

Column: Post Pandemic Threats



President Biden announced that the Covid pandemic is over. We shall see if he was right or unduly optimistic. Viruses are unpredictable. A strain that seems pervasive and persistent may change into an innocuous and sporadic variant in a matter of weeks. Alternatively, it can re-emerge with unprecedented virulence. Unfortunately, we have the technology to hit a small asteroid nine million miles away from our planet, but we still lack the know-how to make a virus harmless. Advances in gene repair and inactivation suggest we are almost there, but we are still at the mercy of Mother Nature, who has had billions of years to devise innumerable biological weapons to humble us.

If Covid-19 is on its way to the virus junkyard, what might we expect to challenge us next? It is autumn, and Jupiter is aligned with the Earth in their orbits around the sun. Astrologers are making grim predictions based on this planetary positioning, especially since Jupiter is as close to the Earth as it ever gets. Physicians also have new concerns with the advent of autumn. As leaves change colors and hardwoods drop their leaves, Guillain-Barre [pronounced Ghee-Ann Bahr-Ray] syndrome arrives in New England. It may come earlier or later in many parts of the country, but in Connecticut it becomes more prevalent as we develop upper respiratory, that is, upper airway, infections. Two or three weeks after that annoying cough and sore throat, the affected individual develops progressive weakness. He or she initially develops weakness in the feet and

then the legs. The arms may be involved, and in the worst cases, the affected individual cannot breathe independently.

This is a strange and potentially fatal condition that in many ways resembles polio. It, unlike polio which is caused by a virus that attacks nerve cells in the spinal cord, appears to be caused by inappropriate activity in the immune system as a late response to some otherwise innocuous infections. Also, unlike polio, there is no vaccine to protect against Guillain-Barre syndrome. Like polio, it targets the motor control of muscles that move limbs and enable us to breathe. The paralysis may reach its worst in a matter of days. Laboratory tests on spinal fluid help establish the diagnosis.

While you worry about developing this rare but potentially fatal condition, you can stop worrying (as much) about developing Lyme disease. This infection is well past its peak occurrence rate in the summer. It is named after our neighboring town of Lyme, Connecticut, because it was there that a very clever nurse recognized that several children in the neighborhood developed an unusual form of arthritis at about the same time. The not so clever doctors treating these children diagnosed them with rheumatoid arthritis, a condition unlikely to appear in a cluster of children at about the same time. Clever nurse suspected an infectious cause for this childhood illness, and blood tests revealed that a germ carried by a tick was responsible. Although many diseases are named after the doctors who first identified them, that a nurse was the responsible healthcare worker moved the powers that be to name the disease after the town.

More likely to be a problem in the coming months is the flu. That many Covid-wary people are still wearing masks is likely to cut down considerably on the spread of this annually recurring problem. Like Covid-19, the flu is caused by a virus, is primarily carried on droplets released in sneezing or coughing, and has a vaccine already being distributed. The skepticism that limited the adoption of Covid vaccines is likely to be repeated in resistance to flu vaccines and result in a few thousand preventable deaths. As victims of the flu struggle to breathe, we can expect to hear the oft repeated vaxx-denier announcement of "I wish I had taken the vaccine."

Although the rise of a new viral nemesis in the near future appears unlikely, reports out of China concerning research at the now famous Wuhan Institute of Virology are causing sleepless nights among virologists. Wuhan was the Chinese city that appeared to be the site of the first cluster of the Covid-19 virus infections. Its virology institute was accused of being the source of the virus, but that claim has been generally discredited. What have not been discredited or dismissed are reports in January from this institute that it manipulated a bat virus similar to the highly lethal MERS virus, giving that bat virus the ability to attack human cells.

The research was intended to establish how these viruses transform from agents infecting bats to agents lethal to humans. Given that the MERS virus kills one-third of the people it infects, it is disconcerting that researchers have devised a technique to transform a bat virus related to the MERS virus into a people-killer virus. The rationale for developing the technique was that this knowledge would enable researchers to interfere with or reverse Mother Nature's strategies for transforming animal-killer viruses into people-killer viruses.

Advances in reshaping viruses are useful and inevitable, but there is an unavoidable risk that transformed viruses inadvertently or purposely released into the general population will devastate humanity. The arrival of the bubonic plague (the Black Death) to Europe in 1347 led to tens of millions of deaths from 1347 to 1349. A carefully crafted virus could spread more quickly and kill more rapidly than the plague germ that eradicated between $\frac{1}{4}$ and $\frac{1}{2}$ of the population of Europe in those 3 years. What the folks at the Wuhan Institute have found is a way to weaponize a highly lethal virus. They have created a fuse for a bomb that they have no way of defusing.

The risks associated with this accomplishment outweigh any possible benefits in the short term. A sociopathic dictator, of which we have had and currently have several, could use this lethal innovation to randomly kill millions of people when he or she feels threatened. The naivety of the scientists striving to make a virus more transmissible to humans is reminiscent of that exhibited by many of the physicists working on the

Manhattan Project who were confident that the horrific weapon they were developing, the atomic bomb, would never be used against a target populated by tens of thousands of noncombatants. The atomic bombs dropped on two Japanese cities killed tens of thousands of people without regard to age, gender, or military status. The purposeful manipulation of viruses to make them deadly for people may be the tool used in future conflicts to devastate entire nations.

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