SARS-CoV-2 antibody surveys are being released online, but the interpretation of them is generally flipped from what it should be. The focus of most articles has been on how many more people had antibodies (indicating a past infection) than had documented infections, but the rates are still low for both antibody seroprevalence and reported disease to achieve herd immunity. In one New York City study, the seroprevalence was around 25%, but that means 75% of people are still susceptible. For most of the country, the seroprevalence rates are probably <5%. This issue is well reviewed in the Atlantic.

NIH Director’s Blog: Capturing Viral Shedding in Action

Remember to be skeptical of the flood of studies on COVID-19. An op-ed by prominent biomedical researchers warns against quick acceptance of non-peer-reviewed studies that imply the mortality rate of COVID-19 is lower than expected and explains their concerns with the methodologies behind two such studies. Another article on recent seroprevalence studies discusses the distinction between case fatality rate (CFR) and infection fatality rate (IFR) to make the point that the oft-quoted death rate for influenza, 0.1%, is a case fatality rate, while the use of antibody studies to define the denominator for COVID-19 death rates gives an infection fatality rate. CFRs for an infectious disease are always larger than IFRs — there are fewer cases reported than infections since some infections don’t reach the level of symptoms needed to be reported as cases — but in the case of COVID-19, the IFR is larger than the CFR for influenza. It is, thus, a much more lethal disease.

Harvard Wyss Institute: Wyss-Designed Swabs Enter Human Trials for COVID-19

Other COVID-19 News

The nation has placed high expectations on health care workers, especially considering that so many of them are working in settings where their own safety is compromised due to lack of personal protective equipment.

The Hill: Learning from COVID-19 for the coming pandemics

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

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