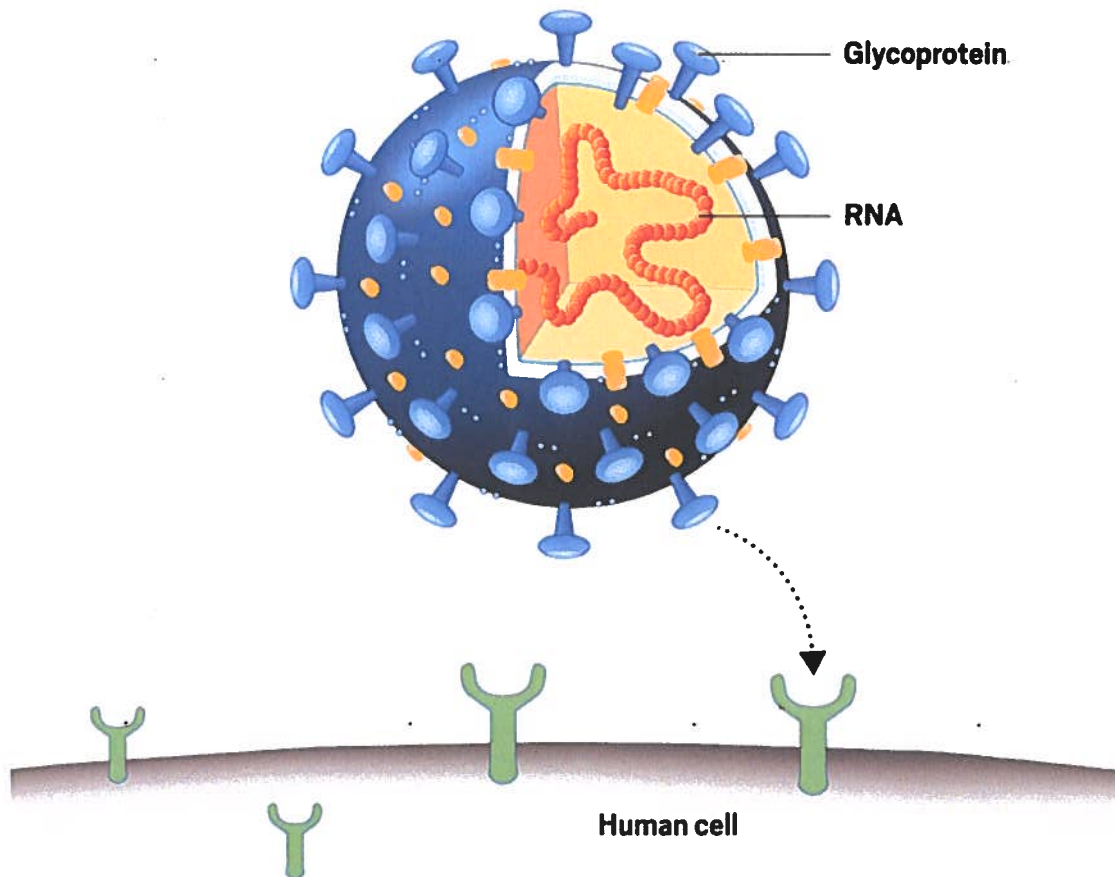


Explaining this coronavirus epidemic in simple terms.

Viruses are not really “alive”. They are very small balls of sugars, proteins and fats that carry strands of genetic material (RNA or DNA). They can’t move on their own, and they can’t reproduce on their own. On the outside of the virus there are “spikes” of sugar-protein chains.

Some of these spikes attach to “docking stations,” or receptors, on human cells. Other proteins drill through the cell wall into the cell. They take over the normal cell activities and make millions of copies of themselves. These copies then move out, attacking and destroying other cells.



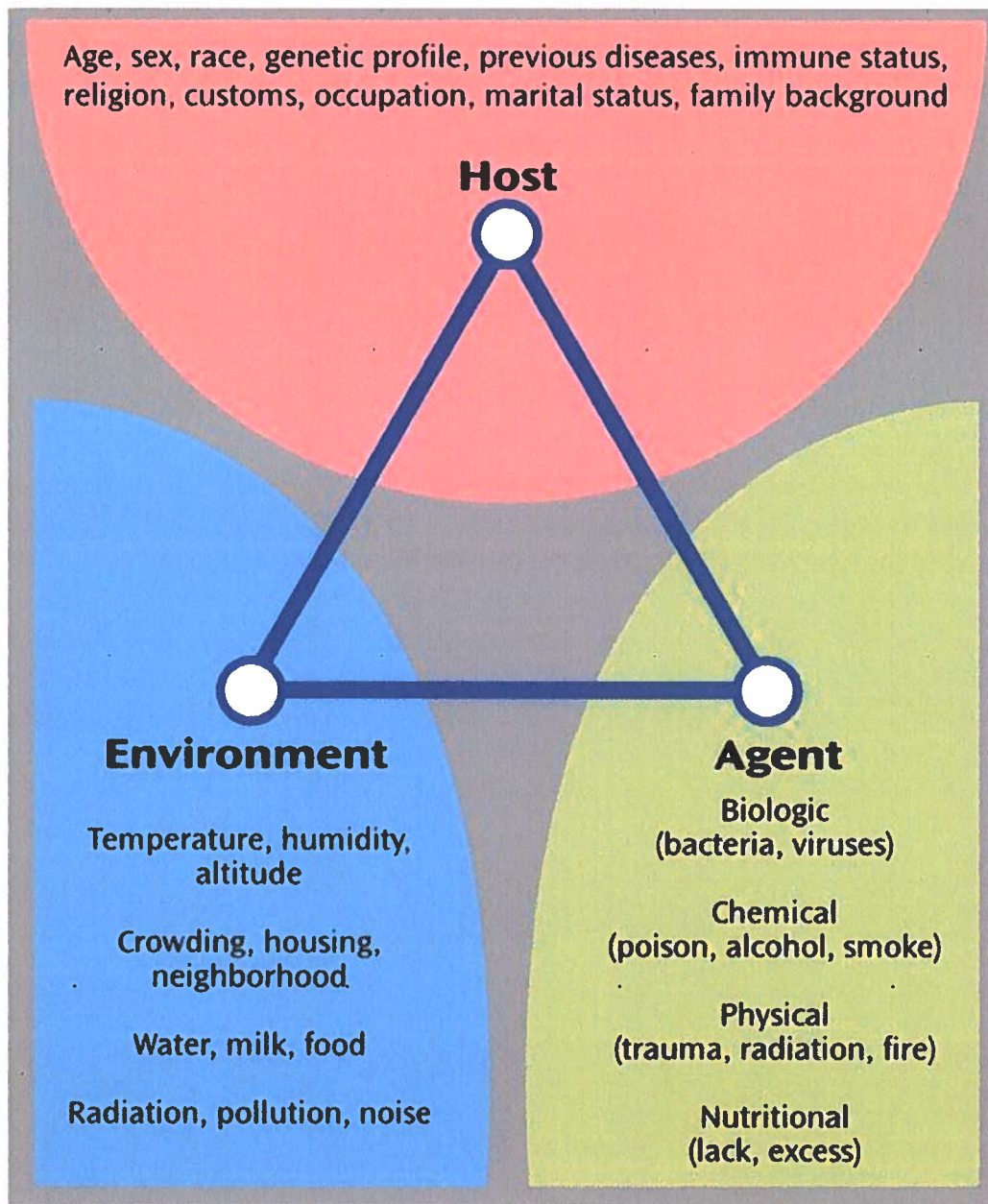
Germs can't jump. Viruses can't move on their own. Somebody or something must move them from one place to another. Some of the most common ways they move around include the six "Fs": fingers, foods, fluids, flying things (insects and droplets), fomites (things like clothes, towels, doorknobs, table surfaces, telephones, etc.), and fooling around (intimate personal encounters).

The COVID-19 virus appears to be moved mainly by droplets caused by coughing and sneezing, and by touching the "things" on which these droplets land.

This picture of a sneeze helps explain how this happens.

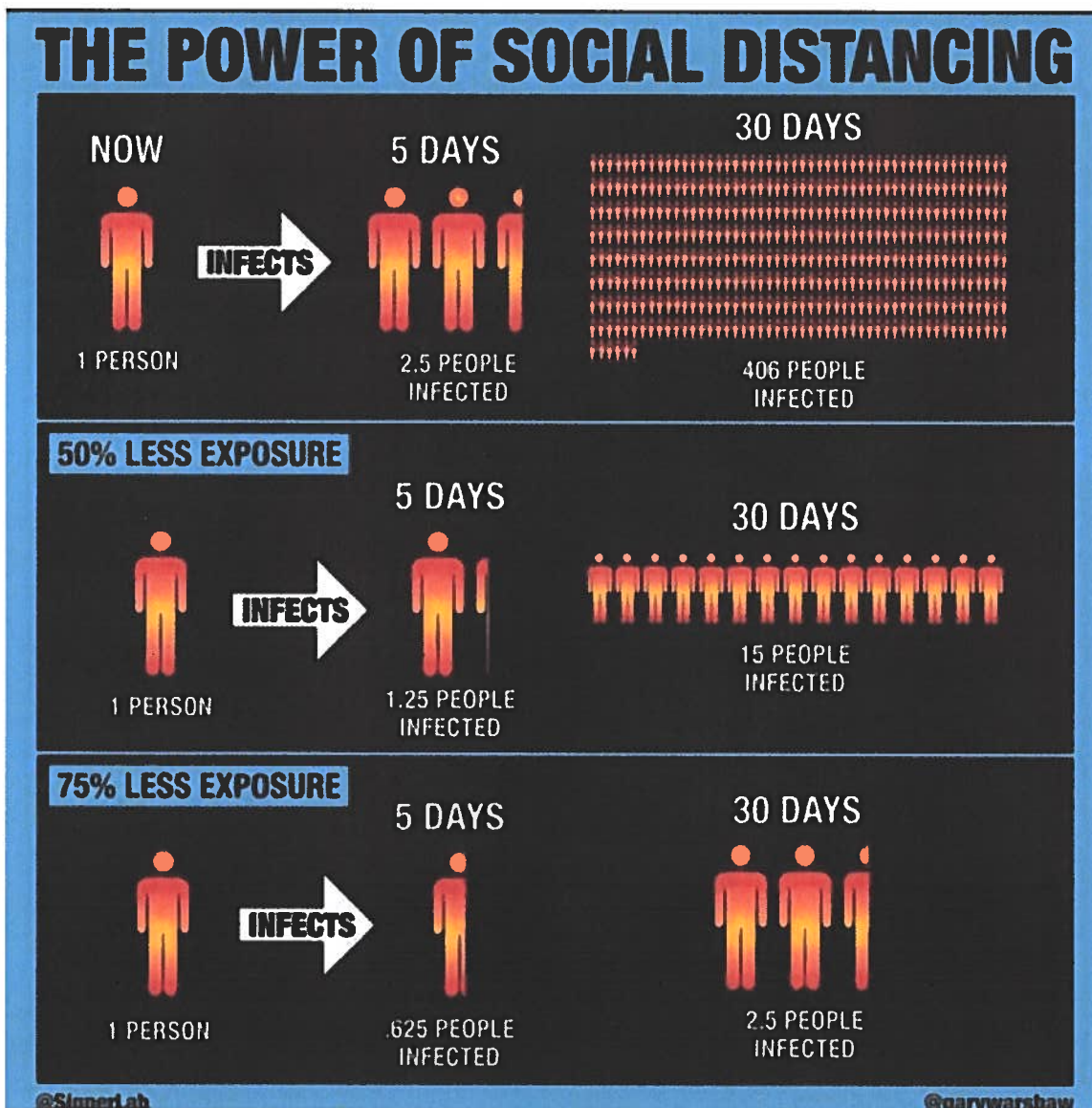


Who gets sick from a germ depends on three main factors: (1) personal attributes like how old they are, what kinds of medical conditions they have, whether they've been immunized, etc.; (2) the environment, including things like how cold it is, how humid it is, how crowded it is, etc.; and, (3) what kind of germ it is and how it works. This is called the Host-Agent-Environment triangle in science.



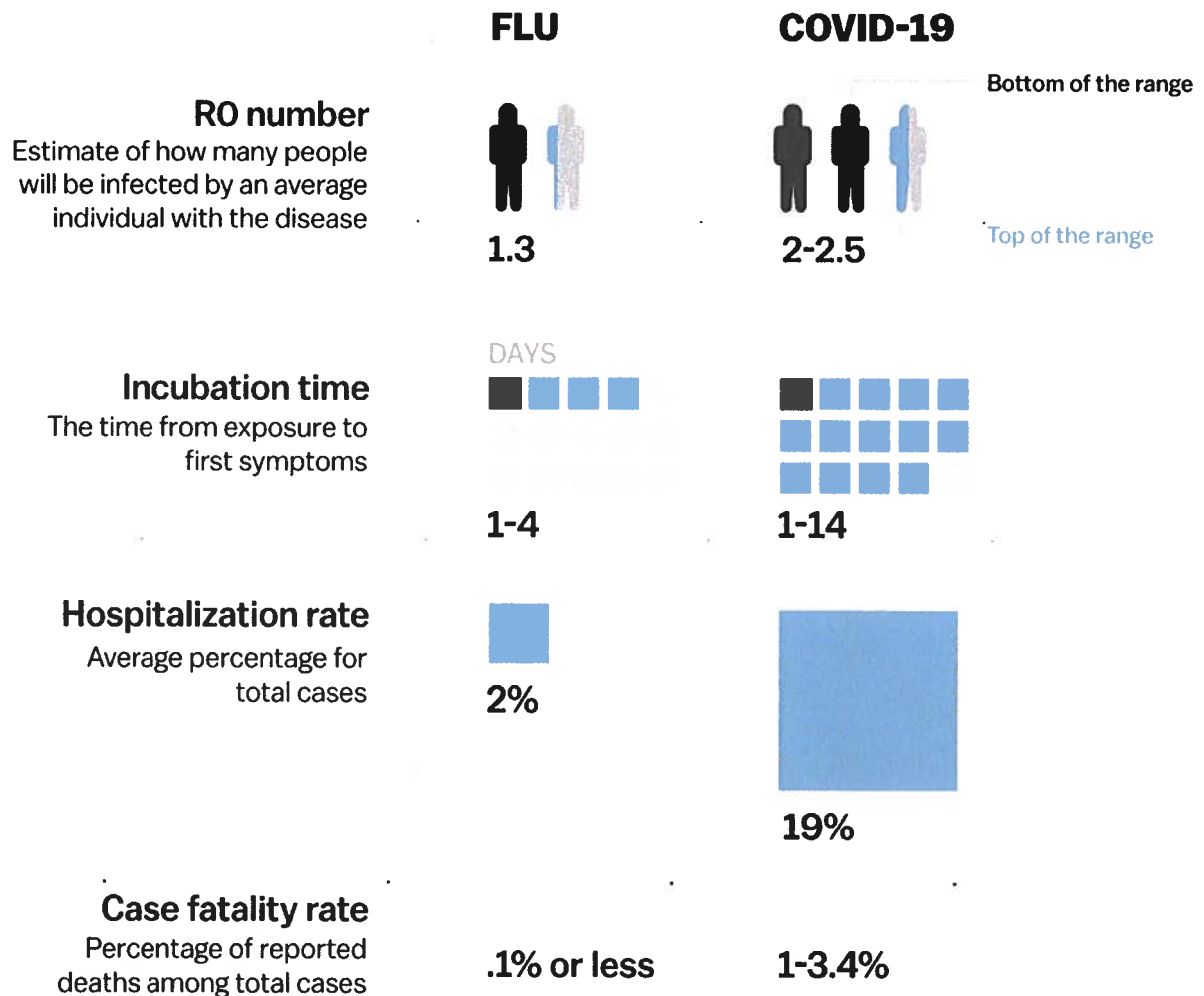
People are being asked to stay away from other people (“social distancing”) to help decrease the spread of the COVID-19 virus.

Without social distancing, on average, people who are sick with this coronavirus will infect between 2 and 3 other people. If more than one other person, on average, gets sick from someone with the illness, an epidemic will continue to grow.



Some people say that the COVID-19 virus is just like the flu, or that it is no worse than the flu. While there are many similarities between how the flu virus and this coronavirus are spread, and the kinds of symptoms people have with each disease, there are some very important differences. These differences are leading to the major public health actions that are being taken and the public measures that are being required. (R0 is the amount of spread.)

How seasonal flu and Covid-19 compare



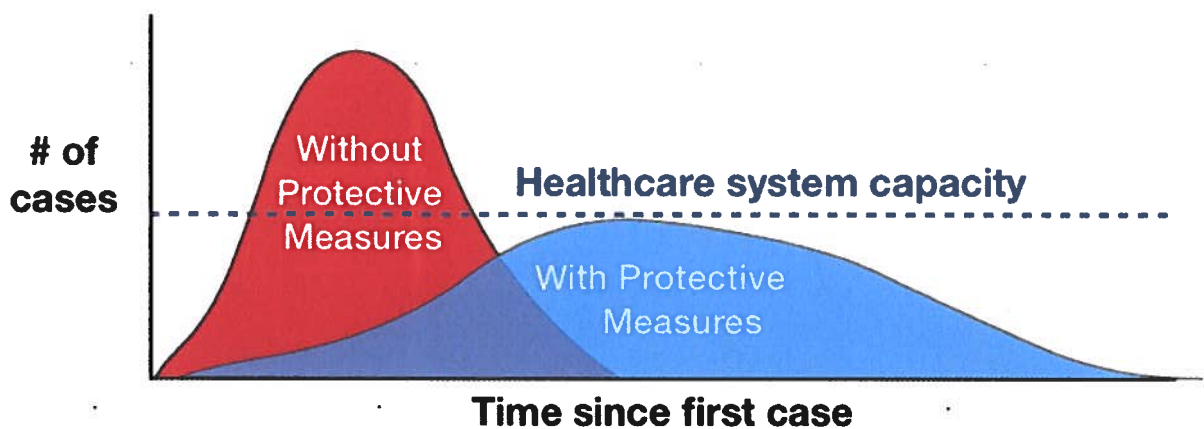
Sources: CDC, WHO, NCBI



The COVID-19 coronavirus is a new germ that none of us have any immunity to yet. There is no immunization for it and there are no treatments for it.

Staying away from each other, especially those who are sick, covering when we cough or sneeze, keeping our hands clean and not touching our eyes, our noses or our mouths, the main places where this virus gets into our bodies, can help stop this epidemic.

If the epidemic moves quickly, it will overwhelm our healthcare system and increase the number of folks who die. If we can slow it down, just as many people might still eventually get sick, but slowing the spread will allow the healthcare system to provide lifesaving care to more who need it. That's why all the public health orders and recommendations are being put in place – to “flatten” the epidemic curve and, ultimately, to save lives.



Adapted from CDC / The Economist