NPG Negative Population Growth, Inc.

CORONAVIRUS AND HUMAN POPULATION GROWTH

An NPG Forum Paper

by Edwin S. Rubenstein

Negative Population Growth (NPG) is a nonprofit membership organization with over 30,000 members and supporters. Founded in 1972, it is dedicated to alerting Americans and their political leaders to the devastating impact of population growth on our environment, resources, and standard of living. At current rates of population and economic growth the U.S. is depleting resources – including clean air and water – faster than the ability of the environment to replenish them.

NPG advocates slowing, and then reversing, U.S. population growth until, after an interim period of reduction, our population reaches a sustainable level. Estimates made prior to the pandemic show that planet Earth can only support 2 to 3 billion people at America's standard of living. With global economies plunging, sustainable populations for both the U.S. and the world are undoubtedly lower now. We at NPG believe the global optimum could be in the range of 1.5 to 2 billion. That was the level of world population as recently as the first decade of the 20th century, before increases in human life expectancy and affluence generated the environmental damage now painfully evident.

We are convinced that a sustainable U.S. population of about 150 million – roughly the level of 1945 – can be reached within several generations via federal tax incentives encouraging families to have no more than two children, coupled with a substantial reduction in immigration.

The coronavirus pandemic is a human tragedy that could kill millions before running its course. Its precise cause is not yet known, but it is suspected that the virus was transmitted to humans by wild animals – allegedly bats – sold at "wet market" in Wuhan, China. (A wet market sells wildlife as food to consumers.) Other deadly viruses – Ebola and MERS, for example – were also triggered by human-animal contact, according to the CDC. In each case, human infringement on natural habitats facilitated the spread of disease to humans.

The relationship between humans and diseased bats goes back a long way: This from a March 2020 article in *The Lancet*: **"Bats have always had viral populations, and despite close association with humans for millennia, this has not resulted in pandemics until recent times."**[1]

The authors of the *Lancet* piece, prominent epidemiologists, surmise by living in small, isolated groups, early man inadvertently achieved a sort of "social distancing" that prevented infection in one group from spreading throughout the species. They had no knowledge of viruses, of course, and many isolated human groups undoubtedly perished, but our entire species was never threatened. We were too few and far between. Today humans are everywhere, and a deadly infection in one group – be it a nursing home, a neighborhood, or a nation – represents a threat to *homo sapiens* everywhere. Pandemics need large, high density populations – the stuff of "recent times" – to propagate and thrive.

You think COVID-19 originates in wildlife? Think again. It's anthropogenic: caused by human activity. You don't have to live in Wuhan to know there are too many of us. There are now more than 7.8 billion people on the planet; the U.N. predicts the population will reach 9.8 billion by 2050 and 11.2 billion by 2100 at the current growth rates. The unchecked expansion into new habitats is bringing humans into contact with wildlife pathogens against which we have no immunity.

A SLOW, DISORGANIZED RESPONSE

In September 2019 The World Bank and World Health Organization (WHO) put out a report on pandemic preparedness: **"Few natural hazards threaten more loss of life, economic disruption, and social disorder than large-scale disease outbreaks,"** the report said, noting that the world is under-investing in advanced planning **"… despite evidence that suggests more attention to preparedness would be cost effective."**[2]

For six months the WHO report gathered dust. A costly six months, for among its projections was that a new influenza-style outbreak on the scale of the 1918 pandemic could cost as much as $3 trillion, or about 5% of global GDP. The cost of preparing for the threat? A mere $3.4 billion per year, or roughly one tenth of 1 percent of the potential savings, if it prevents a pandemic.

The report devotes a lot of ink warning of inadequate vaccination capacity in developing countries, but not a drop on the role overpopulation plays in that problem.[3]

We are told that young people are more likely to survive this disease. From a distance, the data seem to support this. Africa is one of the "youngest" places on Earth, with about 60% of its population under age 25. In April African nations reported 45,000 COVID-19 cases, a tiny fraction of the continent's 1.3 billion people.[4] But Africa also has the world highest birth rates, and lowest life expectancy. Most Africans simply don't live long enough to become susceptible to the novel virus.

At the other extreme: Japan, with the world's oldest population, recorded fewer than 520 coronavirus deaths as of late April.[5] But Japan was also woefully slow to test. As of April 15th, that country had performed just one test per thousand people, which pales even in comparison to the paltry 10 per thousand tested in the U.S. by that date. **"If you don't test, you find no cases, and even no deaths**," says John Ioannidis, professor of disease prevention at the Stanford School of Medicine. Ioannidis suspects that Japanese health statistics misclassify coronavirus deaths as ordinary pneumonia, a common cause of death for severe COVID-19 cases.[6] Only time – and more widespread testing – will tell.

Italy and Germany both have fairly old populations. Italy's COVID-19 death rate (an estimated 13.2% of those who tested positive ultimately die, according to April data) is 4-times higher than Germany's 3.2%.[7] A cultural tradition of physical closeness, where older parents often live with their children and grandchildren, may explain Italy's high caseload and death rate.

Dumb luck also plays a role. Take the case of Indonesia, an archipelago nation of about 6,000 inhabited islands, with a population of 270 million: **"In Indonesia, we have a health minister who believes you can pray away Covid, and we have too little testing,"** Dr. Pandu Riono, an infectious disease specialist at the University of Indonesia**,** is quoted as saying, **"But we are lucky we have so many islands in our country that limit travel and maybe infection. There's nothing else we're doing right"**[8]

Indonesia's COVID-19 fatality rate declined by about one-fifth from March to May 2020, and is now at the world average.[9]

Where does the U.S. stand in all this? As of mid-April, 5.3% of Americans who tested positive had died from the virus.[10] Given that our testing rate was low at the time, our COVID-19 fatality *rate* is probably lower today, even though deaths from the disease have risen. At the end of March less than 1,000 Americans per day were dying from the virus. A federal projection, based on models pulled together by FEMA forecasts a steady rise in the daily death toll to 3,000 on June 1.[11] As of May 6th the U.S. had more COVID-19 deaths than any other country.

We are one country, with 50 states, and nearly as many cultures. The disparity between New York (with 55 COVID-19 deaths per 100,000 people) and California (with two) has been attributed to the early imposition of stay-at-home orders in California, which already had a work-at-home culture amenable to such restrictions.[12] But what about New York's role as the business capital of the world? Evidence suggests travelers returning from Europe unwittingly brought the disease to the city in mid-February. In New York City, the country's hottest hot spot, hospitals in the most densely populated, poorest neighborhoods saw a disproportionate number of cases and deaths.

The deck is stacked against New York.

There is no single reason why some places are hit hard and others missed. A country's average age, racial composition, culture, climate, testing rate – and luck – all influence the number of deaths from this virus. But the one overarching factor is population size and density.

POPULATION DENSITY IS DEADLY

"There's a strong correlation between the risk of pandemic and human population density. We've done the math and we've proved it."[13] – Dr. Peter Daszak, Columbia University disease ecologist

Dr. Daszak examined the population/pandemic link for 300 new viruses that emerged since the mid-20th century. His 2008 study, published in the journal *Nature*, found **"All known emerging diseases were linked to sudden human population growth, new human activity in the environment, and high wildlife diversity in the area where the pathogen originated."**[14]

More than 70% of the diseases studied by Daszak and his colleagues, known as zoonotic diseases, are caused by viruses originating in wildlife. One of them, the SARS coronavirus, emerged in China and is believed to have been transmitted to humans from bats. (Sound familiar?) SARS traveled around the world in just a few weeks in 2002, infecting more than 8,000 people and killing about 800 before it was brought under control by travel restrictions and quarantining infected people.

Humans rarely come into contact with wildlife, so, in theory, such pathogens should not pose much danger to people. But the pathogens can leap from wildlife to humans by first infecting animals that humans do come into contact with, like domestic pigs. The link requires that humans, their domesticated food animals, and wildlife, all live in close proximity, such as occurs when burgeoning populations push people into areas where humans rarely, if ever, ventured.

"Each wildlife species carries a bunch of microbes, most of them we've never known about," Daszak says. **"When you build a road into a new patch of rainforest, you put a pig farm in there, people move in and come into contact with these pathogens**."

China has probably enabled more wildlife-to-human disease transmission than any other country. The mass-scale breeding of wild animals, including civets, foxes, wild geese, and boar, is a $74 billion industry in China, and has been viewed as a get-rich-quick scheme by its rural population.[15] In China, humans don't have to come to wildlife; wildlife comes to humans – via greedy entrepreneurs.

About those wet markets: They are already re-opening after being closed immediately after the outbreak. Chinese President Xi and Donald Trump are both itching to restart their battered economies despite the health risks.

Blaming China is easy, but misses a larger point. The way people grow food all over the world is a major

pandemic risk factor. That's because most livestock consumed by humans are raised in "**concentrated animal feeding operations,"** AKA factory farms.[16] These huge industrial facilities are far more efficient than traditional family farms, enabling people of modest means to consume beef, pork, and poultry in amounts that only upper incomes could afford previously. But this economic efficiency comes with a price: Health. Health of the animals, as well as the consumers.

"When we overcrowd animals by the thousands, in cramped football-field-size sheds, to lie beak to beak or snout to snout, and there's stress crippling their immune systems, and there's ammonia from the decomposing waste burning their lungs, and there's a lack of fresh air and sunlight — put all these factors together and you have a perfect-storm environment for the emergence and spread of disease," says Michael Greger, the author of *Bird Flu: A Virus of Our Own Hatching.*[17]

To make matters worse, selection for specific genes in farmed animals (for desirable traits like large chicken breasts) makes these animals genetically identical. That makes it easy for a virus to spread from animal to animal without encountering any genetic variants that might stop it in its tracks.

"As it rips through a flock or herd, the virus can grow even more virulent," Greger says, adding **"If you actually want to create global pandemics, then build factory farms."**[18]

THE LAST PANDEMIC

In April 2009, samples from two California children suffering from the flu arrived at CDC headquarters in Atlanta. Something in the genetic makeup didn't seem normal. It was entirely new to science. That was the beginning of the swine flu pandemic.[19]

The virus spread quickly through the U.S. and Mexico, and in June 2009 was officially declared a pandemic by the WHO. In its first year the CDC estimates there were 60.8 million cases of swine flu in the U.S., and nearly 12,500 deaths – making a fatality rate of about 0.02%.[20] The fatality rate for coronavirus is much higher – 5.9% as of May 22nd – though the rate is expected to fall to around 1% to 2% as more people are tested.

The swine flu was also less contagious. People infected with swine flu are estimated to have passed the disease on to 1.46 people, on average; for COVID-19, the number is expected, at this time to be between 2.0 and 2.5.[21]

The swine flu was the second pandemic the world had seen. The first was the 1918 Spanish flu, still the most deadly pandemic in history.

Quarantines and social distancing were never part of the swine flu response. It was treated more like the seasonal flu than a deadly epidemic, perhaps because of its relatively low death and contagion rates.

We now know the swine flu circulated in North American pig farms before jumping to humans.[22] This MO is typical. The reason? "**Pigs and humans are genetically quite similar, and have similar immune systems, making the crossover much easier. Hence, pigs have been described as 'mixing vessels' in which viruses picked up from other animals are 'genetically rearranged' to be able to make the jump."**[23]

Another difference: swine flu primarily affected children and young adults; 80% of the deaths were people younger than 65, according to the CDC. That is unusual. Both seasonal flu and (so far) COVID-19 are more deadly for people over 60 who have underlying health issues.

"**The 2009 H1N1 pandemic should have been a warning sign,"** says Steffanie Strathdee in a livescience.com interview. **"It didn't end up being a pandemic that killed millions of people as we feared it would, but it should have been a wake-up call."**[24]

Strathdee, the Dean of Global Health Sciences at UC San Diego's Department of Medicine, was on the front lines in both the 2009 and 2020 pandemics. In both episodes the federal government declared a **"public health emergency"** exactly 11 days after the first U.S. case was identified. That's about where the similarities end.

"A major difference is that we were better prepared for a pandemic…years ago," Strathdee recalls. Within 4 weeks of detecting the 2009 virus the CDC released health supplies from their stockpile, and most states had labs capable of diagnosing the virus. In 2020 the CDC began sending diagnostic kits to state labs on February 5th, but most of those kits were faulty. This meant that COVID-19 continued to spread undetected for weeks.[25]

"Another difference is that this is the first pandemic in the era of social media," Strathdee said. The wealth of misinformation about the disease has spread faster than the virus, she said, as has blame for the virus. **"We need to stop thinking like this. We need to unite against the virus."**

On the plus side: the technology available to develop and produce a vaccine is speedier and more sophisticated today. But the disease is new, so **"It will take time for a vaccine and treatments to be studied and scaled up."**

AN EXTINCTION SCENARIO?

COVID-19 is expected to kill up to 2% of people contracting the disease, and life as we know it has changed forever. The avian flu of 2013 killed roughly 60% (SIXTY-PERCENT!) of the people who contracted it, yet no one seemed to notice, because it mostly infected poultry rather than humans. A pandemic was never declared, because that designation refers to spread among humans rather than human death rates.

But just imagine if a virus with a 60% human mortality rate were to combine with a virus able to travel quickly among humans. That could portend not just the end of life

as we know it, but the end of human life, period. The extinction scenario is certainly possible. That's because the bird flu is a work in progress:

"… The [avian flu] virus is still mutating to this day, and continued outbreaks in industrial poultry farms worldwide – including in Thailand, Nigeria, France, and in just the last couple of months, India and China – are providing new opportunities for the virus to mutate into a form capable of moving even more easily among both animals and humans."[26]

Implication: the avian flu virus could well be only a few mutations away from threatening the existence of human life on Earth.

SUMMARY

We were blindsided this spring. Prior to COVID-19, most of us assumed mankind had triumphed over infectious diseases, thanks to vaccines, antibiotics, and antiviral drugs. Global pandemics like the Bubonic Plague and the "Black Death" were relegated to history books.

Turns out we weren't paying attention. Hundreds of new infectious diseases emerged in the late 20th century, most caused by viruses or bacteria that spread from animals to people. Human population growth enables this deadly transfer by increasing the likelihood that humans encounter new viruses for which they have no immunity.

A desperate rush for COVID-19 vaccines and treatments is on. Over the long run, the increased social distancing that accompanies a smaller human population may be our only reliable way of containing future pandemics.

NOTES

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NOTE: The views expressed in this article are those of the author and do not necessarily represent the views of NPG, Inc.

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