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The Covid Files 1: Corona by Numbers

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Coronavirus Pandemic

Take-Aways

- Experts often use the 1918-19 Spanish flu as a template for the worst possible pandemic scenario.
- Counting deaths caused by COVID-19 is a complicated task.
- Some people argue that older, sicker patients would have died anyway, regardless of their coronavirus infections.
- The only way society will recover from this pandemic without a vaccine is through herd immunity.
- Governments must prepare better for future pandemics.

Recommendation

In this edition of the *Going Viral* podcast, medical historian Mark Honigsbaum conducts a by-the-numbers comparison of the novel coronavirus pandemic versus the 1918-19 Spanish flu, with medical demographer Andrew Noymer. Both pandemics resulted in massive worldwide deaths, but the nuances of who died and why provide fascinating context for our current situation. Deconstructing these hard-won lessons points toward useful strategies to mitigate future viral outbreaks.

Summary

Experts often use the 1918-19 Spanish flu as a template for the worst possible pandemic scenario.

A century later, the novel coronavirus is proving just as devastating. No human is immune to it, and no vaccine exists. Its mortality rate is about 2%, similar to Spanish flu.

US President Donald Trump stated that COVID-19 [the disease caused by novel coronavirus, SARS-CoV-2] is no worse than the common flu. Such comparisons have been proposed since the earliest days of the outbreak. It is true that some people have mild symptoms, while others become more seriously ill, and some die. COVID-19 tends to cause worse problems for older people, but that's not exclusively the case. Coronavirus is not generally as serious as flu is for young people, but it can be deadly.

Flu viruses tend to evolve and change each year, and are more prevalent in cooler seasons. Most of us have encountered some form of influenza, so our immune systems can better handle it. We can tweak existing vaccines and not go into a panic every year.

Coronavirus spreads quickly due to its high contagiousness and our lack of immunity. Its transmission depends on close human interaction. Measles, another “super spreader” virus, readily transmits through a fine mist. It is twice as contagious as common flu. But if we've had measles, or the vaccine, we're not susceptible anymore.

Counting deaths caused by COVID-19 is a complicated task.

The term “excess mortality” refers to the number of deaths related to one particular cause such as influenza, counted against the background of deaths from other diseases.

“There's art and a science to death recording.” (Andrew Noymer) ”

We won't know the actual mortality of COVID-19 until all deaths are recorded for 2020. Early in the pandemic, it's possible that thousands of deaths were thought to be caused by influenza or pneumonia, so COVID-19 wasn't indicated on the death certificate. Also, some deaths occurred at home, so those people never got a test.

Some people argue that older, sicker patients would have died anyway, regardless of their coronavirus infections.

If medical treatment saves a person's life, that individual will inevitably die later. In that sense, every COVID-19 death is "borrowed" from some unknown later cause of death. Even so, experts think the excess mortality for COVID-19 in 2020 and 2021 will be significantly high.

After the Spanish flu, life expectancy increased because unhealthy people, such as those who had TB, died of it in large numbers. We will probably see a similar effect after this outbreak of COVID-19. Some older patients might have died within a year or two anyway, but others would have enjoyed another 10 years of playing with their grandkids.

"Is the cure worse than the disease? Some people say things like, why are we holding the economy hostage for the sake of a few elderly people?" (Andrew Noymer) "

The issue of overwhelming our hospitals also comes into play. If they are full of COVID-19 cases and someone's appendix bursts, will that patient receive the best standard of care? During Italy's peak outbreak, doctors were forced to make tragic decisions about ventilators. Only those younger than 60 generally got one. Italians who died of COVID-19 averaged 81 years of age. If we adhere to social distancing rules and manage the infection rate, we avoid forcing doctors to make such choices.

The only way society will recover from this pandemic without a vaccine is through herd immunity.

Herd immunity means that if someone with COVID-19 coughs in a crowded grocery store, but 60-70% of the people in the store are immune, the virus has nowhere to go.

Oxford University epidemiologists produced a study claiming that the coronavirus was spreading in the United Kingdom much earlier than previously thought. This could mean that more than half of the population has already been infected, raising questions about the validity of continued lockdown measures. This model is possible, but more survey data is needed, along with widespread antibody tests. The assumption that only one of every 1,000 COVID-19 patients need to be hospitalized is overly optimistic. The death rate is probably closer to one in 1,000. Survey data could help answer these questions.

"Every strategy is a herd immunity strategy in some sense, because unless there's a vaccine, this virus is not just going to vanish after three weeks of quote unquote lockdown, four weeks of lockdown, five weeks of lockdown..." (Andrew Noymer)

If you take chances with relaxed lockdown measures, it's like trying to put out a forest fire. It can all begin again. We cannot base procedures on small samples and models. We are going to have many more deaths before this pandemic is over, and it could stretch into 2021. The United Kingdom could experience 100,000 deaths; the United States might have 600,000. In a few weeks or months, case numbers will probably increase again.

675,000 Americans died in the 1918 Spanish flu pandemic. Adjusted for today's population, that would amount to 2 million deaths. One big difference is that today we can treat bacterial pneumonia with antibiotics, while pneumonia took many lives during the Spanish flu.

Governments must prepare better for future pandemics.

The next major pandemic will probably not be a flu, because those viruses seem to be getting less deadly over time. It might be something more serious, like bird or swine flu. But our pandemic plans have not been updated and our PPE stockpiles are still not inadequate.

"You don't prepare for nuclear war by saying, well, it might never happen, we don't need nuclear bunkers." (Andrew Noymer) "

Worldwide, the 1918 Spanish flu killed a total of 50-100 million people. It is probable that COVID-19 will kill about 11 million people, 1.5 million in India. We need survey data to help confirm the numbers, and to differentiate "case fatality rate" (deaths divided by cases) from "infection fatality rate" (deaths divided by infections). Asymptomatic infections do not count as cases, so they make case fatality rates look more pessimistic.

"The UK and the United States have had this absolute debacle with the CDC testing kit. Just didn't get the memo or something." (Andrew Noymer)

South Korea is one of the few countries which properly conducted testing and contact tracing. They used established pandemic response drills and had adequate medical infrastructure and PPE. One impetus for such preparations is threats of biological and nuclear attacks from neighboring North Korea.

Social distancing and lockdowns will not last forever, but may linger weeks longer than most people prefer. There will also be severe economic repercussions, but eventually life will return to normal.

About the Podcast

Host **Dr. Mark Honigsbaum** is a medical historian specializing in the history of epidemics and pandemics. His guest, **Dr. Andrew Noymer**, is a medical demographer and professor of public health at University of California, Irvine.



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