



July 7, 2020

To: Distribution

From: Pandemic Working Group

Re: **COVID-19: Aerosols Pt II ~ Autopsy Data ~ Brazil ~ News Shorts**

Aerosols Revisited. You may have noticed that the subject of transmission of coronavirus by aerosols – tiny, sub-5-micron-sized viral particles suspended in the air – has caught the attention of the mainstream press. Over the past three days, the New York Times has reported that a group of over 200 scientists has petitioned the World Health Organization to countenance aerosol transmission as a potential pathway for coronavirus. It seems that WHO has been fairly fixated on highly-virulent droplets (e.g., from sneezing or coughing) as the primary culprit. What is the difference? For the answer, let us turn to our advisory of May 29, in which we reported on UCSD's Kimberly Prather, who runs an entire lab dedicated to the study of aerosols as saying, "that when a person sneezes or coughs, large droplets laden with viral particles are expelled, but typically fall to the ground within seconds. By contrast, viruses released through talking would more likely take the form of aerosols, which, while being far less potent than those released by a sneeze or cough, could still hang in the air currents longer."

We reported further that "As a defense against aerosol transmission, Dr. Prather highly recommends – as does the CDC – that we wear face coverings whenever we are in public or expect to be in enclosed spaces with non-family members for extended periods of time." NYT hastens to add that, in addition, we should continue to observe social distancing, washing of hands and, as important, when indoors for more than a short period, ensure that there is proper ventilation and air treatment (as, for example, in our Newport facility). Where possible, open doors or windows. If you are going to a restaurant, try the patio. The above photo from NYT shows patrons of a local, indoor pub in the UK – at this point, it would be best to avoid this kind of scene.



What Autopsies Show. In an interesting piece reported by the Washington Post, pathologists who have done autopsies on deceased coronavirus patients are beginning to report their findings. NYU's Amy Rapkiewicz discovered rare cells typically found only in dengue fever patients which inhibit platelet production, thwart clotting and can lead to uncontrolled bleeding. Mary Fowkes of Mount Sinai Health studied brain tissue, and, while expecting to find a neurological pathology, instead found that blood clots and oxygen deprivation were likely occurring early in the disease.

LSU's Richard Vander Heide, who studied lung tissue, found hundreds or thousands of blood clots, leading many doctors to administer blood thinners to patients. And, in the face of multiple reports of neurological issues (disorientation, sleepiness, coma) in COVID patients, autopsies on brains have revealed large swaths of damage due to oxygen deprivation and the widespread presence of tiny clots. While these findings do not directly correlate to treatment standards, they are beginning to point in the direction of supplementary oxygen and anticoagulants as potential means of reducing the severity of this virus.

Bolsonaro in a Mask. Also as reported by the Washington Post, in a country with over 1.6 million cases and 65,000 deaths from coronavirus, Brazilian President Jair Bolsonaro has taken to wearing a face covering. Ever the controversial and colorful leader – as you can tell by the brightly-colored lettering of his last name beneath his own image on his mask (courtesy of Reuters) – Bolsonaro infamously described COVID-19 as a “little cold,” has consistently urged citizens to disobey local orders to close businesses and self-isolate and was wading into crowds of supporters as recently as last week without a mask. So why the face covering now? For two reasons. First, a court ordered him to do so. And second, he has tested positive for the disease. Bolsonaro reports that he is feeling well and, to his credit, is now self-isolating. The 65-year-old leader predicted last March that, with his history as an athlete, he wouldn't need to worry about this virus. Time will tell how well he bears the virus. At this stage, according to OurWorldInData.org, the seven-day rolling average of daily infections has begun to flatten out in Brazil, and, according to Forbes.com, the country continues to reopen. For now, they will do so with their leader in isolation.



News Shorts. As reported by NBCNewYork.com, Florida set a single day infection record of 11,400 on Saturday and has a positivity rate of about 18%, causing two conflicting reactions: Miami Dade County ordered a lockdown, while the state's Superintendent announced that all schools would be open for five-day-per-week sessions in August. Also, Atlanta Mayor Keisha Lance Bottoms tested positive for coronavirus. Dr. Anthony Fauci reported that the average age of infected persons in the US has dropped by 15 years over the past two months, citing outbreaks in the South and SouthEast. And in New York, Governor Andrew Cuomo approved the state's entry into Phase 3 reopening without indoor dining.

If you have any questions or comments on this advisory, please contact either kellyw@amvac.com or timd@amvac.com.