

Comparing COVID-19 with H1N1 and other viral outbreaks

March 25 2020, by Joan Tupponce



Richard Wenzel, center, Francis Macrina and Michael Donnenberg at a 2018 lecture featuring virologist and VCU alumnus Jeffery Taubenberger. Credit: Kevin Morley, University Relations

Viral outbreaks are a natural part of life, said Richard P. Wenzel, M.D., chair emeritus and professor of the Department of Internal Medicine at Virginia Commonwealth University's School of Medicine.

"We tend to get surprised every time we have a new outbreak of a [virus](#) that causes an epidemic," said Wenzel, an infectious disease specialist. "There is an uncertainty about when and how severe the virus will be, but there is an inevitable march over time of them."

Since the early 2000s, the world has experienced the outbreaks of severe acute respiratory syndrome, Middle East respiratory syndrome and influenza virus H1N1. VCU News asked Wenzel what these viruses have in common with COVID-19, the novel [coronavirus](#) currently spreading worldwide, and what past outbreaks have taught us.

How does COVID-19 compare to other outbreaks such as H1N1, SARS and MERS?

The cause of most pandemics is a zoonosis virus from an animal that leapt over to people. HIV was transmitted from a chimpanzee. All coronaviruses—SARS, MERS and COVID-19—are transmitted from bats with a secondary host. In SARS it was a cat, in MERS it was a camel, and COVID-19 is a pangolin, which is prized for its meat and used for traditional medicine in China. H1N1 was a hybrid from birds and cows.

When I went down to Mexico during the height of the H1N1 epidemic, instead of sitting and looking at statistics, I made rounds. Almost all of the people on respirators were in their 20s and were obese or pregnant, and that is really unusual. Seeing patients helps you get accurate numbers and clinical data. You have to be there.

What's different, I think, is that COVID-19 is going to turn out to be an equal-opportunity virus with a high risk for bad outcomes for the elderly, newborns, babies and people who are immunosuppressed. Like H1N1 and seasonal flus, COVID-19 is highly communicable. What's different

is it has 10 times greater mortality rates than the seasonal flu.

The major difference from SARS, MERS and H1N1 is that SARS and MERS had high mortality rates but were less transmissible. SARS only affected 8,000 people, but 800 people died, giving it a 10% mortality rate. For MERS, the mortality was 1 in 3. We are fortunate that this coronavirus is much less deadly. Looking ahead, we have to see if it changes or has a genetic mutation allowing it to be more lethal. That is always the worry. So far, we have seen no changes at all.

What lessons did we learn from H1N1, SARS and MERS?

We should be building up a robust response to the next pandemic. We need a new definition of "pandemic," such as a response to an infectious threat requiring international surge capacity. It should measure incremental resources needed, including medical protective equipment, personnel, ICU beds, food and water, diagnostics tests, drugs and the percent of domestic gross product that we need for control. Imagine if we had this for H1N1, SARS and MERS.

We need help from other countries. We need international cooperation—legal, medical and administrative. Calling it the Chinese virus doesn't help. We need their data to see what they did and compare that to another country that did it differently. We have lost weeks in responding to this pandemic.

How is COVID-19 spread?

When people cough, sing or speak, droplets come out from their nose and throat, and these droplets, called "large droplets," travel to 6 feet or so and then fall to the ground. This happens with the common cold and

strep throat. So if you stay away 6 feet, you are unlikely to get it. We are concerned that there may be different droplet sizes with some small droplets less than 1/100th of a millimeter in diameter. They are tiny and hang in the air. They are like microscopic hot air balloons. They can hang out for a couple of hours. They can be inhaled and cause infection because they don't get trapped in the pharynx or large airways. They can get to the sacs of the lung and, if they get inflamed, can cause pneumonia.

Should we be concerned about getting the mail or picking up items at the store?

Those are low risk. Most viruses die out. However, they can stay on the surface for days on plastic and stainless steel. Plus, you don't know who touched the item. You can wipe them off if it makes you feel more comfortable. Also, the virus doesn't last very long on cloth, but it would on the railing of a cruise ship, for example. The bigger risk is not handwashing and touching your face.

What are we missing when we talk about COVID-19?

We need to focus on the mental health impact that a lot of people are coping with day to day. If you say the word "pandemic," or talk about isolation or getting the virus, it might be enough to push them over their coping capability. Some people live paycheck to paycheck so there is no money for medicine or food. Drugs could become unavailable because a lot of drugs come from China. If enough people get stressed, we could see civil unrest.

Are there any drugs in the works that could help fight COVID-19?

What is happening is the company that is making remdesivir, an investigational drug, is undergoing several different trials. They would like to get a larger number of people enrolled to get answers. Some early patients got the drug for compassionate use. It might be harder to get that now. The drug chloroquine is also being used, but there is a limited amount of that.

What can we expect in the next eight weeks?

We still don't have test availability to meet demand. There are people out there with the virus and, once we start getting those tested, the numbers will go up. I won't be surprised to see really big numbers.

Why are some people still refusing to do social distancing and isolation?

Despite overwhelming science, they seem to be holding their position. You can't influence their behavior by facts or logic. No one has said to them, "If you get ill, you have family—brothers, sisters, parents and grandparents—that could get the virus. If you transfer the disease, it's grossly unethical behavior."

What's the light at the end of the tunnel?

What will guide us is the numbers. Looking at other epidemics, and this one in China, at least the curve should peak in mid-June, or it could be earlier in May. We don't know how steep the curve will be on the decline side. If it lingers on, it will be in the summer when it finally ends. I would say be prepared for what you are doing now for at least four weeks, but it depends on what the numbers are. We are in a time of uncertainty.

What happens after COVID-19 is over?

The U.S. Agency for International Development had a program under the Bush and Obama administrations called "Predict" that looked at prospective systemic new viruses in bats. That was abolished a year and a half ago under the current administration. That weakened our foundation. Also, the U.S. pandemic response team was decimated in the last two years. It was bad timing. The pillars of preparedness have been weakened. We need to get back to those robust preparations and build robustness nationally and internationally. We need to plan for the worst.

Provided by Virginia Commonwealth University

Citation: Comparing COVID-19 with H1N1 and other viral outbreaks (2020, March 25)
retrieved 6 May 2024 from
<https://medicalxpress.com/news/2020-03-covid-h1n1-viral-outbreaks.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.