THE ALCIVAX

Alcimed takes a stroll down memory lane to see where we might be better and worse off than we might have expected.

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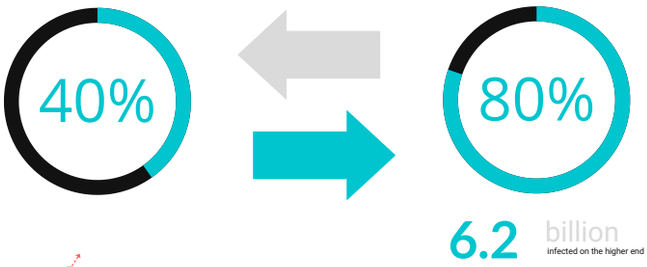
COVID: Can we predict reality?

"You know how you let yourself think that everything will be alright if you can only go to certain place or do a certain thing. But when you get there you find it's not that simple." - — **Richard Adams, Watership Down**

On March 11th, 2020, the WHO declared COVID-19 a pandemic, setting the world off on a different course. But more than a month before that public health officials were modeling the infections in China to try and predict what the toll would be if the virus was not contained in China. What we have mostly learned in the last 6 months is that SARS-COV-2 proved to be the virus no one was really expecting, an atypical airborne respiratory virus creating a heterogeneous set of infections, long-term morbidity, and waning post-exposure antibodies. This is the reality of a pandemic. Nothing proceeds in an ordinary fashion and the only thing that is certain is that you are probably wrong, at least about something.

So how far off the previously mapped course are we really now?

The original disease forecasts:



Models suggested 40-80% of the global population would be infected in 1 year, based on an attack rate of 2.5 observed in China in January & February, with no interventions.

... and the economic forecasts:

20% loss of expected GDP growth

The Quick Recovery: Some loss of expected growth compared to 2019 but will still be net positive for the year, with developed countries like the US fully recovered by the end of Q2.

50% loss of expected GDP growth

The Global Slowdown: Loss of half of expected growth compared to 2019 but will still be net positive for the year, with full recovery in most industries by the end of Q3-Q4.

-20% loss of GDP compared to 2019 levels

The Pandemic Recession: Assumes a non-seasonal virus with a loss of between 1-1.5% of 2019 GDP with recovery not expected till 2021.

No Crystal Balls

Any model is only as good as the data we used to build it. The long-term struggle with COVID is how disperately the virus has behaved in different populations. Previously, an 80% asymptomatic rate was expected among the general population, but that has been narrowed now to closer to 40% and we could never have predicted the wide range of mortality rates between different racial and health risk groups.

What still restricts our ability to develop good models?

- The extent of protective immunity
- The real asymptomatic rate and immune response in those with no symptopms
- Contact rates between susceptible and infectious populations

The Current Situation

5% OF THE WORLD'S POPULATION HAS BEEN INFECTED TO DATE

17 million confirmed cases and rising quickly

There have been less confirmed cases that we would have expected, but the rate of increase may still push us toward 1 billion infections if exponential growth continues, resulting in 10 of millions dead.

The economic forecasts were woefully estimating the extent of the current damage.

-5.2%

Contraction of global economy for 2020 with full recovery not expected for years.

The Vaccine Race Final Laps

The two front runners Moderna and Pfizer have entered Phase 3 trials with expected November and the potential for approval by year end. Approval won't mean that the vaccine is widely available as healthcare workers and high risk groups will be prioritized for the first doses. This would mean that the vaccine won't be widely available till summer 2021, but this is really only potentially assured for the US and EU where aggressive pre-availability purchases has locked up most of the first doses of vaccine for only a handful of countries. The current deals fallout roughly:

- **UK**: **100 M** doses AstraZeneca, **60 M** Valneva, **30 M** Pfizer
- **US**: 300 **M** doses AstraZeneca, **100 M** Pfizer, **100 M** Moderna
- **EU**: **400 M** doses AstraZeneca, **300 M** Sanofi, in talks with others

What's holding up negotiations? The price. Moderna has decided to sell vaccine at a profit and Pfizer says that it will charge all developed countries the same price, atypical for vaccine pricing between the US and EU. It says it will sell at cost during the pandemic, but reserves the right to increase the price should COVID vaccinations become routine. The GAVI alliance says that $40 per dose would be an upperlimit for vaccine pricing, $20 cheaper than Moderna's current pricing estimates. So there is real money to be made purely on vaccine speculation now. Complicating these discussions is the IP dispute over Moderna's RNA delivery technology and a recent study that suggests that the US government is woefully underprepared to distribute a COVID vaccine nation wide even when it does become available.

Rather than quibble about price or wait in line, some scientists have been taking DYI vaccines and Russia may approve their COVID vaccine as early as next month before clinical trials are complete. The Chumakov vaccine maybe part of the global distribution, as they applied to be part of the WHO tender. Their main competition is AstraZeneca's deal with the Serum Institute of India's deal to bring 1 billion doses to low and middle-income countries.

The Search for Treatments Continues

The search for sufficient treatments for COVID had set back this week as Roche announced a Phase 3 failure for its repurposed IL-6 therapy. It puts even more stress on the need for more doses of remdesivir. The EU has been able to buy a limited supply and shortages even in the US are widely anticipated as distribution to areas with high case loads has been slow. However, a group at Columbia claims to have found a potent antibody cocktail for COVID and there is still quite a robust pipeline.

2nd Chances on Containment

The gold standard for controlling outbreaks has always been contact tracing and enforced quarantine for identified exposures in dedicated facilities. The present pandemic illustrates how that becomes impossible once the case load gets out of control, which it largely still is in a number of countries. At that point, population wide lock downs are the only alternative to quell the community spread of the virus. However, countries like New Zealand, the EU and some Asian countries like South Korea, have flattened the curve sufficiently now to be able to go back to these basics in an effort to control the 2nd wave.

Though the 2nd wave wasn't really anticipated until fall or winter, the resurgence across Europe is already occurring. The resurgence may lead to greater economic pain, as more than 1 million people in Spain have lost their jobs in the last three months. The quick rise in new cases confirms the WHO's announcement that SARS-COV-2 is not a seasonal virus. Case resurgence has led to new travel restrictions in Asia, but concerns have been raised about quickly returning to large scale lockdowns, as it will lead to greater food insecurity. COVID-linked malnutrition is already killing 10,000 children a month, which may grow if food supply lines can not be kept open.

Let's go back to the basics where we can!

Safety Strikes Out

Pandemics can be times of great change and newfound activism. Green economies and inequality, both financial and racial, have all sparked new conversation and investment in the last six months. New found activism has also been brewing across different industries in occupational health.

The discussion around the safety of essential workers was previously prominent in the auto industry, couriers, and food distribution. But the most prominent has been Amazon, whose safety measures during the pandemic have been highly criticized. Amazon is now under two separate investigations and worker protests have broken out.

The idea of a "safety strike" has moved this week into the educator sector as unions encourage teachers to strike if the safety standards are too low. Strikes will likely be bolstered by evidence that US school closures decreased cases and deaths. The opt out options seen in other industries, such as the NFL, or the extensive work from home policies, like Google can avoid these safety strikes, but not all industries have these luxuries.

All Joking Aside

6 months ago no one predicted the death of the jean, but here we are. As people become accustomed to the ultra comfort of leisure wear, the blue jean is labeled as too restrictive. Several jean designers have gone bankrupt. Where will the fashion landslide end?

Twitter and Facebook are combating new COVID conspiracy theories as Don Trump Jr. and Madonna both posted misleading videos of claims of hydroxychloroquine (HCV) cures. But HCV cures have been thoroughly debunked. If you can't get any HCV, vodka and a sauna can be curative according to the President of Belarus, who we know has COVID, though he claims to be asymptomatic.

It's going to be a sport-less summer in the US, as infected players appear in every sport that has gotten back to playing, including the NFL and baseball where a whole team's season was canceled with due 13 positive players.

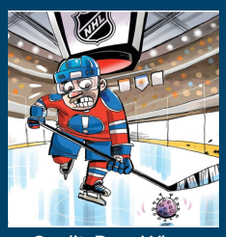


Image Credit: Dave Whamond

The Joys of a COVID Summer

School is out

Image Credit: Daryl Cagle

A Full Social Calendar

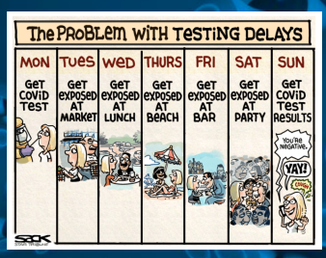


Image Credit: Steve Sack

Even King Kong is Relaxed

Image Credit: Bill Bramhall

Everyone is Ready to Travel

Image Credit: Dave Whamond