

Not My Fault: 'IT'S NOT IF BUT WHEN' isn't just for earthquakes any more

Lori Dengler/For the Times-Standard
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COVID-19 news is dominating the media. I'm no expert on epidemiology but I do know about natural disasters and the novel coronavirus is no different than floods, fires, earthquakes or tsunamis. Here's putting the current epidemic in a disaster-science perspective.

Pandemics are natural disasters and the first step to reducing impact is data. My go-to place for disaster data is the Centre for Research on the Epidemiology of Disasters. There are about 21,000 disasters listed in the Centre's EM-DAT database. Excluded are war casualties or people displaced by armed conflict. Since 1900, drought tops the list as most deadly, followed closely by epidemics. The geologic and meteorological disasters (flood, earthquakes, storms) finish out the list.

The ten deadliest epidemics of the past 120 years all occurred between 1901 and 1926. The worst was the 1918 – 1919 "Spanish Flu," which may have killed 20 percent of the global population. It wasn't a flu and it didn't originate in Spain, and although the specter of this global catastrophe is frequently mentioned in COVID-19 media coverage, it's inaccurate to assume the current outbreak will be similar. Like earthquakes, each viral infection is unique with impacts related to many factors. The source, the state of medicine and the social conditions between 1918 and today are vastly different.

Reducing the impacts from any natural disaster starts with identifying cause and likely impacts. For earthquakes it's faults, magnitudes, shaking strength, secondary effects like tsunamis and landslides and seeing how this affects the built infrastructure. By identifying the main cause of loss (poorly built structures), mitigation efforts can be focused on strengthening buildings. This requires good data – instrumentation, data processing, trained scientists and engineers. Societies wanting to reduce the earthquake threat must make a sustained long-term commitment.

Epidemiology is no different, although data is more difficult to gather and has more uncertainties. There is no number that is analogous to magnitude, but the basic

reproduction number R_0 (R nought), is somewhat close. It is a measure of how infectious the virus is. An R_0 of 1 means for every one person that has the virus, on average one other person will be infected. A value of 2 means two persons and so forth.

An earthquake magnitude can be measured within minutes after an earthquake and there is little variation in the determination from different analyses. R_0 requires weeks or months after onset. Numbers vary considerably depending upon available data and interpretation, but relative values help to give a picture of how readily the virus spreads. Measles is one of the most infectious viruses with R_0 numbers in the teens. The 1918-1919 pandemic R_0 is between 1.8 and 3. COVID 19 estimates show more variation at the moment but are in the same ballpark range as 1918. It is very communicable.

Public health and epidemiologists agree that the novel coronavirus is highly infectious and because it is new, no populations have any built in immunity. If you come into contact with the virus, you will get it. How it manifests itself in you personally will depend on many things – your age (over 60 more vulnerable), your health (underlying disease more vulnerable), how heavily you were exposed, and some degree of luck. There is only one sure way not to become infected – don't cross paths with the virus.

The most important way in which epidemics are similar to other natural disasters is in the realm of human behavior, perception of threat and taking action to reduce it. When presented with something unfamiliar, we respond in predictable ways. Whether it's seeing smoke enveloping a stage, water retreat at the coastline or watching a plane plunge into a building, our first response is to deny that anything unusual has occurred. This "normalcy bias" delays response and can prove deadly. Slowly developing disasters like pandemics are even more difficult to process.

Failure to perceive the COVID-19 threat as real and take action has already been costly in the United States. We have lost critical weeks in both data collection – measuring the true scope of the outbreak – and in developing the response capability and the education campaign that could slow its spread.

I repeat that I am not a COVID-19 expert. But I have friends who have spent careers in public health. Dr. Rebecca Stauffer, retired pediatrician and former head of the HSU Student Health Center, describes the last months, "... like a slow moving tsunami that we've been watching for two months and instead of preparing we've

been debating if it's going to arrive on our shore and getting caught further behind than necessary especially in a rich nation like ours. It's why I went nuts last week, crying 'get away from the shore'. Now it's arriving and we'll be dealing with the debris and repercussions for a long time."

The time for denial is over and the WHEN could be right around the corner. It's time for all of us to get serious about COVID-19. Look for credible sources of information such as the California Department of Public Health - <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/nCOV2019.aspx> , and don't believe all you read on social media. We can't blame earthquakes on human behavior, but the fault for corona virus spread is clearly in our court. Do whatever you can to avoid exposure – money, light switches, pens, credit cards, cell phones and any other surface can harbor the virus. Exchange hugs and handshakes for bows or elbow bumps in casual greeting. Be prepared to self-isolate in your home or apartment if develop a fever/dry cough or if community quarantines are ordered. That means food for at least two weeks. And if you've been listening to me about preparing for earthquakes, you should already have that well in hand.

Lori Dengler is an emeritus professor of geology at Humboldt State University, an expert in tsunami and earthquake hazards. All Not My Fault columns are archived at <https://www2.humboldt.edu/kamome/resources> and may be reused for educational purposes. Leave a message at (707) 826-6019 or email Kamome@humboldt.edu for questions or comments about this column, or to request a free copy of the North Coast preparedness magazine "Living on Shaky Ground." <https://www.times-standard.com/2020/03/08/lori-dengler-its-not-if-but-when/>