Pandemics on the rise: Why?

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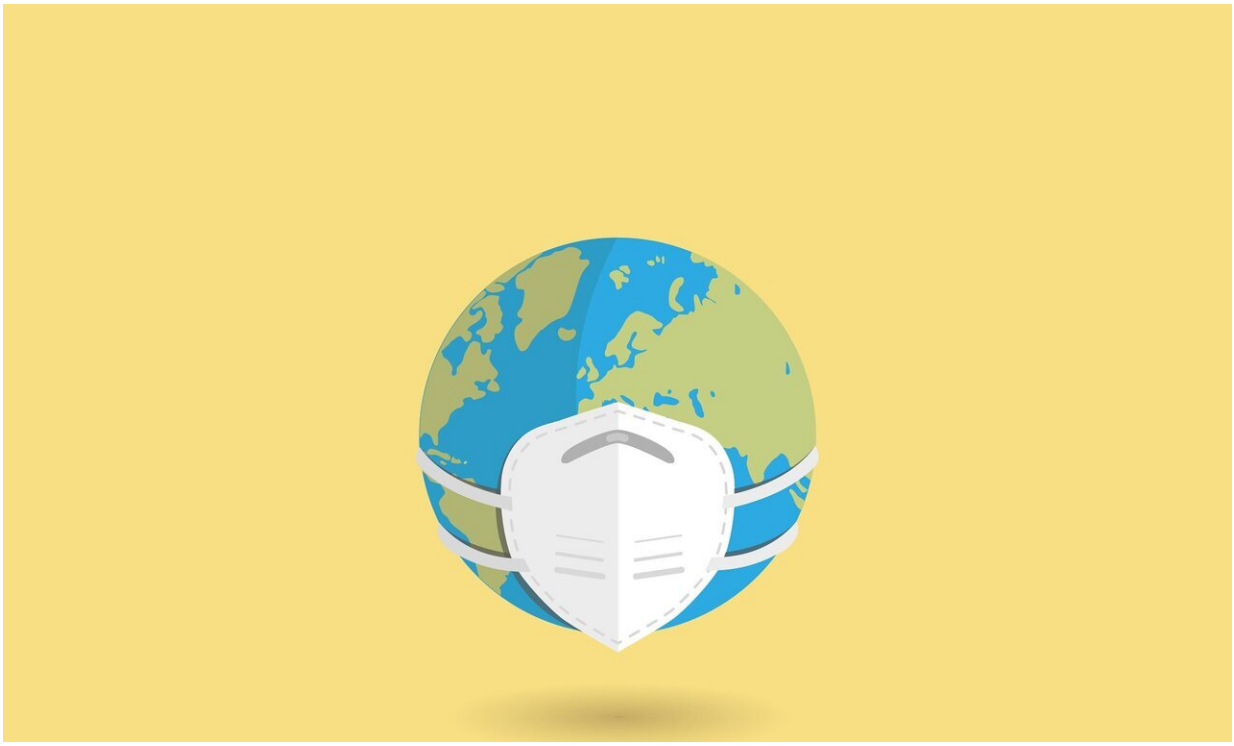

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Infectious diseases have been around for millennia—with the earliest known communicable diseases being measles, smallpox, and influenza. While the latest novel infectious disease, COVID-19, came as a shock to individuals around the globe, University of Colorado Denver researcher Anne Chin, Ph.D., and her colleagues in CU Denver's Department of Geography & Environmental Sciences—Gregory Simon, Peter

Anthamatten, Katharine Kelsey, Benjamin Crawford, and Amanda Weaver—note that pandemics have actually seen a rapid uptick in recent times, contrary to popular belief.

"A recent catalog of infectious diseases between 1940 and 2004 showed a total emergence number of 335—an astonishing figure," said Chin. "And this is no coincidence … We have to look at ourselves and wonder what impact human beings have on such a phenomenon, not solely focusing on the biological aspects of this particular disease."

The "Great Acceleration," a phrase scholars use to describe the sharply rising intensity of human activity since the 1950s, showcases how societal behaviors such as economic development, transportation, energy use, and international tourism, have severely altered the structure and functioning of our Earth systems. Prior to widespread tropical forest loss, for example, infectious diseases originating in animal species were less likely to spill over into human life as predator species served an important role controlling the carriers. Agricultural intensification creates additional opportunities for the animal-to-human crossover of novel pathogens and encourages the emergence of antibody-resistant diseases.

"Nearly all novel emerging infectious diseases (EIDs) originate in animal populations, with the bat currently thought of as the originator of COVID-19" said Chin. "Excessive human interactions with the environment, coupled with things like global trade and travel, means we will likely continue to see an ascent in EIDs, and potentially pandemics."

And while the doom-and-gloom is certainly prevalent in nearly all aspects of life (social isolation, rising death counts, and economic downturn), there is a glimmer of hope and success seen in the outcomes of the policies put in place for this pandemic, particularly at the local level.

"The lockdown orders have unintended consequences of changing our environments as well," said Chin. "Whereas Denver, for example, has historically struggled with poor air quality, the stay-at-home order limited peoples' mobility, producing clear air for its residents for a period of time."

Perhaps even more stirring, such policies encouraged individuals toward local foods, including growing their own, and raising chickens for egg production to cope with the shortage of groceries at supermarkets and the need to cook at home.

"These examples are just some of many rippling effects of pandemics, relating to the environment, that are poorly understood and oftentimes, unknown," said Chin. "We need to develop a new paradigm of teaching and conducting researching with respect to pandemics, centered on the interconnectedness of health, people, animals, and environment."

Such broad integration, the authors argue, is critical toward identifying long-term solutions for the accelerating pandemics—not just for our own livelihoods, but for future generations to come and in guiding our planet toward sustainability.

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