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**EMERGENCY PANDEMIC CONTROL ESSAY**

How might the United States better prepare itself against future pandemic threats? This question couldn't be asked at a more opportune and mission critical time in our world's history. Our ongoing challenges, frequent failures, and rare successes during the current coronavirus pandemic have hopefully taught us that active prevention and constant readiness are not just political promises, but are actually tangible strategies that we must implement moving forward if we are to evolve into a safe "next normal" for future generations. Ultimately, our greatest recent mistake has been allowing short-term economic considerations to blind us and fighting cultural wars that have pitted science against political expediency. In this essay, I explore how the United States can better prepare itself against future pandemic threats. It will not only take a rehaul of our current health care strategy, but will also require the most challenging public relations campaign in history.

### **Why are we at risk?**

Potential pandemic threats face the United States on multiple fronts, from animal and human vectors to our own food sources, from business and leisure travel to trade, and increasingly - biosecurity concerns. Each of these creates unique concerns that have grown in parallel with our population, technologies, and conflict.

Over the last one hundred years, the population of the United States has more than tripled, from approximately 106 million to more than 330 million people<sup>1</sup>. During this time, we have also experienced a rapid transition in how we obtain food, reflecting the movement of our populations toward cities and consolidation of our food production to corporations. Whereas local farms and free-range animal production might have been more common a hundred years ago, today our farmland has steadily decreased in area, and our use of factory farms has exploded. Americans regularly consume foods produced from across our country and from throughout the world. The intensive production and close quarters of factory farms are hot spots for viruses to mutate and jump within and across species, and food traffic all but guarantees rapid spread that complicates our ability to contact-trace potential pandemic sources.

During this same timeframe, we have also experienced a rash of deforestation and increase in global temperatures. Deforestation has not only contributed to global warming, but has resulted in the movement of animals and insects towards populated areas, increasing the risk of disease transmission, as 75 percent of new human infectious diseases have originated in animals<sup>2</sup>. This disproportionately impacts tropical areas in which these diseases are endemic - and posing a significant downstream impact on more industrialized communities around the world. Similarly, global warming is causing a gradual creep of insect vectors toward communities with less immunity and without routine vaccination programs<sup>3</sup>.

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<sup>1</sup> <https://www.usafacts.org>

<sup>2</sup> Quick, JD *The End of Epidemics: The Looming Threat to Humanity and How to Stop It*. St. Martin's Press; 1st edition (January 30, 2018)

<sup>3</sup> Lukan M et al. Climate warming and tick-borne encephalitis, Slovakia. *Emerging Infectious Diseases* 2010; 16: 524-526.

Travel is another hallmark of the past hundred years, during which time airplane travel has become mundane, and international leisure and business travel are available to greater numbers of people and nations. During this time period, trade has exploded. The typical American household has dozens if not hundreds of products produced in China, India, and any other number of countries. A pandemic threat from anywhere can reach our shores at any time. The sheer number of trade ports, international airports, and both human and product movement makes international travel bans incredibly difficult to sustain and operationally challenging to remain impactful.

Finally, biosecurity concerns complicate our relationships in an increasingly tense world. Bioterrorism as well as biological weapons are a quiet presence that cannot be ignored - and unfortunately are unlikely to be prevented. And security for stockpiles of biological agents is inconsistent and nearly impossible to maintain, resulting in additional opportunities for accidental spread of stored viruses and toxins.

Ultimately, our success as a species - as suggested by rapid population growth and exponential technological advances, have resulted in a world with limited resources by our own design, a changing environment and climate that evolution cannot accommodate, and conflicts among us that sow escalation. Together, all of these factors make future pandemics inevitable - as our current experience has unfortunately illustrated. Unfortunately, we were and are not currently prepared to address these threats.

### **Why are we not prepared?**

Our current preparedness has been compromised first and foremost by our own politics. In 2016, the Obama-era National Security Council published a 69-page document entitled *Playbook for Early Response to High-Consequence Emerging Infectious Disease Threats and Biological Incidents* - its role was to help future leaders better respond to a pandemic<sup>4</sup>. It was developed partially in response to the challenges created by the 2014-2015 Ebola pandemic. However, it was not adopted by the Trump administration. In addition, the Obama administration expanded the National Security Council to include the Directorate of Global Health Security and Biodefense. Unfortunately, in 2018, the global health security directorate was disbanded by then-national security adviser John Bolton<sup>5</sup>.

And even as we may blame the current administration on our failures to address pandemic threats, our limited healthcare infrastructure, lack of a universal primary health care system, and low community investment in resilience have been features of our individualistic society since our inception. And unfortunately, our citizens have not been prepared to personally invest in their improvement.

While it cannot entirely be known how our recent politics have impacted our current preparedness for the coronavirus pandemic, the sluggish and disorganized response and messaging speak for themselves. The only bright side of this tragedy is that the health and economic impacts of a pandemic are now recognized by the population at large. Our recent election reflects that change. Given our real-world experience, it seems more likely that

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<sup>4</sup> <https://heavy.com/news/2020/05/read-obama-pandemic-playbook-pdf/>

<sup>5</sup> <https://chicago.suntimes.com/2020/3/14/21179825/coronavirus-nsc-pandemic-unit-debanded-donald-trump>

heightened organization and investment in a comprehensive pandemic strategy will be a prominent feature of future political administrations.

Admittedly, one highlight of the current effort is Operation WarpSpeed<sup>6</sup>, a public-private partnership led by the Trump administration with the goal of investing approximately ten billion dollars in rapid development and mass production of multiple vaccines. It is unclear whether this type of strategy might be used beyond this current pandemic. Whether or not it is ultimately effective, we will require multiple other interventions to improve our resilience to future pandemics.

### **How can we be better prepared?**

While interventions can take many forms, there are also multiple areas of tiered responsibility to enact them: the individual, the corporation, and the government. Without a comprehensive approach, our ability to impact our future risk will be piecemeal and limited.

The individual's ability to impact risk cannot be underestimated. Our first responsibility as world citizens is to be engaged. In democratic societies, participation in elections is essential. Voting for candidates who believe in science and prioritize health has never been more important. Our recent history has certainly made this apparent. Secondly, we have a personal responsibility to behave in ways that not only lower our own personal risk, but help the population as a whole. Wearing masks, washing hands, and physical distancing are evidence-based ways to prevent communicable disease spread, and it seems likely that we will experience the recommendations of these interventions moving forward, perhaps in a red/yellow/green communication that reflects the current risk environment<sup>7</sup>. Despite the inconvenience, we all hold a personal responsibility to protect ourselves and the people around us. This obviously also extends to gatherings and travel. Recognizing our personal impact on the environment is also important. Small interventions like eating less meat, supporting local, non-factory farms, and engaging in meaningful behaviors to minimize impact on fossil fuels and slow climate change can make a difference.

Corporations should increasingly take responsibility for pandemic risk reduction, particularly when they have historically placed profit motives above environmental stewardship. The role of corporations in deforestation and factory farms has been incredibly powerful in making pandemics more likely. If corporations were to move some of their emphasis away from these acts, there would be an impact, particularly in the developing world where many pandemics originate. Lobbying, while unsavory at best, can also work to the advantage of society when corporations decide that their interests align with those of the people. A healthier population contributes to a healthier economy<sup>8</sup>. Hopefully, corporations can recognize that a healthier economy requires a healthier workforce and consumer base as well.

Finally, our government is our greatest handicap, and our greatest hope. While individuals and even corporations can certainly have an impact, it is their pressure on the government that will ultimately determine whether the United States can sufficiently protect itself

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<sup>6</sup> <https://www.hhs.gov/coronavirus/explaining-operation-warp-speed/index.html>

<sup>7</sup> <https://www.npr.org/sections/health-shots/2020/07/01/885263658/green-yellow-orange-or-red-this-new-tool-shows-covid-19-risk-in-your-county>

<sup>8</sup> Bloom, David E.; Canning, David. 2008. Population Health and Economic Growth. Commission on Growth and Development Working Paper; No. 24. World Bank, Washington, DC. © World Bank.

against future pandemics. This can be accomplished with some changes in the structure of the pandemic response itself, implementation of a universal health care system, and improvements in processes and transparency.

After the atrocities of 9/11, the Bush administration created the new cabinet position of Secretary of Homeland Security as part of a larger emphasis on avoiding future terror attacks. Whether this intervention can take credit for our relative safety in the ensuing twenty years we will never know, but it certainly has impacted how our government has coordinated national defense above and beyond our Department of Defense and our military. I propose that we create a similar cabinet-level position to specifically address biosecurity and pandemics.

Working alongside the Secretary of Health and Human Services, the Security of Biosecurity would focus upon biological threats that impact our security, in the form of infectious agents that may originate domestically or from abroad, as well as bioterrorism and biological weapons. This department would lead a proactive government effort to reduce the risk of future pandemics while helping to make our existing healthcare infrastructure more resilient - all with the President's ear. Even as I write this, I'm excited to note that President-Elect Biden is planning to re-establish the directorate for global health security.

Regular communications from this leadership would help restore trust in science and invigorate transparency in political leadership so that citizens will be more likely to adopt more healthful behaviors and be more accepting of recommendations around testing or vaccinations. The Surgeon General, Secretary of Health and Human Services, and the Director of this Global Health Security Directorate need to present a common front that communicates unity and cooperation among different areas of government.

But in our current era, media messaging is not limited to our leaders' bully pulpit or the various news outlets that we may choose to hear from. It's everywhere. Facebook, Twitter, TikTok - these social media networks have replaced CBS, ABC, and NBC as the portals through which many of us receive, digest - and share - information, misinformation, and disinformation. And given that misinformation tends to be spread even more quickly than facts<sup>9</sup>, social media corporations are faced with a more pressing concern than ad revenue or user base: responsibility. It's almost quaint to remember the nascent forms of these networks as vehicles for sharing family photos and "status updates" when they are now used by bots and enemy governments just as easily to influence elections and impact health behaviors. As recognized by Voltaire, "With great power, comes great responsibility"<sup>10</sup>. The only question is whether this should come from within (self-regulation by social media corporations) or from without (government regulation). The former will likely be limited by profit motives (and clearly has been unsuccessful to date) and the latter will border on censorship. Neither is perfect, yet both are needed.

But resilience cannot be a strictly top-down mandate by our government. It requires a proactive, accessible primary health care system that serves the entire population. I believe that the only way to accomplish this is through the creation of a single-payer universal health care system, as exists in all higher income, democratic and developed countries<sup>11</sup>. This system

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<sup>9</sup> <https://www.psychologytoday.com/us/blog/web-mistrust/201812/how-does-misinformation-spread-online>

<sup>10</sup> Voltaire. Jean, Adrien. Beuchot, Quentin and Miger, Pierre, Auguste. "Œuvres de Voltaire, Volume 48". Lefèvre, 1832

<sup>11</sup> [https://en.wikipedia.org/wiki/List\\_of\\_countries\\_with\\_universal\\_health\\_care](https://en.wikipedia.org/wiki/List_of_countries_with_universal_health_care)

would have a substantial public health component to improve education and infrastructure so that services like immunizations could be more successfully deployed. Despite the availability of effective recommendations for effective vaccination programs, our existing real-world approach to immunizations is scattershot and almost guarantees failure to reach enough Americans to achieve herd immunity quickly<sup>12</sup>. Given that future pandemics will require a more reactive approach to vaccinate millions of people - including adults - to new pathogens, we need to do the groundwork now through communications and improved infrastructure so that more people will be more accepting of more - and newer - immunization recommendations.

Overhauling our healthcare infrastructure is obviously an intimidating challenge. But perhaps healthcare can learn from infrastructure approaches from our earlier history. The Civilian Conservation Corps was a public works program started during the Great Depression that provided jobs to millions and helped to develop our transportation system and national parks, invigorating our economy and providing a public good<sup>13</sup>. Is there a public health version of this that could strengthen the healthcare workforce? Many communities throughout the United States have medical reserve corps, comprised of healthcare providers who volunteer their time to assist with disaster management and immunizations<sup>14</sup>; we have pivoted during the current pandemic to provide other services as well. Financial support of these organizations could provide the type of resilience needed to support the workforce needs during pandemics. The government could also provide additional support to research medical trainees to invest in future science careers. And we could consider expanding the Public Health Service to include older physicians in different phases of their careers. Many physicians are looking for opportunities to change their practices and serve their communities. We can encourage this type of service.

### **How can we move forward?**

Obstacles abound. Before we can even approach logistical concerns, our large, heterogeneous citizenry is limited by the complicated relationship between our politics and money. During the past four years, we have collectively experienced the impact of the sometimes slow but often inexorable divestment of responsibility toward managing this pandemic, let alone preventing the next one. Investment in infrastructure requires political will, but requires financial will as well. A universal healthcare system and a more comprehensive public health workforce will require significant reallocation of health dollars and likely new taxes - which will require an effective messaging campaign and transparent, honest communication led by scientists, physicians, and public health experts.

During the coronavirus pandemic, we have lost so much. But we have also witnessed pockets of ingenuity and innovation. And our collective failures have resulted in us pivoting as a nation toward a new direction forward. We have elected a new President, who will bring a new pandemic strategy and a renewed activism toward resilience and response. The announcement of a new coronavirus task force led by scientists, physicians and thought leaders is encouraging. But regardless of what recommendations they may make - whether guided by science, politics, or even money - they will need the support of over three hundred million Americans to truly put them into action. Ultimately, for the United States to prepare itself against future pandemic threats, we need to recognize that these threats exist among us. It is only with

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<sup>12</sup> <https://www.cdc.gov/vaccines/pubs/pinkbook/downloads/strat.pdf>

<sup>13</sup> <https://www.archives.gov/research/guide-fed-records/groups/035.html>

<sup>14</sup> <https://mrc.hhs.gov/HomePage>

a united front, guided by science and a long-term world-view on policy, that we will be able to address them.