

THE ALCIVAX

Alcimed discusses battle plans as Humanity wages a world war against COVID-19, as the pressure builds in the West.

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Tracking the enemy

"If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle" - Sun Tzu's, The Art of War The WHO warns that the pandemic is accelerating but reminds us that there is still a chance to stop the virus, if we mobilize now.



The AI toolbox for predicting the spread

As New York City rapidly becomes the new epicenter of the outbreak with 5% of global cases we need to be able to understand and even predict the spread of the disease. This will only be accomplished by a massive effort to increase testing and other resources for tracking positive patients and carriers, which the US and UK are doing through AI, social media, and cell GPS tracking is used to see how well social distancing initiatives are working. Though the ethics of public surveillance needs to be discussed especially after interactive mapping has demonstrated why travel bans have been ineffective. Israel is also using AI to predict new infection clusters and China has an AI treatment decision tool. AI is also being used to mine the scientific literature for infection dynamics and AI-powered FluSense can listen to cough sounds and predict whether COVID-19 is the cause 81% of the time.



Test for success

Prediction of spread cannot replace actual testing, which has seen some innovative solutions. Cepheid's GeneXpert point of care test, takes about 45 minutes to deliver results with more than 23,000 deployed around the world. Mesa Biotech's rapid test takes only 30 minutes, relieving the strain on laboratories to run tests. Amazon and Bill Gates are piloting an at home testing service in Seattle, but questions raised about whether this is a good strategy.



Understanding the disease

Understanding how the disease presents even in early cases is critical for defeating COVID-19. Recent reports indicate two aspects of COVID-19 we may have overlooked before. Losing one's sense of smell or taste may be an early warning sign of infection. Additionally, one study suggests that COVID-19 may be capable of fecal-oral transmission, raising questions about whether or not our current avoidance and containment strategies are sufficient. Lastly, some good news. Three recent reports suggest that COVID-19 may be affected by the weather, with lower incidence at higher temperatures, less spread in tropical environments, but wind speed and relative humidity may also change spread. All of these studies are awaiting peer-review.

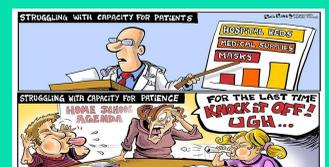


Personal liberty

Battling the virus in West looks very different from the battle against COVID-19 that has already taken place and won for now in the East. The stringent lock-downs massive testing efforts and quarantines in government run facilities are not easily replicated in the US and Europe's more open societies. In the West, leaders have to rely on their citizens to willingly participate, as evidenced by Angela Merkel's address to the nation calling COVID-19 "the biggest challenge since WW2". Germany, similar to other EU nations, aims at an initial 30-day shutdown, putting measures in place to brace for the economic impact of the lockdown.

Across the Atlantic, President Trump says he would like for the US to be open again by Easter, despite warnings from US health officials to prevent the brunt of the economic impact, which is estimated to result in 1M layoffs this month. In order to do this without worsening health outcomes, the use would need to increase its testing to up to 2.3M Americans and be willing to force all positives into an enforced quarantine in a government facility or commandeered hotel as seen in China. Placing this level of trust in the federal government seems unlikely in such a politically divided atmosphere and raises age old questions about the divide between civil liberty and the public health. In 2015, officials were heavily criticized for enforcing quarantines during the Ebola outbreak.

Cartoon by Gothard,
[Wisconsin State Journal](http://www.wisconsinstatejournal.com)





The arsenal

While most will have to wait a full year for a COVID-19 vaccine, Moderna Tx may be able to distribute vaccine to healthcare workers as early as this fall, as Moderna manufacturing will ramp up based on Phase 1 results.

AI may be the most effective weapon to fight coronavirus. AI technologies are proving to be very helpful speeding up the process of predicting which current and future drugs, (70 at current count), may control COVID-19 and keeping track of the 60 treatments, as well as 43 vaccines in development. Data science and machine learning have been among the most helpful tools.

Research Gate has redesigned their platform in order to aid in the effort to combat coronavirus. While the new platform aids in the accessibility and faster transfer of knowledge within the scientific community, it also provides free targeted job posting for recruitment and incorporates a collaborator finder tool to connect experts throughout the network.



Responsibility and unnecessary risk

We should continue to remain vigilant as to how much safety testing goes into proposed COVID-19 treatments and their emergency approval for use, after a man died using chloroquine to self-medicate. Additionally, repurposing these treatments too quickly is leading to stock outs for the patients that rely on these drugs for the treatment of other conditions, such as HIV in Nepal and other drugs whose raw materials come from China, as seen in the US and South Africa.

This may also be true of Baricitinib, a rheumatoid arthritis drug that has been identified as a potential COVID-19 treatment identified by London-based BenevolentAI.

Reports from the front lines

In the struggle to contain the virus here is what we are hearing from healthcare workers battling the virus directly:

- In every storm there is some good news: doctors in the Hubei province are pairing down operations and sending doctors home after almost 3 weeks of low numbers of cases per day. Lock down will continue until 15 days of no new cases are reported. As the majority of new cases are now coming from overseas, China has stepped up efforts to screen every passenger entering the country, equipping police officers with infrared helmets to screen temperatures of people walking by, and using cell phone QR codes to track whether people have been near a confirmed case. This is to prevent the resumption of community spread, which occurred in Hong Kong after it relaxed lock down procedures.
- As delivery workers in the US work through the pandemic without protective gear, Governor Cuomo is considering turning a large NYC convention center into a makeshift hospital to relieve an overwhelmed healthcare system of milder patients, but for now scarce tests are being reserved for healthcare workers.
- Hard hit areas like Italy are receiving additional aid with doctors from Cuba, Russia, and China, and medical supplies have arrived from the Czech Republic. This helps ease the strain from the number of doctors in Italy and now in France who have died from COVID-19.

On the home front

As during any war, the civilian response at home makes a huge impact on whether or not the war is won. Thus, car manufacturers BMW, Toyota, Aston Martin, Nissan, Volkswagen, Honda have stopped making cars, while Ford, GM, Vauxhall and Airbus switched production to making ventilators. Equally, the fashion industry pitches in to make masks. The global effort now also includes luxury brands Zara, YSL, Prada, Balenciaga, H&M, and Gucci. Beverage makers are also donating to the cause.

As in previous military campaigns, the war against COVID-19 is changing the way people shop for groceries, as grocery stores are an exposure risk, people have been switching to online delivery.

Combating isolation is good for morale, as is understanding panic buying, and a website will tell you exactly how much toilet paper you need.

The Tokyo Olympics will be in 2021 as more of a celebration of the end of the crisis.



All Joking Aside

As more people in the world go into isolation, some have already been in isolation too long. A man in Spain was caught on film by a neighbor violating quarantine in Spain but using a T-Rex outfit to protect himself. We didn't believe it till we say it either. Click to watch video on twitter.



Some musicians have developed the new hashtag #MusicinIsolation for people to play songs to one another. You can watch Steve Martin play banjo or Andrew Lloyd Webber sing a song from Hamilton to Lin Manuel Miranda.

You can also now stream movies still in cinemas.

Thank you to all who are still putting themselves at risk for our sake.

For those still in harms way



Rob Rodgers, in The Facts

Dr. Li Wenliang



For telling everyone about COVID-19

Dr. Liu Zhiming



Wuhan Hospital Director

Italian healthcare workers



More than 2600 have been infected