

**CONFRONTING THE CORONAVIRUS: PERSPECTIVES
ON THE RESPONSE TO A PANDEMIC THREAT**

HEARING

BEFORE THE

**COMMITTEE ON HOMELAND SECURITY
HOUSE OF REPRESENTATIVES**

ONE HUNDRED SIXTEENTH CONGRESS

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CONTENTS

	Page
STATEMENTS	
The Honorable Bennie G. Thompson, a Representative in Congress From the State of Mississippi, and Chairman, Committee on Homeland Security:	
Oral Statement	1
Prepared Statement	2
The Honorable Mike Rogers, a Representative in Congress From the State of Alabama, and Ranking Member, Committee on Homeland Security:	
Oral Statement	3
Prepared Statement	4
WITNESSES	
Dr. Tom Inglesby, Director, Center for Health Security, Johns Hopkins University, Bloomberg School of Public Health:	
Oral Statement	4
Prepared Statement	6
Dr. Ngozi O. Ezike, Director, Illinois Department of Public Health:	
Oral Statement	10
Prepared Statement	11
Dr. Julie Louise Gerberding, Co-Chair, Commission on Strengthening America's Health Security, Center for Strategic and International Studies (Former Director of The Centers for Disease Control and Prevention):	
Oral Statement	13
Prepared Statement	15
FOR THE RECORD	
The Honorable Sheila Jackson Lee, a Representative in Congress From the State of Texas:	
Article, <i>Washington Post</i>	44
Article, <i>Washington Post</i>	46
Article, <i>National Geographic</i>	49

CONFRONTING THE CORONAVIRUS: PERSPECTIVES ON THE RESPONSE TO A PANDEMIC THREAT

Wednesday, March 4, 2020

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON HOMELAND SECURITY,
Washington, DC.

The committee met, pursuant to notice, at 10:05 a.m., in Room 310, Cannon House Office Building, Hon. Bennie G. Thompson (Chairman of the committee) presiding.

Present: Representatives Thompson, Jackson Lee, Langevin, Richmond, Correa, Rose, Underwood, Slotkin, Clarke; Rogers, King, Katko, Walker, Higgins, Lesko, Green of Tennessee, Joyce, Crenshaw, and Bishop.

Chairman THOMPSON. The Committee on Homeland Security will come to order.

The committee is meeting today to receive testimony on confronting the coronavirus.

Without objection, the Chair is authorized to declare the committee in recess at any point.

Good morning. Today the committee is meeting to hear from medical experts about how our country can best confront the coronavirus. Americans are justifiably concerned about the virus, which has spread around the world, and claimed the lives of thousands. Understandably, they have questions about how it may affect them, their loved ones, and their communities.

How concerned do we need to be about the virus? Who is most at risk? What can communities do to prepare? What can Americans do to protect themselves and their families? What is the Federal Government doing? What more should it be doing? When might we have a vaccine or other treatment? My constituents are looking to the Federal Government for leadership, guidance, and expertise, and I am sure my colleagues' constituents are, too.

I am concerned the Trump administration has downplayed the threat, overstated how close scientists are developing a vaccine, and silenced experts who disagree with him. Instead, we must acknowledge the threat and allow doctors and scientists to offer candid assessments of the situation, and direct the Federal response.

We are fortunate to have a distinguished panel of physicians to offer their expert opinion today. I look forward to hearing from them about what the Federal Government must do to support State and local efforts, help hospitals and health care providers, and protect the lives of Americans. Input like theirs will absolutely be es-

sential to confronting this threat. I appreciate their willingness to join us today.

[The statement of Chairman Thompson follows:]

STATEMENT OF CHAIRMAN BENNIE G. THOMPSON

MARCH 4, 2020

Today, the committee is meeting to hear from medical experts about how our country can best confront the coronavirus.

Americans are justifiably concerned about the virus, which has spread around the world and claimed the lives of thousands, including at least 9 people here at home.

Understandably, they have questions about how it may affect them, their loved ones, and their communities:

- How concerned do we need to be about the coronavirus?
- Who is most at risk?
- What can communities do to prepare?
- What can Americans do to protect themselves and their families?
- What is the Federal Government doing?
- What more should it be doing?
- When might we have a vaccine or other treatment?

My constituents are looking to the Federal Government for leadership, guidance, and expertise, and am sure my colleagues' constituents are too.

I am concerned the Trump administration has downplayed the threat, overstated how close scientists are to developing a vaccine, and silenced experts in his own administration who disagree with him.

Instead, we must acknowledge the threat and allow doctors and scientists to offer candid assessments of the situation and direct the Federal response.

We are fortunate to have a distinguished panel of physicians to offer their expert opinions today.

I look forward to hearing from them about what the Federal Government must do to support State and local efforts, help hospitals and health care providers, and protect the lives of Americans.

Input like theirs will be absolutely essential to confronting the threat posed by the coronavirus, and I appreciate their willingness to join us here today.

Chairman THOMPSON. When the Ranking Member comes, we will allow him an opportunity to read his statement into the record. We will go forward.

I welcome our panel of witnesses.

Our first witness, Dr. Tom Inglesby, is the director of the Center for—you want to—

Mr. ROGERS. Go ahead.

Chairman THOMPSON. OK—is the director of the Center for Health Security of the Johns Hopkins Bloomberg School of Public Health. His work is internationally recognized in the fields of public health preparedness, pandemic and emerging infectious disease, and prevention and response to biological threats.

I now recognize the gentlelady from Illinois, Ms. Underwood, to introduce our next witness.

Ms. UNDERWOOD. Thank you, Mr. Chairman. I want to welcome Dr. Ngozi Ezike, the director of the Illinois Department of Public Health. Dr. Ezike is a board-certified internist and pediatrician who has dedicated her career to improving health outcomes and health care access for the people of Illinois. She has served in public health roles for the past 15 years in my home State of Illinois.

Dr. Ezike received her undergraduate degree from Harvard, and her medical degree from the University of California, San Diego. She completed her internship and residency at Rush Medical Center, where she is an assistant professor of pediatrics.

I want to thank Dr. Ezike and her team for working around the clock to respond to the recent coronavirus outbreaks in Illinois, and sincerely appreciate her taking the time to share her expertise with us today.

Thank you.

Chairman THOMPSON. Thank you very much.

Finally, we have Dr. Julie Gerberding, who has served as the director of the Centers for Disease Control and Prevention from 2002 to 2008. She currently serves as executive vice president and chief patent officer for strategic communications, global public policy, and population health at Merck. She is also co-chair of the Center for Strategic and International Studies Commission on Strengthening America's Health Security.

Without objection, the witnesses' full statements will be inserted in the record.

At this point I would like to defer to the Ranking Member for an opening statement.

Mr. ROGERS. Thank you, Mr. Chairman. I apologize for being late, I got 2 hearings going on simultaneously. But this is a great panel, and I look forward to their testimony.

As I said yesterday, our hearts go out to those who have lost their loved ones, and those who are currently undergoing treatment.

This is a global event that requires global response. I know many of our international partners are working diligently as part of a united effort to understand and address COVID-19's spread. Unfortunately, some of the actions taken by other countries may have hindered a comprehensive response to this new virus. I remain concerned that Chinese officials knowingly withheld essential information from both the public and international health community in the most critical stages of this outbreak. I am sure that the early days of this outbreak will be under intense scrutiny, once this crisis is over.

My deepest concern for the moment is the level of preparedness at the State and local level. I have heard directly from State and local responders, medical professionals, and emergency managers that are dealing with an increasingly concerned public.

We have a very distinguished panel of medical professionals here today. I am interested in hearing from them on what assistance front-line health professionals need from the Federal Government to effectively deal with this crisis.

I am also pleased that Dr. Gerberding is here today. Dr. Gerberding was director of CDC for most of the Bush administration. She has led a very effective response to the anthrax attacks and the outbreak of SARS, and managed more than 40 other emergency responses. I am very interested in hearing about her experience, and how lessons learned from managing those public health emergencies can be applied to the COVID-19 outbreak.

Finally, I am interested in the panel's honest assessment of the risk from the virus. Your expert medical opinion is invaluable in reassuring the public during times like this.

It is also very important for political leaders to avoid fanning the flames of hysteria. Our job should be to support the medical community, and provide them with the resources they need to handle

this and future outbreaks. That is why I am very pleased we will be considering a supplemental appropriations bill today. Hopefully, this funding will help speed along these important diagnostic treatment and vaccination resources that will alleviate this crisis.

Thank you, Mr. Chairman.

[The statement of Ranking Member Rogers follows:]

STATEMENT OF RANKING MEMBER MIKE ROGERS

MAR. 4, 2020

As I said yesterday, our hearts go out to those who have lost their loved ones and those who are currently undergoing treatment.

This is a global event that requires a global response.

I know many of our international partners are working diligently as part of a united effort to understand and address Covid-19's spread.

Unfortunately, some of the actions taken by other countries may have hindered a comprehensive response to this new virus.

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I'm sure that the early days of this outbreak will be under intense scrutiny once the crisis is over.

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I'm very interested in hearing about her experience and how lessons learned from managing those public health emergencies can be applied to the Covid-19 outbreak.

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That's why I am very pleased we will be considering a supplemental appropriations bill today. Hopefully, this funding will help speed along important diagnostic treatment, and vaccination resources that will alleviate this crisis.

Thank you, Mr. Chairman.

Mr. ROGERS. I do have one UC request we enter this into the record.

Chairman THOMPSON. Without objection.*

Mr. ROGERS. Thank you, sir. I yield.

Chairman THOMPSON. I now ask each witness to summarize his or her statement for 5 minutes, beginning with Dr. Inglesby.

STATEMENT OF TOM INGLESBY, MD, DIRECTOR, CENTER FOR HEALTH SECURITY, JOHNS HOPKINS UNIVERSITY, BLOOMBERG SCHOOL OF PUBLIC HEALTH

Dr. INGLESBY. Chairman Thompson, Ranking Member Rogers, and Members of the committee, thank you for the chance to testify

*The document has been retained in committee files.

today about COVID-19. My name is Tom Inglesby, and I am the director of the Johns Hopkins Center for Health Security.

COVID-19 was first recognized in Wuhan, China at the end of last year and, as of yesterday, has infected somewhere between 85,000 and 90,000 cases world-wide, and killed over 3,100 people across 65 countries. Patients who become sick with COVID-19 most often have cough, fever, and in the more serious cases underlying viral pneumonia. In China approximately 80 percent of those with this illness had mild symptoms, 15 percent required hospitalization, and 5 percent develop critical illness. The virus has a 1-14-day incubation period, and is spread primarily via respiratory droplets between persons at close contact. The elderly and those with underlying medical conditions are at highest risk.

As of yesterday, the United States had confirmed 118 cases of COVID-19, including 8 deaths. The majority of those cases are returning travelers or repatriated persons from China. But for about 20 cases, there is no connection between any known case of COVID-19, which suggests that in those places there is some level of community transmission of COVID going on.

An emergency supplemental appropriation is currently being negotiated between Congress and the administration. In 2014/2015 Congress appropriated \$5.4 billion for the Ebola response. In my view, COVID-19 will require perhaps twice as much or more, given its respiratory transmission and the likelihood that it is going to be wide-spread around the country, and so all jurisdictions will need to prepare and respond.

Health care systems should be planning to provide care for large numbers of critically ill patients, as we have seen has been required in China and in South Korea and Italy. They will also need very strong infection control strategies, including access to personal protective equipment, as well as other kinds of engineering and administrative controls and hospitals.

The Federal Government should be engaging at the highest level of industry regarding PPE manufacturing and maximizing the supply of this critical medical material.

Steps should be taken to make sure that routine medical care is not disrupted, as it has been in China, where we saw that clinics entirely unrelated to COVID-19 were disrupted, including cancer clinics, dialysis clinics, and other important medical facilities.

Public health agencies are working to isolate suspected cases around the country, and to help ensure isolation of high-risk contacts. If cases increase significantly, it may not—may no longer be possible to isolate all cases and contacts. There may need to be a shift, probably will need to be a shift in strategy. At that point public health agencies will need to focus on surveying the population for the overall level of COVID-19, advising how the public can be tested, and how it needs to be isolated when sick, and working with political leaders at the State and local level to consider social distancing policies that will be—that will do more good than harm.

CDC has been doing all lab testing until this week, but testing is now getting going in public health labs around the country. I believe we will see considerably more cases diagnosed around the United States in the coming days, as we have seen in the last week. Large-scale testing at clinical sites around the country will

require clinical diagnostics companies to create high-throughput clinical tests because CDC and public health labs were not designed for the kind of high-throughput clinical testing that will ultimately need to take place.

Vaccine development is likely to take at least 12 to 18 months. One of the world's experts is to our left, so you will hear more about that. We should be developing—as we develop an effective vaccine, we should also be developing means to mass manufacture it, which is not necessarily the normal process for vaccine manufacturing. Ideally, that should be occurring at multiple sites around the world. Even if the United States is the country to develop the vaccine, there will be huge demand for the vaccine around the world.

Antiviral or antibody-based medications could also be developed far sooner than a vaccine. Similarly, plans for mass manufacture of those products should also be under way, should those be successful.

One of themes of our preparedness in this country needs to be close partnership between Government and industry, because industry is the place where diagnostics on a large scale—PPE, medicines, vaccines, hospital equipment—are being manufactured. So there is no way around having a very close effective partnership, and making sure that those industries are well aware of the support that they will receive from the Government to do that work.

Finally, I would say that it is very important from this point forward for the Federal Government to be speaking in a single consistent voice about what is happening. I think a daily briefing, as we did in 2009 H1N1, about what is known, what is unknown, how we are learning to fill the gaps in information should come out of the Government on a daily basis. I do think that should come from our health officials, either at HHS or CDC, because they are closest to the science and to local and public health agencies around the country.

Thank you for the chance to testify today, and I look forward to your questions.

[The prepared statement of Dr. Inglesby follows:]

PREPARED STATEMENT OF TOM INGLESBY

MARCH 4, 2020

Chairman Thompson, Ranking Member Rogers, and Members of the committee, thank you for the chance to speak with you today about COVID-19 and the Federal Government's response to it. My name is Tom Inglesby. I am the director of the Center for Health Security of the Johns Hopkins Bloomberg School of Public Health and a professor of public health and jointly in medicine at Johns Hopkins University. The opinions expressed herein are my own and do not necessarily reflect the views of The Johns Hopkins University.

Our Center's mission is to protect people's health from major epidemics and disasters and build resilience. We study the organizations, systems, and tools needed to prepare and respond. Today, I will provide comments on the status of the COVID-19 pandemic and the U.S. Government's response efforts. My testimony will provide recommendations regarding what I believe should be top priorities of the U.S. Government.¹

¹Please see <https://www.nytimes.com/2020/03/02/opinion/coronavirus-prepare-test.html> and <https://jamanetwork.com/journals/jama/fullarticle/2762690> which were the basis of a good portion of this testimony.

The COVID-19 pandemic presents the United States and the world with a serious health security threat. As such, it is critical that the U.S. Federal Government continue to lead a robust response effort that supports State and local governments, public health agencies, health care systems, industry, and the public in order to prevent the worst case outcomes in terms of health effects, economic damage, and societal impacts.

EPIDEMIOLOGICAL UPDATE

As you know, coronavirus disease 2019 (COVID-19) was first recognized by astute clinicians in the Chinese city of Wuhan at the end of last year. As of March 3 it had infected over 92,000 people and killed over 3,100 across 65 countries.² On January 30, the World Health Organization declared a Public Health Emergency of International Concern (PHEIC).³

Patients who become sick with COVID-19 most often present with a cough, fever, and in the more serious cases, an underlying viral pneumonia. In China, approximately 80 percent of those with illness developed mild symptoms, 15 percent require hospitalization and 5 percent became critically ill.⁴ The virus has a 1–14-day incubation period, most often in the range of 5 days. We know that before China put in place its many efforts to slow the spread of the disease, each infected person infected between 2 and 3 others, an epidemiological parameter known as R0. That number will be different in different places and conditions over the course of the outbreak. The primary route of transmission is via respiratory droplets between persons at close contact (within 6 feet).

Some people who get infected have no symptoms—it will take time to understand the proportion of people who are infected that do develop illness as compared to those who do not. Tests called serology studies will need to be created for that, and the CDC and other labs are working to get those tests ready. There is some evidence that some people who are infected but do not develop symptoms can pass along their infection to others—a phenomenon referred to as asymptomatic transmission, which complicates public health's ability to control the disease.⁵ There are many uncertainties at this point, including how severe the disease will be in the United States (it has a case fatality rate of about 2 percent in China), what percent of the population will be affected (also known as the attack rate), who develops severe disease, and how quickly it will spread in the face of public health interventions intended to slow it. In China the median age of the infected is about 51, and the case fatality rate increases with people in their 70's and 80's, and in those with pre-existing conditions.

As of March 3, the United States has 100 recognized confirmed cases of COVID-19, including 6 deaths in 15 States. That number includes evacuees from the Diamond Princess cruise ship. The total includes returned travelers and their close contacts, as well as cases of people recognized in California and Washington State who do not appear to be related to those Americans who traveled in China or their close contacts. When a patient tests positive, and no known contacts with previously identified cases are found, this means that there is likely at least some level of transmission happening in those communities.

Public health laboratories have now been given the go-ahead to begin using the CDC developed diagnostic test, and they are beginning to start testing patients around the country. We should now expect to see new cases confirmed in different States as diagnostic testing is expanded around the country this week. New cases confirmed in the next week or so could feasibly be in the hundreds and will likely continue to grow as more testing is performed.

U.S. RESPONSE EFFORTS

An emergency supplemental appropriation is currently being negotiated between the administration and Congress to fund the COVID-19 response. In terms of an appropriate funding level, comparisons to past infectious disease responses might be useful. In 2009, Congress appropriated \$7.7 billion for the H1N1 influenza pandemic, and in 2014, \$5.4 billion was appropriated for the Ebola response. COVID-19 will require perhaps twice as much money as Ebola or more. On February 28,

²https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200229-sitrep-40-covid-19.pdf?sfvrsn=7203e653_2.

³[https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)).

⁴<https://jamanetwork.com/journals/jama/fullarticle/2762130>.

⁵<https://jamanetwork.com/journals/jama/fullarticle/2762510>.

our Center sent a letter signed by 32 leading public health and health care organizations and individuals to the Chairs and Ranking Members of the House and Senate Appropriations Committees urging them to act swiftly to pass emergency supplemental funding sufficient for a comprehensive National and international response.

HHS will have major responsibilities for COVID-19. The CDC is leading the public health response, including the development, conduct, and promulgation of diagnostic testing; issuing technical guidance; and supporting Federal, State, and local partners in screening and contact tracing. The NIH's National Institute for Allergy and Infectious Diseases (NIAID) is supporting medical countermeasure development, along with efforts at BARDA and FDA. The assistant secretary for preparedness and response (ASPR) is responsible for ensuring that the U.S. health care system, including hospitals, EMS, health care supply chains, and others are well-prepared and able to provide care.

DHS has responsibilities related to Customs and Border Patrol, working with CDC personnel to screen incoming travelers to the United States, including assessing travelers who self-report illness and conducting fever screening at airports. Last weekend, the *New York Times* reported that 47,000 travelers have been screened at airports across the country.⁶ It is worth noting, though, that those efforts have yet to identify a confirmed case of COVID-19. The provision of educational messaging and materials at points of entry probably has had value in getting returned travelers to self-identify and bring themselves to medical and public health attention.

In addition, the National Biodefense Analysis and Countermeasures Center (NBACC) is conducting research intended to provide answers to some operationally relevant questions, including the stability of the SARS-COV-2 virus in different media and characterizing the best decontamination methods.

The Department of State has major responsibilities related to international agreements we have with other countries in terms of travel and trade, and it will need to navigate their disruptions. The Department of Commerce too will be involved in that work, given the interruption of supply chains that have already emerged.

The Department of Defense will have responsibility for protecting the health of the military from COVID-19 and dealing with the operational implications of the epidemic and has had responsibilities for working with those persons who have been repatriated and kept on military bases.

RESPONSE PRIORITIES

Health care systems should be planning to provide care for large numbers of critically ill patients. Measures that could be taken include the cancellation of elective surgeries if critical care demands rise to the point when ventilators or ICU space becomes limited, changing staffing patterns to accommodate for higher patient volumes in these units, and seeking additional ventilators from the National stockpile if necessary.

Health care institutions will also need very strong infection control strategies and responses. In China there have been thousands of health care workers infected, although it is unclear to what extent those infections occurred before HCWs were properly trained or whether they were properly equipped. To prevent that in the United States there will need to be good administrative and engineering controls, and ready access to personal protective equipment by all staff that interact with patients. The manufacturers that make personal protective equipment should be assured by the Federal Government that they will be compensated for increasing their output to the maximum extent possible, even if hospitals do not end up needing all supplies that are produced.

In addition, readiness at other health care facilities will need to be strengthened. In China, there have been disruptions to dialysis centers and cancer clinics caused by COVID-19, and it will be important in the United States for planning to ensure that routine medical and surgical care is not grossly disrupted by this disease.

In particular, it will be important to prevent infections in long-term care facilities, given the risks faced by the elderly and those with pre-existing conditions, and the propensity for this disease to spread within closed systems, such as the Diamond Princess cruise ship, which had over 600 cases and in prisons in China, where they have been reported large outbreaks. We have already seen the consequences of this disease in a long-term care facility in Washington State where a number of people have died and a number of others are potential or confirmed cases.

Public Health agencies around the country will also play a pivotal role throughout the course of COVID-19. They are now working to isolate suspected cases, and track

⁶<https://www.nytimes.com/2020/02/29/health/coronavirus-preparation-united-states.html>.

and help ensure the isolation of high-risk contacts. If the numbers of cases increase significantly, it may not be possible to find and isolate all cases and contacts, any more than that is possible with seasonal influenza. At that point, public health agencies will need to focus on surveying the extent of COVID-19 in the larger population, advising how the public can be tested, and communicating to the public about the importance of staying isolated when sick, including having positive cases stay home when not sick enough to be in the hospital.

Public health professionals will also need to work with political leaders to decide whether and under what conditions social distancing plans should be put in place—for example, whether large events should be canceled, workers should telecommute, or schools should close. Public health agencies typically run on shoestring budgets and have no cash surpluses on hand. This work is expensive and will require some 24/7 work, all of which will need to be supported by Federal and State governments.

Up until this week, the CDC has been doing all the lab testing for this virus which has limited the National capacity. Technical challenges have slowed the distribution of this test around the country, but 54 public health labs had the capacity to do testing as of March 3, with all of the more than 100 public health labs around the country being likely ready to start testing by the end of the week. Testing should ideally be available now for those who have a clinical picture consistent with coronavirus infection, but bandwidth limits on testing mean that for the immediate future we should be focusing on the sickest hospitalized patients who might have this disease.

Large-scale testing will ultimately require clinical diagnostics companies to develop testing in the way that they have done for high throughput testing for other diseases. The Federal Government should make commitments to these companies that will ensure their development and manufacturing work will be fully compensated. These companies should not be wondering about the market size or if they will be left holding the bag for the costs of development. They should be working full-speed ahead in making clinical diagnostics that can be used on large scale.

MEDICAL COUNTERMEASURE DEVELOPMENT

Leading vaccine scientists have said that in a good-case scenario it will take 12 to 18 months to develop a vaccine against COVID-19. Even as all possible actions are being taken to develop a safe and effective vaccine in a highly-funded Federal Government effort, the Federal Government and its industry partners should be planning to mass manufacture the vaccine when it is developed, ideally in multiple sites around the world. Vaccine will need to be made on large scale in a short period of time, and the developers of the successful vaccine(s) will have enormous pressure to share it around the world.

Antiviral or antibody-based medicines could be developed far sooner. Some candidate antiviral products are already in use or were developed for other purposes. It is too soon to say if they will be effective. There are a number of companies that are proposing to develop antibody-based therapies. Such therapies, if able to diminish the morbidity and mortality of the very sickest patients could be very valuable. As with vaccines, the Federal Government should be strongly supporting the development and testing of a full range of candidate therapies, and it should be planning for the rapid and mass production of these therapies—should they prove safe and effective.

COMMUNICATION WITH THE PUBLIC

Given the quickly changing and complex daily developments around COVID-19, it will be important for the Federal Government to speak with a consistent voice. It will be important for the Federal Government on a daily basis to describe what is new, describe what new uncertainties or problems have developed, and explain what the Federal Government is doing in response. It is important that the White House is involved in coordinating the efforts of the various agencies of government involved in the COVID-19 response. However, it should be HHS/CDC that are responsible for the daily public briefing, given their many overriding responsibilities in this public health emergency and their strong connections to the public health and health care organizations and leaders that are running the response locally around the country.

It is also important to say that the response to COVID-19 will be stronger if it is nonpartisan and highly inclusive. Epidemics can result in division and in scapegoating. The country will get through this with less damage if we are all pulling in the same direction.

In conclusion, the United States has many tools at its disposal to slow and reduce the overall impact of COVID-19. What is needed now is to bring our substantial

resources and expertise to bear quickly and decisively. Thank you for the opportunity to testify today, and I would be happy to answer your questions.

Chairman THOMPSON. Thank you for your testimony.

I now recognize Dr. Ezike to summarize her statement for 5 minutes.

**STATEMENT OF NGOZI O. EZIKE, MD, DIRECTOR, ILLINOIS
DEPARTMENT OF PUBLIC HEALTH**

Dr. EZIKE. Chairman Thompson, Vice Chair Underwood, Ranking Member Rogers, and distinguished Members of the committee, my name is Ngozi Ezike, I am the director of the Illinois Department of Public Health, and I thank you for inviting me to speak about the novel coronavirus and the preparedness and response efforts of the Illinois Department of Public Health.

Even before our first Illinois case was identified in January, a strong Federal, State, county, and local coordinated effort was enacted, and enabled our State to be a leader in addressing this rapidly-developing outbreak. The CDC quickly deployed a team to Illinois after our first case was announced, and was essential in partnering with us through the response. They have been equally responsive with our recently-announced third and fourth cases.

The Illinois Congressional delegation supported our request for immediate approval of an emergency use authorization for the COVID-19 test, which has been invaluable in the effort to containing illness. Illinois was the first State in the United States to validate this test, and to begin testing in-house, a capability that we have had for the last 3 to 4 weeks.

We began sentinel surveillance testing this week, enabling Illinois to better determine how much COVID-19 is circulating within our community. Our success in testing raises a new concern, however: Will we have enough reagent to maintain and increase our testing?

We are requesting that CDC provide an uninterrupted supply of testing materials. The ability of States like Illinois to test samples lessens the burden on the CDC. We encourage CDC to expedite additional reagent shipments to Illinois and other States.

Illinois has utilized and proven its capabilities in the past when responding to the domestic cases of SARS, H1N1, Zika, and Ebola. IDPH recently participated in Crimson Contagion. This is a National tabletop exercise that used a COVID-19-like outbreak that was said to have originated in China in the United States. However, surge capacity remains something that is not able to be sustained for extended periods of time.

Therefore, emergency supplemental funding is necessary. Illinois encourages Congress to appropriate funds enough to reimburse Illinois and other States for the costs associated with this aggressive response. Public health infrastructure such as data management, information sharing, and operations management are essential just for day-to-day function, but they are vital in the settings of public health emergencies.

For example, during this response the State health department is closely monitoring the availability of airborne infection isolation rooms. These isolation rooms are providing—are proving critical in the treatment of these patients by controlling the spread of the

virus to the public and health care workers. We inventory these beds daily as an indicator of disease rates, and to adjust surge capacity estimates. An important support for this capability came from ASPR's Hospital Preparedness Program.

Given the transmissibility of COVID-19, isolation sites are required to house affected persons. It is challenging to find establishments willing to take on isolation or quarantined patients. When COVID-19 began in Illinois, the city of Chicago was given very little time to set up screening operations at O'Hare and establish a requisite quarantine site. Chicago has continued to maintain both its screening operation and quarantine site at an enormous cost. Without reimbursement and on-going money for future expenses, governments will likely struggle to maintain these critical public health interventions.

Additional attention must be given to mitigation strategies of the State. We are also working closely with long-term care facilities to implement mitigation strategies aimed at protecting what would be our most vulnerable citizens.

In addition to these community mitigation approaches, we encourage the public to employ their own strategies to keep themselves healthy. We have said it over and over: The frequent hand-washing, the staying home when ill, sanitizing frequently touched services—surfaces. Individuals should take care to rely on trusted sources of information such as the CDC.

Public health security is homeland security. Our country is nothing without the health of its people. We can all work together to ensure that we continue to support this response, and decrease the potential negative effect and impact on the people of this country.

In closing, I wish to again thank the committee for its invitation and the attentiveness to Illinois's successes and opportunities in responding to COVID-19. Thank you.

[The prepared statement of Dr. Ezike follows:]

PREPARED STATEMENT OF NGOZI O. EZIKE

MARCH 4, 2020

Chairman Thompson, Vice Chair Underwood, Ranking Member Rodgers, and distinguished Members of the committee thank you for the inviting me to speak about the novel coronavirus or COVID-19 the preparedness and response efforts of the Illinois Department of Public Health (IDPH).

Since the first Illinois case was identified in January a strong Federal, State, county, and local coordinated effort ensued and enabled our State to be a leader in addressing this rapidly-developing outbreak.

In the aftermath of 9/11 Illinois steadily built a remarkable emergency response network, including a comprehensive public health emergency response system lead by IDPH and inclusive of our certified local health departments and Illinois' hospitals. With on-going Federal support, Illinois has been able to conduct exercises such as last year's Crimson Contagion, that prepared Illinois for outbreaks like COVID-19. A true reflection of our preparedness is found in the containment efforts at Chicago's O'Hare airport and contact tracing of potentially exposed citizens; Illinois has demonstrated that its public health infrastructure is strong and prepared. We encourage Congress to continue and increase its financial support of State-lead preparedness and response through Federal emergency supplemental legislation.

Resources are essential to any response effort. Human and financial support are irreplaceable and necessary to protect the lives of all Americans. Understanding the costs and where extra support is needed is integral. As an example of this, IDPH and the Illinois Emergency Management Agency began tracking the costs of the outbreak at its inception. Similarly, local health departments, like the city of Chicago and Cook County are doing the same. While preliminary, the Illinois combined

spending tops \$20 million dollars for the first 5 weeks of the outbreak. This committee may know that Illinois is a State with serious financial concerns; not unexpectedly, COVID-19 response was not in any of our budgets. Under the leadership of Governor JB Pritzker, IDPH has been able to take every step necessary to address COVID-19 recognizing that we would need to figure out how to pay for the response efforts at a later date, but our priority at the moment is protecting the health of the people in our State. The State of Illinois encourages Congress to appropriate funds enough to reimburse Illinois and other States, territories, and local health departments for the cost associated with COVID-19 response.

With respect to IDPH's working relationship with the Federal Government, Illinois is pleased with the responsiveness and collaboration with Federal agencies including the Centers for Disease Control and Prevention (CDC) and the U.S. Food and Drug Administration (FDA). Illinois is grateful that CDC quickly deployed resources to Illinois in response to the first 2 cases in the State and has been equally supportive now that there are third and fourth cases. The FDA's prompt response when Illinois' Congressional delegation requested immediate approval of an Emergency Use Authorization for the COVID-19 Rapid PCR test has been invaluable in the State's approach to containing illness. Illinois was the first State in the United States to validate CDC's COVID-19 test and now has all 3 of its State laboratories running samples. These 3 laboratories began State-wide sentinel surveillance testing this week, enabling Illinois to determine if COVID-19 is circulating in the community among persons with no travel exposures and no known exposures to confirmed cases.

Our success in testing raises a new concern, whether we will have enough reagent to maintain or increase our testing in Illinois. Even so, Illinois has a finite amount of reagent on hand and needs assurance that CDC can provide an uninterrupted supply of testing materials. The ability of States like Illinois to test samples lessens the burden on the CDC, especially at this moment when not every State is able to test samples. To support this, the State of Illinois encourages CDC to expedite additional reagent shipments to Illinois and other States.

Federal funding to Illinois, and other States, territories, and local health departments supported us in our current ability. Preparedness funding ensures that Illinois has plans in place that are exercised and ready to deploy when necessary. From both virtual and actual exercising of the State's public health emergency response, there was immediate action to address COVID-19. Historically, Illinois has utilized and proven its capabilities in the past when responding to the domestic cases of, SARS (2002), H1N1 (2009), MERS (2014), Ebola (2014), Zika (2016), and other high-profile diseases. IDPH recently participated in Crimson Contagion, a National exercise that used a COVID-19-like outbreak in the United States. The training and preparation have been decades in the making and Illinois is capably managing the current and anticipated workload. However, surge capacity remains something that States like Illinois are not able to sustain for extended periods of time and therefore emergency supplemental funding is necessary.

Public health infrastructure such as data management, information sharing, and operations management are essential for day-to-day function in public health, but vital in a public health emergency. Illinois can now resource public health emergencies and track key indicators. For example, during this response, the State health department is closely monitoring the availability of airborne infection isolation rooms or AIIR beds. These isolation rooms are proving critical in the treatment of COVID-19 patients by controlling the spread of COVID-19 to the public and health care workers. IDPH inventories AIIR beds daily as an indicator of disease rates and to adjust surge capacity estimates. An important support for this capability comes from the Assistant Secretary of Preparedness and Response Hospital Preparedness Program (HPP). The department of health has partnered with Illinois' health care industry over the years in a way that was not there 20 years ago. Understanding where to send patients, and adjust accordingly, in a cohesive response, saves time, lives, and valuable resources.

Available isolation and quarantine space are another area where Federal support is needed. When a person under investigation is put in isolation or quarantine, it is sometimes not possible to house that person in their home. It is incumbent upon the local and State health departments to find housing for the person until they are cleared. Given the transmissibility of COVID-19, quarantine sites are required to house these persons. It has been challenging to find commercial establishments willing to take quarantine patients for the required 14-day period. When COVID-19 began in Illinois, the city of Chicago was given very little time to set up screening operations at O'Hare and establish a requisite quarantine site. Chicago has continued to maintain both its screening operation and quarantine site at an enormous cost to the city. Without reimbursement and on-going money for future expenses,

Chicago and governments like it will struggle to maintain these critical public health interventions. The Federal Government should increase its assistance to States in meeting the housing and isolation needs of citizens exposed to COVID-19.

IDPH partners with State-certified local health departments and hospitals to ensure Illinois has a robust and effective health care system. That relationship requires IDPH to provide personal protective equipment (PPE) to its partners when usage rates drain normal inventories. This highlights another concern that Federal authorities should soon act upon, the PPE Shelf Life Extension Program (SLEP). Illinois and perhaps all other States have significant stores of Federally-supported PPE. As a recipient from the Strategic National Stockpile (SNS), Illinois is required by law to preserve outdated PPE until dispositioned by the Federal Government. In most cases, the original manufacturer's expiration date has past, rendering the PPE unusable. The SLEP allows the Federal Government to test certain lot numbers for efficacy and then extend the expiration date of successful lots allowing the PPE to be used. Let me be clear, IDPH has not exhausted its stores of in date PPE, however, usage rates could change. We urge the Federal Government to evaluate the SNS and provide States with extensions for COVID-19-intensive supplies, namely N95 respirators, isolation gowns, latex gloves, and eye shields.

As COVID-19 is anticipated to spread throughout the country, additional attention must be given to mitigation strategies that State and local public health employ. Illinois for example has a pandemic flu plan that IDPH will utilize during the upcoming month. Illinois is evaluating triggers for changing public behaviors and implementing community mitigation strategies. We understand that these triggers may be local or regional based upon population and other factors, making a one-size-fits-all approach infeasible for Illinois. COVID-19 appears to impact the elderly population with co-morbidities and therefore we are working with long-term care facilities to implement mitigation strategies aimed at protecting our most vulnerable citizens.

In addition to community mitigation approaches we encourage the public to employ their own strategies to keep themselves healthy such as frequent handwashing, staying home when ill, eating and sleeping well. Individuals should take care to rely on trusted sources of information such as CDC or their State and local health department in order to get the most up-to-date and accurate information as possible. In the public health community we are gravely concerned that misinformation and fear will spread faster than the illness itself.

Public health security is homeland security. Our country is nothing without the health of its people and we can all work together to ensure that we continue to support this response and decrease the potential negative impact on Americans.

In closing, I wish to again thank the committee for its invitation and attentiveness to Illinois' successes and challenges in responding to COVID-19.

Chairman THOMPSON. Thank you for your testimony.

I now recognize Dr. Gerberding to summarize her statement for 5 minutes.

STATEMENT OF JULIE LOUISE GERBERDING, MD, MPH, CO-CHAIR, COMMISSION ON STRENGTHENING AMERICA'S HEALTH SECURITY, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES (FORMER DIRECTOR OF THE CENTERS FOR DISEASE CONTROL AND PREVENTION)

Dr. GERBERDING. Thank you, Chairman. I am very honored to be here, and also to testify with such distinguished experts at the table.

I am here wearing several hats. I am currently the chief patient officer at Merck, where I have served as the president of the vaccine business for a number of years, and more recently as the chief patient officer who contributed to the development and deployment of the Ebola vaccine in the Democratic Republic of the Congo, which is now licensed, even though it was created on the fastest possible track. So far we have been able to contribute about 300,000 doses of the vaccine. This week the director general of the

WHO indicated his optimism that that outbreak has finally come under control.

I am also witnessing, as the co-chair of the CSIS Commission on Global Health Security, which submitted this report to the record—the commission is a bipartisan—it includes bipartisan Members of the Senate and the House, and has the stated purpose to advise the Congress on steps that can be taken to improve our global health security. The report was written before coronavirus was recognized, but I think many of the recommendations which are summarized in my written testimony are prescient, and really apply to the situation that we are experiencing today.

I would be remiss if I didn't mention that I am also on the executive committee of BIO, the Biotechnology Innovation Organization. Today many of the CEOs of BIO are here in Washington to brief Members of Congress. About 40 of these companies have innovations and molecules and platforms, and are stepping up to try to contribute to the prevention and treatment of this coronavirus outbreak. So we are lucky that we live in a country that has such a vital biotechnology organization.

Finally, I am the former CDC director. In past life, where we were dealing with anthrax and SARS and many other outbreaks, the first coronavirus outbreak, SARS, challenged the United States and challenged the world. I think we learned many, many lessons which are relevant to where we are today.

I don't have time to give the full picture of the U.S. public health situation, and I think my colleague has expressed it from a State view very eloquently. But I would say that it is important to remember where we are in the outbreak right now, from a U.S. perspective.

There are really 3 main phases of outbreak response.

The first is detection, and that happened in China, and was reported fairly early in the process, but we don't have full detection because we haven't had full testing, and we still don't know whether the cases we are detecting represent the tip of the iceberg, and how much of the iceberg is undetected yet because we haven't tested, or because many patients are asymptomatic, which I, in fact, suspect.

The second phase is the phase of trying to contain the outbreak where it starts. I don't think, in the history of the world, we have seen a more dramatic demonstration of that than what occurred in China, and then what has occurred in countries around the world who attempted to keep the virus out of the country. It was a heroic effort. It wasn't perfect, but it probably did buy us some time, and for that I think we should all be grateful.

Where we are now is in the phase of slowing the spread of the virus. It is here. We are doing everything we can on the front lines of public health to identify and isolate cases, to quarantine people who may be exposed or incubating, and to managing the social system that promotes spread.

But we have to balance that effort to slow things down by recognizing that we also need to sustain our essential services. Our businesses need to run, our medical supply chain needs to operate, and our security and safety need to be also part of our overall response capability. So we are going to be seeing a lot of local decision mak-

ing. If you are looking at it from a high-level view, what is going on in Chicago might look different from what is going on in some other part of the country. But you know that each individual location has to make decisions in the best interests, given the state of the outbreak in their particular community.

One of the most important lessons that I wanted to emphasize in my opening statement is something we have learned in every outbreak, and that has to do with the importance of trust. We must have credible leadership at every level: Federal, State, and local. We must have clear and consistent communication from trusted individuals who are knowledgeable about public health, health care, and the science and evidence of public health interventions. We must have a spirit of collaboration, not combat, a spirit of health protection, and not politics.

Thank you.

[The prepared statement of Dr. Gerberding follows:]

STATEMENT OF JULIE LOUISE GERBERDING

MARCH 4, 2020

Chairman Thompson, Ranking Member Rogers, and other distinguished Members of the committee—I am truly grateful for the opportunity to appear before you today on the topic of “Confronting the Coronavirus: Perspectives on the Response to a Pandemic Threat”.

I have been engaged in professional activities related to the prevention and control of infectious disease threats throughout my entire career, from the early response to AIDS during my tenure as a faculty member at the University of California, San Francisco, to years as CDC director during the anthrax, SARS, West Nile virus, avian influenza, and other outbreaks, and now as the chief patient officer at Merck & Co., Inc. where I led the Vaccine Division for several years and more recently supported the development and deployment of Ervebo, our Ebola vaccine that is currently deployed in the Democratic Republic of the Congo outbreak.

I also co-chair with former Senator Kelly Ayotte the Center for Strategic International Studies (CSIS) Commission on Strengthening America’s Health Security, which recently released a report entitled *Ending the Cycle of Crisis and Complacency in U.S. Global Health Security*. Members of Congress who also serve on the Commission include: Senators Murray and Young, and Representatives Bera, Brooks, Cole, and Eshoo, in addition to several security experts. I am pleased to review the recommendations of the full report and its implications for the COVID-19 outbreak that we are dealing with now and pandemics that will inevitably strike in the future.

We began the Commission’s work with a simple understanding: Health security is National security, in a world that is increasingly dangerous and interdependent. Biological threats—outbreaks from natural, intentional, and accidental causes—are occurring more often, and at the same time, the world is increasingly insecure, violent, and disordered, and it is exactly in these danger zones where an increasing number of biological outbreaks occur.

Globalization and the rise of international trade and travel mean that an outbreak in a disordered setting with a compromised health system can quickly become a pandemic, threatening the United States and the rest of the world. Policy makers increasingly recognize these threats can undermine the social, economic, and political security of nations.

Unfortunately, this recognition occurs when a health crisis strikes—coronavirus, measles, MERS, Zika, dengue, Ebola, pandemic flu—and U.S. policy makers rush to allocate resources in response. Yet, all too often, when the crisis fades and public attention subsides, urgency morphs into complacency. Investments dry up, attention shifts, and a false sense of security takes hold.

That realization led us to conclude that the U.S. Government needs to break the cycle of crisis and complacency and replace it with a doctrine that can guarantee continuous prevention, protection, and resilience. Accordingly, the Commission advocates for a package of strategic, affordable actions to advance U.S. health security.

The Commission commends the recent advances in U.S. health security and bio-defense policy, including the release of the National Biodefense Strategy last fall

and the Global Health Security Strategy this year. These are positive steps forward, which we should build upon.

1. We recommend that health security leadership at the White House National Security Council (NSC) be restored.—Health security is National security. Strong, coherent, senior-level leadership at the NSC is essential to guarantee effective oversight of global health security and biodefense policy and spending, speed, and rigor in decision making, and reliable White House engagement and coordination when dangerous pandemics inevitably strike. Leadership on the NSC can bring about key, targeted new investments while achieving much-needed reform of fragmented programs and higher efficiencies in the use of scarce resources.

2. We need to invest directly and consistently, over the next decade, in the capacities of low-income countries.—The best approach to protect the American people is to stop outbreaks at the source. The Global Health Security Agenda has a proven track record in building health systems and health security preparedness in low- and middle-income countries, financed through a \$1 billion Ebola emergency supplemental funding. We recommend sustaining that success, not disrupting or curtailing it.

We recommend that the U.S. Government expand the Defense Threat Reduction Agency's (DTRA) geographic authorities to operate in all continents where health security threats exist. Furthermore, support for military overseas infectious research laboratories should be sustained. The Department of Defense's (DOD) biological research and development programs often focus on diseases not studied in other venues and result in medical countermeasures that would otherwise be delayed or not developed at all.

3. We need to exercise multilateral leadership to persuade partner countries to invest more of their own resources in preparedness.—We recommend that Congress advocate for U.S. leadership to launch a 5-year challenge at the World Bank that would incentivize long-term investment by fragile and conflict-affected countries in their own basic health security capacities.

The Commission recommends that Congress increase contingency funding levels for the CDC and the United States Agency for International Development (USAID), and that the U.S. Government make annual contributions to the World Health Organization's (WHO) Contingency Fund for Emergencies so we can access adequate, quick-disbursing resources when a health or biosecurity crisis strikes.

4. The Commission advocates for the establishment of a U.S. Global Health Crises Response Corps.—This organization would build upon and integrate existing CDC and USAID capabilities, and work with local partners to respond early to outbreaks and biosecurity incidents in disordered and insecure settings.

5. The Commission also advocates for the U.S. Government to strengthen and adapt programs and capacities to deliver health services in fragile settings that meet the special needs of acutely vulnerable populations, especially women and children.—This means ensuring the continuity of immunization programs, the protection against and response to gender-based violence (GBV), and the strengthening of the delivery of maternal and reproductive health and family planning assistance.

6. The last area of priority concern is to plan strategically, with strong private-sector partners, to support targeted investments that will accelerate the development of new technologies for epidemic preparedness and response.—We assert that the U.S. Government should directly invest in the Coalition for Epidemic Preparedness Innovations, or CEPI, an international alliance that finances and coordinates the development of new vaccines to prevent and contain epidemics. The U.S. Government should also redouble its efforts to develop a universal flu vaccine.

In addition, to ensure that the United States has a sufficient arsenal to treat the secondary infections that will occur from the coronavirus now and similar public health threats in the future, Congress should advance reimbursement reforms to incentivize the development of new antibiotics. The current antibiotic market is broken; if Congress does not act to ensure that antibiotics are valued appropriately, we will continue to see small biotechnology companies declaring bankruptcy and large pharmaceutical manufacturers exiting this arena.

Thank you for the opportunity to address you today, and I look forward to hearing your perspective. It is my sincere hope that we can work closely together to advance the U.S. health security agenda.

Chairman THOMPSON. Thank you very much. I must add we hear from a lot of witnesses on this committee, and what you have told us has been quite sobering, to say the least, but quite informative. So I would like to compliment you at the beginning of the questions.

But one other thing that each one of you talked about was the need in a situation like this to have effective communication. There seems to be mixed messages to the public from the administration at this point regarding the severity of this outbreak. Many of my constituents have repeatedly called, asking for clarity on many issues, citing inconsistency, inconsistencies made by the high-level administrative officials.

How would you assess the U.S. Government's communication with the public regarding the risks presented by this outbreak? What can the Federal Government do better?

Dr. Inglesby, we will start with you.

Dr. INGLESBY. I think that the state of the outbreak has changed a lot in the last month, and we have a very big Federal Government with many different people working on this. So there have been days when, within the Government, there have been different messages issued. I don't think that was necessarily intentional. I think that is partly its people kind of catching up to where we are in the outbreak. But I do think it will be very valuable for the Government to be speaking with as much as—of a single and consistent voice as they can, as is possible in a big government.

I do think it is—on the one hand, I think it is very important to say what the risk is at this moment. I think many of the risk statements have been said from the Government, "Today the risk is very low for any particular American," and that may be accurate for today.

But I think it would be helpful for Americans to understand risk going forward. What do health officials believe is likely to happen in their communities? Not in an alarmist way, but just so that people can be informed to begin to take measures, as we heard—my colleagues talked about, to try and diminish their own risks, to make sure that they are staying home when sick, to make sure that they are washing their hands properly, disinfecting after they touch public services—public surfaces.

So I think consistent messages that empower the public would be useful. Even if we don't know exactly what will happen next, we do expect this disease to continue to spread in the country at this point. It would be useful for people to know that.

Chairman THOMPSON. Dr. Ezike.

Dr. EZIKE. In Illinois our intersection with the Federal Government has been primarily with the CDC, and we have had intense communication and collaboration. We are on hours of calls together every day, 7 days a week. We have had Federal CDC staff come on-site to help us directly with our investigations.

So—and then, with the FDA, they were the ones that gave us the authorization to be able to test, and that ability to test, and being the first State being able to do that, has been very instrumental in being able to quickly identify our positive versus our negative cases.

So we have seen how good communication, collaboration, and coordination between the Federal, State, and our local health departments, how that integration has been successful in giving us a pretty good response in Illinois.

Chairman THOMPSON. Dr. Gerberding, you have gone through this in another life. Can you kind-of talk about that, the same issue

as it relates to communication and the public needing to hear a consistent voice?

Dr. GERBERDING. Sure, I will try to share a couple of things that I think I learned along the way.

The one that was the hardest for me was that you can't communicate enough, that it really does take, like you said, daily, regular, what do we know today that we didn't know yesterday? What don't we know? What are we doing to find out? Then, what can you expect going forward?

One of the hardest things about being in the very early phases of an outbreak like this is that we don't really know what to expect. This is new, and we are learning as we go. So preparing people for change, for decisions that we make today, might be different from decisions that we make next week. These are very important things, and we should just acknowledge them. People don't panic if they are given straightforward information. They panic when they hear confusing and conflicting information, and they don't know who to trust or who to believe.

I think the other important lesson that I learned was the importance of Governors in the communication. We tend to think that everything is Washington and Federal and, if we do our job right, it will just automatically flow through the system. But, as you know, Governors have a great deal of authority in their States, and they need to be brought into the communication and information flow, because they influence a whole number of important decisions at the State and local level. So making sure that they are connected to the Federal response is critical.

Chairman THOMPSON. Well, and I thank all of you for saying that, because yesterday the administration's coronavirus task force held a press briefing that was closed to cameras and audio recordings. That is troubling in a time like this, because information is very important. So if you hold briefings, I think they should be public, they—recordings to be—should be made, because it is the consistency of the message that provides the confidence that is so important during these troubling times.

So my plea to the administration is, going forward, please allow at the briefings to have the press there, have the cameras rolling, have the recordings being made, because all this adds to a—strengthening the level of communication required in a situation that we are in now. So I wanted to make sure that the administration hear us so future press briefings will be open, from a transparency standpoint, to the public. I think all three of you have kind-of said that that is so important in situations like this.

I yield to the Ranking Member.

Mr. ROGERS. Thank you, Mr. Chairman.

Dr. Gerberding, you made a, in your opening statement, a reference to the fact of lessons learned from your time in your previous life. What lesson have we most learned from this outbreak, given that it is in its early stages, that we need to take heed of? Can you think of one, in particular, that stands out?

Dr. GERBERDING. I will say the global lesson is that we are going to see infectious diseases spill over from the animal kingdom on an increasing basis for a number of reasons, and that there are common-sense things that the global community needs to rally behind,

like not having wet markets, where live animals are congregated together and create the opportunity for this spillover to occur.

I think, from a U.S. response perspective, the lessons are summarized in this report, and that is that we do a pretty good job of stepping up when there is a crisis. Our response machinery takes time to get in place, but eventually we get there, and we do a pretty good job of managing an outbreak. But we shouldn't have to do it in a crisis mode. We need to invest, we need to take our countermeasures across the finish line.

We still don't have a SARS vaccine, we do not have a MERS vaccine, we do not have a Zika vaccine. We are partially there, but then the effort gets abandoned. So we need to stay the course, and complete the job so that we can take some of these threats off the table.

Mr. ROGERS. Dr. Ezike, you talked about quarantine, and—tell me more about what you think the appropriate facility would be styled like to be a good quarantine facility.

Dr. EZIKE. So thank you for the question, and let me start by distinguishing the quarantine sites versus the isolation sites. So—

Mr. ROGERS. Define those two.

Dr. EZIKE. Yes. So “quarantine” we use to talk about people who don't have symptoms, who are asymptomatic. When I talk about isolating people—maybe we needed some sites for home isolation for people who maybe are already showing symptoms—the goal would be for people who are already sick, to actually keep them out of the hospital. If they don't require hospital-level care, ICU care, we really want to keep those people out of the hospital, so that we don't pose that additional risk to the health care workers and sicker people in the hospital.

Mr. ROGERS. They need to be exposed in any way to other individuals who have no symptoms?

Dr. EZIKE. Please—can you please repeat the question?

Mr. ROGERS. Do those individuals who are starting to show symptoms need to be exposed to anybody else that doesn't have—

Dr. EZIKE. We would—that is what we are trying to avoid.

Mr. ROGERS. Right.

Dr. EZIKE. So, in cases where a person has contracted the virus but they are not sick enough to require hospitalization, we would like to have a space, an isolation location, where that person could be safely housed until they were no longer infectious.

Mr. ROGERS. What are the characteristics of a place that would safely house somebody who is showing symptoms?

Dr. EZIKE. Right. So if someone lived alone, there would be no problem, they would just be in their home. But if someone had a family, we wouldn't want to infect them. We wouldn't want to expose them to their family.

So we are—the settings that we have used or looked to use are—we need a, like, motel, where you have individual rooms with their own entrance, where the air is not shared, where there is not a common lobby where people would have to congregate. So you want individual settings where they can minimize exposure to other people.

Mr. ROGERS. What if somebody had to go to the hospital? What should a hospital prepare for, as far as rooms or capacity, that does not expose people to other emergency room personnel or patients?

Dr. EZIKE. Yes. So again, it comes around coordination. Ideally, if you knew someone was concerned, or the clinician who had talked to the person, hopefully by phone, and identified them as an—at risk for having the virus, that we would have a system in place where they could be safely transported to the ED, and—or whatever location, but not be exposed to people, where the initial people who are interacting with this suspected person could already be in full personal protective equipment.

We have had, you know, hundreds of people who were just taking—doing business as usual, and then after the fact found out that the patient they were taking care of had the coronavirus. That has resulted in them having to be at home for 14 days, waiting to see if they developed symptoms.

So ideally, we would have robust communication, be able to bring them into a safe space—ideally, not even into the hospital. If we could create some kind of, you know, drive-through testing sites that are away from the hospital, if there was some off-site location where you avoid contact with, you know, sick people in the hospital and health care workers, we don't want to do anything to compromise our capacity, in terms of health care workers, where they are all home, waiting to see if they contracted something, and not able to provide front-line services.

Mr. ROGERS. Thank you. I yield back.

Chairman THOMPSON. Thank you very much. The Chair recognizes the gentleman from Rhode Island, Mr. Langevin, for 5 minutes.

Mr. LANGEVIN. Thank you, Mr. Chairman. I want to welcome our witnesses here today. Thank you for your testimony.

Dr. Gerberding, in particular, welcome back before the committee. You testified before us many times when you were the head of the CDC, including hosting me and a Congressional delegation at CDC for a site visit there. So I deeply appreciate your leadership.

I would like to continue on this line of State preparedness and what States should be thinking about right now.

Yesterday I spoke with the Governor of Rhode Island, Governor Raimondo, about the emerging public health threat to our State, which has already seen one confirmed case of coronavirus and several presumptive cases. So any additional thoughts, in terms of States' preparedness right now, what they should be thinking of right now, in terms of surge or alternative sites? Because that has been my concern, is that people are sick, they are going to go to the hospital, that could very easily overwhelm the public health system, in addition to infecting sick patients already that are at the hospital, or, equally important, the health care providers that are caring for people.

So any additional thoughts, in terms of what States can be thinking of right now, preparing for the eventuality that this might become community spread, and that we should have alternative sites?

Dr. EZIKE. So that is, of course, exactly what we are working on throughout our agency. We are trying to develop—we are devel-

oping guidance for different locales. We are developing guidance for our local health departments, so that they can advise schools. We want schools to start thinking about contingency plans.

So we can't be over-prepared. I think the adage is if you fail to prepare, you are preparing to fail. So just thinking through possibilities, thinking through the options for telework, looking at your agency, your company, and seeing which people in your agency, if this surge—could stay home and still maintain the operations of the company or the business, which people don't have to come in. How do we minimize those situations?

So going through different scenarios, looking at our—again, worried—have a top-of-mind—our long-term care facilities, because there is a very high-risk population, and making sure that all the long-term care facilities, assisted livings, that they are looking at their infection control programs, that they are making sure that they are following them, that they teach and re-educate their staff on infection control measures.

Think now about how—what are the appropriate ways to co-house people if there is more than a person in a room. So thinking through all the possibilities, that is the preparedness part.

Mr. LANGEVIN. Let me ask you this, if I could. As we know, of course, the workplace is an area of particular concern with respect to bio-transmission. To that end, the CDC and State leaders, including our Governor, strongly recommend that people stay home from work who are sick, which is common sense.

However, for many people, especially hourly workers, staying at home can mean choosing between putting food on the table or paying bills or stopping the spread of the virus. So I know Governor Raimondo is trying to look at creative solutions to make sure that the Rhode Islanders are not forced to make this impossible choice.

But Dr. Ezike, how is Illinois addressing this problem, and what should the Federal Government be doing to help?

Dr. EZIKE. Yes, that is a really—real concern. I am thinking of one person in particular who actually wanted to leave the hospital before we had test results, because they expressed that exact concern, that "I only get paid when I show up to work, and being here is costing me, and I am the primary breadwinner for the family."

So we know in the hospital setting we have had great collaboration with our hospital leadership. So when they have told employees to stay at home, they know that they will be paid. But we need to have some kind of pay-back for people who are set up to stay home. If we want people to comply with our public health interventions, it can't be at a detrimental cost to them and their family, in terms of their economic subsistence.

So making funds available to reimburse people for the time that they have to be at home to comply with our public health measures will help people to follow our public health measures, as opposed to avoiding being tested because they don't want to incur the resultant isolation.

Mr. LANGEVIN. Hopefully, that is going to be addressed in the supplemental that Congress is dealing with, and we will have a mechanism for that.

Dr. Gerberding, any thoughts before my time runs out?

Dr. GERBERDING. I just wanted to say one thing about schools, because we learned, in studying the previous influenza pandemics, that early school closure was a critical component to helping to slow down spread in many communities.

This outbreak is somewhat puzzling, because less than 1 percent of the cases are in kids. So that may be because they have very mild disease, and they don't get tested, or they are not noticed to have the disease, or perhaps they have some immunity from prior normal coronavirus, common cold-type exposures. We really don't understand that. Until we have serologic testing we won't really understand that whole tip of the iceberg.

But I think we will see situations where school closure makes sense, in the short run. But we very quickly need to learn what is the role of children in spreading the diseases with this coronavirus, because it makes a huge difference whether or not schools are closed. Closing schools is extremely disruptive. It may be necessary, but we need to, I think, build the evidence base to understand how to use that tool.

Mr. LANGEVIN. Very good. Thank you all.

Chairman THOMPSON. Thank you very much. The Chair recognizes the gentleman from New York for 5 minutes, Mr. King.

Mr. KING. Thank you, Mr. Chairman. Let me thank all the witnesses for your testimony today.

There is a report from New York this morning, which, I think, shows the rolling impact of this disease. It was a lawyer from Westchester County who was diagnosed yesterday. This morning it turns out that his wife and 2 children and the neighbor who drove him to the hospital for the test all have it. One of the sons is a student at Yeshiva University, and the school is being shut down now because of that. So this is, you know, the growing impact it can have.

In a metropolitan area like New York or Chicago, Los Angeles, Boston, any of them, how quickly could this spread?

I am not trying to spread fear here, because I think this can be controlled. But when you just see that one impact of one person and one family, and his neighbor and students, how quickly that could spread—and I assume he took—he may have taken the train or the subway to—you know, to work that day. He works in lower Manhattan, where he, just by being on an elevator, walking through a hallway, he runs into hundreds of people.

Dr. INGLESBY. So in Wuhan, where this first occurred, the estimate by some of the most prominent modelers in the world was that the epidemic was doubling every week. We don't know whether that will be the same here. But we do see most—we saw very prominent clustering in families and in people who have close contact.

So I think we should presume that there will be relatively rapid spread in our communities. We are beginning to take measures to try and change that. But I think it could spread rapidly in communities around the country.

Fortunately, I think this—that many of the cases that you just described will have very mild illness. They won't even have—if they didn't have a contact with their father, they may never have been recognized. They might have had the illness and then never had it

diagnosed. So we are going to learn a lot about the illness, and what it looks like in America in the coming weeks, and we should be prepared to kind-of move in different directions.

I do think that some of the social distancing measures need to be considered in places where we have high exposure and loss of cases recognized, such as the communities in Washington State, which are having a lot of disease recognized.

But at some point I don't believe those measures will—some of those measures will scale any further. We won't be able to quarantine and isolate in the way that we are doing now. It will be too many people to do that. So we will have to shift strategies to things that are more community-based.

Mr. KING. Doctor.

Dr. EZIKE. So, in the cases that we have seen in Illinois, we have seen how a single individual, after being diagnosed, when we try to look back at the time that they could have been incubating, the places they would have been, the different settings, you know, maybe if they interacted with the health care system as an outpatient, and then, you know, was sent home, and then maybe came back, one person could have contacted up to, I mean, in our cases—and I am just thinking of specific examples—150 people. So then those people are all looked at.

But—and that—you know, if someone happened to have, you know, flown or gone to, you know, a mass gathering, then the numbers could be a lot. So absolutely to your point, a single case can spread to many people.

But we have also seen, as the doctor mentioned, that it has been the closest contacts that we have seen so far—you know, we have not had any of the health care workers who have been exposed to the patients before they were detected, before they were in full personal protective equipment, none of those people have come back positive.

So we hope that that is a sign that will continue. But the idea is to minimize the number of cases, because it does have the potential to spread exponentially.

Mr. KING. Doctor.

Dr. GERBERDING. Just think about the very first patient diagnosed in the United States who had traveled to China and came back with the virus, and was a good citizen and stepped forward when he just didn't feel well, long before he had fever or pneumonia. So they were able to sample his respiratory tract as he was developing progressive illness, and learned that early on, when you might not have even recognized that you were very sick, his upper airway was full of virus. So he was probably potentially quite infectious early—even early in the course of his disease.

Later he went on to develop pneumonia and, of course, with pneumonia, with your coughing or you are getting procedures in a health care setting, you have the risk of becoming a super-spreader, which means that your respiratory secretions are being disseminated into the environment. We saw that with SARS and with MERS.

The good thing about that in the United States is that we are pretty good at hospital infection control, and we can usually minimize that kind of spread.

But stepping back and thinking about the transmissibility of this coronavirus versus the community transmission of SARS, this is a much more transmissible situation. We saw very little community transmission.

Another way of thinking about it is in SARS, in 8 months, we had 8,000 global cases. With coronavirus there were 8,000 cases in 2 weeks.

Mr. KING. I just feel sorry for the guy who drove him to the hospital for the test. He ended up—I guess no good deed goes unpunished. You know, the neighbor who drove him to the hospital has come down with it now, too, so—

Dr. GERBERDING. Yes.

Mr. KING. Anyway, thank you very much for your testimony. I appreciate it very much.

Chairman THOMPSON. Thank you. The Chair recognizes the gentleman from California, Mr. Correa, for 5 minutes.

Mr. CORREA. Thank you, Mr. Chairman. I want to thank you for holding this most important and timely hearing.

In January, Orange County—my county—the first patients who tested positive for coronavirus in the United States, one of the first ones—now we have 43 of these cases in California. I was looking at my phone right now, we just reported the second case in Orange County.

Yesterday, in response to the news report, I wrote to the Center of Disease Control and Prevention, asking them to please share clinical information on the coronavirus patients with medical professionals to help doctors diagnose, evaluate, and treat coronavirus.

I would presume that, right now, we don't know how many folks are infected out there, so we really don't know the death rate out there. We don't know if this is worse than flu—yes or no? Am I correct on that?

Dr. INGLESBY. You are correct. At this point, in China, the overall number of people who have died have been about 3 percent, close to 3 percent, between 2 and 3. We don't think that that will be, ultimately, the case fatality rate of this disease, because there are, as Dr. Gerberding said, probably a substantial number of people who haven't been diagnosed, who have mild illness, which would mean the case fatality rate will go down. But we don't have any surety about that yet.

So we believe it is—and, as a comparison, seasonal influenza is somewhere on the order of 1 in 1,000 people die from that disease or less, depending on the year.

Mr. CORREA. So, as we get more information, we have a better picture and—

Dr. INGLESBY. Yes.

Mr. CORREA [continuing]. Therefore, possibly this is a better evaluation, a better handle on this emergency.

Dr. INGLESBY. Right.

Mr. CORREA. So Dr. Ezike, are we doing enough at the Federal level? Are we working—Homeland Security, with local States, to address this issue? Are the resources, communication—they can do a better job to get a handle on this crisis?

Dr. EZIKE. I think, at the forefront of what you just mentioned, and in terms of identifying the details and the full picture is the

ability to broadly test. We can't know what the rates of infection are if we don't diagnose the infection.

So I think that that is so critical. The sentinel surveillance that would be a helpful tool involves looking at people, just generally in the community, to see if there are—what the levels are in the community without a known travel history, without a known exposure to a confirmed case.

Currently in Illinois, we are trying to start that process, but we have to tread lightly, because we don't want to run out of testing supplies that—and we need also test the people who are connected to the last 2 cases that we just recently identified.

So I think making sure that testing supplies are available broadly, where people can test without reservation, I think, is an important thing that the Federal Government needs to give the States and hospitals the ability to do. I think that is pretty central to the effort, being able to diagnose in the first place.

Mr. CORREA. Dr. Gerberding, you said something that really bothered me, which is we have had past pass similar crises, similar situations, yet we don't finish the job. We haven't developed vaccines, treatments for these other cases in the past. Yet, as you said, we are going to continue to have these kinds of situations and jump from animal infections to humans.

What can we do at the Federal level to compare and be very consistent, in terms of addressing these crises so they don't turn out to be such a major challenge, as we move forward?

Dr. GERBERDING. Thank you. You know, I am so grateful that the Congress is going to provide an emergency supplemental for this. But if we were investing properly for our broad homeland security and the issue of health threats, infectious disease threats, we would not need emergency supplementals anywhere near the scope and magnitude that you are facing right now.

So we need to improve the support for the CDC's surveillance capability. I think we have learned that we also need to make sure that they can scale testing as quickly as necessary to avoid the bottlenecks that we have seen. I think we need to make sure that our State and local health departments have the capacity. They will soon run out of laboratory time, space, and people to be able to do all of these tests, and they will need support from the Federal Government to scale their capabilities. They will be working 24/7, literally.

So we haven't built into our system of preparedness that surge capability. It might be fine if this were a rare situation, but let's just think back for a few years. We have had SARS, we had avian influenza. We had a pandemic in 2009. We have had Zika. We have had to worry about Ebola. And now, here we are with this new coronavirus. This is not a one-off situation; this is going to be our new reality, and we need to upgrade the investment that we are making in the front line of public health.

Mr. CORREA. Thank you.

Mr. Chair.

Chairman THOMPSON. Thank you. The Chair recognizes the gentleman from North Carolina, Mr. Walker.

Mr. WALKER. Thank you, Chairman Thompson.

Dr. Ezike—first of all, let me thank you, panel, for being here today. But Dr. Ezike, yesterday my home State of North Carolina announced its first case of coronavirus. The patient in North Carolina had recently returned from Washington State, where an outbreak had occurred. How is your State monitoring patients arriving from areas that have many confirmed cases?

Dr. EZIKE. So right now, for interstate travel within the United States, there is not a specific mechanism, a formalized mechanism to say, oh, this person came from California. Where that information would be used is if the person developed symptoms and, hopefully, a very astute clinician is taking a travel history, and then would notice, in asking questions about where you have been recently, somebody would say, “I was in Washington,” or, “I was in California,” and so that would raise the level of suspicion, the index of suspicion, that, oh, that could be maybe a higher risk.

So, at that point, they would, you know, reach out to the local health department to get the PUI number to get the authorization to test.

So we have, you know, more formalized processes that—where we—through the, you know, Customs and Border Control, and the Department of Global Migration and Quarantine, where they come from, you know, China or Iran, certain countries that we would get that and automatically do the monitoring. But for interstate, that is not in place now.

Mr. WALKER. Yes, and I am—anybody on the panel can speak to this—is it—I believe it is my understanding that the deaths that we have seen in Washington State, for the most part, are senior adults with maybe some respiratory issues. Is that your understanding?

Dr. EZIKE. I don’t know of all of them, but I think the majority—I know for a fact the majority of them are. I can’t speak for every single case.

Mr. WALKER. All right. And Illinois, successfully what are you doing to maybe limit the spread of viruses that States like North Carolina can emulate?

Dr. EZIKE. So we—again, the—right now, some of the—we don’t have other counter-measures besides the standard public health measures, in terms of, you know, self—you know, self-quarantine, or staying home when you are sick and, you know, using hand sanitizer, and washing your hands. So we are giving that message out broadly.

But I think, again, our sentinel surveillance will be helpful, so that we can identify if there are pockets of the State that actually have circulating virus that we are not aware of. I know that the whole State might not see some kind of surge at the same time, it is going to be focal and local in certain communities. So we just want the ability to identify that—

Mr. WALKER. All right, thank you.

Dr. EZIKE [continuing]. As soon as possible.

Mr. WALKER. Dr. Inglesby, you discussed the incubation period as 5 days, and someone who gets infected has no symptoms. The question is this: What do you suggest the Government does to minimize the risk of asymptomatic transmission?

Dr. INGLESBY. I think that is a very difficult question. I am not sure there is anything in specific that we can do about asymptomatic transmission, because all of us are asymptomatic—I don't believe any of us are necessarily infected with coronavirus, but we wouldn't know.

I think, ultimately, the goal of communities, as this virus begins to spread, is to try to lower the peak of the epidemic, to slow it down, so our health care system is not over-burdened with very sick people. So some of the measures that public health agencies and local governments are going to start to consider will be should we cancel public gatherings, where people—where thousands of people get together for a sports event, or a concert, or something else. Should we begin to recommend to our communities that they telecommute, if they can?

Mr. WALKER. OK.

Dr. INGLESBY. Those kinds of things.

Mr. WALKER. Well, a lot has been talked about the quarantine time period of 14 days. Is that a sufficient amount of time? How did medical professionals come to that number? Should patients stay in quarantine any longer?

Dr. INGLESBY. I think that number was based on what we have seen from China and the World Health Organization, and supported by CDC, and it is based on the longest we have seen, in terms of incubation.

I do think, when people come out of isolation, that local health authorities are working with them directly to make sure that they are safely coming out of isolation if they have actually been infected.

Mr. WALKER. One last question for you. There have been a few reports of people testing positive after having recovered from an earlier infection, which is very troubling. That means—that brings in other things we won't get into today, as far as concerns, as far as where it was actually based, or how it was created.

If you become infected and recover, is it possible to be infected again? Or is this a larger issue with testing, such as false positives?

Being married to a nurse—family nurse practitioner, we—this has been part of our discussion this past week. Would you address that?

Dr. INGLESBY. I think it is the latter. I don't—I think the numbers are too small to say anything about reinfection. Our judgment is that it is probably a testing phenomenon: Test 1 day, and then the next, and the test picks it up the next day, but the person was consistently recovering for that whole time.

Mr. WALKER. Last question, just real—yes or no. This is something we are debating at home. Washing your hands, of course, is crucial. With anti-bacterial soap, is that better than hand sanitizer?

Dr. INGLESBY. I don't think there is any evidence that it is.

Mr. WALKER. OK, all right. Thank you.

Chairman THOMPSON. Thank you. The Chair recognizes the gentlelady from Illinois, Ms. Underwood.

Ms. UNDERWOOD. Thank you, Mr. Chairman, and thank you to all of our witnesses for being here today.

Coronavirus requires a whole-of-Government response, which means Federal, State, and local governments must work closely together to fulfill their different roles. But it also requires a public health approach, one that prioritizes risk communication, as you all both—or all 3 of you just clearly expressed. It uses smart strategies to minimize the impacts of the virus, and keeps communities that we all serve educated and safe.

Dr. Ezike, can you tell us more about your Department's day-to-day work with the CDC in response to the coronavirus?

Dr. EZIKE. So we have lots of interaction with the CDC. There are hours of calls per day, where we get updates, where they will interact with—whether it is the State health officials, or the State epidemiologist, or the State preparedness and response, there are all departments of the CDC talking to all departments at State and local government.

We have on-site support, in terms of Epidemiologic Intelligence Service officers, we have go-teams that have been deployed to help us with the actual investigations. They have guidance that they are continually putting out and updating to help us disseminate information to our communities, in terms of ways that they can get prepared.

So there is a robust coordination and collaboration. They are listening—the calls—they are listening to us to identify what our needs are. When we say, “Oh, we are missing a guidance related to this,” then they say, “Yes, we will take that back,” and then they work with their teams, and solicit our input, and put out guidance in as timely a manner as possible. So there has been a robust coordination, and we are happy to partner with the CDC.

Ms. UNDERWOOD. Then, is IDPH working with any other Federal agencies in this response?

Dr. EZIKE. That is—at my level, that is the primary point of contact. I know that my Governor has been—we are in contact constantly, and he is also in contact with the Federal Government. They have—they outreach directly to him, as well, to give him the overview, and the summaries. So there is communication directly with the Governor, as well as with the different parts of the public health department.

Ms. UNDERWOOD. Are there any areas where additional assistance would be helpful, from your perspective?

Dr. EZIKE. Sure. So we can't reiterate enough the need for funding, both to make sure that we can accommodate all the employee—whether it is the overtime, whether it is—we had to—in one instance in our State we had to rent an RV, because we couldn't find a motel that would agree to take one of the people that needed to be isolated. So we need assistance to pay for the housing options for people who don't have it. I think funds for people who are displaced from work temporarily, assistance with that.

So there are—you know, our lab, you know, the—to run the lab, the lab equipment, a single piece of lab machinery is up to \$500,000 or more. So there is a list of resources that need financial support to maintain our operations.

Ms. UNDERWOOD. In your testimony you wrote that Illinois conducted an exercise last year, the Crimson Contagion. Can you tell us more about those kinds of exercises, and why they are such an

important part of your preparation to respond to potential outbreaks?

Dr. EZIKE. So in the aftermath of 9/11, we started getting funding for what our offices call the Office of Preparedness and Response. So, in that office, it is gearing up, as the doctor mentioned, trying to prepare for what are the eventual situations that can arise.

So, table-top exercises, where you convene with the Federal Government, multiple States, local health departments, businesses, schools, communities, all—you know, we had a almost week-long exercise, where the event, which was created, was a novel virus that came from China, and was spreading throughout the world. So that was the scenario that was played out with all these partners at the table.

So, thinking through the what-ifs, if you will, is part of the preparedness. So, when you—the more prepared you are, then when you see something similar to that, then you switch into response.

Ms. UNDERWOOD. Sure. So in your testimony you wrote that responding to the coronavirus has cost the State more than \$20 million in the first 5 weeks. We have heard from our local public health officials the importance of stable, long-term funding. So we are so pleased to be able to, you know, at least have a supplemental to get a downpayment, and hope to continue to work with our colleagues to make sure that these efforts are well-funded.

We know that too many Americans have chosen to skip a visit to the doctor because their costs are too high, their out-of-pocket costs are too high. So, when dealing with an unknown infectious disease, that decision making has consequences, not only for their patient and their family, but for the entire community. So it is our hope that addressing those kind of out-of-pocket costs, in addition to your public health costs, is going to be an important solution to this epidemic.

Thank you for being here. I yield back.

Chairman THOMPSON. Thank you very much. The Chair recognizes the gentleman from Pennsylvania for 5 minutes, Mr. Joyce.

Mr. JOYCE. Thank you, Mr. Chairman, and thank you for the esteemed panel for being with—here with us today.

Of utmost importance, it is imperative that we work together, as you have stated, on a Federal, local, and every level to fight this problem that we are facing with the coronavirus.

To briefly review the time line, President Trump has taken action, decisive action, to protect Americans and to prevent the spread of COVID-19. In January President Trump declared a public health emergency, initiated travel restrictions, and mandated quarantines for those returning from affected areas. He also formed the Corona Task Force to ensure a coordinated response among all U.S. agencies and experts. Since then the Trump administration has expanded travel restrictions, explored innovative medical solutions, and requested additional funding for COVID-19 response resources.

Vice President Pence has also been elevated to lead the response, and has been appointed corona response coordinator. Vice President Pence also announced just yesterday that Medicare and Medicaid will be covering the coronavirus testing.

The most important questions we need to be asking are where do we go from here, and what can be done to mitigate the future threats of the same nature?

Dr. Gerberding, your expertise and extensive experience in this field, serving as CDC director during the anthrax, the SARS—which is also a coronavirus—the West Nile virus, and the avian flu outbreaks, if you could, please prioritize and talk to us about the development of a vaccine. Specifically, you had mentioned that we had not yet completed the SARS evaluation for vaccines, but yet that process has been initiated. SARS, too, is a coronavirus. Does that put us steps ahead in the vaccine development?

Dr. GERBERDING. One optimistic point of view is that science has actually evolved considerably since 2003, when the first SARS outbreak occurred, so that the time line and the ability to have the molecular tools and the immunology tools to speed up manufacturing has significantly improved.

At the WHO leadership meeting on vaccines for this coronavirus there were 31 innovators there talking about their approach to vaccine development. Unfortunately, all of that development was pre-clinical. None of those vaccine candidates were in people yet. But the ability to have that much innovation already on the table really speaks to the importance of our biotechnology industry and capability. I think that is a positive perspective.

The reality check—and I know this from the experience we have had at Merck, working on the Ebola vaccine—is that getting a candidate vaccine is somewhat straightforward; getting it through the safety testing, through the clinical testing, and front-line conditions, getting those data together, getting it through several regulatory processes, manufacturing it and, in this case, not just for a relatively small number of people in a localized Ebola outbreak, but for the world, that is a daunting task.

There are 7.7 billion people in the world, and I am not sure who is going to be left out of access to the vaccine. So it is a big undertaking to have the full completed preparedness accomplished in the vaccine arena, and what concerns me about our current outlook is that we are seeing some over-promising, and we need not to alarm people when those promises don't actually come to fruition on the time line people are expecting. We need to be straightforward about the challenge ahead. Work hard, invest, support the people who are doing innovative work, but at the same time be cognizant that this vaccine is not going to be in people's arms for a long time.

Mr. JOYCE. I have always been impressed by American know-how, innovation, our approach to science, and specifically to medicine. Dr. Gerberding, and could you please comment to us what immediate actions can we be taking in Congress to assist and to inform our constituents while we are still awaiting the results of negotiations on the emergency funding package?

Dr. GERBERDING. Well, obviously, funding is a big piece of the effort in almost any direction that you look.

But I also think that there is an opportunity here for Congress to provide its own leadership on the communications front. You are members of State delegations. You do interact with Governors and State leaders. Really, coming together as a unified whole-of-Government opportunity to get on the same page, for you all to under-

stand what is needed at the State and local level, that creates an informed platform for decision making. I think, as we have heard from our colleague in Illinois, you will learn a lot about what is really needed at the local level.

Mr. JOYCE. I thank all the panelists for being here today, and I yield my time.

Chairman THOMPSON. Thank you. The Chair recognizes the gentlelady from New York for 5 minutes, Ms. Clarke.

Ms. CLARKE. I thank you, Mr. Chairman. I thank our expert panelists for bringing your expertise to bear today. It is refreshing to hear facts.

So let me start by saying that yesterday in New York it was confirmed that we had a second COVID-19 coronavirus case. As Mr. King has stated, we are now dealing with sort-of the fallout and the rapid spread of this illness as a result of a gentleman who had traveled from Westchester County into the city of New York. We can expect more to come.

But this is not the time for fear. It is time for facts. That is why I am so happy you are here today.

This crisis is serious, but we can mitigate the coronavirus if we put science over scoring points. Doctors, not politicians, need to be in the driver's seat as we combat this global outbreak. This isn't a hoax, in the words of the White House. It is not an apocalypse, either. It is a public health emergency, but one we can address with funding resources and sound science.

As of yesterday, we know of 105 cases, and a death toll of 9 persons in the United States. As testing is expanded, the numbers will continue to rise. The Federal Government and the State and local partners must also rise to the occasion and give each American not only the care they need if infected, but also the knowledge they need to avoid infection. I look forward to our continued conversation as we guide the American people through this impending crisis.

So, Dr. Gerberding, according to the recent article in May 2018, Donald Trump ordered the NSC's entire global health security unit shut down, calling for reassignment of Rear Admiral Timothy Ziemer, and dissolution of his team inside the agency. What were the consequences of this action?

Dr. GERBERDING. Thank you for the question. I honestly don't know the answer to your question. I am a champion of a whole-of-Government approach. I know Dr. Ziemer, he is an amazing leader, and served us well first in malaria, and then in subsequent public health emergencies. So he was extraordinarily effective, a whole-of-Government leader, and I was sorry to see him go.

Ms. CLARKE. Yes, it is important that we have institutional knowledge, and that, as you have stated in your testimony, we follow the course to its natural end. Unfortunately, when we dismantle or disrupt, we don't benefit from that institutional knowledge.

The Center for Strategic and International Studies established the Commission on Strengthening America's Health Security to examine the U.S. preparedness to respond to global health threats. The commission published in its final report last year—Dr. Gerberding, you served as co-chair of the commission. The commis-

sion's first recommendation was, "to restore health security leadership at the White House National Security Council."

Why did you believe that restoring senior-level leadership at the National Security Council is so important to ensuring our Nation is prepared to combat a potential pandemic?

Dr. GERBERDING. Let me share my personal experience while we were involved in a very serious whole-of-Government effort to prepare for an influenza pandemic.

At the time, the Secretary of Health and Human Services was Secretary Mike Leavitt, and Secretary Leavitt believed that we needed to have all of the cabinets of the Federal Government participating in the preparedness. So he took us, all of us, as leaders of parts of HHS, to every Cabinet. We sat down with every Cabinet Secretary with the book on the 1918 pandemic, and we went through, highlighted sections, and asked the question, "What will your Cabinet need to do in the context of a serious emergency?"

What that really taught me was that the Federal Government in every Cabinet level has something to contribute, whether it is education and school closures, or commerce and keeping our businesses operational, or transportation. Whatever the Cabinet has authority over, it is relevant in a serious public health crisis, and we need to have the whole-of-Government collaborating. The only way to really do that is to bring an uber-leader, somebody who really sits above and has the authority of the President.

Now, I will also acknowledge that there is a bipartisan blue-ribbon panel on biodefense that Secretary Ridge—former Governor Ridge and Senator Lieberman have co-chaired for several years. That panel's recommendation, sort-of parallel to what CSIS recommended, is that the Vice President should chair that whole-of-Government process. So I think what that tells you is the idea is the same. You need an empowered person to oversee complex, inter-Government—inter-Governmental agencies and the Government strategy. But how you go about doing that may vary from one administration to another.

Ms. CLARKE. Very well. Mr. Chairman, thank you. My time has run out. I yield back.

Chairman THOMPSON. Thank you very much. The Chair recognizes the gentleman from North Carolina, Mr. Bishop.

Mr. BISHOP. Thank you, Mr. Chairman.

Dr. Ezike, you mentioned in your written and spoken testimony the phrase "sentinel surveillance testing." What is that, ma'am?

Dr. EZIKE. Thank you for the question. So sentinel surveillance, once you have the ability to test, involves testing people who don't have a direct connection to a confirmed case, do not have a direct travel to a specific place that would put them in a—in our higher risk to be a coronavirus suspect.

So this is going to your average person with no connection to a case or to a hotbed, if you will, and then them developing a flu-like illness, an influenza-like illness, and going to their doctor, and the doctor identifying that, "Oh, you don't have the flu, you don't have any of the other common viruses on the respiratory virus panel. Maybe this is coronavirus, despite you having no connection."

So testing people with no connection, and seeing what the ground percentage of coronavirus—if it is there and, if so, how much. So, if you can do that broadly, you can see if there are pockets within your State that have coronavirus in people that you wouldn't specifically suspect to have.

Mr. BISHOP. Thank you, ma'am.

Dr. Gerberding, the CDC, after initially, I understand, in early February releasing test kits, determined that there was a flaw in them. I have understood, from speaking to someone else, that those tests are referred to as an RT-PCR test, and there are 3 components, and what was flawed was the—what is called the negative control component.

Do you have any information about that, or how that came to pass? Because that is sort-of alarming if we need to respond quickly. If somewhere in CDC's function this test kit was created and then didn't work because of what I understand to be a very basic error, how does that take place? Do you have any insights about that?

Dr. GERBERDING. I don't have insight into the specifics.

I can tell you that, long before I was part of the CDC, the one thing I understood and saw from my front line at San Francisco General Hospital was that the CDC is the best at testing. Their diagnostics are usually gold standard. So it just seems to represent a highly unusual and exceptional situation, and I am sure they will get to the bottom of it. I know they have had a great deal of consternation about their inability to be out there with a—not just an accurate test, but with the volume of tests that people really need.

Mr. BISHOP. Following up with that, Dr. Gerberding, or whoever else may want to comment, my understanding is that there was a question about who had access to this test. Could a line doctor, an emergency room doctor, decide to administer this test?

It was limited to—at some point to public labs, perhaps because of supply. But now the Vice President has made it clear that anyone will be allowed to order a test, any doctor, and that there is a distribution going on of, like, 2,500 or 25,000 kits that will enable testing of up to 1,000,000 people, something like that.

Can you speak to those details?

Dr. GERBERDING. Yes, this is not unusual at the very beginning of a situation with a new pathogen that we have never seen before. You know, we don't have a test on the shelf for it, so it is being invented in real time. So it does not surprise me that early on there was a limited number of tests that were available.

We typically use what is known as the Laboratory Response Network, because those people are highly trained. They have the standardized equipment. Part of our public health system. They are best able to judge in their own communities who should be tested.

The State health officers also contribute to the decisions about what is a case definition and who should be tested. So it is not just an order from above, it is a collaborative process. But, you know, when we are sitting in the United States, and the disease is in China, and we are not suspecting a large number of cases, it makes sense that you would focus your testing, your limited testing, on a traveler who had just come back from China.

Obviously, we are in a very different situation now, where we are seeing community spread. So it is normal that we would expand the indications for testing.

I completely agree with the notion that, if a doctor suspects coronavirus, they ought to be able to order the test.

Mr. BISHOP. I—given the limited time—my friend, Ms. Clarke, made a comment that the President called the coronavirus a hoax. I guess, since that was said in public, I wanted to say that he didn't say any such thing. But—and I don't want to alter what I think has been a very good tenor of this hearing.

I guess my last question, having said that, is I understand that, for the testing to be done rapidly enough, we need to be able to empower or bring in private lab infrastructure into that picture. I don't know who met—Dr. Gerberding, I am not trying to pick on you, but just—given I have got a couple of seconds left, if you could, comment on what is needed to make that happen.

Dr. GERBERDING. I think that is well under way. I am going to be spending some time this afternoon with colleagues, including the CEO of one of the important diagnostic companies, so I will have a better answer by the end of the day.

But I think the first thing is that FDA, through the years, has really liberalized the process for getting an emergency authorization for new tests to get out there into the community. You know, compared to 20 years ago, our ability to do this fast has significantly improved.

Once we know what we are looking for, it is a simple matter for diagnostic companies to pick up on that. They have the scale and the capacity to ultimately build much larger capacity than the public health system. But they do have to demonstrate the sensitivity and specificity of their tests. When you don't have the disease, it is a little bit harder to do that, because you don't have enough case material to really know if you are accurate in the results that you are receiving.

Mr. BISHOP. Thank you, ma'am.

Chairman THOMPSON. Thank you very much. The Chair now recognizes the gentleman from Staten Island, Mr. Rose.

Mr. ROSE. Mr. Chairman, thank you.

Thank you all so much for being here. I want to start off just with what I am seeing, some business leaders making decisions around employee travel, halting international flights, halting domestic flights, really getting ahead of unnecessary or necessary—that is my question here—ahead of guidance from the Federal Government.

So what should our business leaders be doing, people running global companies?

Dr. GERBERDING. I can share what our philosophy has been. We are a global company, and we have 8,200 people in China, and many of them were on lockdown for an extended period of time. I am so glad that our offices are back open, and our systems are operational there.

But we recognize that, when we have people in several of the hotspots where community transmission is occurring, and we are responsible for essential medicines and vaccines, that we have to keep our supply chain open and running. So people need to be com-

ing to work. Those critical employees are especially cautioned about non-business essential travel, and to self-quarantine if they have any recent travel to a hotspot, and to not come to work if they are sick.

So we don't have a decision that you can't travel. We are just simply saying, while we are working on slowing spread and understanding what is going on here, let's err on the side of caution—

Mr. ROSE. Well, what about—

Ms. GERBERDING [continuing]. And minimize unnecessary travel.

Mr. ROSE. What about domestic travel?

Dr. GERBERDING. Domestic travel is more in this—in the spirit of the slowing down the spread that Dr. Inglesby was talking about, that if we are in a situation where we really can't isolate and quarantine each individual, and we are trying to reduce the peak of transmission, it does make sense that we begin to think about avoiding crowds and minimizing our movement and our—

Mr. ROSE. And flying?

Ms. GERBERDING [continuing]. Maintaining our distance—

Mr. ROSE. Flying, as well?

Dr. GERBERDING. Flying, as well. So we are just, you know, trying to use some common sense. I am flying, we are on the move when we think it is important to our business. But we are certainly emphasizing now is a good time to be more comfortable using digital communication, and being more thoughtful about how we travel.

Mr. ROSE. Sure. Would anyone else like to speak to that?

Dr. INGLESBY. Yes, I think the CDC guidance on travel at this point seems logical. It is now describing what—countries where they think there is elevated risk, and making recommendations to Americans about where they should travel internationally. That seems sensible.

I think one of the challenges is that we have seen things change very rapidly in a week. So 10 days ago Italy had 0 cases. Now it is kind of among the countries with the highest cases. So it is challenging for business leaders to think ahead about a conference in 3 weeks or 4 weeks, where things can change quite a bit.

So at this point, I think the best recommendation is to follow U.S. Government guidance, but also be aware that something could change, literally, in a day or 2, as countries begin to start testing.

Mr. ROSE. Understood. Would you like to add something, ma'am?

Dr. EZIKE. I think I echo what these two experts are saying, that this is an emerging situation, and advice and counsel given today may not be applicable tomorrow. So, continuing to follow the most recent guidance—

Mr. ROSE. Sure. So I want to move on to our lower-wage, hourly workers. I am very concerned that they will not—rightfully so, or at least rationally—respond to quarantine suggestions because of immediate economic concerns.

What can the Federal Government do to step in, to support people so that they respond to quarantines?

Dr. INGLESBY. One thing that can be done, which I know is being discussed actively here, is to make sure that there are no barriers to testing or to getting medical care or isolation, and that—we have

already begun to refer to that. I think that that is—that sounds like that is beginning to occur through your CMS—

Mr. ROSE. Sure.

Mr. INGLESBY [continuing]. Or discussions with insurance companies.

So that is really important, because we have seen actual evidence of people who have had \$3,000 bills after they went in to get a test, and that has been publicized, and people will potentially avoid getting tested.

I think it is a harder challenge—and that maybe Congress and the administration can solve together about workplace—

Mr. ROSE. Should we consider expanding unemployment insurance?

Dr. INGLESBY. I think if that is a way of helping people in the gig economy or lower-wage workers make good decisions, public health decisions, I think that should be considered.

Mr. ROSE. Anything else?

Dr. EZIKE. I would agree that there should be a mechanism for people who would be economically disadvantaged if they don't have any benefit time, if they don't have any kind of paid leave, that there should be a way for them to be compensated so that they don't have to make the decision between following public health measures that will help the entire community versus being able to pay their next month's rent.

Dr. GERBERDING. I just want to add something, because it hasn't come up yet, but in the context of this conversation we also have to be mindful of stigma. This happened during SARS, where the Chinese community—

Mr. ROSE. Yes.

Ms. GERBERDING [continuing]. Was profoundly stigmatized. I think it is an opportunity for leaders and House Members, as well, to really stand up and make sure that we are including everyone in the benefits that we can provide to help protect Americans, but also that we speak out against the stigmatization that often follows in the wake of an outbreak.

Mr. ROSE. Great. Thank you very much.

Chairman THOMPSON. Thank you. The Chair recognizes the gentleman from Tennessee, Mr. Green.

Mr. GREEN. Thank you, Mr. Chairman, and thank you to all of you guys for being here today. It is—I greatly appreciated your involvement in this process.

Very quick, my questions, I am going to try—because I got lots of them—mortality rate, it appears to be about 3 percent in China. Outside of China it appears to be about 0.7 percent is what I saw in a JAMA article that was just published.

You know, what are your thoughts about that delta? The Journal of the American Medical Association seemed to imply that it was attributable to China's smoking rate, other reasons. But why is their mortality 3 percent, and outside of China it is 0.7? In South Korea it was .12 percent. So your thoughts on that?

Dr. INGLESBY. It is too soon to say, because things are changing rapidly in other countries, and they don't have as much data being published as there is in China.

One of the factors—and Wuhan does seem to be—the surge in hospitals, it does seem like some of the people who could have used ventilators did not get them because they ran out of ventilators. So that is one possibility.

There is a possibility that there is some underlying health conditions, or pollution, or smoking, or something else that will fall out in analysis. But I don't think we have strong understanding of that yet.

Mr. GREEN. OK.

Dr. INGLESBY. It also—the other thing that is important is that there is a time lag from when countries discover cases and begin to see them, and the time that people begin to die from this illness, sometimes as long as 2 weeks. So if it is a country just beginning to report illnesses and deaths, it is really two—

Mr. GREEN. OK.

Dr. INGLESBY [continuing]. Weeks later when we see—

Mr. GREEN. That makes sense.

Dr. INGLESBY [continuing]. A real—a better sense of deaths.

Mr. GREEN. Sure, that makes sense. I just know the end is, like, well over 3,000 now for outside the country. So you would think that that would give you some degree of confidence. But—and there is such a huge delta between 3 percent and 0.7 percent.

This, obviously, based on the way it is hitting the—you know, those who have co-morbidities, and the elderly, probably a very good virus to tackle with the vaccine, but I am—you know, I am also aware that this attacks the lung tissue directly, so that makes it concerning. We need to be very safe as we develop this vaccine.

Sort-of in the interim time frame, there is remdesivir and the monoclonal antibodies. I just wondered if either—anyone could comment first on remdesivir and some of the other antivirals that we developed for Ebola and their usefulness. I know there is a test in Nebraska. Then, on monoclonal antibodies, because of the ability to blunt the tissue—the lung tissue's damage with monoclonal antibodies, and they can be spun up so much more quickly than a vaccine.

Dr. GERBERDING. So I will start with the anti-viral question. Yes, I am hopeful. I really want these antivirals to work. But at the same time, you got to think about what we have learned about respiratory infections and antivirals so far. I mean we have several antivirals for influenza, and they might—

Mr. GREEN. Sure.

Dr. GERBERDING [continuing]. Mitigate a little bit, but they are not curative. So we need to not over-promise on what we might ultimately see. So hope for the best, but I won't be surprised if we are a little bit disappointed.

In terms of monoclonals, again, almost every outbreak that I have dealt with, the first thing people do is use serum from recovered people, and try to see if it is helpful. So that is the, you know, the intellectual background for using monoclonals. They may very well be useful, but on this kind of situation, where the severe pulmonary disease is caused by a cytokine storm—

Mr. GREEN. Right.

Dr. GERBERDING [continuing]. Which basically means broad inflammation that is very tissue-damaging, you have to test the safe-

ty of the monoclonals very carefully, because what you wouldn't want to have happen is put an antibody in there and actually make that cytokine storm worse.

Mr. GREEN. Sure, sure.

Dr. GERBERDING. So it has got to be tested. I hope, again, but—and I agree with you, these approaches to treatment can happen much faster than a vaccine. So they are definitely a high priority.

Mr. GREEN. Well, thank you for that.

One of the things that concerns me, there is lots of legislation in Congress about price fixing for pharmaceuticals. I know Merck is one of those companies that would be hurt by that. My concern is, particularly those smaller companies, the bio, you know, companies, biomed companies that, you know, when they have an idea, they have to go get capital in order to advance that idea. They are not going to get capital if we price-fix.

So I wondered if someone, particularly ma'am, you, because you are from the industry, could comment about how damaging price-fixing might be on some of the innovation that is out there—

Dr. GERBERDING. I—

Mr. GREEN [continuing]. That could address this issue.

Dr. GERBERDING. Yes. You know, first of all, as I said earlier, 40 biotech companies have stepped up on coronavirus. But understandably, the entrepreneurs are very apprehensive about what this will mean to investors. Price-fixing is the thing that investors hate the most. They made that very clear when the subject came up on another topic.

I live it in the world of antimicrobial resistance, because we don't have a market for antibiotics. There is no reimbursement appropriate to the danger of multi-drug-resistant infections. Last year we saw three companies that had new antibiotics that failed, and went out of business because their investors pulled back.

Mr. GREEN. Right.

Dr. GERBERDING. So it is a real issue, and we need to keep our biotech industry alive.

Mr. GREEN. Thank you for sharing that.

Thank you, Mr. Chairman, I yield.

Chairman THOMPSON. Thank you. The Chair recognizes the gentlelady from Texas Ms. Jackson Lee, for 5 minutes.

Ms. JACKSON LEE. Mr. Chairman, thank you so very much. Thank you very much for your hearing yesterday. I was detained in my district for civic matters that occurred on that date. In tribute to my constituents and the necessity for America to ensure that people can vote, I was at a college voting precinct at 1 a.m. in the morning, where people had remained on-line to vote at 1:29 because they could not vote because of shortages of machines and broke-down machines.

I say that because this is the greatest country in the world, and I am disappointed you are not Government witnesses. I am disappointed in the slow response to the coronavirus.

We have dealt with Ebola, one of the first cases was in the Dallas hospital in Texas. We dealt with H1N1. So I am going to pose the question and hope—as straightforward as possible.

There were two briefings, unclassified. One briefing was complete denial, everything was fine, top-level leaders of our government in

health and emergency issues. Shortly—as the first Member, I think, to do a press conference questioning everything was fine with airport personnel and others, at that time TSA officers had no gloves, they had mismatched gloves and mis-matched masks. I know there is a discussion about masks.

But I would like to ask Dr. Ezike—and am I close to the pronunciation—the need for preparedness and awareness when the obvious is occurring, I would like to be prepared months or a year out, or regularly having a preparation for this to occur. When I say “this,” an infectious episode to occur. But the fact that China was quite public, they couldn’t hold it any longer—can you comment on the preparedness of this Nation?

Dr. EZIKE. I think Dr. Gerberding also has eloquently described the situation, and has highlighted the importance of having increased surveillance capacity for the CDC.

We have been—as a State health officer, every year we try to come to Washington and encourage increased funding for the CDC to keep up with these surveillance efforts, to keep up with our preparedness and response. All of our preparedness and response—

Ms. JACKSON LEE. So do you have an assessment of whether or not we were prepared on the Federal level for the coronavirus?

Dr. EZIKE. I think we can always be more prepared. I think there is levels of preparation, and the more prepared we are, the better.

Ms. JACKSON LEE. I am going to go to Mr. Inglesby—forgive me as I watch my time go out, and I appreciate it.

Is that Inglesby, Doctor?

I meet regularly with my local health agencies, and I appreciate the director of the Illinois Department of Health. I understand that you are always lobbying to make sure that there is direct funding to both State and local. This is a particular instance where that would be important. I understand our appropriations is something that we have all requested, is going to enhance dollars going to State and local entities.

How do you translate that into helping you and your local communities be prepared for something that appears now to come from CDC, that it is either an epidemic or a pandemic? Now they are willing to say that.

How are you doing with the test kits, and how would that help you with the test kits? My community does not have them yet, and that is a real problem. Most communities, I think, do not.

Dr. INGLESBY. Yes, I think, first of all, that every year there are public health emergency preparedness grants that are given to States from CDC, and they are very important grants for States and locals, and need to be supported by Congress and the administration. They are crucial for long-term preparedness. They are separate and distinct from the emergency response funding that is coming out through—that we hope will come out through these appropriations. You can’t build a firehouse the day before the fire, you have to build it a long time ahead of time. That is what those preparedness grants do.

In terms of expanding diagnostic capacity testing, that is now happening over the course of this week, and State health labs around the country are going to be able to start testing, hopefully within Texas, as well. But ultimately, to really expand into clinics

and hospitals, we are going to need diagnostic companies to be fully invested, just like—

Ms. JACKSON LEE. That is very important, right?

Dr. INGLESBY. [Nonverbal response.]

Ms. JACKSON LEE. And the preparation of our hospitals, as well.

Dr. INGLESBY. Yes.

Ms. JACKSON LEE. Quickly, can I—if we go into a moment in time of quarantine, closing schools, restaurants, et cetera, do you think we should also be concerned about, in this instance, hourly wages—hourly wage workers who would be caught up in that quarantine who don't get paid, and may have a devastating impact on the family?

So that would be a part of what we need to do in this moment to be able to provide for people's livelihood and survival, if they are quarantined for a period of time.

Dr. INGLESBY. I do agree with that. I think people could be—especially if a quarantine is prolonged, if—there are many people in the country who receive a check every week, and they need that check that week. So if we are telling people they cannot go to work, or cannot go to school, and have to stay home to take care of their kids, we need to make sure the incentives for doing that are aligned with what we want done, and that people aren't having to, basically, not be able to provide for their families.

Ms. JACKSON LEE. I thank the Chairman. I thank the witnesses very much for your—

Chairman THOMPSON. Thank you very much. The Chair recognizes the gentlelady from Arizona for 5 minutes, Mrs. Lesko.

Mrs. LESKO. Thank you, Mr. Chairman. Thank you, Mr. Chairman, for having this meeting, an important issue, and thank you, all of you, for being here.

Debbie Lesko from Arizona. Our State—Dr. Christ heads up our Arizona Department of Health Services, and she is very competent. We just started testing with—in-house, ourselves.

It is very important, obviously, that we are prepared. But also, we have to balance that with panicking people. I think it may be a little bit too late, because you turn on the news and this is all you hear about, right? My husband went to Sam's Club last night, and said that all of the, you know, Purell, or whatever brand of the hand sanitizers totally sold out. I mean all that was sold out.

So my question is kind-of a basic one. So many people die from the flu, more than I even realized until just recently. So, is this worse than the flu? I mean we need to be concerned, but I am concerned about people panicking.

So I guess I will ask Dr. Gerberding—if that is how you pronounce your name—is this worse than the flu? Should we be more panicked than the flu? Tell me about that.

Dr. GERBERDING. I think we are learning that this is probably as transmissible as the flu. The rate of transmission seems to vary, depending on how much testing goes on in the background to really figure that out. So we still have to learn what the true transmissibility dynamics are. But it is, obviously, spreading from person to person, especially in families, and on cruise ships, and other closed environments with a great degree of efficiency.

The question is, how fatal is it? And who is vulnerable? I think Dr. Inglesby has pointed out earlier that we don't know the true case fatality rate yet. Part of that is because of the differences in medical care that influence that. Part of that is because we don't know the denominator of the less-sick people. Part of it is because the testing is just not available to sort out who is actually a case. So we will learn more about that.

But I think what we could say today is that it looks very much like the case fatality rate is significantly greater than the fatality rate for seasonal flu. I think that is the distinguishing issue here that makes me so concerned, that it is the death rate that is high. The death rate is highest, the older you are, and the more underlying disease, particularly respiratory disease, that you have.

So this nursing home outbreak, for example, that is a significant concern, and we need to prioritize getting infection control precautions and other things to slow down or prevent spread in those settings as one of our highest public health priorities right now.

Mrs. LESKO. Thank you very much. My next question has to do with face masks, so anybody can answer this.

What is the answer? Should people that don't have a cold or aren't coughing, should they wear face masks?

I have been—I have Googled it, and said no, you shouldn't wear a face mask unless you are coughing. It won't help. But then why is it that health care workers wear it? So that is my question to anyone.

Dr. INGLESBY. In hospitals people are exposed to the sickest people, and we do see a correlation between level of illness and the ability to spread the disease. So walking around in the community, most of the people are well in the community. Even if they are asymptomatic, we don't think they are the fundamental largest drivers of infection.

Also, when you wear a mask in the public, you know, you end up fussing with it a lot, you end up touching your face often. You are untying the strings, moving it around. It may be that you are actually touching your face even more often than you are normally.

So the bottom line is that we don't have evidence that face masks in public are going to do any good, and we are worried that, if everyone goes out and buys a mask, that that will diminish the number of masks that are available in the hospital, where the people are the sickest, and are transmitting at the highest levels. We need our health care workers to stay healthy, because they are going to be—it is going to be a long period of time—a marathon, probably—of high COVID patients in hospitals.

Dr. GERBERDING. Just to real quickly add to that, there are different kinds of masks, as well, and the masks that are worn on health care workers, they are trained and they are fitted to their face so they don't leak air around them. But when people on the streets buy those, or buy the regular surgical masks, they are breathing all kinds of air in around the mask, and it really doesn't offer the level of protection that health workers need. That is why they have to be trained to use them properly.

Mrs. LESKO. Well, so what I think I hear is that face masks do help if they are put on properly, even—they do help from getting it, it is just that you advise against it in community, because peo-

ple don't know how to use it properly, they touch their face a lot because of the mask. Is that what you are saying?

Dr. GERBERDING. Just to add one additional thing is that I have had to wear N95 respirators for many, many, many patient encounters, and you can't wear them for very long. They increase your work of breathing. They are incredibly uncomfortable. So you go in the room, you do something, you take the mask off when you come out. To walk around with one of those on all day is impossible.

Mrs. LESKO. So if you don't mind one more question on this mask issue, why do you think it is a lot of the Asian countries, everybody is wearing masks? Is it a cultural thing? Do they think it is going to help, or does it—do they know how to wear it properly?

Dr. GERBERDING. In China right now they are being required, so that is the main reason why you tend to see a lot of people on the streets of China wearing, basically, usually, surgical masks. But I don't think that they are there because they are having a significant impact on disease spread.

Mrs. LESKO. Thank you. I yield back.

Chairman THOMPSON. Thank you very much.

A question for the committee is, Dr. Gerberding, have you any assessment of how long it will take before we actually will have a vaccine?

Dr. GERBERDING. I would probably defer to Dr. Fauci's statements on this topic, the head of the NIAID. I think Dr. Fauci has said we will get vaccines into testing in a matter of several weeks to a few months, but that we won't have an approved vaccine for at least a year, and probably longer. If I am not paraphrasing him correctly, I will get back to you for the record.

But, you know, realistically, it is not a rapid track, even with all of the permissions and the energy that we are putting into it. Part of the reason for that is safety. We really need to make sure—

Chairman THOMPSON. Oh, absolutely.

Dr. GERBERDING [continuing]. The vaccine is safe.

Chairman THOMPSON. Absolutely.

Dr. Inglesby, a couple of comments have come up relative to capacity for the virus, whether we were as robust as we needed to be, as a Federal Government. Have you looked at the capacity issue, or are we just basically caught with something that we just wasn't prepared to handle?

Dr. INGLESBY. I think it depends on what kind of capacity we are talking about. I think our public health agencies have been training for these kinds of things for a long time. But even as well-trained as they are, there are enormous resource challenges and personnel challenge when they are working 24/7, and they are having to create new quarantine sites.

So I think, in principle, there has been a lot of preparedness, there has been a lot of drilling, and grants for States and locals around the country. But I still think this is a challenge that they haven't faced before. So we do have major capacity challenges ahead in public health and in hospitals.

Chairman THOMPSON. Thank you very much.

The gentleman from Texas, Mr. Crenshaw.

Mr. CRENSHAW. Thank you, Mr. Chairman, and thank you all for being here on this important topic.

Dr. Gerberding, I will start with you. Given your lengthy experience in this field, director at CDC, you dealt with threats from anthrax, SARS, West Nile, avian flu, other outbreaks, I am assuming you all compile constantly and persistently a best practices list and lessons learned. To your knowledge, are those lessons carried over, administration to administration, even when folks like you leave the administration? Are those being implemented now?

Dr. GERBERDING. Thank you. When I was directing the CDC we implemented very formal after-action reviews, starting with anthrax. Dr. Jim Hughes had the National Center for Infectious Disease at that time, and it was one of the things that we did first, was just bring in anybody who we interacted with in the response, and learn what did we do right, what did we do wrong, and what do we need to do better. So that mechanism is consistently practiced, as far as I know, to this very day at CDC. Yes, those lessons are passed forward.

But, you know, each one of these situations brings in a unique challenge. So it is hard to extrapolate from one after-action review to the next one. The constant themes that go through them all are communication, the need for collaboration, and the consistency approach, whole-of-Government, but also Federal-State level. Those lessons come up, and I think we have still opportunities to improve in how we coordinate that, as a country.

Mr. CRENSHAW. Absolutely. This administration has taken a lot of heat in the media and from politicians. Do you see any big differences in the response that this administration has given, compared to, say, what a previous administration would have done?

Dr. GERBERDING. Well, since I left the Government I have, you know, of course, watched from the outside in, so I don't really know what is going on in the sausage factory. But I do see that, broadly speaking, I think the way—the 2009 influenza pandemic was handled quite well. I think Zika was hard, but people did a pretty good job with that. There were lots of missteps in the early days of Ebola.

Now, here we are with this one. I think many of the people who are acting as leaders of the response here are the same people that I worked with when I was in the Government. Dr. Azar—or, excuse me, Secretary Azar—was part of the Department when we were planning for a flu pandemic. Bob Kadlec was involved in the Government in his role, and now he is heading the—as assistant secretary of preparedness and response. BARDA has certainly stepped up and funded many things that—BARDA funded the CDC—I mean, excuse me, the Merck Ebola vaccine. So components of the Government, I think, are doing exactly what they have been prepared and designed to do.

Mr. CRENSHAW. Do you think the level of outrage over the response is really proportional to any actual shortcomings in the response?

Dr. GERBERDING. Well, earlier I had a chance to talk about trust, and what is necessary for people to really trust what is going on. I think the person delivering information is critical at Federal, State, and local levels.

So that is something that we need to really be mindful of, the consistency of the communication, and, in my view, that the leader,

the leading edge of the communication, is about science, not politics. So I think that is a really important thing that would help a lot to calm people's criticism and get us on track, where people have confidence that their whole Government is doing the right thing.

Mr. CRENSHAW. Yes, I would just note that I think a lot of the criticism is not based in science or facts, or any of the things that you just noted, but, in fact, based on politics, which is the problem. I hope that the goal of that is not to create fear, simply for the sake of getting political points, although that is what I have seen, frankly, from the media and others.

I want to talk—and you hit on this before—about innovation in creating vaccines, in creating treatments, and how important the subject of innovation is. But I am running out of time, aren't I?

The—can you hit on—can—with respect to innovation, if—can you hit on again—on the issue of price controls, and what that might do to some of these biotech firms that generally rely on investments from venture capitalists or the larger pharmaceutical companies, and some of the work they have been doing in the past decade?

In fact, I have heard Johnson and Johnson, for instance, has been looking at a coronavirus vaccine for a decade. Would that research still happen if there were no incentives because of price controls?

Dr. GERBERDING. Well, I am not involved in a small biotech company, but, you know, one of the things that I have learned in my role in the BIO executive committee—and I interact with some of these amazingly creative people—is that a lot of times the company is based on just one idea, or one really good leading approach to a critical innovation. If there isn't the promise of reward to the investors who put their money in what is a really high-risk situation, they are gone.

So if you take away the incentive for the investments to come forward, you have really diminished interest in pushing the envelope on innovation. That is true in coronavirus, the same as it is in antibiotics, the same as it is in any of the other things that we wish we had and we don't.

Mr. CRENSHAW. Thank you. Thank you, Mr. Chairman.

Chairman THOMPSON. Thank you very much. I would like to have entered into the record articles from the *Washington Post* and *National Geographic* on the coronavirus subject.

[The information follows:]

ARTICLE FROM THE WASHINGTON POST SUBMITTED BY HON. SHEILA JACKSON LEE
HOW IS THE CORONAVIRUS OUTBREAK GOING TO END? HERE'S HOW SIMILAR EPIDEMICS
PLAYED OUT.

<https://www.washingtonpost.com/health/2020/03/02/how-is-coronavirus-outbreak-going-end-heres-how-similar-epidemics-played-out/>

By William Wan, March 2, 2020.

As stock markets plunge, travel is disrupted and new coronavirus infections are diagnosed across the United States, one question on everyone's mind is how the outbreak is going to end.

No one knows for sure, but virologists say there are clues from similar outbreaks. Here are three scenarios:

Health officials control coronavirus through strict public health measures

When severe acute respiratory syndrome (SARS) hit Asia in 2002, it was pretty scary—with a fatality rate of about 10 percent and no drugs shown to be effective against it. (The current coronavirus by comparison has an estimated fatality rate of 2.3 percent.) But within months, SARS was brought under control, and for the most part stamped out, by international cooperation and strict, old-school public health measures such as isolation, quarantine, and contact tracing.

This would be an ideal outcome. But the difference is that SARS had more severe symptoms than the current coronavirus, so people went to the hospital shortly after being infected.

Cases of coronavirus will be harder to catch and isolate, said Stuart Weston, a postdoctoral virologist at University of Maryland. Weston is one of a small group of researchers who have received samples of the coronavirus and are studying it. Weston and other experts warn the outbreak in the United States and other countries is more widespread than tracked because many people with mild symptoms don't know they have been infected.

Coronavirus hits less developed countries, and things get worse before they get better

One of the grim lessons from the 2014–2016 Ebola outbreak in West Africa is how an epidemic can grow when it hits countries with weak health infrastructures. This is why the World Health Organization and others have been preparing countries in sub-Saharan Africa for the coronavirus, even though few cases so far have been reported there.

Compared to the coronavirus, Ebola was less contagious and transmitted mainly by bodily fluids. The coronavirus can be transmitted in coughed and sneezed respiratory droplets that linger on surfaces. And yet Ebola infected more than 28,000 people and caused more than 11,000 deaths. Ebola is more lethal, and shortages of staff and supplies, poverty, delays by leaders and distrust of government exacerbated the outbreak.

WHO leaders have been urging countries to prepare. On Friday, the organization raised its assessment of coronavirus to the highest level. “This is a reality check for every government on the planet. Wake up. Get ready. This virus may be on its way, and you need to be ready,” said Michael Ryan, WHO’s director of health emergencies. “To wait, to be complacent, to be caught unawares at this point, it’s really not much of an excuse.”

The new coronavirus spreads so widely, it becomes a fact of life

This is in essence what happened with the 2009 H1N1 outbreak, also called swine flu. It spread quickly, eventually to an estimated 11 to 21 percent of the global population. The WHO declared it a pandemic, and there was widespread fear.

H1N1 turned out to be milder than initially feared, causing little more than runny noses and coughs in most people. And H1N1 is now so commonplace, it’s simply seen as a part of the seasonal flus that come and go every year around the globe.

Early estimates on the fatality rate for H1N1 were much higher than the roughly 0.01 to 0.03 percent it turned out to be. Still, the Centers for Disease Control and Prevention estimates that H1N1 killed 12,469 people in the United States during that first-year period from 2009 to 2010, infected 60.8 million cases and caused 274,304 hospitalizations. The true number is hard to ascertain because many who die of flu-related causes aren’t tested to see whether it was H1N1 or another flu strain. As context, the seasonal flu has killed at least 18,000 people in the United States so far this season, according to the CDC.

H1N1 is a particularly good parallel, epidemiologists say, because while it had a lower fatality rate than SARS or MERS, it was deadlier because of how infectious and widespread it became.

Not to be alarmist, but another possible parallel might be the 1918 Spanish flu, which had a 2.5 percent fatality rate, eerily close to what’s estimated for the coronavirus.

CDC calls Spanish flu “the deadliest pandemic flu virus in human history,” because it infected roughly one third of the world’s population and killed an estimated 50 million people worldwide. Spanish flu was deadly to young and old, while coronavirus has proven to be most lethal to the elderly and left young people relatively unscathed.

Florian Krammer, a virologist specializing in influenzas, noted that the world was vastly different in 1918.

“We didn’t have the tools to diagnose diseases or antibiotics to fight secondary infections. Hospitals back then were places where you went to die, not to get treatment. And in 1918, the world was at war. And a lot of the people infected were sol-

diers stuck in trenches,” said Kramer, of the Icahn School of Medicine at Mount Sinai. “That’s hopefully not how this is going to play out.”

Ultimately, how many people die of coronavirus depends on how widely it spreads, how prepared we are and what the virus’s true fatality rate turns out to be.

A few more key things will affect the coronavirus endgame

If the coronavirus does indeed become ubiquitous like H1N1, it will be crucial to develop a vaccine. After the 2009 outbreak, experts developed an H1N1 vaccine that was included in flu shots people received in subsequent years. This helped protect especially vulnerable populations during following waves of infection.

In the immediate future, anti-viral drugs may help, and labs around the world are testing their effectiveness against the coronavirus.

No one knows if the coronavirus will be affected by seasons like the flu, despite President Trump’s claims that it could “go away” in April with warmer temperatures.

“We’re still learning a lot about the virus,” said WHO epidemiologist Maria Van Kerkhove. “Right now there’s no reason to think this virus would act differently in different climate settings. We’ll have to see what happens as this progresses.”

Coronaviruses are zoonotic, meaning they spread from animals to humans. Experts believe SARS spread from bats to civet cats to humans. The deadly Middle East respiratory syndrome (MERS) in 2012 was probably transmitted from bats to camels to humans. With the coronavirus, no one knows what animals caused the current outbreak. And it’s a mystery scientists will need to solve to prevent it from repeating in the future.

One prime suspect is an endangered creature called the pangolin that looks like a cross between an anteater and an armadillo and whose scales are trafficked illegally.

“With SARS, once they figured out the animals responsible in China, they were able to start culling them from the live markets,” said Vineet Menachery, a virologist at University of Texas Medical Branch. “It’s like a burst water pipe. You have to find the source in order to shut it off.”

ARTICLE FROM THE WASHINGTON POST SUBMITTED BY HON. SHEILA JACKSON LEE

TRUMP DOWNPLAYS RISK, PLACES PENCE IN CHARGE OF CORONAVIRUS OUTBREAK
RESPONSE

https://www.washingtonpost.com/politics/trump-downplays-risk-places-pence-in-charge-of-coronavirus-outbreak-response/2020/02/26/ab246e94-58b1-11ea-9000-f3cffe23036_story.html

By Yasmeeen Abutaleb, Feb. 26, 2020.

President Trump announced Wednesday that Vice President Pence will lead the administration’s response to the deadly coronavirus in an attempt to reassure the public amid growing concerns of a global health crisis and criticism that the United States has been slow to respond to the fast-moving outbreak.

The move came as a person in Northern California tested positive Wednesday for the virus, the first case in the United States that has no known link to foreign travel or contact with someone known to be infected—a sign the virus may be spreading in at least one location. Officials have begun tracing the contacts of the resident to find out how that person may have been infected and who else might have been exposed.

Trump made no mention of the new case Wednesday as he struck an optimistic tone about the virus.

“We’ve had tremendous success, tremendous success beyond what many people would’ve thought,” the president said during a White House news conference that followed days of mixed messages, tumbling stocks and rising death tolls abroad driven by the coronavirus. “We’re very, very ready for this.”

The president declared that the risk to America was “very low” and predicted a swift end to the outbreak.

Trump’s positive message was at odds with the statements by top members of his administration in recent days who have warned of an unpredictable virus that could spread into communities and upend Americans’ daily lives.

The president was contradicted almost in real time by some of the government experts who flanked him as he stood in the White House press briefing room.

Do you need a face mask for the coronavirus? An expert explains.

Medical face masks are often used during flu season or a virus outbreak. Demand for masks has skyrocketed amid the coronavirus outbreak.

“We could be just one or two people over the next short period of time,” Trump said of the virus’s impact in the United States.

Minutes later, Health and Human Services Secretary Alex Azar and CDC Principal Deputy Director Anne Schuchat warned Americans to prepare for the number of cases to grow.

“We can expect to see more cases in the United States,” Azar said.

“We do expect more cases,” Schuchat said.

The case confirmed Wednesday in California brought the total in the United States to 60.

As several countries around the world confirmed additional cases and higher death tolls, Trump tried to seize the reins of his administration’s public response to a crisis that has featured a daily stream of negative developments.

But his news conference quickly devolved into campaign-style attacks on Democrats, predictions of a stock market rally and self-congratulatory assessments of his handling of the crisis.

The president said he would be willing to accept more emergency funding than the \$2.5 billion requested by his administration after lawmakers pushed for a more robust Federal response. He also said he would consider new travel restrictions on other countries struggling to contain the outbreak, including South Korea and Italy.

“At a right time we may do that,” he said. “Right now it’s not the right time.”

He partly blamed Democrats for the drop in the stock market and attacked House Speaker Nancy Pelosi (D-Calif.) as “incompetent” after she had made disparaging comments about his handling of the coronavirus outbreak, dismissing the traditional bipartisan approach leaders take in the midst of natural disasters and public health emergencies while criticizing her for doing the same.

The remarks were the president’s most extensive public comments yet about a crisis that threatens a main component of his reelection message—the economy. Trump administration officials have said they expect the virus to hamper economic growth this year, something that could complicate the president’s economy-focused campaign pitch.

The stock market, which Trump has followed closely in recent days, continued its sharp slump Wednesday, with the Dow Jones industrial average falling an additional 124 points. After enduring its worst 2-day slide in 4 years on Monday and Tuesday, Wednesday’s decline put the total losses this week at more than 2,000.

The slog has undermined Trump’s attempts to downplay the risk posed by the virus, which he previously dismissed as a passing problem that had not significantly affected Americans.

But in the wake of a stock market rout that eliminated more than \$2 trillion in wealth, the news conference was intended to be a show of force, with several top administration officials from a “coronavirus task force” present.

The administration has received criticism for lacking a coherent message about the virus as its reach and intensity have spread.

Azar faced tough questions from lawmakers Wednesday during hearings on Capitol Hill.

“While the immediate risks to the American public remain low, there is now community transmission in a number of places, including outside of Asia, which is deeply concerning,” Azar said. “We are working closely with State and local and private-sector partners to prepare for mitigating the virus’s potential spread in the United States as we expect to see more cases here.”

Trump has made a direct connection between the virus and his political fortunes, accusing Democrats and the media of trying to harm his reelection chances by focusing on the outbreak.

Trump took to Twitter early Wednesday to accuse cable news channels of “doing everything possible to make the Caronavirus look as bad as possible, including panicking markets, if possible.”

The president’s efforts to downplay the virus have focused on the fact that the United States has seen relatively few cases and, so far, no confirmed deaths. Trump has also contended that the virus was “very much under control” and has indicated it would be gone by April.

Multiple public health officials from the administration have contradicted that prediction. Asked if he agreed that the coronavirus would be gone by April, CDC Director Robert Redfield told Congress he didn’t.

“Prudent to assume this pathogen will be with us for some time to come,” he said Wednesday.

As the virus has spread to more than 30 countries, Trump's "America First" doctrine has come under increasing strain. While Trump instituted travel restrictions to block travelers from China—the epicenter of the outbreak—the virus has spread rapidly in several additional countries.

"When we did the initial China ban, we were very clear: We can't hermetically seal the U.S. off," Azar told lawmakers.

Still, the Trump administration was considering adding new travel restrictions for South Korea, the country with the second-largest number of cases after China. South Korea reported 334 additional cases of the coronavirus Wednesday, raising the national tally to 1,595. That number is expected to rise in coming days as the country begins the mass testing of more than 200,000 members of a messianic religious movement at the center of an outbreak in the city of Daegu.

An American soldier stationed in South Korea has tested positive for coronavirus, the first service member to be infected, the military said Tuesday. The U.S. military on Wednesday restricted all nonessential travel to South Korea for service members, civilians and contractors under its authority. The CDC has advised against any non-essential travel to South Korea.

Trump, who has boasted that his travel restrictions on China were prudent, is likely to authorize new limitations on South Korea if the number of coronavirus cases there continues to increase, a senior administration official said.

South Korea has lobbied against such restrictions, pledging cooperation and heightened prevention measures to allay U.S. concerns, officials said.

The ban could extend to all foreigners traveling to the United States from South Korea, according to an official with knowledge of the deliberations. The restrictions would allow U.S. citizens to return to the United States but would require them to be quarantined for a period of time, as is the case with U.S. citizens coming to the United States from China. Thousands of U.S. service members and students live in South Korea.

Trump, who repeatedly asserted that the United States should ban flights from Africa during the 2014 Ebola crisis, is also considering travel restrictions on other countries that have seen large outbreaks of coronavirus, an official said.

The president has been reluctant to call for any significant preventive measures within the boundaries of the country, even as other nations have discouraged large gatherings or closed some schools as a precaution.

Trump indicated he would go ahead with a planned political rally Friday in South Carolina, his first since returning from India.

"Big Rally in the Great State of South Carolina on Friday," Trump wrote on Twitter. "See you there!"

Democrats have criticized the president for his handling of the coronavirus crisis, emphasizing what they see as a key weakness for Trump in the eyes of many voters.

In a new campaign ad titled "Pandemic," former New York mayor Mike Bloomberg's Presidential campaign described Trump's administration as unprepared and ill-equipped to manage the country through a public-health emergency.

The administration has faced bipartisan criticism for its handling of the crisis, as lawmakers have publicly complained about the lack of consistency and clarity from senior officials involved in the response. Congressional leaders on Wednesday began putting together a large emergency spending package to deal with the outbreak, seeking to spend far more than the \$2.5 billion the White House requested earlier this week.

Administration officials have sparred internally in recent days over the emergency budget request, with Azar and others seeking a much larger package and White House aides calling for a less ambitious approach, according to officials with knowledge of the dispute, who like others spoke on the condition of anonymity to discuss the sensitive issue.

Trump, who praised Azar publicly Tuesday, has been skeptical of the secretary's ability to handle the crisis, a senior administration official said. The president has been reluctant to oust him in part because he did not want to add to the sense of disarray, the official said.

Azar was blindsided by the decision to put Pence in charge of the coronavirus response, according to five people familiar with the situation, who said Azar learned of the decision only moments before the evening news conference.

Pence is scheduled to run a coronavirus task force at HHS on Thursday, two sources familiar with the plans said. One senior administration official said Pence was going to HHS to lead the meeting, instead of the White House, "as a show of support to Azar."

The officials spoke on the condition of anonymity to discuss internal deliberations. Late Wednesday, acting chief of staff Mick Mulvaney told other administration officials that all media requests about coronavirus should now be routed through

Pence's office, two people with knowledge of his email said. The vice president asked for the email to be sent out, a senior administration official said.

One of Trump's biggest gripes has been the messaging from administration officials, both of these people said.

The White House considered appointing a "czar" to oversee the governmentwide response effort, a move that would essentially demote Azar from his role as the head of the coronavirus task force.

"I don't anticipate one," Azar told lawmakers earlier Wednesday when asked if a czar would be appointed. "This is working extremely well."

Trump said his decision to put Pence in charge was not tantamount to appointing a czar, despite him taking a role that serves the same purpose.

"Mike is not a czar, he's vice president," the president said. "I'm having them report to Mike. Mike will report to me."

Still, at the end of the news conference, Azar walked back to the lectern to clarify that he remained the chairman of the coronavirus task force and had not been demoted. He said he was actually "delighted" to have Pence overseeing the effort.

As Azar was speaking, Trump walked out of the room.

ARTICLE FROM NATIONAL GEOGRAPHIC

U.S. HAS ONLY A FRACTION OF THE MEDICAL SUPPLIES IT NEEDS TO COMBAT CORONAVIRUS

The country could require seven billion respirators and face masks over the course of the outbreak.

By Nsikan Akpan, published March 3, 2020.

Three hundred million respirators and face masks. That's what the United States needs as soon as possible to protect health workers against the coronavirus threat. But the nation's emergency stockpile has less than 15 percent of these supplies.

Last week, U.S. Health and Human Services Secretary Alex Azar testified before the Senate that the Strategic National Stockpile has just 30 million surgical masks and 12 million respirators in reserves, which came as a surprise considering that the stockpile's inventory is generally not disclosed for national security reasons. Asked by National Geographic about the discrepancy, a senior official with the Strategic National Stockpile said the department intends to purchase as many as 500 million respirators and face masks over the next 18 months.

Even such a promised surge in production may not be enough—and it may not come soon enough. A widely overlooked study conducted 5 years ago by the U.S. Centers for Disease Control and Prevention found that the United States might need as many as seven billion respirators in the long run to combat a worst-case spread of a severe respiratory outbreak such as COVID-19.

The outbreak now has entered a new, more potent phase dictated by local or community transmission. It's no longer just being imported from China. Coronavirus has started spreading locally in 13 other countries, including South Korea, Japan, Singapore, Australia, Malaysia, Vietnam, Italy, Germany, France, United Kingdom, Croatia, San Marino, Iran, the United Arab Emirates, and the United States. On Wednesday, the World Health Organization announced COVID-19's global death rate is 3.4 percent, more than 30 times that of seasonal influenza, but also stated the coronavirus doesn't spread as easily as the flu. The global tally of confirmed cases and deaths has risen to 93,000 and nearly 3,200, respectively.

In the U.S., COVID-19 cases without clear ties to China began dotting the West Coast last week. At the same time, the Nation saw an uptick in fatalities—nine so far as of Tuesday—with most occurring at a nursing home in Kirkland, Washington. Among those deaths is one patient who passed away last week at Seattle's Harborview Medical Center. Viral tests, made well after his death, revealed a COVID-19 diagnosis and that hospital staff may have been exposed.

Besides confirming the threat posed to the elderly, these deaths, the community transmission, and genetic analysis suggest the virus has been spreading unnoticed in Washington since mid-January.

"We will have community spread," New York Governor Andrew Cuomo said Monday at a news briefing about the State's first confirmed case. "That is inevitable."

All of these events sparked a run on medical supplies over the weekend, a worrying prospect given the CDC has indicated there could be a global deficit of personal protective equipment such as surgical masks, goggles, full-body coveralls, and N95 respirators, the only CDC-approved face guard, which are designed to filter 95 percent of airborne particles.

“We’re concerned that countries’ abilities to respond are being compromised by the severe and increasing disruption to the global supply of personal protective equipment, caused by rising demand, hoarding, and misuse,” Dr. Tedros Adhanom Ghebreyesus, WHO director-general, said at a press briefing at the agency’s headquarters in Geneva on Tuesday. “Prices of surgical masks have increased sixfold, and N95 respirators have more than tripled, and gowns cost twice as much.”

What’s more, even if U.S. medical centers obtain the necessary supplies, a second shortage of medical specialists may emerge if this respiratory outbreak spreads even more dramatically.

Taking stock

The panicked demand and lack of supplies was predictable. China manufactures roughly 50 percent more medical and pharmaceutical supplies than its nearest competitor, the U.S., according to data supplied to National Geographic by Euromonitor International. But the Asian country now needs those precious supplies for its tens of thousands of cases, at a time when manufacturing has slowed across the country.

“The fundamental point that’s exposed in situations like that is that autarky—the idea of self-sufficiency—is lovely in theory, but it almost never actually works in practice, because we tend to not appreciate supply chains,” says Parag Khanna, a global strategy advisor and author of *Connectography* and *Technocracy in America*.

Much of the world has become accustomed to same-day delivery without thinking about the bundles of transactions that support such a system. Some global industries can circumvent major blockages or delays in supply chains caused by the coronavirus outbreak. But other supply chains and industries—like automobiles, travel, and medical supplies—are too tightly bound across borders in what Khanna calls a supply circuit.

“China’s a manufacturer of intermediate products . . . but what they’re really manufacturing on a wider scale is starting material for active pharmaceutical ingredients,” says Scott Gottlieb, a former U.S. FDA commissioner and resident fellow at the American Enterprise Institute. “These manufacturers have one to 3 months of supply, so they’re going to be able to continue to manufacture for a period of time, but eventually they’re going to run out.”

“The irony is that some of the other countries who could do these things very quickly, like Japan or South Korea, are also affected by the virus,” says Khanna, who has also noted that the coronavirus appears to be spreading along China’s “new silk road”—echoing what happened with the Black Death in the 1300’s. He and other experts expect India, Thailand, Indonesia, and Vietnam to swoop in to capitalize on China’s deficit.

On Friday, the FDA announced the first drug shortage due to the coronavirus. And for nearly a month, the CDC has warned about the fragility of supply circuits for personal protective equipment, as manufacturers struggle to meet orders for face masks and N95 respirators. That’s possibly because the CDC conducted a thought experiment 5 years ago that offers a clear warning for the situation unfolding today. Back then, the public health agency wanted to predict how many resources the U.S. might need over the entire course of a hypothetical outbreak of a severe flu virus. (Learn about how coronavirus compares to flu, Ebola, and other major outbreaks.)

The result was a series of models built with parameters that bear an uncanny resemblance to what is currently happening with the coronavirus. From disease transmission rates down to the lack of specific antivirals or vaccines, the CDC papers offer a rough guide on what preparedness needs to look like to combat an emerging respiratory pandemic.

“In terms of the amount of masks, gowns, gloves, [and] respirators that would be needed, this influenza model is a good way to estimate that at this point,” says Eric Toner, a senior scientist at the Johns Hopkins Center for Health Security who wasn’t involved with the CDC papers. “I don’t see any reason to think that we would need a different number of those things than we do for a severe pandemic flu.”

Based on the models, U.S. health care workers would need two to seven billion respirators for the least—to most—severe possible scenarios. That’s up to 233 times more than what’s currently in the Strategic National Stockpile.

“The demand that would be required in a severe pandemic is so unlike the amount that’s used on a day-to-day basis,” says Lisa Koonin, an epidemiologist and founder of Health Preparedness Partners. She worked for the CDC for more than 30 years and is a co-author on these reports. “For the respirators and surgical masks, we’re talking orders of magnitude greater need for a severe pandemic.”

The WHO has shipped nearly half a million sets of personal protective equipment to 27 countries, but it says supplies are rapidly depleting. The global health agency

estimates that each month 89 million medical masks will be required for the COVID-19 response, along with 76 million examination gloves and 1.6 million goggles. The WHO estimates that supplies of personal protective equipment need to be increased by 40 percent globally.

Special staff

“In a severe pandemic, we certainly could run out of ventilators, but a hospital could just as soon run out of respiratory therapists who normally operate these devices.”—Eric Toner, Johns Hopkins Center for Health Security

Along with the billions of respirators, the CDC predicted that U.S. patients and health care workers might need as many as 100 to 400 million surgical masks, as well as 7,000 to 11,000 mechanical ventilators. The latter are used during life support for the most severe cases of respiratory disease, after a patient’s lungs stop working on their own. A report published Friday in the *New England Journal of Medicine* states that about 2.3 percent of early coronavirus patients underwent mechanical ventilation.

But ventilators, respirators, and even basic masks are only helpful when used by expert hands—and that presents another potential shortfall for the U.S.

“In a severe pandemic, we certainly could run out of ventilators, but a hospital could just as soon run out of respiratory therapists who normally operate these devices,” says Toner. The Bureau of Labor Statistics estimates that the U.S. employs 134,000 respiratory specialists, or approximately 20 of these technicians for every hospital in America. (Will warming spring temperatures slow the coronavirus outbreak?)

“One of [the CDC’s] conclusions was, it’s not so much the number of ventilators as the number of people needed to operate the ventilators. That’s the choke point,” Toner adds.

Resource demands at a single hospital could also be substantial as coronavirus cases increase in the U.S. Three years ago, the Mayo Clinic—a prestigious medical system based in Rochester, Minnesota—asked Toner and his colleagues to assess what kind of individual stockpile might be required during a severe influenza pandemic.

Unlike the CDC papers, their model ran through 10,000 scenarios, each with slightly different settings for epidemiologic variables such as hospitalization rates, hospital length of patient stays, how much time patients spend on mechanical ventilation, and case fatality rate.

“A model like this can’t tell you the right thing to do. But it can tell you the range of possibilities,” Toner says.

For example, if the Mayo Clinic stockpiled 4.5 million gloves, 2.3 million N95 respirators, 5,000 doses of a potent antiviral, and 880 ventilators, those supplies would cover the clinic’s facilities for 95 percent of the likely outcomes—everything except the absolute worst-case scenarios for a respiratory pandemic.

“We go through a lot of gloves in health care, and the numbers can be staggering,” Toner says. “Particularly with a disease like this where some people are advocating double gloving, you’ll burn through gloves twice as fast.”

But he emphasizes that every hospital’s demands would be different. The Mayo Clinic is large, boasting more than 63,000 staff members that not only serve Minnesota, but accept specialty patients from around the world.

“We can’t stop COVID-19 without protecting our health workers,” WHO director-general Ghebreyesus says. “Supplies can take months to deliver, market manipulation is widespread, and stocks are often sold to the highest bidder.”

Resilient circuits

The actual demand and supply for health care equipment during this outbreak will depend on myriad variables, one of which is an outbreak’s attack rate. As of this moment, that is a mystery for COVID-19.

The attack rate is what percentage of a population catches an infectious disease overall. If a hundred people live in a city, and a virus’ attack rate is 20 percent, then 20 citizens would be expected to get sick. Both the CDC papers and Toner’s models rely on attack rates ranging from 20 to 30 percent, a standard estimate for severe pandemics. (Learn about the swift, deadly history of the Spanish Flu pandemic.)

But the attack rate for COVID-19 is still unknown because it takes time to measure. Scientists must develop a test—known as a serology assay—that can detect whether a person caught the coronavirus even if they never reported symptoms.

“In terms of quantifying that specifically, it’s still quite early days,” Maria Van Kerkhove, an infectious disease epidemiologist and the technical leader for WHO’s Health Emergencies Program, said at a press briefing at the WHO headquarters in

Geneva on Monday. Van Kerkhove added those serologic surveys must be conducted across large populations, so attack rates can be determined for individual age groups.

Because the attack rate reveals how much of a population is likely to catch a disease, it can be crucial in determining how to allocate resources locally, nationally, and globally. Van Kerkhove added that the necessary surveys are underway, and the World Health Organization hopes to see some preliminary results in the coming weeks.

In the meantime, Vice President Mike Pence, the Trump Administration's newly appointed coronavirus czar, on Saturday announced a deal with the Minnesota-based corporation 3M to produce 35 million masks a month. And the managers for the Strategic National Stockpile have asked companies to submit data on their inventories of personal protective equipment, in case the coronavirus crisis escalates. They also hope their recent request for 500 million respirators and masks will promote the growth of local manufacturers.

"This purchase will encourage manufacturers to ramp up production of personal protective equipment now with the guarantee that they will not be left with excess supplies once the COVID-19 response subsides," says Stephanie Bialek of the Strategic National Stockpile. "In an emergency, the SNS can send these products to areas in need as requested by State health officials."

Editor's Note: This story has been updated with the latest case counts as of March 4 and with the new estimate for the global death rate. The story was originally published on March 3.

Chairman THOMPSON. Let me recognize Mr. Correa for bringing this hearing forward. He was the first Member of the committee to say that we need to bring some experts before the committee so that we can get first-hand knowledge.

Mr. Correa, you want to—

Mr. CORREA. I just have a couple of quick—

Chairman THOMPSON. Go ahead.

Mr. CORREA [continuing]. Follow-up questions.

Incubation period?

Dr. INGLESBY. One to 14 days, but, on average, about 5 days.

Mr. CORREA. One to 14 days, 5.

Symptoms similar to flu?

Dr. INGLESBY. Yes.

Mr. CORREA. You don't know if you got the flu, you don't know if you got corona.

Dr. GERBERDING. Just one thing about symptoms was the—I think the expectation is that fever is the sentinel system, but a lot of the people who end up in the hospital didn't start with fever. So about half of them came to the hospital and hadn't developed fever yet.

Mr. CORREA. China, is the rate going down in China? The infections rate.

Dr. INGLESBY. Yes, the numbers reported by China are going down substantially in the last couple of weeks, both numbers of cases and deaths.

Mr. CORREA. How certain can we be that they are accurate?

Dr. INGLESBY. I think the World Health Organization has said that they believe they are accurate. I think it is difficult to know, from where we are.

Mr. CORREA. Death rate, World Health Organization just had an article that said higher than the flu. You are saying, ma'am, that it probably is higher than flu. But yet we don't know the denominator, so that we really don't know what the death rate is at this point, we just suspect. Is that correct?

Dr. INGLESBY. That is correct. That article that said WHO has concluded that it is a higher case fatality rate isn't—it was really a misquote. WHO hasn't said just that. They have just basically divided the numbers of recognized cases by the deaths, and come up with—and said it is 3 percent, approximately 3 percent have died. But we do believe that there are many cases that are unrecognized, we just don't know how many there are.

Mr. CORREA. Finally, again, best practices, lesson learned. We have to be consistent, we have to have a system where we continue to invest, on an annual basis, on the system, research and development, coming up with vaccines and protocols so the next time—this will happen again—that we don't have to scramble and figure out where we get the test kits, the masks, so on and so forth.

Dr. GERBERDING. So I will say two things. One is BARDA is good value for Americans, and the work that BARDA has done to push the envelope on counter-measure development is something that I hope the committee is aware of and knows about, because that is clearly a National asset.

The second piece is an ask that is included in the CSIS report, and that is that our Government needs to contribute to something called CEPI, which is the Coalition for Epidemic Preparedness Innovation. That is a global effort. It includes companies, countries, nonprofits, Gates, Wellcome Trust, et cetera, who are saying we know some of the bad things like SARS and MERS that may come back. Let's get those vaccines across the finish line, or at least into the freezer, so that if the problem comes back, we have got something we can pull out and test very quickly.

Mr. CORREA. So here in this committee—

Dr. GERBERDING. That is an investment that—

Mr. CORREA [continuing]. You are saying that we have had those challenges, we haven't come up with the vaccines, and yet we know they will be back.

Dr. GERBERDING. I think we need to expect they will be back. I hope they don't come back, but they may. Shame on us if we have another situation where we got started on something and we didn't bring it across the finish line.

Mr. CORREA. Thank you.

Chairman THOMPSON. Well, thank you. Let me thank the witnesses again. There is no question about what you brought to the committee today. That information will be vital toward ultimate solutions. Some of it, obviously, is investment over the long haul, with respect to detection and others.

But I do want to, just for the record, highlight the fact that we should be providing the public the best information we have. It is not a political issue, it is a health issue. We want to look at it in that respect. So words do matter when politicians get in it. So I caution everyone to govern themselves accordingly as we work through this.

But in the interim, I want to again thank you for an absolute excellent sharing of information for the committee.

I would like to also say that the Members of the committee may have additional questions for the witnesses, and we ask you to respond expeditiously in writing to those questions.

Without objection, the committee shall be kept open, the record will be kept open for 10 days. Hearing no further business, the committee stands adjourned.

[Whereupon, at 12:04 p.m., the committee was adjourned.]

