

(Mis)Understanding COVID-19

By John L Fleming, MD, DLFAPA

In this age of COVID-19 we are confronted by something we have never seen before. We keep trying to understand it, and it is natural that we keep comparing it to things we already know in order to try and get some sort of handle on it. But comparisons are a type of assumption. And as the saying goes, when you assume you make an "ass" out of "u" and "me."

A. False statistical comparisons

As Mark Twain wrote in his Chapters of My Autobiography: "There are three kinds of lies: lies, damned lies, and statistics."

I remember being upset that I had to take statistics in order to get into medical school, but like my class in typing, it has been one of the most useful things I ever learned in school.

One place where statistics and its limitations come into play is comparisons to influenza death rates. At first glance, statistics seem helpful in the quest to understand COVID-19, but there are many problems. To paraphrase the article of Jeremy Samuel Faust, MD in *Scientific American*, those who compare COVID-19 deaths to influenza deaths often do not realize they are comparing apples to oranges, statistically. We often hear there are roughly 70,000 deaths a year in the United States from flu and then set about comparing the death rates from COVID-19 to this figure, coming up with opinions about the extent to which COVID-19 is more deadly or not than flu. The problem is that these are CDC estimated flu deaths based on the presumed impact of flu on the population, i.e., increases in otherwise expected deaths which would not have occurred without the flu. Actual counted flu deaths in the United States are not 70,000 per year but more like 3,000. And if we use the same method to estimate deaths caused by COVID-19, current deaths from COVID are would be around 300,000 to 500,000 not 175,000. Compare apples to apples and oranges to oranges.

B. False clinical comparisons to the flu

In the beginning when what we saw was a simple respiratory illness (and given the fact that our last three pandemics were all from a similar virus family with a respiratory presentation), comparing COVID-19 to the flu certainly made sense. But as we have learned more, this comparison is so shallow and inaccurate as to be laughable were it not so tragic.

Influenza has been around so long that we understand it fairly well. COVID-19 is so new that we only have a rudimentary handle on it. So here are some of the aspects of the illness COVID-19:

- *It may present as a respiratory illness.
- *It may use entry points to many tissues other than the nose and lungs, bypassing those entirely.
- *It may present as a widespread "stroke-like" illness due to small blood clots that destroy blood flow and lead to tissue death in the brain, heart, kidneys and any other body part, since clots can go everywhere.
- *It can produce sudden total organ failure with rapid death in 24 to 28 hours in otherwise healthy people.
- *It can produce delayed, massive immune system overactivation that can be fatal weeks later.
- *It can cause lung capillaries to dilate so that blood flow is shunted away from the places where it can pick up oxygen such that giving someone oxygen or putting them on a ventilator may not help.

* In a significant number of people, symptoms persist for a minimum to three to six months after "recovery." These symptoms may resemble Chronic Fatigue Syndrome.

* And, since it is new, we have NO IDEA if the COVID-19 virus hides out in the body and emerges later, as can herpes or shingles.

C. Not understanding medical communications

Unfortunately, many people today treat "today's" statements by experts as fact, rather than subject to change as more data and experience emerges. This commonplace behavior is a very frustrating feature of how we humans communicate with each other. In the beginning, we were told masks did not help. Then later we were told they might, then we were urged to wear them outdoors, now might we be urged to wear them indoors even with our family? Now part of this was deliberate miscommunication. Dr. Anthony Fauci has admitted that he initially said that masks might not help so that the general public would not try to get masks when there was such a shortage and they needed to be reserved for first responders. Is it any wonder some people mistrust official communications? You reap what you sow. But I digress. The trend I wish us to focus on is how communications change as knowledge changes, and this is indeed confusing. Some just listened to the first statements and view subsequent modifications as evidence of fakery or politics—or worse yet—as evidence that no one knows anything so one might as well listen to one's own gut. This is sad because what this series of revisions on mask wearing (past the partial falsehood) really represents is science working properly! We should revise recommendations as we learn more. But for many, this is too confusing. Sorry, it cannot be any other way when something is new.

But most of us, sadly, don't really like watching or participating in the messy business of science, especially when lives are at risk. You probably know the old saying: there are two things you do not want to see being made: sausage and laws. Well I would add science, especially medical science. In medicine, everything we do is based on the best we know today, and then tomorrow we learn more and then we change what we recommend and do based on that. This is so second nature to us practitioners that it seems to me that when we communicate with patients and the public we forget that what we take as necessary and gospel inside of medicine can become very frightening to those who want and need reassurance. We forget that people often want whatever shreds of certainty we can offer, which is frequently so very much less than we would like it to be. I would argue, however, that the only reassurance any of us can ever get is the understanding of how the process of science works. This is the ultimate in informed consent.

We call it the "practice of medicine" because we only know what we know now and yet we have to help people out the best we can who are ill today. So we never get it fully right, as we are always learning more. We keep trying to get it right. We keep practicing. Early on, the focus regarding COVID-19 was on the idea that "we need more ventilators." It turned out ventilators used for everyone (initial assumption and practice) was harmful, did not help for reasons we still do not understand, and actually damaged some people's lungs to the point that recovery could not happen. We now use them as little as possible. This is the painful process of learning. But to those who do not understand learning it looks like chaos, incompetence, exaggeration, bias, or politics. So scary. The best medical minds did things just a few weeks ago based on past practices that usually work for lung problems, but which turn out to be deadly errors. Too messy for comfort.

Always life is messy and always we need to be humble about how much we don't know and misunderstand and to learn to live with uncertainty even when we do not want it. What uncertainties now: school plans? vaccine plans? interaction with the flu season? long term consequences? There is

more confusion and uncertainty and more progress in knowledge to come. So hang on, tighten your seatbelts, and be prepared to be flexible and adaptive. Be prepared for more mistakes along the way, because in my judgement this ride will continue at least a few more years. It took about three decades to get a handle on polio. Same for HIV. This one may be no different.

In closing, I think it is wise to consider the closing words of John Barry in his 2005 book on the pandemic of 1918 which includes Abraham Lincoln's thoughts as well.

“So the final lesson of 1918, a simple one yet one most difficult to execute, is that those who occupy positions of authority must lessen the panic that can alienate all within a society. Society cannot function if it is every man for himself. By definition, civilization cannot survive that. Those in authority must retain the public’s trust. The way to do that is to distort nothing, to put the best face on nothing, to try to manipulate no one. Lincoln said that first, and best. 'A leader must make whatever horror exists concrete. Only then will people be able to break it apart'.

— **John M. Barry, The Great Influenza: The Story of the Deadliest Pandemic in History**

John L Fleming, MD, DLFAPA
Colorado Springs, CO