



May 11, 2020

To: All Domestic Employees

From: Pandemic Working Group

Re: **COVID-19: China & New Infections ~ Vaccine Development ~ On Handwashing**

China Reports New Infections. As reported by BBC, in a country that had enjoyed the status of being post-pandemic, five new cases were reported in Wuhan province near the same residential compound. These cases marked the first in that region since April 3. China had been easing restrictions in recent weeks. In addition, over the weekend, 11 new cases were reported in Shulan, which is near the borders of Russia and North Korea. Within a day, the government declared martial law in Shulan, closed all public places temporarily and is requiring all residents to stay at home with one family member allowed out each day to buy essentials. Also, all public transportation has been suspended in that city. As depicted in a photo from Reuters, daily subway riders in Beijing as of yesterday were still commuting to and from work while wearing masks. China, then, is managing the situation in a scalable fashion by containing outbreaks regionally. However, without a vaccine available, even they are susceptible to flare-ups of the disease.



Leaving No Stone Unturned. As reported by the New York Times on May 2, the search for a coronavirus vaccine has brought global attention and resources never before seen in medical research. Seven of over 90 projects have already reached clinical trials. Vaccines typically take ten to fifteen years of research and testing, and only about six percent of this type of project ever succeed. The current record (of just under four years) belongs to the mumps vaccine, which was approved by the FDA in 1967. In order to collapse the timetable, some researchers are conducting trials in parallel, rather than serially, and even pushing formulations into production in case they turn out to be viable. The pressure for speed has brought forth a call for “human challenge trials” where volunteers are injected with a vaccine and then deliberately exposed to the virus. This approach, as one can imagine, carries significant risk until it is known what level of the virus is safe for the inoculation.

Interestingly, researchers are following multiple approaches toward developing a vaccine, including i) a weakened virus, ii) a fragment of a viral protein or “subunit” vaccine (like the hepatitis or shingles vaccine), iii) a modified virus or “adenovirus” that has been engineered to be safe but will elicit a patient’s immune response to the coronavirus, iv) a viral vector vaccine – kind of a more actively propagating adenovirus, and v) DNA or RNA-based molecules, like mRNA 1273

from Moderna which, as we reported, is now in Phase 2 trials and is slated for Phase 3 as early as late summer. After a vaccine is shown to be efficacious and effective, then companies and institutes will shift to the challenge of making hundreds of millions or billions of specially packaged doses to be transported at sub-zero temperatures throughout the globe. As we will report further this week, the scientific and practical considerations alone are daunting enough but these are further complicated by geopolitical factors.

How and When to Wash Your Hands. As my mother used to say, “Repetitio mater studiorum est.” Really, she used to hit me with this expression apparently under the mistaken impression that I knew Latin. It means, “Repetition is the mother of education.” In furtherance of that advice, as quoted in Popsugar.com, according to infection disease expert Sandra Kesh, MD, “Next to getting



a vaccine, which doesn't yet exist for the coronavirus, hand washing is the most important way to avoid contracting a respiratory virus like coronavirus or influenza.” Similarly, CDC (from which this photo was taken) calls handwashing “one of the best ways” to prevent infection. Transmission from hand to mouth, eye or nose remains an important pathway for contagion, and studies show that, left to our own designs, we touch our faces over 20 times per hour. Except, that is, for chess masters, who

exceed that number.

How to wash hands – run water, use a quarter-sized amount of soap, rub hands for 20 seconds (sing two rounds of Happy Birthday, quietly please), rinse, turn off faucet with dry paper towel and then use a paper towel on the door handle. In a public facility, try not to touch any shared surface in the process.

When to wash hands – whenever you sneeze or blow your nose, before and after cooking, before and after eating, each time you come within six feet of a sick person, after touching or feeding an animal, after cleaning up after an animal or changing a baby's diaper, after using the toilet, after touching garbage.

And, at the risk of repeating myself, please keep your hands away from your face.

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