

A SPECIAL AMBASSADOR'S FORUM

**COMBATING GLOBAL COVID-19:
FROM ISOLATION TO INTERNATIONAL COOPERATION**

NOVEMBER 2020



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NOTICES

The Special Ambassador's Forum is a collection of observations, research, policies, and comments on current medical research related to COVID 19.

The following reports are excerpts and additional commentary from the online presentation broadcast on March 26, 2020. The original videoed broadcast can be seen here:

<http://ili.org/about/news/1094-ili-hosts-%E2%80%9Ccombating-global-coronavirus-from-isolation-to-international-cooperation%E2%80%9D-conference.html>

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AMBASSADOR'S FORUM: "COMBATING GLOBAL COVID-19: FROM ISOLATION TO INTERNATIONAL COOPERATION"

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[November 2020]

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PREFACE

PROFESSOR YONAH ALEXANDER AND PROFESSOR DON WALLACE, JR.,

EDITORS

The national, regional, and global spectrum of biological challenges is limitless. Throughout recorded history, these infinite safety concerns stem essentially from two inevitable sources of enduring actual and potential dangers to individuals, communities, societies, and civilizations.

The first critical threat is caused by Mother Nature's disasters, such as earthquakes, cyclones, and infectious diseases. The second concern is man-made menaces, including violent radicalism, terrorism, and war. The key question then is whether the United States and the International Community are prepared to identify, prevent, and counter current and future biological threats.

The Preface of our current Report on "Combating Global COVID-19: From Isolation to International Cooperation" (November 2020) offers an overview of the nature and global implications of biological challenges, both natural and man made, as well as provides a brief academic perspective of the editors of this timely publication.

MOTHER NATURE AND MAN-MADE BIOLOGICAL THREATS

Biological agents are micro-organisms too small to be seen with the naked eye and can include bacteria, viruses, and fungi. Some of the most serious viral agents are those that produce, for example, smallpox and yellow fever. Bacterial agents can induce the plague and Anthrax.

Biological threats are difficult to control as they require a delivery system, or "vector," that can make distribution difficult and dangerous. Furthermore, it seems likely that if terrorists were to use a biological weapon, they would probably choose a bacteriological rather than a viral or rickettsial agent due to available countermeasures as well as the difficulty of cultivating viruses.

In addition, toxins, the poisonous byproducts of micro-organisms, plants, and animals, fall somewhere between biological and chemical agents as they are non-living substances. Toxins are relatively easy to manufacture and extremely virulent. Botulinum toxins, for example, can be more toxic than some nerve agents on an equal-weight basis.

Moreover, many agents are considered capable of spreading disease among humans, animals, or plants. Disease develops when people and animals are exposed to infectious micro-organisms or to chemicals which are produced by such organisms. After an incubation period, during which organisms are multiplied, the disease may even cause death. Mention should also be made of a number of fungal pathogens, such as smut of wheat, that is capable of destroying crops as well as resulting in famine and costly diseases.

Despite these types of classification of biological challenges, historical and contemporary records provide extensive evidence regarding the nature, intensity, and health security implications of existing threats. These massive data sources also serve as a warning to beware of future catastrophic losses to human lives as well as political, social, economic, and strategic costs to those societies affected by biological pathogen attacks.

For example, in the 14th Century, the Black Plague wiped out 30-60 percent of Europe's population. Likewise, the 1918 influenza pandemic, regarded as the deadliest in modern times, killed an estimated 50 million people worldwide, about 675,000 of them in the United States. Additionally, the Asian flu, originated in China in 1957-1958, resulted in the death of some one to four million people.

More recently, the sudden Ebola outbreak that began in 2014 presented a major health security challenge nationally, regionally, and globally. This deadly disease has created unprecedented fear and anxiety over public safety, not only in parts of West Africa, but also the United States, Europe, and elsewhere.

To be sure, the Ebola virus reappeared again in the Congo at different periods during 2018-2020. Similar outbreaks as well as other contemporary health security challenges are anticipated in the future.

Mention should be made of the Zika virus infection that is spread by mosquitos (which are also the vectors of many other diseases), sexually, and through blood transfusion as well as laboratory exposure. The disease causes microcephaly and many other birth defects. Another grave humanitarian concern is the cholera epidemic that has occurred in war-torn Yemen where more than 100,000 cases have been recorded by World Health Organization (WHO) sources, a quarter of them children. This disease is caused by bacteria from water or food contaminated with feces.

Supplementing Mother Nature's biological threats are man-made intentions and capabilities to deploy a wide range of weapons against perceived or actual adversaries in the struggle for power within and among nations. From the dawn of history to modern times numerous theologians, philosophers, politicians, military strategists, scientists, academics, and other participants and observers of the world's security concerns have underscored the continued trends toward mass destruction capabilities.

In sum, to prevent a potential "Black Plague"-like disaster as well as man-made threats, it behooves all nations to recall the warning in Shakespeare's King Lear, "We make guilty of our disasters the sun, the moon, and stars, as if we were villains on necessity; fools by heavenly compulsions..." (Act 1, Scene 2).

Bill Gates similarly asserted in a February 2017 Security Conference in Munich that "by the work of nature or the hands of a terrorist...an outbreak could kill tens of millions in the near future unless governments begin to prepare for these epidemics the same way we prepare for war."¹

COVID-19 AND AN ACADEMIC CONTEXT

The current novel COVID-19, also known as Covid-19, has alarmed the world in early 2020 because of similarities with the SARS (the acute respiratory syndrome) some 17 years ago, which killed almost 800 people. On March 11, 2020 the WHO declared the escalating biological threat a pandemic and two days later the United States designated the crisis a National Emergency. By October 27, 2020, the United States registered 8,710,703 COVID-19 cases, resulting in a total of 225,817 deaths. During the same period the pandemic has confirmed 43,623,111 cases with a total death toll of 1,161,422 worldwide.²

Many questions have arisen during the past ten months ranging from the exact origin of the pandemic in China, to whether the worst is yet to come, to what are the best response practices to prevent the next potential outbreaks.

In view of the current and future looming biological threats that pose continual and unprecedented security challenges to those in the U.S. and abroad, the co-sponsors of the Ambassadors' Forums have organized a total of five Zoom Conferences during 2020. These events include the following Forums: "Combating Global COVID-19: From Isolation to International Cooperation" (March 26, 2020); "Combating Global COVID-19: A Preliminary Assessment of Past Lessons and Future Outlook" (April 14, 2020); "Global Covid-19 and the Economy: Costs, Lessons, and Future Outlook" (May 20, 2020); "Global Covid-19 and Energy: Threats and Responses" (June 25, 2020); and "Covid-19 and Sports: Threats and Responses" (July 30, 2020). The vidoes of the five Forums are accessible at the ILI website (www.ili.org).

¹ Avi Selk, "Bill Gates: Bioterrorism Could Kill More Than A Nuclear War - But No One Is Ready to Deal With It." [The Washington Post](https://www.washingtonpost.com/news/energy-environment/wp/2017/02/18/bill-gates-bioterrorism-could-kill-more-than-a-nuclear-war-but-no-one-is-ready-to-deal-with-it/), February 18, 2017.

² The statistical data is drawn from the John Hopkin's University global COVID-19 data, October 27, 2020

Additionally, two publications drawn from the Ambassadors' Forum on "Global Covid-19 and Sports: Threats and Responses" that was held on July 30, 2020 have been released recently. The first is a Monograph on "Global Covid-19 and Sports: Exposure Claims and Liability Mitigation Considerations" published in September 2020. The authors of this publication were the attorneys from Crowell Moring LLP, namely, Chalana Damron, Thomas P. Gies, Kristof Roxx, and Laurence Winston.

The abbreviated version of the Monograph is incorporated in the second, slightly edited and updated, Report on "Global COVID-19 and Sports: Threats and Responses" published in October 2020. This Report consists of contributions by invited interdisciplinary panelists including Distinguished University Professor Rita Colwell (University of Maryland College Park and Johns Hopkins University Bloomberg School of Public Health); Dr. Richard B. Reff, MD (Orthopedic Surgeon and Sports Medicine Specialist); Carl Francis (Director of Communication at the National Football League Players Association); Chalana Damron, Tom Gies, Kristof Roxx (attorneys at Crowell & Moring); Ambassador (Ret.) Charles Ray (a former U.S. diplomat and military officer); and Ambassador Pjer Simunovic at the Embassy of Croatia (holding the Presidency of the Council of the European Union). publications are available to view at <http://ili.org/about/news/1243-iutcs-and-ili-host-ambassador-s-forum-global-covid-19-threats-and-responses.html>.

The current Report on "Combating Global COVID-19: From Isolation to International Cooperation" (November 2020) consists of contributions by invited interdisciplinary panelists at our Ambassadors' Forum on "Combating Global COVID-19: From Isolation to International Cooperation" that was held on March 26, 2020 via Zoom conferencing and hosted by the International Law Institute (ILI) and the Inter-University Center for Terrorism Studies (IUCTS). Speakers at this Ambassadors' Forum included Dr. Roberta DeBiasi (Chief of the Division of Pediatric Infectious Diseases at the Children's National Hospital); Dr. James Giordano (Professor in the Departments of Neurology and Biochemistry at Georgetown University Medical Center); Ambassador (Ret.) Charles Ray (Former U.S. Ambassador to Cambodia and Zimbabwe); Ford Rowan (Chairman of the National Center for Critical Incident Analysis); Marc Norman (Director for Africa, Asia, Europe and the Americas in the Bureau for Counter-Terrorism at the U.S. Department of State); Dr. Daniel Gerstein (Former Acting Undersecretary and Deputy Undersecretary for the Department of Homeland Security); Dr. Richard Reff, MD (Orthopedic Surgeon and Sports Medicine Specialist); and Dr. Tevi Troy (CEO of American Healthy Policy Institute). This event is available to view at <https://www.ili.org/about/news/1094-ili-hosts-%E2%80%9CCombating-global-COVID-19-from-isolation-to-international-cooperation%E2%80%9D-conference.html>.

It should also be noted that numerous academic programs relevant to previous biological challenges were undertaken by the Inter-University Center for Terrorism Studies (IUCTS), the Inter-University Center for Legal Studies (IUCLS), and the International Center for Terrorism Studies (ICTS), and their earlier institutional structures during the past half-a-century. These activities consisted of seminars and publications seeking to provide insights into historical lessons learned, future potential biological threats, and offer recommendations for rapid response strategies by public and private entities.

For example, during 2019 two related publications focusing on broader security concerns were published. The first published Report on "Biological Terrorism: International Dimensions" was released in June 2019 consisted of contributions presented at a seminar hosted by Professor Don Wallace, Jr. at the ILI on March 28, 2019. Participants at the event included Dr. Larry Kerr (Director, Pandemics and Emerging Threats, Office of Global Affairs, U.S. Department of Health and Human Services); Professor Rita Colwell (Distinguished University Professor at the University of Maryland, College Park and Johns Hopkins University Bloomberg School of Public Health, and Senior Fellow, Potomac Institute for Policy Studies); Dr. Daniel M. Gerstein (Senior Policy Researcher at the Rand Corporation, and Former Acting Undersecretary and Deputy Undersecretary in the Science and Technology Directorate, Department of Homeland Security); Dr. Gerald L. Epstein (Distinguished Research Fellow at the Center for the Study of Weapons of Mass Destruction, National Defense University); and Dr. Meghan Delaney (Chief of Pathology & Laboratory Medicine and Medical Director for Transfusion Medicine, Children's National Medical Center, and Associate Professor of Pathology & Pediatrics, George Washington University). Professor Yonah Alexander served as moderator of the event and closing remarks were made by General (Ret.) Al Gray (Twenty-Ninth Commandant of the U.S. Marine Corps, and Senior Fellow, Potomac Institute for Policy Studies).

The second related publication on “The Role of Diplomacy in World Affairs: Past Lessons and Future Outlook” was released in November 2019. It included contributions by Ambassador (Ret.) Ronald Neumann (Formerly Deputy Assistant Secretary and U.S. Ambassador to Algeria, Bahrain, and Afghanistan, and currently President, the American Academy of Diplomacy); Ambassador (Ret.) Charles Ray (Former U.S. Ambassador to Cambodia and Zimbabwe); Ambassador (Ret.) John Negroponte (Former Director of National Intelligence and Deputy Director of State); Ambassador (Ret.) Lino Gutierrez (U.S. Ambassador to Argentina and Nicaragua as well as Acting Assistant Secretary of State for Western Hemisphere Affairs); Ambassador (Ret.) Jimmy Kolker (U.S. Ambassador to Burkina Faso and Uganda); Ambassador (Ret.) Edward Marks (Former U.S. Department of State Deputy Coordinator for Counterterrorism and Ambassador to the Republics of Guinea-Bissau and Cape Verde); Ambassador (Ret.) Steven McGann (Former U.S. Ambassador to the Republics of Nauru, Kiribati, the Kingdom of Tonga, and Tuvalu); Ambassador Rosemary Banks (New Zealand Ambassador to the United States); Rt. Honorable Idris Ahmed Wase (Deputy Speaker of the House, Nigerian National Assembly and Deputy Speaker of the Economic Community of West African States (ECOWAS) Parliament). Professor Yonah Alexander served as moderator of the event and closing remarks were made by General (Ret.) Al Gray (Twenty-Ninth Commandant of the U.S. Marine Corps, and Senior Fellow, Potomac Institute for Policy Studies).

Indeed, as the international community is currently combating the ravaging COVID-19 pandemic, the role of diplomacy in world affairs is becoming more significant than ever before. For example, the United Nations has already developed a multi-agency response to address the grave health and humanitarian crises (e.g.: WHO, UNICEF, FAO, the World Food Program, and the UN Refugee Agency).

Moreover, the UN also plans to hold a Summit on December 3-4, 2020 focusing on the coronavirus pandemic and its impact on societies, economies, jobs, global trade, and travel. The President of the UN General Assembly, Volkan Bozkir, described this special gathering as "a historic moment and a test for multilateralism" that "will be defined by our collective action on one of the most critical issues of our time".³

ACKNOWLEDGEMENTS

At this time, we wish to express our deep appreciation for ILI members Robert Sargin, Jason Everett, and Emma Andrews for their guidance and support in producing this Report and facilitating the five Zoom conferences on Covid-19 concerns.

Additionally, special thanks are due to those who provided administrative and research assistance, namely Mythili Kotagiri (Rutgers University graduate) and Kathryn Hamilton (The Catholic University of America graduate). Both are currently or have previously participated in IUCTS Internship Programs.

³ Lederer, Edith M. “UN Summit in December to Push Action on COVID-19 Pandemic.” *AP NEWS*, Associated Press, 5 Nov. 2020, apnews.com/article/virus-outbreak-pandemics-global-trade-armenia-health-0cc0bcf7234f63a5910a5624c0a92e3e.

CONTRIBUTORS

This section of the Report consists of presentations made by the contributors at the Ambassadors' Forum: "Combating Global COVID-19: From Isolation to International Cooperation" that was held on March 26th, 2020 via Zoom conferencing. Some updates and revisions were made by the invited participants.

DR. ROBERTA DEBIASI

CHIEF OF THE DIVISION OF PEDIATRIC INFECTIOUS DISEASES AT THE CHILDREN'S NATIONAL HOSPITAL

As was mentioned I am the Chief of Infectious Diseases at Children's Hospital here in DC and also Professor of Pediatrics and Immunology, Microbiology and Tropical Medicine at the George Washington University. We're quite engaged in the regional, as well as the US response and we have a particular focus on how this impacts the pediatric population and of course the families that are associated with pediatric patients. So I am going to start with the situation update just so that we can have context here at the beginning of our discussion, and I'll show you the latest data both here in the United States and globally.

As of this morning, we have had 414,000 confirmed cases globally 18,440 deaths and a calculated case fatality rate of 4.4% overall. But what you'll notice is that if we look at the different regions of the world, whether that be Western Pacific, European, Southeast Asia, Mediterranean, the Americas or Africa, there's quite a range in the case fatality rate. If we look at China, the case fatality rate was 4% based on all of the data that's available up through today. However, you can see there's quite a wide variation worldwide. Germany has the lowest case fatality rate right now with 0.7%. The Americas are lower than China at 1.3% and we'll see how that holds up as things develop in New York City which is the new epicenter of the pandemic. Italy has unfortunately had a very high case fatality rate, almost 10% based on the numbers that were reported through today. Some of this is a reflection of the age of the population in each of these regions, but certainly it is also a reflection of how much the healthcare system has to absorb a large surge at one very small time period. And this, of course, will be part of the discussion about some of the measures that have been implemented in other countries as well as here in the United States. How can we "flatten this curve", as people say, so that the surge and the potential overwhelming of the healthcare system with an influx of critically ill adults can be tamped down.

This is an epidemic curve of confirmed infections worldwide through yesterday and this is WHO data, as was the last slide. The first rise shown there in orange reflects the China outbreak which as you've all heard now has settled down quite a bit. There have been periods of no new cases occurring, particularly in the epicenter within China. This has allowed the government to allow some loosening of the travel restrictions to allow some individuals to leave the country. However, you see here the much larger and later epidemic curve, which unfortunately is still an exponential rise, which reflects the spread to the rest of the world. And in color codes you see where those regions are. So the largest part of the bar shown is the European region and the second largest is the Americas which are directly reflected by what's going on in New York City right now. Another point here is that Italy, where their outbreak certainly began sooner than our current New York outbreak, they have had 69,176 cases and 6,820 deaths with a 9% or 10% case fatality rate, whereas the US has had 51,900 cases and an almost tenfold less number of deaths (673). In other words, the US is far exceeding the number of cases per unit of time that has elapsed from the beginning of our outbreak, which will certainly surpass the number of cases in Europe. However, for now our case fatality rate seems to be significantly lower than what we are seeing in Italy. We will have to see if our healthcare system is potentially overwhelmed as we hit our surge, and if that occurs, if our case fatality rate will be maintained at this lower rate or not.

These are comparisons of case and death trends across countries that are currently the most active. So on the left side of the slide, you can see cases and in red you can see the United States. What you can see here is a 36% rise in growth on this logarithmic scale - so things are definitely very much accelerating in the US, particularly in New York. Compare this with Italy, which is shown in purple, which is certainly also accelerating but at a slower rate of rise at 19% and that is reflected by the fact that they're on day 25 of their outbreak, whereas we are only day 10-15 of our outbreak. China has flattened out, and seems to have improved. If you go on the right side of the slide, shown are death rates, and again it reflects a similar trend with the only

difference being that the death rate is higher than the actual rate of acceleration of cases in Italy compared to the United States, where the death rate is growing at a lower rate than the rate of case growth.

This is the United States update as of this morning and these are coded by color based on the density of infections. The states that are in orange are considered areas where there is more widespread transmission and higher numbers of cases. And red is New York which is, as we all know, much higher than any of these other states. The important point here is that each day there are more and more states in the United States that are designated with accelerating numbers of cases. And in particular, Louisiana has emerged as one of the fastest growing problem areas.

Here is a graphical representation of that same data and in red you see the cumulative number of cases over the whole period of March. With the blue line you see the daily new number of cases or the rate of new cases as they cumulate. And in green you see the number of hospitalized cases and again, we're on this exponential curve. On the right is a graphic representation of the age of the patients. As has been appreciated really everywhere in the world, this same exact pattern has been seen everywhere especially in the epidemic areas like New York. We see a peak of both infections and severe infections in the 60-80 year group and then a much higher mortality in our over 85-90 year-old group. Most importantly, this slide does not even list those under 20 but in the large series of Chinese data as well as data that's come out of the United States it seems about 2% or less of hospitalized and severe cases are in the pediatric population – and we will come back to that point later. But this gives you an appreciation of the worldwide curve. Here I am showing similar data for New York and it demonstrates the steep rate of rise for cumulative cases, new cases and hospitalized cases. The point I want to make here for those of us that are following how this is developing in different areas of the United States, is that the first areas of the US where we had significant transmission were Washington state and California, and these are still considered areas where extra governmental assistance and provisions have been made - three areas Washington, California, and New York. But if you look at the sheer volume of cases, hospitalizations and deaths in New York compared to Washington and California, again it's a tenfold difference. So even though it started in California and Washington, several weeks ago New York is at 33,000 cases California is still around 3,000 and Washington at 2,600. So I think we just have to really appreciate how severe the situation is in New York and how rapidly it's accelerating. Basically, these rates are increasing 30% each day, the number of cases.

Regionally we keep a very close eye on this we work with our regional partners for emergency preparedness and public health, as we do for any emerging infectious disease. We have a very close relationship, but in particular for this current pandemic, we keep a close eye on these local numbers and we work together regionally to think about how we're going to care for a surge of patients. In our region which we define as the District of Columbia, Maryland and Virginia we now are past the 1,000 case mark - we have 1,056 as the number of confirmed cases - and that's a 20% increase from yesterday- so that gives you an idea of how quickly it's accelerating. We have 135 hospitalized in our region- again about a 20% increase from yesterday - and 20 deaths which are distributed amongst the District of Columbia, Maryland and Virginia. This is a similar graph that again shows you we're not immune to what is going on the rest of the country here in the DC metro regional area. So very similar slope of the curve for case increase rates.

I'm going to close by telling you a bit about our experience in the past month at Children's National Hospital. We have been preparing for the potential impact of this pandemic on the pediatric population since January, as soon as we first heard of the cases being reported out of China. I should preface that by saying that at Children's National Hospital we have a long history of not only disaster preparedness but emerging infectious diseases expertise and preparedness. We are a funded Ebola treatment center and we are leaders in that area particularly in the pediatric response during the Ebola epidemic in 2014. We also have a congenital Zika program and have led nationally and internationally in that area as well. So when COVID emerged, we had already built a Special Isolation Unit in our hospital that is specifically designed to care for large numbers of children with highly contagious respiratory disease, or even smaller numbers of children infected with agents as infectious such as Ebola, to allow us to isolate such patients safely for their care, as well as for the safety of other patients in the hospital. We have activated that Special Isolation Unit again for the evaluation and care of our COVID-19 pediatric patients. We also have implemented rapid SARS CoV-2 testing in our center which has really been a critical and wonderful thing to have to help get a handle on how much disease is circulating, as well as making it safer for decisions for isolation and precautions for the patient. We have also utilized that rapid tests for monitoring our employee pool because as you all know even

though we may or may not have large numbers of critically ill pediatric patients, we have to prepare for those as they come in the door as if they could be infectious because we know that children certainly are susceptible to infection. They may not necessarily all need to be admitted to the intensive care unit, but they are coming in our doors and can potentially pose a threat to our employees who are taking care of them and of all of our other special populations of Children's Hospital, including transplant patients and cardiac ICU patients, neuron ICU patients, oncology patients etc. We have had children diagnosed at Children's National Hospital that have been very ambulatory and have very minor illness and we also have children who require hospitalization. We are continuing to work with our regional network. We can talk about this more in the panel- as the adult hospitals take on more and more critically ill adults, which we know will happen, we are working closely as a network to make sure that we have optimized our ability to absorb the expected surge of adult patients. We at Children's can help by absorbing and caring for critically ill young adult COVID patients who are up to 30-years of age. So for instance if there's a hospital that has both pediatric and adult patients, it would make sense for them to send the pediatric patients to our facility which we are specialized in, to take care of all those patients, which would allow additional hospital and ICU beds to be dedicated for the older individuals that need to be cared for at that particular facility. So these are all areas that are ongoing discussions at both our and other centers.

DR. JAMES GIORDANO

PROFESSOR IN THE DEPARTMENTS OF NEUROLOGY AND BIOCHEMISTRY AT GEORGETOWN UNIVERSITY MEDICAL CENTER

COVID-19 CRISIS: DEMONSTRATION OF, AND LESSONS LEARNED FOR BIOSECURITY GAPS AND CAPABILITIES INTRODUCTION AND OVERVIEW

The work that I present today represents some of my collaborative efforts with my colleagues Dr. Diane DiEuliis of the National Defense University; Dr. Daniel Gerstein of the RAND Corporation; CAPT L.R. Bremseth, US Navy SEAL, retired, and our Senior Research Associate, Joseph DeFranco of George Mason University. My goal is to provide an overview, and deeper dives into some particular aspects of what the current COVID-19 pandemic is demonstrating, and lessons to be learned from this crisis about multiple domains of biosecurity risks, threats, readiness and response. To put the proverbial bottom-line up front, the issues that COVID has brought to light are of requirements for bolstering local, regional and national support both in terms of finance, and for capabilities to establish the national infrastructures, and mobilize the services, goods, and resources necessary to fortify and sustain vital functions of United States' (US) biosecurity.

COVID-19: A BIOSECURITY THREAT AND CRISIS

Let me proceed by clearly and emphatically stating that based upon the evidence that I have reviewed, the SARS-CoV-2 (corona)virus, which is now known as COVID-19, does not appear to be a weaponized biological agent. There remains considerable speculation and miscommunication about that, and while inadvertent exposure to, and transfer of this and other COVID-19es may have occurred as a consequence of issues related to biological safety level (BSL) procedures at the Wuhan Institute of Virology, there are no current data that I have seen to indicate that the virus was intentionally altered or developed. Yet, the risks, threats, and challenges posed by this apparently naturally-occurring virus illustrate how gaps, weaknesses, and vulnerabilities in US – and international – biosecurity might be opportunized and exploited given the relative facility of new techniques of gene editing that could allow nation states or rogue actors to modify existing pathogens - like a COVID-19 – or make other bioagents anew. The current crisis should be regarded in its most literal sense: as a circumstance and period of change. But this prompts the questions: What needs to change? What has changed based upon our previous responses; and what remains to be – and should be - changed? To address these questions, my research group employs a process called GIAC- Gap Identification, Analysis, and Compensation, to detect and evaluate existing gaps in biosecurity preparedness and response, so as to define tools and methods to bridge such gaps, and prevent their future occurrence. Evidently, COVID-19 presents a clear and present threat to national and global biosecurity in and across a number of different domains. To be sure, the biomedical threat impacts individuals' morbidity and mortality. The social and psychological effects – of individual and group sickness and death, as well as measures being implemented toward reducing their extent – impart social, economic and psychological disruptions across a range of scales and levels – from the personal to the populational.

Recently Daniel Gerstein and I described this current situation as being the horns of a bio-socioeconomic dilemma. On one side there is the need to address and maintain the best interests of those patients or currently infected, those on the road to recovery, those who are most serious, and those who may be vulnerable to infection in the future. At this juncture, the national incidence and prevalence of COVID-19 assume an increasing, linear trend that has not yet reached its apex. It may also be that the near-future epidemiological pattern may be one of repetitive peaks and troughs, even with attempts at flattening-the-curve. In flattening that curve, recommendations for social distancing impact social dynamics and such effects manifest influences that are profoundly economic. How then can we stem the tide of the biomedical impact, and at the same time re-stabilize and mitigate economic loss - both nationally as well as internationally? Of course, there are political as well as national capability ramifications that must be appreciated and considered in any attempt to develop some calculus of measures to equitably blunt both of the sharp horns of this dilemma.

APPRECIATING RISKS AND THREATS

In addressing these biosecurity considerations and concerns it becomes important to differentiate what constitutes disruptive and destructive influences and effects. Indubitably, the effects of COVID-19 have been, and remain disruptive. This disruption induces ripple effects in and across a variety of scales and levels, which range from the cellular to the social. And while it is *en vogue* to utilize bellicose language to describe fighting this pandemic (and perhaps appropriately so), the disruptive and rippling effects are illustrative not of kinetic actions and results (such as those occurring in warfare), but rather of non-kinetic influences that can then rain disruptive effects in those domains and dimensions that lack preparedness and means of necessary and sufficient response.

To date, man-made threats have been well addressed by prior and present biological toxins, weapons (BTW) and chemical weapons (CW) conventions, other signatory treaties, and by viable activities of various governmental agencies (such as the Defense Threat Reduction Agency, DTRA; et al.), in concert with international allies and partners. But as Daniel Gerstein and I have previously noted, perhaps the BTWC and CWC require re-visitation, review, and some revision. We argue that the current COVID-19 crisis prompts renewed and re-focused insight to the new vista of bio-risks, biothreats, and biohazards – both of natural origin and man-made design, which will require new stances of preparedness and response.

We have asserted – and re-iterate here - the need for coordinated infrastructure and functions that engage adequate surveillance, communication of surveillance (with regard to qualification and quantification of burdens, viable risks and identified threats), and readiness. COVID-19 well-illustrates the “problem of novelty” as it affects an unprepared and uncoordinated system of biosecurity readiness, and response: it is a highly infectious biological agent with considerable – and somewhat ambiguous - variability in the morbidity, mortality, and factors contributory to the spread and severity of disease. The difficulties of addressing and dealing with these novelties have illuminated inherent gaps and weaknesses in the US’ systems of biosecurity preparedness and response.

Vulnerability to such novelty has been acknowledged in the past. For example, the Crimson Contagion exercise, initiated during the Obama presidency, which was intended and initially engaged as a desktop turnover effort to foster biosecurity awareness and continuity within the current administration, was notable in this regard. As well, Secretary Coats’ 2019 report to the Senate Intelligence Committee indicated that the US biothreat and biohazard response infrastructure has weakened and represents a vector for disruptive influence. Such risks and threats need not be man-made; climate change, coupled to the spread of human activities into faunal and floral ecologies make spillover effects of zoonotic disorders such as COVID-19es and ever more likely if not probable occurrences.

But the growing possibility of natural events does not lessen the need to appreciate the growing risk and threat of man-made biological agents. To this end, our research group has been focusing upon biosecurity issues generated by the use and misuse of radical leveling and emerging biotechnologies. We have reported that increasing misinformation and miscalculation about these risks and threats decrease preparedness in both proximate and more strategically latent timescales. This lack of readiness would increase the pace of any disruptive influence, and extend the durability of effects that the engagement of novel bio-techniques and tools could incur within the US in and across biomedical, socio-economic, political, and global positioning dimensions. The US’ response to the COVID-19 has illuminated these inadequacies in biosecurity, and are surely being recognized and noted by current and near-term global competitors (and potential adversaries).

ILLUMINATING A PATH FORWARD: THE NEED FOR WHOLE-OF-NATION APPROACH

If this provides a “description of the relative darkness”, then the obvious query is how to “light a candle” – and keep it alight? In assessing the preparedness and response of other countries, for example, South Korea, Singapore, Germany, and Austria – as well as China, a different profile of biosecurity readiness and engagement becomes evident. Certainly, this is not to suggest that the US move from an open society to one that is more closed, if not authoritarian, such as that of our principal transpacific competitor. And so, such direct comparison is not useful, per se. But there is merit in mobilizing a response that conjoins all the necessary levels of government - and social enterprise - that are required to maintain biothreat suppression

capability. Whole-of-government coordination, cooperation, and engagement is necessary, as evidenced by the response capabilities and effectiveness articulated in the aforementioned open societies.

Yet, while necessary, whole-of-government activity alone does not – and cannot – afford the purchase to leverage the scale of services, resources, and human effort sufficient to mobilize an efficient, effective enterprise of biosecurity preparedness and response. To do this requires a whole-of-government and whole-of-nation approach.

A FOUR-THRUST APPROACH

We propose that an effective whole-of-nation engagement would entail a four-thrust approach. The first thrust is focal to increasing awareness of existing and “on-the-horizon” bio-risks and possible threats. Such awareness would mandate both overview and deep surveillance to include identification and assessment of both explicit and more tacit risk and threat factors. The second thrust entails translation of qualified risks into quantifiable prediction of threat. Such quantification requires modeling, gaming, and forecasting of threats and the impact and influence they make evoke in short-, intermediate-, and long-term. This allows evaluation of the resources that will be required for threat readiness and response. The third thrust is enterprise devoted to mitigating or counter the threat. Ultimately the goal is not merely mitigation but preventing the threats, and decreasing or negating future adversarial effectiveness. It is important to note that this need not be a geopolitical or military adversary; most certainly it could be a biological adversary, such as an identified microbe, as well.

The four-thrust approach as proposed enables working “left of bang” – i.e.- in advance of an event - in a more effective way. Given current and anticipated changes in the global environmental climate, and geopolitical and economic power ecologies, it will be increasingly necessary to identify, characterize, counter and attempt to prevent those biosecurity risks and threats to US public health and social economic stability. A critical lesson learned from the COVID-19 crisis is that in many ways, the US was proverbially “caught with its knickers down around its knees”; the question is not so much how to now simply pull them back up, but rather how do we belt them up, and girdle them securely so that what is taken from this is simply “never again” (to be so unprepared and incapably responsive).

The four thrust approach involves all of national resources, and arguably, in looking to those countries that have mounted a viable response that has flattened the curve to COVID-19, essential to such effort has been a relatively seamless articulation of the so-called “triple helix”, of government, research entities, and commercial enterprise. Government on a national level, regional and local and/or city level. The research enterprise of both public and private academia and foundations; and the commercial sector at a variety of scales. The four thrusts of this approach are not – and should not be – mutually exclusive.

To the contrary, they are interactive and complementary in focus, scope and action(s). Thrust one facilitates thrust two via the conjoinment of academic institutions, research centers, and the intelligence community in working to identify those risks that could become threats, and quantifying such threats and their influence, and potential effects. Moving from thrust two to three, quantification of threat is coupled to assessment and quantification of existing resources available and required to mitigate or counter influences and effects that would be rendered. Toward these goals, law enforcement, homeland security, the Department of Health and Human Services, national laboratories, and industries are all brought to bear. Thrust three establishes a basis for the fourth thrust: assessment of needs, and of existing and required resources, services and activities that will be essential to prevent some future adversarial event - whether it be natural or man-made. These third to fourth thrust efforts bring together the Department of Defense, Homeland Security, the State Department and the intelligence communities in a coordinated effort (with all other agencies that are participatory in the whole nation enterprise) to effect sustainable readiness.

We believe that each and all of these thrusts require the provision of public information, public response, and public trust. Public trust is dependent – at least in part – upon demonstrated ability of national resources to accurately identify, quantify, and communicate risks and threats, and to demonstrate preparedness and diligence in response. In prior modeling exercises, our research group has shown that should these public reliances upon information, preparedness, and response be threatened or fractured, so too will be public trust and national capabilities to sustain social stability and security.

CONCLUSIONS

In summary, the COVID-19 crisis demonstrates that it is important to recognize existing - and the potential for future - biosecurity risks and threats, and inadequacies in national preparedness and responsiveness. Human intrusion to natural environments has disrupted the often-delicate balance within and between ecologies, and is likely to incur additional spillover zoonoses in the future. Additionally, increasing sophistication and ease of technological capabilities, inclusive of gene editing and other forms of advanced biotechnology might enable modification of existing agents and making agents anew that can then be used by nation states and/or rogue actors to evoke the types of effects we are witnessing with COVID-19.

To meet these biosecurity risks and threats, we have advocated formation of a program management office or program of record that funds biothreat research, preparedness, countermeasures and solutions. Ever more, we will need capabilities to address and defeat biosecurity threats. Vital to such efforts is a cooperative stance, recognizing that threats are not just to a particular people, or a particular nation, but can be global in impact such that the “sinking tide would lower all ships”. To mobilize in these ways it is important to recognize that many of our international cooperators, allies, and competitors are engaging a whole-of-nation, and relatively seamless triple helix approach, and thus, to effectively and collaboratively engage with them necessitates equal, or at least equivalent development, design, and implementation of a similar whole-of-nation paradigm that can be rapidly and capably marshaled in those times and situations of demand.

AMBASSADOR (RET.) CHARLES RAY

Former U.S. Ambassador to Cambodia and Zimbabwe

The 2014-2016 Ebola outbreak that ravaged the countries in West Africa infected more than 28,600 people and killed about 11,300. It's believed to have actually started in December 2013, in a small village in Guinea when an 18-month-old boy was infected by bats. It soon spread to Conakry, the capital, and in March 2014 the Guinean Health Ministry issued an alert for an unidentified illness. Pasteur Institute in France confirmed it was Ebola and on March 23rd after 49 confirmed cases and 27 deaths, the World Health Organization officially declared an outbreak. By July, Ebola had spread to Sierra Leone and Liberia and from there to Italy, Mali, Nigeria, Senegal, Spain, the UK, and the US. In July the US Centers for Disease Control and the Department of Defense deployed personnel to West Africa to assist in training healthcare workers and expanding lab capacity. Here we are now, less than four years later, and the world is again facing another deadly infectious disease: the novel COVID-19 or COVID-19. COVID-19, believed to have originated in Wuhan China in December of last year, has already had a devastating global impact that dwarfs the Ebola outbreak. Researchers say it started with an infected bat transmission to an animal that ended up in Wuhan's meat market where it infected humans. Three months later it's been officially labeled a pandemic. It is affecting people on every continent, except possibly Antarctica. Unlike the Ebola crisis, where the health, economic, political and social impacts were felt most keenly in the countries of West Africa, COVID-19 has had a global impact.

It has affected world economies and it has the potential to create political instability and to exacerbate existing political instability on a pretty wide scale.

Global supply chains have been disrupted affecting the price and availability of not just consumer goods but emergency medical supplies such as test kits, masks, and respirators. Global stock markets have been on a roller coaster mostly going down, with US markets suffering the biggest losses in history.

With travel bans, lockdowns, and border closings, local economies around the world in many cases have come to a virtual standstill.

I mentioned political instability. It's a real risk that we have to recognize in a situation like this, especially in countries like Iran and North Korea which also puts neighboring countries at risk. And while from a public health standpoint quarantine of infected or potentially infected persons, quartering off certain hotspots and limiting or banning mass gatherings is not only prudent but necessary, adopting a go-at-it-alone attitude or shutting out the rest of the world completely, I don't feel is either prudent or wise. As in the Ebola outbreak, although on a much larger scale, what is needed is increased global cooperation on the scientific, technical and medical level. We need economic cooperation and probably more importantly for the future we need political cooperation.

Our global economy is far too intertwined to be completely unraveled, but we do have to make some adjustments if it's to recover or to survive in a fashion that ensures adequate living standards for the people of the world. And this won't happen in isolation. Just as an example 80-90% of US antibiotics either come from China or rely on components made in China. And India, the largest supplier of generic drugs and major vaccines, cut exports of 26 drugs because India relies on China for 70% of its drug components.

An attitude of isolation not only is unworkable but it puts increased strain on already strained alliances at the very time we need them to deal with the potential instability and hotspots like the Middle East and the Korean Peninsula.

Among the many things we need to do, though, in order to get through this current crisis, recover from its effects and ensure that we're prepared for the next one, and sadly I do feel there will be others, is to revitalize our moribund diplomatic capability. An often-overlooked tool of statecraft, diplomacy is essential to building and maintaining the web of relationships that are critical to mounting global campaigns against global threats. History has shown this to be true, and we can't afford to ignore history. Frankly because we cannot afford to repeat it again.

FORD ROWAN

CHAIRMAN OF THE NATIONAL CENTER FOR CRITICAL INCIDENT ANALYSIS

I do a number of things; I am a retired lawyer, I advise companies and I advise the University of Maryland's Global Campus and the president of that institution Javier Miyares. I do conflict resolution work, I have done work in Istanbul, Turkey and in Northern Ireland, in Belfast and in other places including Jerusalem. The name of my talk is "Surfing the Next Wave of the Pandemic." And I'll tell you why I picked the surfing metaphor, I want to talk about how employees will perform when they are called back to work sooner or later after being stuck at home. I am going to talk about the role of the media but I am also going to talk about how we re-engage the workforce while there are still new cases of COVID-19 being diagnosed and how we may sometimes feel like we are swimming in a riptide as we try to bring these workers back into working with our companies. Now I have some suggestions on the care for those who work at businesses large and small, nonprofits, government agencies, and not just in the USA but everywhere. I agree with Charles Ray in what he just said about our economies being interrelated and we are all facing global threats and quite a different variety of threats.

The first thing we should understand about this pandemic is that there will be a next wave and there will be new cases. It may come as part of the first wave, especially if we get the go back to work order around Easter in the United States. As of yesterday we were told that this was President Trump's aspiration. We are told by the news reporters That medical doctors and scientists are warning That this is too soon. Number one is this real news? You have to ask yourself that question now I am a former news reporter. I covered the Nixon White House and I covered the Watergate trials. I was a pentagon correspondent at NBC news. I saw combat In Lebanon And then later I had a TV program on an international edition on PBS. I say all this because all that happened in the dark ages before computerized social media, tweets and around the clock news on cable. The news is bad, it's still bad and it always will be because bad things are more interesting than the good news especially if there's conflict. So think of this kind of a conflict which is not really hypothetical, it's emerging. What happens when hospitals run out of ventilators? Who will decide who gets to live and who gets to die? When such triage comes to your nearest hospital how do you feel about the ethics of life and death choices? I'm on the advisory board Berman Bioethics Institute at Johns Hopkins and they studied ways to decide and they are really asking how would people feel if it was your child that was not given life-saving treatment or if your elderly relative was passed over in preference for a healthy teenager? And I think that that is not necessarily going to be a hypothetical question. I think we are facing that if we do not have enough hospital supplies in time. And a lot of efforts to reduce the curve, to round it out is to try and make sure our hospitals can handle these patients.

Now leaning the side of the outliers, the conspiracy theories, the junk science and the nonsense about death panels, The news provides a pretty good account of the problems that we face. Most news is bad and most bad news is true unfortunately. But is it fair? That's a different question. Is it fair? When I started in the news business in 1965 my first boss told me and I quote exactly as I remember this: " I don't give a damn about your opinions and I damn well don't want to ever figure out what your opinions are by watching you on television." And I have never forgotten that. Now I know I'm getting old because I think it's gone to hell since I've left. But the fact is, it's not just the facts ma'am. I wrote a book in 1984 called "Broadcast Fairness" about the fairness doctrine and equal-time rule and a lot has changed since then. Let me be clear, I believe there are a lot of serious journalists and major publications that seek to be fair and present all the facts. In print and online, opinions are usually clearly defined as opinions. We are saturated with opinions, across the entire spectrum. And here is the issue, the news media amplifies the risks of whatever is happening because they are conflict oriented, they are bad news oriented and they are always looking for interesting things and unfortunately we are all more interested in what went wrong than what we are trying to do to fix it. Now one of the good things about social isolation is that the educational system is finally forced to realize that computer learning is not only good but it may become essential. Young people have no problem learning online. The University of Maryland Global Campus has some of the most interesting students, international, all online and thousands of young people many of them are working adults. We have been doing distance education for decades and professors engage meaningfully with every student in the class every week regardless of where they live. Online is the future. The virus hasn't figured out how to teleport.

So let's talk about what might happen in the old fashioned workplaces many of which have not quite gotten to the place where everything can be done out of immediate proximity. The COVID-19 has not peaked,

reported infections are doubling every two days. So the COVID-19 has not yet peaked. We are on the wrong side of the curve. With parts of the country just starting on the upward roller coaster. Clearly we also need to go back to work, our economy is sick some people say it's in shock. Just today the US federal government announced that a record 3 million persons have applied for unemployment compensation. That is a gigantic increase.

Let me tell a story, I am from New Orleans. A main industry in New Orleans is tourism. I watched a video of the Mardi Gras celebration four weeks ago. There were revelers enjoying Carnival having a great time on Bourbon Street crammed together cheek and Joel. Guess what came next- The hangover, the COVID-19 hangover. We've had an incredible jump in cases people testing positive being admitted to hospital dying from COVID-19 in New Orleans. It became a hotspot because several weeks ago, everybody decided en mass to go out and celebrate. So much for efforts to keep people 6 feet apart to distance one solves from others who may be asymptomatic carriers, to isolate to prevent the spread of the disease. And this is not just about the elderly. 38% of Americans hospitalized for COVID-19 are between the ages of 20 -54. No our President Trump has an aspiration, we should go back to work. The economy is struggling but it's not on life-support, not yet. But no matter how soon we go back to work there will still be the virus infecting new groups of victims for months. The first wave isn't over yet. How would you feel about giving up shelter in place in order to immediately start toiling with other people in the same space. You were told you have to be isolated and now all of a sudden you are told to go back to work with all these other people. How would your organization explain to you and your fellow employees what it is going to do to protect us in the new environment. How would you deal with such concerns, concerns you probably share. concerns about infection that are real and not fake. Even if you develop ways to help employees distance themselves at work, try to stay 6 feet apart or whatever, nothing is perfect. I like the comparison of surfing because the waves will keep coming. The waves will keep coming and even when the first wave of the COVID-19 ends, will there be a second wave like there was 100 years ago with the Spanish flu epidemic, we are the second year was more deadly than the first year? What about the flu epidemics in the future? What about bioterror attacks like the anthrax attack two decades ago? What about nuclear accidents? I covered 3 mile Island and I saw how freaked out residents were about an invisible threat. Isn't dealing with the psychological threats something that needs to be done continuously and updated and updated and added to an organization's capabilities? Aren't psychological issues related to coping with health and safety threats? Now my colleague at UMGC Professor Donald Donahue in the business school reminds us that extended stress degrades the body's immune system. Champion athletes succeed because they're mentally focused, physically prepared and share a singular goal. Employees are no different.

But what are some of the psychological challenges? First to stress about new advice that conflicts with the prior advice. Altered perceptions of risk. Fear and suspicion about management's priorities. Unexplained physical symptoms. Inability to sleep. Angry arguments about risk with spouses at home. Self-medication with alcohol or drugs. Triggers for psychiatric illness. Worries, worries, worries about family and future. Miss leading information and failure to address these frightening feelings will result in reduced productivity, increased absenteeism, maladaptive behavior and conflict in the workplace. Now how can we get a head of the wave on top and improve resilience? One of the biggest challenges is improving resilience in organizations in our country and abroad. And I think all across the world. Well here are several steps that we can take, take as individuals take as leaders and can encourage others to do. First show you care. Now that's pretty simple and a lot of these are pretty simple and you've heard them before. But sometimes organizations don't practice What they preach. Show you care because workers will perform extraordinarily if you believe you have their back. Listen carefully to their concerns. You know most people when we talk about communication they talk about what I say. What you really ought to be doing is what do they hear? And more importantly what do we learn? Demonstrate some empathy. Address concerns with consistent credible messaging. Improve environmental hygiene for example with frequent cleaning of common surfaces. Encourage those Who feel ill to stay home and this is important because we are fighting presentism. The bad idea that you might show up to work even though you don't feel good. There are a lot of other good ideas to build resiliency. Several years ago I co-authored a study that was published in the National Defense University Center for Technology and National Security Policy. The name of it was called, "Weathering the Storm, Leading Your Organization through a Pandemic." I'm told they're over 10,000 hits or downloads because it's free, it's online the website at NDU and it's on my website as well. The link to my website is fordrowan.com and the link to the NDU website is on my screen right now. Let me say in conclusion, I share the president's aspirations for a good Easter. But I fear that our workplace is not ready for re-engaging employees and confronting the COVID-19. And let me say in conclusion not all aspirations are healthy. For example pulmonary aspiration can be debilitating and deadly.

COMMENTERS

This section of the Report consists of presentations made by the commenters at the Ambassadors' Forum: "Combating Global COVID-19: From Isolation to International Cooperation" that was held on March 26th, 2020 via Zoom conferencing. Some updates and revisions were made by the invited participants.

MARC NORMAN

DIRECTOR FOR AFRICA, ASIA, EUROPE AND THE AMERICAS IN THE BUREAU FOR COUNTER-TERRORISM AT THE DEPARTMENT OF STATE

I was asked to talk about the impact of the current situation on our counterterrorism activities and I guess on terrorism at large. And I guess it would begin by saying what's probably a fairly typical State Department response which is it's a little too early to tell. There seem to be a number of things happening already and there are probably a number of other things that seem likely to happen.

But I would caveat everything I'm about to say by making the obvious point that we really don't know how this is going to play out and what sort of fallout there will be from the current situation. So let me begin with a couple things. The first and obvious point is that the world is now completely focused on dealing with combating the COVID-19. So this obviously has implications for the ability of governments around the world including our own to focus on other threats and in particular in this case terrorism. It also has resources implications obviously as you've seen in the United States and in other countries, security services and particularly the military in a lot of places are already being used to try and enforce curfews, to try provide security and to try to do all sorts of things related to the virus that obviously may diminish their ability to respond or to deal with terrorism. As you've seen in the United States and in other countries, security services and particularly the military in a lot of places are already being used to try and enforce curfews, to try and provide security and to try to do all sorts of things related to the virus that obviously may diminish their ability to respond or to deal with terrorism issues. So that's obviously the current bad news. The relatively good news I suppose although I'm reluctant to put it that exact way is that terrorists are also affected by the virus situation and we've already seen and I think many of you will have seen statements from ISIS among others warning some of their adherence not to travel to Europe; this was a few weeks ago. And clearly it will be disrupted with the increased security that countries are implementing all across their borders to prevent travel by infected persons will have an impact on the ability of terrorists and others to travel. Same thing with the generalized breakdown of cargo and travel and things like that. It's having an effect on the terrorists ability to do the things they want to do in a number of places. Longer-term I guess it really depends on the extent to which the virus affects the population at large. If there are major societal breakdowns it may be possible for terrorists to exploit that sort of thing. If there are situations where security services become dysfunctional because of the widespread outbreak of the virus amongst their personnel, again that may enable terrorists to be more effective at doing what they're trying to do. Conversely again obvious point but still terrorists are just as susceptible to getting the virus as anyone else and we are already seeing places where they operate that seem to be at risk of severe outbreak. I think Afghanistan is probably a pretty good example. Let me turn very quickly because obviously don't take up too much time with us because a lot of it is speculative to talk about what we're focusing on and how perhaps the COVID-19 crisis may affect that.

I would begin by saying an obvious point which is that we are looking at what you could call for lack of a better term in terrorism as a post physical caliphate world. So we are looking at a number of things in that regard. The first being the issue of ISIS affiliates around the world and how to deal with them and how to separate communication amongst these various groups and with their central command such as it is. With respect to that the virus obviously has again as was mentioned has an impact on their ability to travel probably less so on their ability to communicate. And it also has an impact on their ability to share resources. So from that point of you I think it might make our lives easier in that very specific term at least for the short term. Another thing we're focusing on obviously in the post physical caliphate world is terrorist travel. Again that's complicated by the restrictions being put in place by put in place by governments around the world. Foreign terrorist fighters, trying to repatriate them is something that we've been working on. This has been a difficult task to begin with and it is not likely to be helped by the current restrictions on movements of people around the world. So that's the ISIS thing that we're looking at.

The second thing we're looking at is Al-Qaeda. I think most of the same overall points apply to Al-Qaeda as they do to ISIS. Difficulty and travel difficulty in moving things increased. I would add that because our credit is to a certain extent trying to take advantage of some of the situation in Afghanistan where again it looks like that might be a real focus for the virus, it may have an impact on their ability to carry out some of the things that they want to do there.

The third big thing we're looking at is Iran and Iranian-sponsored terrorism in groups around the world. I think we're all aware of where the virus situation is in Iran. It seems to be one of the worst places in the world in terms of fatalities, in terms of the government's lack of ability to deal with the virus. And in terms of a number of other things, clearly it's going to have an impact on Iran's ability as the world's leading sponsor of terrorism to devote resources to sponsoring terrorism as much as they have been doing in the past. It may have an impact on their ability to carry out some of the things that they want to do there.

We are seeing anecdotal stories as well, for example in Lebanon where there have been some outbreaks of the virus that some people are blaming Hezbollah for that in terms of their leadership and others having traveled back and forth to Iran. That obviously would be a public relations success if it can discredit Hezbollah within the Lebanese system and political environment. I think obviously there will be countering narratives and all sorts of things like that but at least temporarily I think that Iran and its most important proxy is going to be focused on dealing with a virus for the short term. And so that will have an effect.

The final thing that we're looking at these days in the post physical caliphate world is what we're calling racially or ethnically motivated terrorism- REMT. I think most of the impact of the virus is the same with everybody else, we have seen some indications in discussions among some of the adherence to these various racially and ethnically motivated terrorist philosophies as we have with other terrorist groups of trying to trying to figure out ways to weaponized the virus in some way. I am not sure what that means and I'm not sure they have the technical capabilities to do that sort of thing. Unless they're talking about sending infected people out and coughing and other people. I think this is one of those things that might be more aspirational or speculative than anything else. But it is something we are keeping an eye as we are with all the other groups. So that very quickly is where we are in terms of countering terrorism and the virus and again I would and just by seeing as I begin that all of this is highly speculative, all of this is highly preliminary and it is really going to depend very much on the course of the virus and the impact on populations, governments, resources as we watch it unfold over the coming months.

DR. DANIEL GERSTEIN

FORMER ACTING UNDERSECRETARY AND DEPUTY UNDERSECRETARY FOR THE DEPARTMENT OF HOMELAND SECURITY

What I would like to do today is offer very briefly my perspective and focus on the societal impacts. So I have six very quick points. The first is we are in the early stages of this global pandemic. Unfortunately, we are not in the middle as some have tried to paint this picture. That means that there is a long way to go as we are looking at societal disruptions as well as casualties both mortality and morbidity. So the news is not good here. We just passed a landmark in going over 500,000 confirmed infections and we have an exponential increase going on.

My second point and I would just like to share with you some key analytical data points that talk about just how bad this could be. The first is the United Kingdom's Imperial College Analysis that said that up to 2 million US citizens could die if no interventions were put in place. Now thank goodness we have started interventions but we were late in doing so. We will see how that will be affected hopefully their analysis is overstated. But the CDC also looked at four scenarios and they looked at scenarios ranging from 200,000 to 1.7 million US deaths without intervention. Again interventions are ongoing but still, we see a lot of activity with respect to increasing infections.

My third point is, unfortunately, I have to say that the lack of transparency has been hindering global response efforts. And here I would focus on two nations. I focus first on China. We were slow internationally in understanding how this was evolving and it looks like it started as early as late November and they were very slow and getting us information that could have been very beneficial internationally. The second nation, unfortunately, is the United States. We have not been transparent in terms of what the effects might be. We have not done a very good job of communicating with our people and I think that is going to present itself with very concerning outcomes. And in fact another set of milestones: China has 81,000 confirmed cases, Italy has 80,000 confirmed cases and as of right now the US has 79,000 cases. So when you look at that number it says the US is on a glide path to become the nation with the most confirmed infections.

My fourth point is looking at preparedness and response. And here I would have to say that I think we have regressed. I think that our institutions have fallen down in terms of some of the preparations that have been ongoing in my former department, the Department of Homeland Security, I think there are some very significant issues. We worried about this with the number of secretaries that were there and it's playing there. And there have been other issues such as the personal protective equipment, the masks, respirators, and gowns not being replaced within the Strategic National Stockpile. We didn't have very good diagnostics. The PCR machines for looking at who is infected and serological testing to know who has developed antibodies and previously been infected. We don't have a vaccine, we know it's going to be 12 to 18 months and I know people are working hard on that. Same with therapeutics.

The fifth point is I think that this is an inflection point in our history, in our global history. I think we're going to look at history as very differently. We are going to look at it as pre-and post- COVID-19. The changes that are being ushered in now are not going to be easily reversed. First societal, I think the growing isolation, the societal breakdown, increased incidence of depression. We are going to have to work very hard to ensure that these do not turn into very severe outcomes as well. The economy, Dr. Giordano talked about the work that he and I are doing and we have a paper coming out on CNN, hopefully in the next day or so talking about people getting back to work but we're gonna have to think about this. We call it on the horns of a dilemma because you definitely have to get the economy going but you cannot have a loss of life just to get the economy going. So how do we balance those two? Jim and I have developed a strategy looking at just one small piece of that and that has to do a diagnostics. Then get those people who have been infected and have developed antibodies back into the workforce as soon as possible. I also think that technology and innovation, we've seen some good outcomes here and we've seen some not so good outcomes. But for example, we are seeing the use of 3-D printing of parts for oxygenators. We are now seeing global supply chains that are literally going to end at our front doorstep. We've seen innovation such as repurposing sleep apnea machines, CPAP machines to be used for those people who do not require invasive oxygenation. We are now seeing global supply chains that are literally going to end at our front doorstep. We are also seeing increased use of telemedicine tele-education and telework. And that's a trend which I suspect will continue long into the future. We are looking at artificial intelligence applications for interviewing people who might be infected to avoid having them present in

hospitals where they would infect others. But I would also submit that new technology is going to be required. And here it's not so advanced as it is, we just need to make sure that there's more of it available. We can't expect people to do telemedicine, telework, and tele-education if we don't have 100% across the United States assured broadband and personal computing capacity. So we might need to think differently about these key components for our new life.

And my final point is that at some juncture we are going to have just like we did with 9/11, a national commission on the COVID-19 preparedness and response. I would emphatically say this COVID-19 is not a black swan event. It is the whitest of white swan events. We have been talking about this in earnest since 2005 as a minimum with the H5N1 preparedness. And somehow we have lost our way and we have regressed.

DR. RICHARD REFF

ORTHOPEDIC SURGEON AND SPORTS MEDICINE SPECIALIST

Well first of all I guess I am what you would call a front liner because I'm in active practice of orthopedic surgery and I am in private practice in the Washington metropolitan area. We are out there in the public and we're trying to do our best. We are facing many different challenges, first of all the whole technology issue with telemedicine, for an orthopedic surgeon is a very difficult situation. As the previous speaker mentioned, the lack of a consistent broadband technology around the local area and around the country certainly puts a lot of constraints on the ability to perform adequate telemedicine. The other issue is that I'm a "hands-on" doctor. I treat people who have musculoskeletal problems, who have fractures that you really can't take care of remotely. However, our telemedicine skills are evolving and we try to train our patients as to how they can be assisting in virtual reality as hands from a distance when the situation arises. Dr. Giordano certainly put his finger on a big problem that we face out in the field and that is the lack of public trust in the information that is being disseminated by either the political so-called experts or other experts. From the standpoint of going not from the global perspective but going to the lowest common denominator unit – the family unit because this is what's really being affected today more than anything else in this country.

There is a quote from Lee Iacocca, that said "in times of great stress or adversity it's always best to keep busy to plow your anger and your energy into something positive." We're also faced with another major challenge today as we have in young people who have been involved with organized activities, sports activities where the parents take them here, the parents take them there. The philosophy of "free play" which was what I grew up with has never been utilized in this generation. So now young people and their parents have to learn on the fly; "necessity is the motherhood of invention", and since stress and the psychological component of what we're going through, being inventive with activities I think is not something to be underestimated. I certainly concur with what Mr. Rowan just said about stress decreasing our ability to deal with illness, but also because we're getting more stressed because of the conflict of information and services; it demands of those people who are in a position of authority to start to separate fact from fiction. And that's one of the big problems that we're seeing out in the field.

DR. TEVI TROY

CEO OF AMERICAN HEALTHY POLICY INSTITUTE

I am indeed former Deputy Secretary of HHS and author of the book “Shall We Wake the President?” It is a book that looks at how presidents have dealt with disasters dating back to the earliest beginnings of our republic. And what I note in the book is that there was a little expectation in the 19th century that presidents would get involved in disasters and it is really a phenomenon of the 20th century, as we have instantaneous communication and rapid travel and a larger and growing federal government, that gets people aware of what’s going on, in the disaster front., We now have an expectation where if there’s a disaster the president will get involved. So I tell this story that in 1889 the Johnstown flood took place, the largest loss of life on American soil in peacetime in history at the time. And the people of Johnstown reached out to President Harrison and asked for his assistance by telegraph and he responded by telegram, you should really go to the governor for this assistance, it’s not really my job. And they responded, thank you. Now I can’t imagine a locality asking the President for help these days and the President saying to go to the governor and getting a thank you. But that’s just how much things have changed over the last century plus or so.

Now we are in a situation where the president and the federal government are expected to deal with these kinds of pandemic outbreaks and I do talk in a book about the failures in 1918 and the Woodrow Wilson administration to address that. Obviously, they didn’t have the technology we have today and ability to address these things but even today we are somewhat flummoxed by the lack of countermeasures. And I wrote in the book, in 2016, that our flu plans are completely contingent on having a countermeasure for response, meaning an antiviral or a vaccine which we have for flu and we could rapidly develop and deploy flu. However, I said in the book that we don’t have this for COVID-19 and we really need to develop it quickly. Though I think the federal government has good plans but they are only contingent on having the materials to be able to deploy during these periods. So that is one of the challenges we are facing now, recognizing that is now past the situation where we could have developed something a few years ago. I believe that a vaccine is not really going to solve our problem in the short term; unfortunately, it’s going to take 12 to 18 months at best but an antiviral is potentially possible within a more acceptable timeframe. And perhaps even by the fall and so I’m pinning some hopes there. I also think the shelter-in-place plan appears to be doing a good job of flattening the curve however I wonder about what the impact on the economy is going to be. We are going to have to find a way to figure out how to understand the dynamic between those two things because obviously there’s dislocations and health impacts of the economic slowdown or potentially economic collapse.

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