

**FROM SARS TO CORONAVIRUS: EXAMINING THE
ROLE OF GLOBAL AVIATION IN CONTAINING
THE SPREAD OF INFECTIOUS DISEASE**

HEARING

BEFORE THE

SUBCOMMITTEE ON AVIATION AND SPACE

OF THE

COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

SECOND SESSION

—————
MARCH 4, 2020
—————

Printed for the use of the Committee on Commerce, Science, and Transportation



Available online: <http://www.govinfo.gov>

—————
U.S. GOVERNMENT PUBLISHING OFFICE

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED SIXTEENTH CONGRESS

SECOND SESSION

ROGER WICKER, Mississippi, *Chairman*

JOHN THUNE, South Dakota	MARIA CANTWELL, Washington, <i>Ranking</i>
ROY BLUNT, Missouri	AMY KLOBUCHAR, Minnesota
TED CRUZ, Texas	RICHARD BLUMENTHAL, Connecticut
DEB FISCHER, Nebraska	BRIAN SCHATZ, Hawaii
JERRY MORAN, Kansas	EDWARD MARKEY, Massachusetts
DAN SULLIVAN, Alaska	TOM UDALL, New Mexico
CORY GARDNER, Colorado	GARY PETERS, Michigan
MARSHA BLACKBURN, Tennessee	TAMMY BALDWIN, Wisconsin
SHELLEY MOORE CAPITO, West Virginia	TAMMY DUCKWORTH, Illinois
MIKE LEE, Utah	JON TESTER, Montana
RON JOHNSON, Wisconsin	KYRSTEN SINEMA, Arizona
TODD YOUNG, Indiana	JACKY ROSEN, Nevada
RICK SCOTT, Florida	

JOHN KEAST, *Staff Director*

CRYSTAL TULLY, *Deputy Staff Director*

STEVEN WALL, *General Counsel*

KIM LIPSKY, *Democratic Staff Director*

CHRIS DAY, *Democratic Deputy Staff Director*

RENAE BLACK, *Senior Counsel*

SUBCOMMITTEE ON AVIATION AND SPACE

TED CRUZ, Texas, <i>Chairman</i>	KYRSTEN SINEMA, Arizona, <i>Ranking</i>
JOHN THUNE, South Dakota	BRIAN SCHATZ, Hawaii
ROY BLUNT, Missouri	TOM UDALL, New Mexico
JERRY MORAN, Kansas	GARY PETERS, Michigan
CORY GARDNER, Colorado	TAMMY DUCKWORTH, Illinois
MARSHA BLACKBURN, Tennessee	JON TESTER, Montana
SHELLEY MOORE CAPITO, West Virginia	JACKY ROSEN, Nevada
MIKE LEE, Utah	

CONTENTS

	Page
Hearing held on March 4, 2020	1
Statement of Senator Cruz	1
Statement of Senator Sinema	3
Statement of Senator Cantwell	4
Statement of Senator Gardner	28
Statement of Senator Lee	33
Statement of Senator Schatz	35
Statement of Senator Sullivan	37
Statement of Senator Tester	39
Statement of Senator Capito	41
Statement of Senator Duckworth	43
Statement of Senator Rosen	45
Statement of Senator Thune	47
Statement of Senator Markey	49

WITNESSES

Hon. Joel Szabat, Acting Under Secretary for Policy, U.S. Department of Transportation	6
Prepared statement	8
Dr. Stephen Redd, Director, Office of Public Health Preparedness and Response, Centers for Disease Control and Prevention	10
Prepared statement	11
William Ferrara, Executive Assistant Commissioner for Operations Support, U.S. Customs and Border Protection	20
Prepared statement	22

APPENDIX

Nancy Messonnier, M.D., Director, Centers for Disease Control and Prevention's (CDC) National Center for Immunization and Respiratory Diseases, prepared statement	57
Response to written questions submitted to Dr. Stephen Redd by:	
Hon. Marsha Blackburn	67
Hon. Amy Klobuchar	70

**FROM SARS TO CORONAVIRUS: EXAMINING
THE ROLE OF GLOBAL AVIATION IN
CONTAINING THE SPREAD OF
INFECTIOUS DISEASE**

WEDNESDAY, MARCH 4, 2020

U.S. SENATE,
SUBCOMMITTEE ON AVIATION AND SPACE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:30 p.m. in Anteroom SR-253, Russell Senate Office Building, Hon. Ted Cruz, Chairman of the Subcommittee, presiding.

Present: Senators Cruz [presiding], Thune, Blunt, Moran, Gardner, Blackburn, Capito, Lee, Sinema, Schatz, Udall, Duckworth, Tester, Cantwell, Sullivan, Markey, and Rosen.

**OPENING STATEMENT OF HON. TED CRUZ,
U.S. SENATOR FROM TEXAS**

Senator CRUZ. This hearing is called to order.

On December 30, 2019, Dr. Li Wenliang, a 34-year-old ophthalmologist at Wuhan Central Hospital, took to a group chat he was in with some friends from medical school to discuss a SARS-like illness that had recently been sickening people around the city.

He posted a snippet of a lab analysis that had found SARS Coronavirus and extensive bacteria colonies in a patient's airways and said this new illness had even led his hospital to quarantine some patients in the emergency department.

So frightening, a member of the group chat replied. Is SARS coming again? Suffice to say the Chinese Communist Government, which like all authoritarian regimes, is often more concerned about protecting its image than the life and safety of its citizens, was not pleased, and even as dedicated public health experts scrambled to warn each other and to collect more information on what was happening, China's Security Services were busy trying to stop them.

In probably the starkest example, on January 1, the Wuhan Public Security Bureau summoned eight doctors, including Dr. Wenliang, for posting and spreading "rumors" about Wuhan's hospital's receiving SARS-like cases.

While Dr. Wenliang was eventually released two days later, it wasn't before he was forced by police to sign statements acknowledging that his warnings had been "illegal behavior."

Meanwhile, even as the City of Wuhan and the Nation of China were getting sicker and sicker, business as usual didn't stop. Com-

munity events, political parades, public gatherings and global commerce, including, most importantly for this hearing on global aviation, continued, allowing this virus to spread first within the City of Wuhan and within the rest of China and finally out to the rest of the world.

At 2:58 a.m. on February 7 in the City of Wuhan, Dr. Wenliang died from the very virus he had tried to warn about, a virus which, as of today, has infected almost 95,000 men, women, and children across the globe, including right here in the United States, and has killed more than 3,200 people, including nine who are in Senator Cantwell's home state of Washington.

What we now know is that the virus Dr. Wenliang and others were warning about and the virus that took his life wasn't SARS but it was similar. It's the novel Coronavirus now known as COVID-19.

The spread of this virus across the globe has had and continues to have tremendous and far-reaching impacts. Commerce has slowed, faith in government has been shaken, and people are understandably scared.

This virus has also called into real question the efficacy of international organizations, like the World Health Organization and the ICAO, both of which we reached out to to participate in this hearing but both of which either declined to participate or didn't respond.

The ICAO, International Civil Aviation Organization, for instance, excluded Taiwan from its information sharing regarding the virus. This despite the fact that viruses like this, as SARS showed us, spread overwhelmingly by air travel and Taiwan has the 11th busiest airport in the world.

The WHO, for its part, has praised at every turn the response of the Chinese Communist Government, despite the mountain of evidence showing that they played down the seriousness of the virus and the extent of the spread for more than a month.

If these organizations are going to look out for the broader global interests and are going to instead praise authoritarian regimes, it begs the question if it's time to re-evaluate our participation in them or at the very least to make a concerted effort to push reforms.

COVID-19 is a real and serious challenge and we need cool heads and fact-based decisions, not panic, not hysteria. Unfortunately, some in the media, whether intentionally or not, seem to be inciting panic in Americans over the virus. That's a large part of the reason why we convened this hearing, to give the American public the opportunity to hear straight from officials on the front lines without spin or partisan bias.

So here's what we know. This is a rapidly changing situation. Every day, and on some days every hour, we're learning more about the virus, where it has spread and how the human body responds.

So far, the mortality rate has been around 3 percent and most of the deaths have been in the elderly and those with underlying health conditions. The virus appears more transmissible than a typical seasonal flu but so far reports indicate the vast majority of cases are moderate to mild, requiring little to no medical attention.

Early on, the Administration acted and acted swiftly to limit travel to and from the affected regions and to quarantine Americans that had been to those regions and to deny entry to foreign nationals from those regions. This was the right thing to do and those actions have proven critical for slowing the spread of the virus to the United States and it's bought us additional time to prepare, but now the virus is here and it's spreading and we must be ready for the fight ahead.

There is more that can be done. There is more that should be done. Communication between agencies and municipalities is vital to containing the spread of the virus.

In San Antonio, communication was lacking and a patient was released from Lackland Air Force Base prior to testing positive. After testing positive, the patient was returned to quarantine and is currently under the supervision of the CDC.

I urge the CDC to stay vigilant in keeping lines of communications open with all localities to ensure the safety of the public health in Texas and all across the United States. We must do everything we can to marshal every resource necessary to protect the safety and lives of Americans.

So I look forward to hearing about the facts. I look forward to hearing about the medical science. I look forward to hearing about what we know, what we're doing, and what more we can and should be doing.

And with that, I recognize Senator Sinema for her opening.

**STATEMENT OF HON. KYRSTEN SINEMA,
U.S. SENATOR FROM ARIZONA**

Senator SINEMA. Thank you, Chairman Cruz, and thank you to our witnesses who are here today for your efforts to protect Americans from infectious diseases, like the Coronavirus.

While they're not testifying today, I'd also like to acknowledge the efforts of our U.S. air carriers and the transportation industry. In the face of a public health crisis, we must work together to share the burden of keeping Americans safe both here and abroad from a potential global pandemic.

Today's hearing will focus on the current systems in place to collect contact data from travelers entering into the United States and to close gaps where they may exist. We need a timely and orderly way for travelers to input detailed contact information based on criteria the CDC has outlined.

I spoke with Vice President Pence yesterday about an opportunity to quickly develop and implement a method to collect this information and I sent him a follow up letter this morning.

Our public health officials need to ensure that we have a direct link to travelers and to eliminate gaps that allow travelers to enter the United States without public health officials being able to reach them in the case of potential risk or exposure.

I represent Arizona. We have confirmed Coronavirus cases. It's critical that Congress pass a bicameral and bipartisan supplemental package that devotes necessary resources to developing vaccines and treatments that reimburses states and local governments and that ensures the safety of our frontline workers, our seniors, and other vulnerable populations who are most at risk.

Although we do not yet know the long-term impacts of Coronavirus, the impact we've seen thus far calls for action now to protect and to reassure the public. As this situation continues to evolve, the government must continue to work together. We must coordinate with states and communicate with our industry partners.

I look forward to hearing today's testimonies and, Mr. Chairman, I yield back.

Senator CRUZ. Thank you, Senator Sinema.

I now recognize Senator Cantwell, the Ranking Member of the Full Committee.

**STATEMENT OF HON. MARIA CANTWELL,
U.S. SENATOR FROM WASHINGTON**

Senator CANTWELL. Thank you, Mr. Chairman, and thank you and Ranking Member Sinema for holding what I consider to be one of the most important subcommittee hearings we could possibly ever have.

I want to take a moment and send my deepest sympathies to the people of Washington State, the families who've lost loved ones and to the health care workers who are continuing to work diligently to respond to this epidemic.

We are working hard in the state of Washington but even the numbers, Mr. Chairman, continue to increase. We now have 10 people who have died from the Coronavirus and we now have 39 confirmed cases. 231 people are being monitored by public health officials and we've had schools and businesses and even a Federal facility that have been shut down temporarily as more people have been detected as possibly being exposed to the Coronavirus. All the while, people are experiencing symptoms and yet not getting tested.

This is the main focus I believe we need to communicate today, that we need to have a robust testing regime, all academic and commercial facilities across the United States participating in a testing process. This will give us better information and it will give us more information about the spread, the community spread of this disease.

Until last Friday, those suspected of COVID-19 in my state were required to have their tests sent to the CDC to obtain results and now since the update FDA's actions on last Saturday, we will be able to run more aggressive tests, but I still think we're only at a few hundred tests per day in the state of Washington. We need to be in the thousands, if not more.

So I hope that we will get this right for the future of other states who are going to deal with this dilemma and figure out how to have a clarion call to all labs to please, please develop these test kits in compliance but get the kits developed and do the testing because people are calling with what they think are symptoms and they want to be able to be tested.

I think that today's hearing, too, is a perfect example of why that's so important. We now have 14 states that have confirmed cases and one of the persons is a person from North Carolina who tested positive after visiting the nursing home in Washington State that has been the subject of so much attention and then traveled home to North Carolina on a plane.

This underscores the importance of making sure the aviation sector is also prepared in how we mitigate the impacts of virus spread. After all, there are more than 44,000 flights in this country every day and more than 2.7 million people fly in and out of our U.S. airports.

We have just sent a letter to the major airlines and airports asking them for their plans to meet this challenge. Further guidance, I think, hopefully we'll hear today, on how we can keep the flying public safe. The airports and the airlines in the spirit of cooperation need to understand measures that can be taken to help us in dealing with the Coronavirus and they should not be left wondering from the Federal Government what they should be doing. We should be very clear about what measures we can take or what measures we should take to help keep the flying public safe.

So I hope the Department of Transportation and the CDC will shed some light on that here today in this hearing.

I look forward to hearing more about their answers and, Mr. Chairman and Ranking Member, coordinating with you how we can get this information out to the public in a timely fashion.

The public wants to do everything they can do, too, but we have to get crisper on our answers about what we should be doing today.

Thank you.

Senator CRUZ. Thank you, Senator Cantwell, and please know that the people of America across the country are lifting up in particular Washington State and the families who are grieving the lost of their loved ones, and I hope we will continue to see bipartisan cooperation to marshal all the resources that are necessary to combat this virus and to do everything possible to prevent any more loss of life.

With that, let me introduce the witnesses we have today.

Mr. Joel Szabat is the Acting Under Secretary for Policy at the Department of Transportation. Mr. Szabat has served extensively across the Department of Transportation since the early 2000s.

In 2005, he oversaw the U.S. Government's reconstruction of Iraqi airports, ports and railroads, and served as the transportation counselor to the U.S. Embassy in Baghdad.

He also previously served as Deputy Assistant Secretary for Transportation Policy and Deputy Assistant Secretary for Management and Budget at DOT.

From 2012 to 2018, Mr. Szabat served as the Executive Director of the Maritime Administration. Most recently, in January, Mr. Szabat was named to represent the Department of Transportation in the President's Coronavirus Task Force to help coordinate strategy to prevent the spread of the outbreak.

He graduated from Georgetown University and Harvard Business School.

Rear Admiral Steven Redd is the Deputy Director for Public Health Science and Implementation Science at the Center for Disease Control and Prevention. In this capacity, Dr. Redd is responsible for state and local readiness, emergency operations, select agents and toxins, and the Nation's cache of emergency medical counter-measures.

Prior to this role, Dr. Redd was the Director of the Influenza Coordination Unit. He was also the Incident Commander for the 2009 H1N1 Pandemic Response.

Dr. Redd received his Bachelor's Degree in History from my alma mater, Princeton University, and his medical degree with honors at the Emory University School of Medicine.

He trained in medicine at Johns Hopkins Hospital and completed the two-year Epidemic Intelligence Service Training Program at the CDC.

Our third witness is Mr. William "Bill" Ferrara, who is the Executive Assistant Commissioner for Operations Support at U.S. Customs and Border Protection. Mr. Ferrara has served in numerous roles at CBP.

Previously, Mr. Ferrara served as the Acting Executive Director of Mission Support in the Office of Field Operations where he was responsible for managing an operating budget of \$4.1 billion as well as providing asset and logistical support and customer-focused human resource solutions for nearly 28,000 employees.

From June 2016 to June 2019, Mr. Ferrara also served as the Director of Field Operations for the Boston Field Office. From November 2018 to February 2019, he also performed the duties of the Department of Homeland Security Attaché to the United Kingdom.

He holds an Associate of Arts Degree in Business from the Community College of Rhode Island and is a graduate of the CBP Leadership Institute and the University of Chicago Booth School of Business.

We'll now recognize Mr. Szabat for his testimony.

**STATEMENT OF HON. JOEL SZABAT,
ACTING UNDER SECRETARY FOR POLICY,
U.S. DEPARTMENT OF TRANSPORTATION**

Mr. SZABAT. Good afternoon, Chairman Cruz, Ranking Member Sinema, and distinguished Members of the Subcommittee.

Thank you for inviting me to testify on behalf of the United States Department of Transportation and Secretary Elaine L. Chao on our efforts to minimize the risk of the spread of COVID-19 in the United States.

On February 26, President Trump appointed Vice President Pence to lead the U.S. Government's efforts to combat the virus. Secretary Azar chairs the White House Task Force and I have represented the Department of Transportation on the Task Force since its inception on January 31.

The government's health professionals have the lead in determining the response to the Coronavirus. DOT, in a supporting role, has and will continue to coordinate daily with aviation stakeholders, foreign counterparts, and other Federal agencies to manage the risk in the United States.

In this capacity, the Department of Transportation continues to ensure, first, an active air bridge remains in place for the safe return from affected areas for Americans, in addition to the thousands who have already safely traveled home from overseas.

Second, airlines funneling passenger flights to one of 11 designated airports equipped to health screen Americans returning from the virus-stricken areas.

Third, continued air and sea cargo traffic between the United States and China and other countries, such as South Korea and Italy, as the virus spreads.

Fourth, health protocols established to protect the crews of aircraft continuing to fly between the United States and foreign locations.

And, finally, dissemination of health messages about the virus for airlines to use to inform their passengers.

Our travel restrictions have been remarkably effective in the first layer of health screening of overseas travelers before they return home. These travel requirements delayed the spread of the virus from China to the United States, giving the Nation precious time to prepare further measures and plan for proper mitigation.

In the first 25 days since the President's proclamation, only 15 cases were detected within the United States.

Our actions ensured that nearly 200,000 Americans who were in or had recently left China could return to the United States through an air bridge home. The number of passengers traveling from China to the United States has fallen from roughly 15,000 people each day before the virus outbreak to fewer than a thousand each day now. To date, over 53,000 incoming passengers have received health screening.

This achievement took the cooperation of nearly 200 commercial airlines, a like number of overseas airports, and the Civil Aviation Authority of China. The department is also working closely with our sister Federal agencies under the Task Force. Their expertise and authorities were all necessary to accomplish this success.

On January 31, the Administration declared that the virus presented a public health emergency in the United States. That same day, a Presidential proclamation established the framework for our travel restrictions intended to protect the U.S. public from this communicable disease while allowing American nationals to travel safely home.

The travel restrictions first applied to China. It has subsequently been extended to Iran and airport passenger exit screening has been introduced in Italy and South Korea with the cooperation of their authorities.

To focus the expertise of the medical professionals conducting screening, the Secretary of the Department of Homeland Security directed all flights inbound to the U.S. carrying persons who have recently been in China to arrive at one of 11 U.S. airports. Significant consideration, coordination, and analysis among the Federal agencies occurred to select those appropriate airports.

Prior to and following the Presidential proclamation, DOT and interagency partners proactively communicated with air carriers and others in the aviation industry. DOT hosted multiple stakeholder calls with over 475 invited industry participants representing a range of U.S. and foreign carriers, domestic airports, trade associations, unions, and other valued partners.

As we plan for community transmission within the United States, DOT will be coordinating similar efforts with transit stakeholders as part of the whole of government plan, which includes the state and local public health agencies that are on the front line of mitigation efforts.

One of the lessons we learned from SARS is that the public reconsiders travel in the face of a new communicable disease. COVID-19 is having that same impact on aviation today.

Industry analysts estimate that the virus will reduce passenger numbers by some 4.7 to 6 percent worldwide. The industry is resilient and snaps back quickly. At the peak of SARS, U.S. travel halved. Within 2 months, it was back to normal.

The Federal Government and state and local governments are executing their long-prepared emergency response plans. The President's Coronavirus Task Force was constructed to coordinate the whole of government effort to work through the virus. We will work through it and we will come out on the other side.

Thank you, and I look forward to your questions.

[The prepared statement of Mr. Szabat follows:]

PREPARED STATEMENT OF HON. JOEL SZABAT, ASSISTANT SECRETARY FOR AVIATION AND INTERNATIONAL AFFAIRS, PERFORMING THE DUTIES OF THE UNDER SECRETARY OF TRANSPORTATION FOR POLICY

Good afternoon Chairman Cruz, Ranking Member Sinema, and distinguished Members of the Subcommittee. Thank you for inviting me to testify on behalf of the U.S. Department of Transportation (DOT) and Secretary Elaine L. Chao on our efforts to minimize the risk of spread of COVID-19 in the United States. We continue to play an active role in President Trump's response to the outbreak and the whole-of-government effort to ensure the welfare of the American people. We are taking necessary actions and preparations to ensure the continued safety and efficiency of our Nation's transportation system and minimize disruption to trade and commerce.

On February 26th, President Trump appointed Vice President Pence to lead the U.S. Government's effort to combat the virus. Secretary Azar, who chairs the White House Task Force, remains focused on coordinating the USG response to the outbreak. I represent the Department of Transportation on the Task Force. The Task Force, comprised of subject matter experts from the White House and several U.S. Government agencies, is charged with leading the Administration's efforts to contain the spread of the virus, while ensuring that the American people have the most accurate and up-to-date health and travel information.

The USG's health professionals have the lead in determining the response to the COVID-19 outbreak. DOT, in its supporting role, has and will continue to coordinate daily with aviation stakeholders, foreign counterparts and other Federal agencies to manage the risk in the United States. In this capacity, DOT continues to ensure:

1. An active airbridge remains in place for the safe return of Americans from affected areas;
2. Airlines are funneling passenger flights to one of the eleven designated U.S. airports equipped to health-screen Americans returning from affected areas;
3. Continued air and sea cargo traffic between the U.S. and China;
4. Health protocols are established to protect the crews of aircraft continuing to fly between the U.S. and foreign locations; and,
5. Dissemination of health messages about the virus, for airlines to use to inform their passengers.

The U.S. Government's travel restrictions and advisories have been a remarkably effective 'first layer' of containment. These travel requirements delayed the arrival of the virus to the United States, giving the Nation precious time to prepare further measures, and plan for mitigation.

This achievement took the cooperation of nearly 200 commercial airlines, a like number of overseas airports, and the Civil Aviation Authority of China. The Department, including the Federal Aviation Administration, is also working closely with our sister Federal agencies under the Task Force aegis, especially the Centers for Disease Control and Prevention (CDC), Customs & Border Protection, Transportation Security Administration, and the U.S. Citizenship and Immigration Services. Their expertise and authorities, as well as those of the Departments of State, Homeland Security and Health & Human Services, were all necessary to accomplish this success.

On January 31, 2020, the Secretary of the Department of Health and Human Services (HHS) declared that the virus presented a Public Health Emergency in the United States. That same day, the President exercised his authority under the Immigration and Nationality Act to issue a Proclamation suspending the entry into the United States of certain foreign nationals, to protect persons within the United States from the threat of this communicable disease. While this Proclamation is in effect, most foreign nationals who have been in China within the last 14 days prior to their arrival are barred from entering the U.S., with various exceptions, including lawful permanent residents and most immediate family members of U.S. citizens and lawful permanent residents. As the Coronavirus expanded beyond the borders of China, we gained concurrence with the governments of Italy and South Korea to institute aggressive containment actions, which include exit screenings.

Any U.S. citizen returning to the U.S. who has been in China's Hubei province in the previous 14 days is subject to up to 14 days of mandatory quarantine. Any returning U.S. citizen who has been in the rest of mainland China within the previous 14 days undergoes proactive entry health screening at a designated port of entry, as well as up to 14 days of self-quarantine. To focus the expertise of the medical professionals conducting screening, the Secretary of the Department of Homeland Security (DHS) has directed all flights inbound to the U.S. carrying persons who have recently traveled from, or were otherwise present within, China to arrive at one of eleven U.S. airports.¹ Significant consideration, coordination, and analysis occurred to select the appropriate airports.

The U.S. Government has taken steps to ensure that the nearly 200,000 Americans who were in, or had recently left China, could return to the U.S. through an airbridge home. The number of passengers traveling from China to the United States has fallen from roughly 15,000 each day before the virus outbreak to fewer than 1,000 each day now.

The complexity of passenger flows across the globe include not just nonstop flights between the U.S. and China, but also travelers connecting through foreign countries. The Department was part of the Interagency coordination with foreign airports and airlines to establish a robust initial screening.

The welfare of passengers returning home is among the U.S. Government's highest priorities. HHS and the CDC developed a script to provide information on U.S. health screening at designated ports of entry, which DOT coordinated with governments and airlines for flight crews to read to passengers ahead of arrival. Today, all four carriers still providing flights to the U.S. from China are using this script. Further, DOT helped our Government partners enact workable health protocols for pilots and crews that continue to fly from China to the U.S. These protocols differ for China-based and U.S.-based crews, and allow continued all-cargo operations. U.S. cargo carriers that were offering scheduled and charter service between China and the United States before the outbreak continue to serve China.

Prior to and following the first Presidential Proclamation, DOT and interagency partners proactively communicated with air carriers and others in the aviation industry. DOT hosted multiple stakeholder calls with over 475 invited industry participants, representing 44 different U.S. and foreign air carriers, 26 domestic airports, and many trade associations, unions, and other valued partners. The Administration also communicated with foreign governments to maintain awareness of changes in their travel restrictions and screening and quarantine policies that could impact Americans traveling to or through those countries. Open communication is key to implementing practical solutions for continued operations.

As the President said on February 28th, these containment measures have been remarkably effective. As we plan for community transmission in the United States, DOT will be coordinating similar efforts with transit stakeholders, as part of the whole-of-government plan. The Task Force and U.S. Government Departments and Agencies continue to proactively plan for mitigation strategies by working with the State and local public health agencies that would be on the front line of "mitigation" efforts.

Successful containment and mitigation of the virus to keep the American people safe will depend on the efforts of all levels of government, the public health system, the transportation industry, and our communities. The ability to sustain transpor-

¹Hartsfield-Jackson Atlanta International Airport (ATL), Georgia; Dallas/Fort Worth International Airport (DFW), Texas; Detroit Metropolitan Airport (DTW), Michigan; Newark Liberty International Airport (EWR), New Jersey; Daniel K. Inouye International Airport (HNL), Hawaii; Washington-Dulles International Airport (IAD), Virginia; John F. Kennedy International Airport (JFK), New York; Los Angeles International Airport, (LAX), California; Chicago O'Hare International Airport (ORD), Illinois; Seattle-Tacoma International Airport (SEA), Washington; and San Francisco International Airport (SFO), California

tation services, move emergency relief personnel and commodities, and mitigate adverse economic impacts requires effective transportation policy decisions. DOT is postured to respond effectively, and we continue to work closely with government and industry to support the USG's response to the virus.

Thank you and I look forward to your questions.

Senator CRUZ. Thank you, Mr. Szabat.
Admiral Redd.

**STATEMENT OF DR. STEPHEN REDD, DIRECTOR,
OFFICE OF PUBLIC HEALTH PREPAREDNESS AND RESPONSE,
CENTERS FOR DISEASE CONTROL AND PREVENTION**

Dr. REDD. Good afternoon, Chairman Cruz, Ranking Members Cantwell and Sinema, and Distinguished Members of the Subcommittee.

My name is Stephen Redd, and I am the Deputy Director for Public Health Service and Implementation Science. I'm also serving as the Senior Response Official in CDC's 2019 Novel Coronavirus Response.

Thank you for the invitation to testify today on behalf of the U.S. Centers for Disease Control and Prevention (CDC) on our efforts to protect the health and safety of Americans from this disease, COVID-19.

Let me begin by acknowledging that this is a new virus and a new disease. New information and science continue to accumulate and U.S. Government decisions to respond to this epidemic will continue to be based on that evolving science.

Our overriding goal is to protect America from the effects of the virus. We're working to slow its spread into the U.S. and to minimize the impact.

The U.S. Government's approach to COVID-19 is built on years and years of preparing and responding to infectious disease emergencies, such as SARS, MERS, Ebola, and pandemic influenza.

A key component of our work is to support state, local, tribal, and territorial public health departments. This system is the backbone of public health and also of our responses to public health emergencies.

Up to now, more than 1,500 CDC staff have been involved in the response, both at headquarters in Atlanta and in the field. Over the past 2 months, Federal, state, and local governments have mobilized to protect the American people.

As we've heard, globally we have seen over 90,000 confirmed cases and those have occurred in 85 international jurisdictions. As we've discussed, several countries are currently reporting sustained community spread.

CDC, with our Federal and local partners, have instituted multi-layered aggressive containment and mitigation measures to slow introduction and spread of the virus into the United States. These public health interventions include early case recognition and isolation, identifying and tracking contacts, and in some instances implementing movement restrictions or quarantine.

We've posted targeted travel warnings for several countries and even for cruise ship travel in Asia so Americans can stay informed on proper precautions to take when, and if, they travel abroad.

Measures the U.S. Government has taken include denying entry to the U.S. for certain travelers. This step has reduced the number

of people coming into the United States from China by over 90 percent.

We've also, as you've heard, funneled travelers from highly affected countries to 11 airports where we've instituted screening procedures and, to date, we've screened more than 50,000 travelers.

As of noon today, CDC has reported 120 cases of COVID-19 from 13 states. We expect to continue to find more cases and we expect these cases will be a mixture of travel-related cases, of cases related to contact and community spread cases.

It's likely that we'll see some communities more highly affected while others remain virus-free. I want to recognize that people are concerned about this situation as are we.

As always, our Number 1 priority is the health and safety of the American people. We appreciate that Americans are taking this threat seriously and continuing to seek information about how to be prepared.

While the immediate risk to the general American public is low today, U.S. Government is doing everything we can to keep it low. Risk varies by exposure and some areas of the country are now experiencing community spread.

I ask you as trusted leaders in your communities to help us with our mission to provide clear information to you and your constituents by urging people to get the facts from CDC about how to best protect themselves and their families.

Thank you.

[The prepared statement of Dr. Redd follows:]

PREPARED STATEMENT OF DR. STEPHEN REDD, DIRECTOR, OFFICE OF PUBLIC HEALTH PREPAREDNESS AND RESPONSE, CENTERS FOR DISEASE CONTROL AND PREVENTION

Testimony of the Department of Health and Human Services on COVID-19

Since President Trump took office, his work to protect the health and safety of the American people has included a specific focus on monitoring, preparing for, and responding to biological threats, such as infectious disease outbreaks. As soon as the United States became aware of a novel coronavirus at the end of 2019, the U.S. Government was tracking its spread and began preparing necessary responses.

Within the first two weeks of China's initial report of the outbreak in December 2019, China reported 45 pneumonia cases and two deaths. More recently, there has been an increase in cases outside of China.

COVID-19 is a new disease, caused by a novel (or new) coronavirus that has not previously been seen in humans. This new disease, officially named Coronavirus Disease 2019 (COVID-19) by the World Health Organization (WHO), is caused by the SARS-COV-2 virus, which is in the same family of viruses as that cause the common cold. There are many types of human coronaviruses including some that commonly cause mild upper-respiratory tract illnesses. Coronaviruses are a large family of viruses. Some cause illness in people, and others, such as canine and feline coronaviruses, only infect animals. Rarely, animal coronaviruses that infect animals have emerged to infect people and can spread between people. This is suspected to have occurred for the virus that causes COVID-19. Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) are two other examples of coronaviruses that originated from animals and then spread to people.

The potential global public health threat posed by this virus is high, but right now, the immediate risk to most Americans is low. The greater risk is for people who have recently traveled to an affected country or been exposed to someone with COVID-19.

On January 29, 2020, President Trump announced the formation of the President's Task Force on the Novel Coronavirus, which is chaired by the Secretary for Health and Human Services and coordinated through the National Security Council. The President's Task Force is composed of subject matter experts from the White House and several United States Government agencies, and it includes some of the Nation's foremost experts on infectious diseases. The Task Force is leading the Ad-

ministration's efforts to monitor, contain, and mitigate the spread of COVID-19 while ensuring that the American people have the most accurate and up-to-date information to protect themselves and their families.

The President's top priority is the health and welfare of the American people, and his Administration has made it a priority to prepare for infectious disease outbreaks that can cross borders. In 2018, President Trump launched the National Biodefense Strategy, which lays out a framework for coordination among agencies, with the Secretary of the U.S. Department of Health and Human Services (HHS) as Chair of the Biodefense Steering Committee, and helps identify gaps in preparedness and response. As the situation around the new coronavirus evolves, the Administration will continue its coordinated response, in collaboration with state and local governments and the private sector, and adjust its positioning as needed.

Within HHS, the Centers for Disease Control and Prevention (CDC), the Assistant Secretary for Preparedness and Response (ASPR), the National Institute of Allergy and Infectious Diseases (NIAID), and the Food and Drug Administration (FDA) play critical roles in responding to COVID-19 by preventing and slowing the spread of the disease, assisting repatriated Americans, protecting the supply of food, drugs, and devices, and developing diagnostics, therapeutics, and vaccines.

Centers for Disease Control and Prevention

In late December 2019, Chinese authorities announced a cluster of pneumonia cases of unknown etiology centered on a local seafood market in Wuhan, China, with an estimated case onset in early December. CDC immediately began monitoring the outbreak, and within days—by January 7, 2020—had established a Center-led Incident Management Structure. On January 21, 2020, CDC transitioned to an Agency-wide response based out of its Emergency Operations Center. This allows CDC to provide increased operational support to meet the outbreak's evolving challenges and provides strengthened functional continuity to meet the long-term commitment needed to curb the outbreak.

CDC is assisting ministries of health in countries in every region of the globe with their most urgent and immediate needs to prevent, detect, and respond to the COVID-19 outbreak.

CDC's most expert and practiced infectious disease and public health experts are dedicated to this response 24/7 to protect the American people. CDC is a disease preparedness and response agency, and this work is fundamental to our mission both domestically and internationally. The Agency's approach to COVID-19 is built upon decades of experience with prior infectious disease emergencies including responses to SARS, MERS, and Ebola, and to pandemic influenza.

To mitigate the impact of COVID-19 within the United States, CDC is working alongside Federal, state, local, tribal, and territorial partners, as well as public health partners. This public health response is multi-layered and includes aggressive containment and mitigation activities with an objective to detect and minimize introductions of this virus in the United States so as to reduce its spread and impact. It is impossible to catch every single traveler returning from an affected country with this virus—given the nature of this virus and how it's spreading. Our goal continues to be slowing the introduction of the virus into the United States as we work to prepare our communities for more cases and possible sustained spread.

To accomplish this, CDC is also working with multiple countries, in collaboration with U.S. Agency for International Development (USAID) and other Federal agencies and WHO to support ministries of health around the globe to prepare and respond to the outbreak. For example, the U.S. Government is helping to support countries to implement recommendations provided by WHO related to the identification of people who might have this new infection, diagnosis and care of patients, and tracking of the outbreak. CDC staff are also starting to work together with interagency colleagues in those countries to conduct investigations that will help inform response efforts going forward.

The Agency is using its existing epidemiologic, laboratory, and clinical expertise to gain a more comprehensive understanding of COVID-19. CDC is leveraging prior programmatic investments in domestic and global public health capacity and preparedness to strengthen the Agency's response to COVID-19. Thus far, this response has been built largely on the foundation of our seasonal and pandemic influenza program's infrastructure. The ongoing response to COVID-19 also demonstrates CDC's continued commitment to strengthen global health security. CDC has been engaged in global health security work for over seven decades. Thanks to investments in Global Health Security, the U.S. Government's work has helped partner countries build and improve their public health system capacity. This global effort strengthens the world's ability to prevent, detect, and respond to infectious diseases like this new coronavirus.

This outbreak also underscores the need for the United States to continue to play a leadership role on the global stage, and to strengthen global capacity to stop disease threats at their sources, before they spread. Furthermore, the outbreak demonstrates the importance of continued investment in our Nation's public health infrastructure. Despite years of progress in domestic disease prevention and response, efforts to help modernize our federal, state, and local capability and health systems that are crucial to responding to and understanding unprecedented threats continue.

The U.S. Government has taken unprecedented steps to prevent the spread of this virus and to protect the American people and the global community from this new threat and allow State, local, territorial, and private partners time to prepare for any necessary response and mitigation activities. Since February 2, 2020, pursuant to arrival restrictions imposed by the Department of Homeland Security, flights carrying persons who have recently traveled from or were otherwise present within mainland China or other affected countries have been funneled to designated U.S. airports with CDC quarantine stations. At these airports, passengers are subject to enhanced illness screening and self-monitoring with public health supervision up to 14 days from the time the passenger departs the affected country. This enhanced entry screening serves two critical purposes. The first is to detect illness and rapidly respond to symptomatic people entering the country. The second purpose is to educate travelers about the virus and what to do if they develop symptoms.

These measures are part of a layered approach which includes our other core public health efforts, including aggressively tracking COVID-19 around the globe, building laboratory capacity, and preparing the national healthcare system for community spread. These core capabilities and expertise are essential to CDC's comprehensive approach to addressing this outbreak.

While CDC believes that the immediate risk of this new virus to the American public is low, CDC is preparing the Nation's healthcare system to respond to identification of individual cases and potential person-to-person transmission of COVID-19 in the community, at the same time ensuring the safety of its patients and workers. CDC has developed guidance on appropriate care and infection control for patients with COVID-19 and is engaging regularly with clinical and hospital associations to confirm that its guidance is helpful and responsive to the needs of the healthcare system.

Furthermore, understanding the current constraints of the global supply of personal protective equipment (PPE), CDC is working with industry and the U.S. health system to comprehend possible effects on facilities' abilities to procure the needed levels of PPE, and to provide strategies to optimize the supply of PPE.

Effective disease surveillance enables countries to quickly detect outbreaks and continuously monitor for new and reemerging health threats. CDC continues to monitor the COVID-19 situation around the world.

CDC has begun working with domestic public health laboratories that conduct community-based influenza-like illness surveillance and leveraging our existing influenza and viral respiratory surveillance systems so that we may begin testing people with flu-like symptoms for the SARS-COV-2 virus. HHS is developing plans to expand this effort.

This collaboration with domestic public health labs is another layer of our response that will help us detect if this virus is spreading in a community. All of our efforts now are to prevent the sustained spread of this virus in our communities, but we need to be prepared for the possibility that it will spread. Results from this surveillance could necessitate changing our response strategy.

CDC has issued guidance for people at high risk of exposure to the virus, including flight crews, recent travelers to China, and healthcare workers. Through its extensive Health Alert Network, CDC shared guidance for clinical care for healthcare professionals and state and local health departments. Health departments, in consultation with healthcare providers, can evaluate patients and determine whether someone may have the illness and should be subjected to additional diagnostic testing.

CDC has a demonstrated record of innovative science and evidence-based decision-making, and an experienced and expert workforce that is working 24/7 to combat this public health emergency. The COVID-19 outbreak is evolving rapidly, and the U.S. Government is constantly making adjustments to respond to the changing nature of this public health emergency. Our goal continues to be slowing the introduction of the virus into the United States and preparing our communities for more cases and possible sustained spread. While leaning forward aggressively with the hope that we will be able to prevent community spread, CDC remains vigilant in confronting the challenges presented by this new coronavirus.

Assistant Secretary for Preparedness and Response

Currently, there are no vaccines or therapeutics approved by the FDA to treat or prevent novel coronavirus infections. The Biomedical Advanced Research and Development Authority (BARDA), part of ASPR, is working with counterparts across the government, including within HHS and with the Department of Defense (DOD). The team is reviewing potential vaccines, treatments, and diagnostics from across the public and private sectors to identify promising candidates that could be developed to detect, protect against, or treat people with coronavirus infections. BARDA is working closely across the U.S. Government to assess and identify potential partners and technologies suitable to address the COVID-19 outbreak—both for prevention and treatment.

This has allowed BARDA to leverage existing partnerships, accelerating the development of COVID-19 medical countermeasures, including diagnostics, therapeutics, and vaccines. Established partners, including Regeneron, Janssen, and Sanofi Pasteur, have shown success in developing both prophylactic and therapeutic medical countermeasures for emerging infectious diseases.

BARDA is collaborating with Regeneron to leverage their partnership agreement to develop multiple monoclonal antibodies that, individually or in combination, could be used to treat this emerging coronavirus. Regeneron's monoclonal antibody discovery platform, called VelocImmune, was used to develop a promising investigational three-antibody therapeutic which was deployed to treat Ebola in the most recent outbreak in the Democratic Republic of the Congo, and an investigational two-antibody therapeutic to treat MERS. The technology shortened multiple aspects of the product development timeline for therapeutics to treat MERS and Ebola from years to months. The technology helped shorten certain stages of drug development, including the process of antibody discovery and selection, preclinical-scale manufacturing, and clinical-scale manufacturing. BARDA and Regeneron are working to utilize these monoclonal antibodies, produced by a single clone of cells or a cell line with identical antibody molecules, which will bind to certain proteins of a virus, reducing the ability of the COVID-19 virus to infect human cells.

BARDA is working with Janssen to leverage their Ebola, Zika, HIV vaccine platform to expedite development of vaccines that protect against the SARS-CoV-2 virus. Using existing resources, BARDA will share research and development costs and expertise with Janssen to help accelerate Janssen's investigational COVID-19 vaccine into clinical evaluation. Janssen will also scale-up production and manufacturing capacities required to manufacture the candidate vaccine. This same approach was used to develop and manufacture Janssen's investigational Ebola vaccine with BARDA support; that vaccine is being used in the Democratic Republic of the Congo as part of the current Ebola outbreak response. Additionally, BARDA and Janssen are working together to help develop treatments for coronavirus infections. Janssen will conduct high throughput screening on thousands of potential antiviral compounds in order to identify medicines that could safely and effectively be used to reduce the severity of illness and treat COVID-19 infections, as well as identify compounds that have antiviral activity against SARS-CoV-2 as an initial step in developing new treatments. These products include those in development to treat and prevent MERS or SARS, which are caused by coronaviruses also related to COVID-19.

Finally, in their work with Sanofi Pasteur, BARDA is able to leverage a licensed recombinant influenza vaccine platform to produce a recombinant SARS-CoV-2 vaccine candidate. The technology produces an exact genetic match to proteins of the virus. DNA encoding the protein will be combined with DNA from a virus harmless to humans, and used to rapidly produce large quantities of antigen which stimulate the immune system to protect against the virus. The antigens will be separated and collected from these cells and purified to create working stocks of vaccine for advanced development.

BARDA has initiated early steps of medical countermeasures development with partners and will continue to work to accelerate this process. Availability of these medical countermeasures is essential to save lives and protect Americans against 21st century public health threats.

Our nation's healthcare system is better prepared than it has ever been. For example, all 50 states have Pandemic Plans, as a requirement of CDC's Public Health Emergency Preparedness Program (PHEP) and ASPR's Hospital Preparedness Program (HPP). HPP was established after the September 11, 2001, terrorist attacks, with the goal of improving the capacity of local hospitals across the country to deal with disasters and a large influx of patients in an emergency. Using HPP funding, state grantees initially purchased equipment and supplies needed for emergency medical surge capacity. Over time, the program has successfully evolved to support local, coordinated healthcare coalitions, including hospitals, public health facilities,

emergency management agencies, and emergency medical services providers. Investments administered through PHEP and HPP have improved individual health care entities' preparedness and have built a system for coordinated healthcare system readiness. HPP is the only source of Federal funding to prepare the Nation's mostly private health care system to respond to emergencies, including COVID-19.

Beginning in 2018, ASPR has been supporting Regional Disaster Health Response Systems (RDHRS) pilot projects. The RDHRS concept aims to provide funding directly to hospitals and healthcare systems to establish multi-state regional partnerships to increase preparedness and response capability and capacity for hospitals and healthcare facilities in advance of, during, or immediately following incidents, including emerging infectious diseases. Two sites were selected in September 2018 to begin development of RDHRS pilots. In 2019, two grants were awarded to support new centers of excellence pilots focused on pediatric disaster care. The RDHRS and Pediatric Disaster Care Center of Excellence cooperative agreement requirements are intentionally aligned to ensure synergy between the programs and collaboration between all sites and facilities. Ultimately, these efforts inform best practices to help ready healthcare delivery systems for disasters and emergencies and are critical in aiding response and limiting the impact of disaster. As you all are aware, the United States is in the middle of influenza season. Many emergency departments are at 90 percent capacity. If influenza worsens, or if COVID-19 intensifies domestically, emergency departments would be severely strained, which is why supporting models such as the Hospital Preparedness Program healthcare coalition network is so important.

The National Ebola Training and Education Center (NETEC) combines the resources of healthcare institutions experienced in treating Ebola to offer training, readiness consultations, and expertise to help facilities prepare for Ebola and other special pathogens. The regional Ebola and other special pathogen treatment centers, of which ASPR and CDC funded 10 across the country, all have respiratory infectious disease isolation capacity or negative pressure rooms for at least 10 patients, including pediatric patients. The NETEC and the regional Ebola and other special pathogen treatment centers have been used to support recent quarantine efforts. Should the coronavirus infections increase domestically, these centers will become critical in isolating infected persons and providing adequate treatment.

ASPR and CDC also work to enhance medical surge capacity by organizing, training, equipping, and deploying Federal public health and medical personnel, such as National Disaster Medical System (NDMS) teams, and providing logistical support for Federal responses to public health emergencies. NDMS was originally created during the Cold War to take care of military casualties from overseas in U.S. civilian hospitals. Today, NDMS teams are deployed to strategic locations across the country, caring for U.S. citizens who may have been exposed to SARS-CoV-2, effectively providing medical care and limiting the potential spread of the disease.

Recently, to assist in the repatriation effort, ASPR stood up a National HHS Incident Management Team (IMT) located in Washington, DC. The IMT serves as the national command and control element, deploying Public Health Service Commission Corps Officers and NDMS personnel.

In addition, HHS provided cache equipment, (*e.g.*, medical supplies and resources) to Travis AFB, Marine Corps Air Station Miramar, Lackland, Air Force Base, and Camp Ashland to support evacuees quarantined at these facilities. HHS deployed one Disaster Medical Assistance Team (DMAT) and one IMT on February 12, 2020, to support American citizens in Japan on the Diamond Princess cruise ship, as well as the U.S. Embassy, to provide medical care, prescriptions, and behavioral health support.

Many active pharmaceutical ingredients and medical supplies, including auxiliary supplies such as syringes and gloves, come from China and India. This outbreak demonstrates why ASPR is seeking innovative solutions and partnerships to better protect national security. ASPR is working to increase access to personal protective equipment (PPE) by:

- Coordinating with CDC and other Federal agencies to share information about optimization of PPE, to prevent overbuying and overuse of existing supplies
- Engaging private sector partners who manufacture and distribute PPE to share information and concerns, and to explore options to anticipate and meet the needs of the U.S. healthcare sector more effectively. During recent discussions, for example, distributors informed us that they have implemented allocations to help prevent stockpiling at healthcare facilities. The allocation is a percentage of a customer's previous orders and is designed to help protect the healthcare supply chain and ensure the right supplies are available for those who need it.

- We are also partnering with other Federal agencies such as DHS, DOD and the U.S. Department of Veterans Affairs who are large buyers of PPE, to develop acquisition strategies that incentivize industry to expand PPE production while not exacerbating supply challenges.

The Strategic National Stockpile (SNS) holds thousands of deployable face masks, N95 respirators, gloves, and surgical gowns that could be deployed if state and local supplies are diminished due to the current COVID-19 response and commercial supplies are exhausted. The SNS is working hand-in-hand with commercial supply chain partners and other Federal agencies to continue monitoring supply levels and to prepare for a potential deployment of SNS personal protective gear if it is needed.

The National Institutes of Health

The National Institutes of Health (NIH) is the HHS agency leading the research response to the global health emergency of COVID-19. Within the NIH, the National Institute of Allergy and Infectious Diseases (NIAID) is responsible for conducting and supporting research on emerging and re-emerging infectious diseases, including COVID-19.

NIAID is well-positioned to respond rapidly to infectious disease threats as they emerge by leveraging fundamental basic research efforts; a domestic and international research infrastructure that can be quickly mobilized; and collaborative and highly productive partnerships with industry. NIAID provides preclinical research resources to scientists in academia and private industry throughout the world to advance translational research for emerging and re-emerging infectious diseases. These research resources are designed to bridge gaps in the product development pipeline, thereby lowering the scientific, technical, and financial risks incurred by industry and incentivizing companies to partner in the development of effective countermeasures including diagnostics, therapeutics, and vaccines.

NIAID also supports the Infectious Diseases Clinical Research Consortium, which includes a network of Vaccine and Treatment Evaluation Units (VTEUs). The VTEUs conduct clinical trials to investigate promising therapeutic and vaccine candidates when public health needs arise. NIAID collaborates with other Federal agencies, including through the HHS Public Health Emergency Medical Countermeasures Enterprise (PHEMCE), to help advance progress against newly emerging public health threats. In addition, partnerships with academia, the biotechnology and pharmaceutical industries, domestic and international researchers, and organizations such as the World Health Organization (WHO) are integral to these efforts.

NIAID has a longstanding commitment to coronavirus research, including extensive efforts to combat two other serious diseases caused by coronaviruses: SARS and MERS. This research has improved our fundamental understanding of coronaviruses and provides a strong foundation for our efforts to address the challenge of SARS-CoV-2, the novel coronavirus that causes COVID-19. NIAID has responded to the newly emerging COVID-19 outbreak by expanding our portfolio of basic research on coronaviruses. NIAID scientists have rapidly identified the human receptor used by SARS-CoV-2 to enter human cells. In addition, NIAID investigators and their collaborators recently identified the atomic structure of the spike protein, an important SARS-CoV-2 surface protein that is a key target for the development of vaccines and therapeutics. NIAID scientists also are evaluating the stability of SARS-CoV-2 on various ordinary surfaces and in aerosols to better understand the potential for viral spread throughout the community.

NIAID-supported researchers are assessing the risk of emergence of bat coronaviruses in China, including the characterization of bat viruses and surveys of people who live in high-risk communities for evidence of bat coronavirus infection. Such research is necessary to better understand this emerging infection and to investigate optimal ways to diagnose, treat, and prevent COVID-19.

The NIAID Centers of Excellence for Influenza Research and Surveillance (CEIRS), which conduct influenza risk assessments in multiple sites throughout the world particularly in Asia, have responded rapidly to the COVID-19 outbreak. CEIRS researchers at the University of Hong Kong are evaluating the epidemiology, transmission dynamics, and severity of COVID-19. These scientists also have performed environmental sampling of the Wuhan market where the first COVID-19 cases were reported.

NIAID is working with CEIRS collaborators and the CDC to obtain additional virus and biological samples from patients to further advance research efforts on COVID-19. Recently, the NIAID-funded BEI Resources Repository made samples of SARS-CoV-2 available for distribution to domestic and international researchers at Biosafety Level 3 laboratories. In addition, CEIRS researchers and other NIAID-supported scientists are developing reagents, assays, and animal models that can be used to evaluate promising therapeutics and vaccines. These research resources

also will be shared with the domestic and international scientific community as soon as they become available.

On February 6, 2020, NIAID issued a *Notice of Special Interest regarding the Availability of Urgent Competitive Revisions for Research on the 2019 Novel Coronavirus*. This notice encourages existing NIAID grantees to apply for supplements for research project grants focused on the natural history, pathogenicity, and transmission of the virus, as well as projects to develop medical countermeasures and suitable animal models for preclinical testing of COVID-19 vaccines and therapeutics.

NIAID has responded to public health concerns about COVID-19 by increasing ongoing coronavirus research efforts to accelerate the development of interventions that could help control current and future outbreaks of COVID-19. These activities build on prior NIAID research addressing other coronaviruses, such as those that cause SARS and MERS.

The CDC has developed a real-time Reverse Transcription-Polymerase Chain Reaction (rRT-PCR) test that can detect COVID-19 using respiratory samples from clinical specimens. NIAID is accelerating efforts to develop additional diagnostic tests for COVID-19, and NIAID-supported investigators are developing PCR-based assays for SARS-CoV-2 to facilitate preclinical studies and aid in the development of medical countermeasures. NIAID scientists also are developing reagents for an enzyme-linked immunosorbent assay for SARS-CoV-2. CEIRS researchers at the University of Hong Kong have developed a separate RT-PCR test and made their protocol publicly available through the WHO. These NIAID-supported investigators also have distributed assay reagents to 12 countries to facilitate the diagnosis of COVID-19.

NIAID is pursuing the development of antivirals and monoclonal antibodies for potential use against SARS-CoV-2. NIAID has launched a multicenter, randomized controlled clinical trial to evaluate the safety and efficacy of the antiviral drug remdesivir for the treatment of COVID-19 in hospitalized adults with laboratory-confirmed SARS-CoV-2 illness. The adaptive design of this trial will enable the evaluation of additional promising therapies. NIAID plans to assess other existing antivirals for activity against SARS-CoV-2, and NIAID scientists are working to identify monoclonal antibodies with therapeutic potential from COVID-19 patient samples as well as historical SARS patient samples. NIAID-funded scientists also aim to delineate new viral targets to facilitate the development of novel therapeutics with broad activity against coronaviruses. Finally, NIAID is expanding its suite of preclinical services to add assays that investigators can use to accelerate research and development of therapeutics for COVID-19.

A safe and effective vaccine for SARS-CoV-2 would be an extremely valuable tool to stop the spread of infection and prevent future outbreaks. Public and private entities across the globe have announced plans to develop SARS-CoV-2 vaccine candidates following the release of the SARS-CoV-2 genetic sequence. NIAID is supporting development of several SARS-CoV-2 vaccine candidates, and is utilizing vaccine platform technologies that have shown promise against the coronaviruses that cause SARS and MERS.

The NIAID Vaccine Research Center (VRC) is collaborating with the biotechnology company Moderna, Inc., on the development of a vaccine candidate using a messenger RNA (mRNA) vaccine platform containing the gene that expresses the VRC-designed spike protein of SARS-CoV-2. NIAID anticipates the experimental vaccine will be ready for clinical testing in the NIAID VTEUs within the next two months and will conduct preclinical studies as well as a first-in-human study of this COVID-19 vaccine candidate. The Coalition for Epidemic Preparedness Innovations (CEPI) will fund the manufacture of the first clinical production lot of this mRNA-based vaccine candidate using the Moderna rapid manufacturing facility.

NIAID Rocky Mountain Laboratories (RML) scientists are collaborating with Oxford University investigators to develop a chimpanzee adenovirus-vectored vaccine candidate against SARS-CoV-2; in addition, they have partnered with CureVac on an mRNA vaccine candidate. RML investigators also have launched a collaboration with the University of Washington and have begun early-stage testing of an RNA vaccine candidate against SARS-CoV-2. In addition, NIAID-supported scientists at Baylor College of Medicine and their collaborators are evaluating an experimental SARS-CoV recombinant protein vaccine to determine if it also provides protection against SARS-CoV-2. NIAID is exploring additional collaborations with extramural research and industry partners on other vaccine concepts. NIAID also is supporting the development of standardized assays and animal models that will be utilized to evaluate vaccine candidates.

With all these efforts, NIAID is coordinating closely with colleagues at the CDC, BARDA, FDA, DOD, and other Federal and international partners.

To achieve the ultimate goal of having a SARS-CoV-2 vaccine available to the public, it is important that NIAID and the entire biomedical research community pursue a range of vaccine strategies in order to be better positioned to overcome the scientific or technical challenges associated with any particular vaccine approach. In this regard, NIAID has dedicated resources toward preclinical research to advance a robust pipeline of vaccine candidates into Phase 1 clinical evaluation. Further vaccine research, including Phase 2 clinical trials, will then be required. Additional research also is needed to better understand the fundamental biology of coronaviruses and to facilitate the design of vaccines that elicit optimal immune responses and protect against infection.

While ongoing SARS-CoV-2 vaccine research efforts are promising, it is important to realize that the development of investigational vaccines and the clinical testing to establish their safety and efficacy take time. Although we plan to begin early-stage clinical testing of an NIAID-supported vaccine candidate in the next few months, a safe and effective, fully licensed SARS-CoV-2 vaccine will likely not be available for some time. Currently, the COVID-19 outbreak response in the United States remains focused on the proven public health practices of containment—identifying cases, isolating patients, and tracing contacts.

NIH is committed to continued collaboration with other HHS agencies and additional partners across the U.S. Government and international community to advance research to address COVID-19. As part of its mission to respond rapidly to emerging and re-emerging infectious diseases throughout the world, NIAID is expanding our efforts to elucidate the biology of SARS-CoV-2 and employ this knowledge to develop the tools needed to diagnose, treat, and prevent disease caused by this virus. NIAID is particularly focused on developing safe and effective COVID-19 vaccines. These efforts also help to expand our knowledge base and improve our continued preparedness for the next inevitable emerging disease outbreak.

Food and Drug Administration

The FDA plays a critical role in overseeing our Nation's FDA-regulated products as part of our vital mission to protect and promote public health, including during public health emergencies. Our work primarily focuses on four key areas: first, actively facilitating efforts to diagnose, treat, and prevent the disease; second, surveilling product supply chains for potential shortages or disruptions and helping to mitigate such impacts, as necessary; third, conducting inspections and monitoring compliance, including of facilities that manufacture FDA-regulated products overseas; fourth, helping to ensure the safety of consumer products.^s

A key focus area for the FDA is helping to expedite the development and availability of medical products needed to diagnose, treat, and prevent this disease. We're committed to helping foster the development of critical medical countermeasures as quickly as possible to protect public health. We provide regulatory advice, guidance, and technical assistance to sponsors in order to advance the development and availability of vaccines, therapies, and diagnostic tests for this novel virus.

On February 4, 2020, the FDA issued an emergency use authorization (EUA) to enable immediate use of a diagnostic test developed by the CDC, facilitating the ability for this test to be used in CDC-qualified laboratories.¹ The FDA is dedicated to actively working with other COVID-19 diagnostic developers to help accelerate development programs and requests for EUAs. We have developed an EUA review template for tests to detect the virus, which outlines the data requirements for a Pre-EUA package that is available to developers upon request. To date, we have shared the EUA review template with more than 100 developers who have expressed interest in developing diagnostics for this virus.

The medical product supply chain is always potentially vulnerable to disruption, which makes our surveillance work and collaboration with industry critical and why the Agency takes a proactive stance on any potential impact or disruption to the supply chain. An outbreak of this global scale has an impact on the medical product supply chains, including potential disruptions to supply or shortages of critical medical products in the United States. We are in contact with manufacturers; global regulators, like the European Medicines Agency; health care delivery organizations; and other participants in the medical product supply chains to quickly identify and

¹ FDA. 2019 Novel Coronavirus Emergency Use Authorization. February 4, 2020. <https://www.fda.gov/medical-devices/emergency-situations-medical-devices/emergency-use-authorizations#coronavirus2019>. FDA. FDA Takes Significant Step in Coronavirus Response Efforts, Issues Emergency Use Authorization for the First 2019 Novel Coronavirus Diagnostic: Critical Milestone Reached in Response to this Outbreak. <https://www.fda.gov/news-events/press-announcements/fda-takes-significant-step-coronavirus-response-efforts-issues-emergency-use-authorization-first>.

address any supply concerns that come from issues related to China and other locations in Southeast Asia sourcing raw materials for manufacturing drugs.

We are also tracking reports of increased ordering of some essential medical devices through distributors, such as personal protective equipment (PPE) (*e.g.*, respirators and surgical gowns, gloves and masks). FDA is working proactively to stay ahead of potential shortages or disruptions of medical products. The agency will use all available authorities to react swiftly and mitigate the impact to U.S. patients and health care professionals as these threats arise.

Monitoring the safety of FDA-regulated product supply chains is one of the FDA's highest priorities. The FDA utilizes risk-based models to identify firms for inspection and prioritizes inspections based on specific criteria. Because of travel restrictions to China, the Agency has postponed planned inspection activities in China. However, we are currently continuing inspection and enforcement activities as normal for the rest of our operations. Inspections of facilities in China remain prioritized in our site selection model and, when travel restrictions are lifted, inspections of facilities in China will resume. Any travel to China that is deemed to be mission-critical is being assessed on a case-by-case basis in close coordination with other HHS components and with the Department of State. FDA is committed to maintaining its scheduled inspections around the globe to the extent possible, while maintaining the safety of the staff involved. We will revisit this approach and adjust as necessary as this outbreak continues to unfold. In the meantime, FDA is working with our partner government agency, U.S. Customs and Border Protection (CBP), to evaluate and adjust our risk-based targeting strategy to ensure FDA-regulated products are safe when entering the United States.

While the outbreak is impacting our ability to conduct inspections in China, it's important to underscore that the FDA's regular risk-based process of surveillance testing of imported products, including those from China, continues.

Inspections are one of many tools that the Agency uses to inform its risk strategy for imported FDA-regulated products and to help prevent products that do not meet the FDA's standards from entering the U.S. market. Other tools include: import alerts, increased import sampling, and screening. Inspections are also part of, among other things, the new and generic drug approval process. While such pre-approval inspections are on hold in China, we are working to mitigate the impact on new and generic drug approval decisions by requesting records that may be used in lieu of an inspection, depending on the circumstances. Based on our evaluation of previous FDA inspection history, a firm's previous compliance history and information from foreign health authorities with which we have mutual recognition agreements, we determine if the totality of the information would suffice in lieu of such a pre-approval inspection.

All products offered for entry into the United States, including items for personal use, are subject to the regulatory requirements of CBP. Imported shipments of FDA-regulated products referred by CBP, including those from China, are then reviewed by the FDA and must comply with the same standards as domestic products. At this time, we want to reassure the public that there is no evidence to support transmission of COVID-19 associated with imported goods, including food and drugs for people or pets, and there have not been any cases of COVID-19 in the U.S. associated with imported goods.

We established a cross-agency task force to closely monitor for fraudulent FDA-regulated products and false product claims related to COVID-19 and we have already reached out to major retailers to ask for their help in monitoring their online marketplaces for fraudulent products with coronavirus and other pathogen claims.

FDA is utilizing all our existing authorities to address COVID-19 and we welcome the opportunity to work with Congress to strengthen our response capabilities. There are four specific proposals included in the President's Budget that would better equip the Agency to prevent or mitigate medical product shortages.

- (1) **Lengthen Expiration Dates to Mitigate Critical Drug Shortages**
Shortages of critical drugs can be exacerbated when drugs must be discarded because they exceed a labeled shelf-life due to unnecessarily short expiration dates. By expanding FDA's authority to require, when likely to help prevent or mitigate a shortage, that an applicant evaluate, submit studies to FDA, and label a product with the longest possible expiration date that FDA agrees is scientifically justified, there could be more supply available to alleviate the drug shortage or the severity of a shortage.
- (2) **Improving Critical Infrastructure by Requiring Risk Management Plans**
Enabling FDA to require application holders of certain drugs to conduct periodic risk assessments to identify the vulnerabilities in their manufacturing supply chain (inclusive of contract manufacturing facilities) and develop plans

to mitigate the risks associated with the identified vulnerabilities would enable the Agency to strengthen the supply chain by integrating contingencies for emergency situations. Currently, many applicants lack plans to assess and address vulnerabilities in their manufacturing supply chain, putting them, and American patients, at risk for drug supply disruptions following disasters (e.g., hurricanes) or in other circumstances.

- (3) **Improving Critical Infrastructure Through Improved Data Sharing: Requiring More Accurate Supply Chain Information**
Empowering FDA to require information to assess critical infrastructure, as well as manufacturing quality and capacity, would facilitate more accurate and timely supply chain monitoring and improve our ability to recognize shortage signals.
- (4) **Device Shortages**
FDA does not have the same authorities for medical device shortages as it does for drugs and biological products. For instance, medical device manufacturers are not required to notify FDA when they become aware of a circumstance that could lead to a device shortage or meaningful disruption in the supply of that device in the United States, nor are they required to respond to inquiries from FDA about the availability of devices. Enabling FDA to have timely and accurate information about likely or confirmed national shortages of essential devices would allow the Agency to take steps to promote the continued availability of devices of public health importance. Among other things, FDA proposes to require that firms notify the agency of an anticipated meaningful interruption in the supply of an essential device; require all manufacturers of devices determined to be essential to periodically provide FDA with information about the manufacturing capacity of the essential device(s) they manufacture; and authorize the temporary importation of certain devices where the benefits of the device in mitigating a shortage outweigh the risks presented by the device that could otherwise result in denial of importation of the device into the United States.

Senator CRUZ. Thank you, Dr. Redd.
Mr. Ferrara.

**STATEMENT OF WILLIAM FERRARA, EXECUTIVE ASSISTANT
COMMISSIONER FOR OPERATIONS SUPPORT, U.S. CUSTOMS
AND BORDER PROTECTION**

Mr. FERRARA. Good afternoon, Chairman Cruz, Ranking Members Sinema and Cantwell, and Members of the Subcommittee.

Thank you for the opportunity to testify today on CBP's response to the Coronavirus or COVID-19.

U.S. Customs and Border Protection is an integral part of the U.S. Government's response to the virus as our men and women serve as the frontline of defense at and between U.S. ports of entry, whether they be land, air, or sea.

CBP has been working closely with the Department of Homeland Security, the Centers for Disease Control and Prevention, and other interagency partners since cases of the virus in China began to increase.

CBP and its Federal partners have taken decisive proactive and preemptive actions to mitigate the threat, minimize risk, and slow the spread of the virus. With limited exceptions, all foreign nationals who have traveled to China or Iran within 14 days are ineligible to enter the United States at this time.

DHS, including CBP, continues to work very closely with our partners at the CDC to route all persons who have been in Mainland China or Iran in the last 14 days to one of 11 designated ports of entry where the Federal Government has focused public health resources.

All flights coming from Mainland China are funneled to one of the 11 designated POEs. There are no flights from Iran. However, all passengers coming from Iran are also funneled to one of the 11 POEs.

For passengers traveling to the United States by air, we also work in collaboration with the air carriers and foreign partners to deny the boarding of individuals that would be found inadmissible upon their arrival to the United States.

CBP continues to facilitate CDC's enhanced health screening of travelers entering the United States. These screening measures are a critical part of the U.S. Government's strategy to slow the spread of the virus and protect the American people.

All travelers who have been in Mainland China and Iran within the past 14 days or who exhibit symptoms consistent with COVID-19 are sent to CDC staff or DHS Countering Weapons of Mass Destruction, CWMD, contract personnel for medical evaluation.

Travelers identified by CBP officers doing their primary inspection are referred to a secondary screening area. In the secondary screening area, DHS, CWMD contract personnel take the following actions in support of CDC.

They verify if the CDC enhanced screening is required, collect contact information for travelers requiring enhanced health screening, ask travelers about health status, for example, if they have a fever, cough, or difficulty breathing, and take and record the traveler's temperature.

CWMD is currently supporting CDC's enhanced health screening efforts through agreements with state or local EMS, public health and first responders in an overtime capacity. CWMD established this capacity in response to the Ebola virus threat. These actions ensured a trained, vetted, and badged workforce was ready to rapidly deploy to support the CDC. DHS was able to use this established capability to quickly address the threat of COVID-19.

At and in between all ports of entry, CBP officers and agents continue to remain alert and notify CDC and other public health officials when encountering travelers exhibiting signs of overt illness.

Officers and agents are well-trained and use a combination of travel history records, questioning, observation, and self-declarations to identify those requiring additional health screening.

CBP also closely works with the U.S. Coast Guard to ensure that ships and crews with nexus to China or Iran are appropriately identified and screened prior to coming into port.

At CBP, our employees are our greatest asset. We are taking every precaution to keep our workforce safe, especially those who may regularly encounter potential disease carriers.

All of the CBP's operational offices have a 30-day supply of personal protective equipment or PPE, including gloves, masks, coveralls, and hand sanitizer. These are located locally across all field offices, sectors, and air branches.

CBP continues to work with DHS and the interagency to monitor the global supply chain impacts and project critical PPE needs for the CBP workforce.

On February 5, 2020, CBP issued an updated job hazard analysis to all employees that outlines the current comprehensive PPE guid-

ance, which includes guidance about wearing masks under the appropriate circumstances.

CBP continues to share information with our workforce on an ongoing basis. We are committed to doing all that we can to keep our workforce safe as they work to ensure the safety of our Nation.

Thank you for the opportunity to appear today, and I look forward to your questions.

[The prepared statement of Mr. Ferrara follows:]

PREPARED STATEMENT OF WILLIAM FERRARA, EXECUTIVE ASSISTANT COMMISSIONER
FOR OPERATIONS SUPPORT, U.S. CUSTOMS AND BORDER PROTECTION

Good afternoon Chairman Cruz, Ranking Member Sinema, and Members of the Subcommittee. Thank you for the opportunity to testify today on CBP's response to the coronavirus, or COVID-19.

U.S. Customs and Border Protection (CBP) is an integral part of the U.S. Government's response to the virus, as our men and women serve as the first line of defense at—and between—all U.S. ports of entry, whether land, air, or sea.

CBP has been engaged and working closely with the Department of Homeland Security (DHS), the Centers for Disease Control and Prevention (CDC), and other interagency partners since cases of the virus in China began to increase. CBP and its Federal partners have taken decisive, proactive, and preemptive action to mitigate the threat, minimize risk, and slow the spread of the virus.

With limited exceptions, all foreign nationals who have traveled to China or Iran within 14 days are ineligible to enter the United States at this time. DHS, including CBP, continues to work very closely with our partners at the CDC to route all admissible persons who have been in mainland China or Iran in the last 14 days to one of 11 designated ports of entry—or POEs—where the Federal Government has focused public health resources.

All flights coming from mainland China are funneled to one of the 11 designated POEs. There are no direct flights from Iran; however, all passengers coming from Iran are also funneled to one of the 11 POEs. For passengers traveling to the U.S. by air, we also work in collaboration with air carriers and foreign partners to deny the boarding of individuals that would be found inadmissible upon arrival in the U.S.

CBP continues to facilitate CDC's enhanced health screening of travelers entering the United States. These screening measures are a critical part of the U.S. government strategy to slow the spread of the virus and protect the American people.

All travelers who have been in People's Republic of China, excluding the Special Administrative Regions of Hong Kong and Macau, and Islamic Republic of Iran within the past 14 days or who exhibit symptoms consistent with COVID-19 are sent to CDC staff or DHS Countering Weapons of Mass Destruction (CWMD) contract personnel for a medical evaluation.

Travelers identified by CBP officers during their primary inspection are referred to a secondary screening area. In the secondary screening area, DHS CWMD contract personnel are taking the following actions in support of CDC: verifying enhanced screening is required, collecting contact information for travelers requiring enhanced health screening, asking travelers about health status (fever, cough, or difficulty breathing), and taking and recording traveler temperatures.

CWMD is currently supporting CDC's enhanced health screening efforts through agreements with state or local EMS, public health, and first responders in an overtime capacity. CWMD established this capability in response to the Ebola virus threat. These actions ensured a trained, vetted, and badged workforce was ready to rapidly deploy to support the CDC. DHS was able to use this established capability to quickly address the threat of COVID-19.

At and between all ports of entry, CBP officers and agents continue to remain alert and notify CDC and other public health officials when encountering travelers exhibiting signs of overt illness. Officers and agents are well trained, and use a combination of traveler history records, questioning and observation, and self-declarations to identify those requiring additional health screening. CBP also works closely with the U.S. Coast Guard to ensure all cargo ships and crew with a nexus to China and Iran are appropriately identified and screened prior to coming into port.

At CBP, our employees are our greatest asset. We are taking every precaution to keep our workforce safe, especially those who may regularly encounter potential disease carriers. All of CBP's operational offices have a 30 day supply of personal protective equipment or PPE including gloves, masks, Tyvek coveralls, and hand sani-

tizer; these are located locally across all Field Offices, Sectors, and Air Branches. CBP continues to work with DHS and the CDC to monitor global supply chain impacts and project critical PPE needs for the CBP workforce.

On February 5, 2020, CBP issued an updated Job Hazard Analysis to all employees that outlines the current comprehensive PPE guidance, which includes guidance about wearing masks under the appropriate circumstances. CBP continues to share information with its workforce on an ongoing basis. We are committed to doing all that we can to keep our workforce safe, as they work to ensure the safety of our Nation.

Thank you for the opportunity to appear today, and I look forward to your questions.

Senator CRUZ. Thank you very much to each of the witnesses.

Before I begin my questioning, I want to submit three letters for the record. Without objection.

The first is a letter from Commissioner John Hellerstedt of the Texas Department of State Health Services that is sent to Secretary Azar of the U.S. Department of Health and Human Services and others. That letter requested that the CDC submit a written rationale for releasing patients from quarantine at Lackland Air Force Base in Texas.

The second letter is a response from Director Redfield of the CDC to Commissioner Hellerstedt outlining the procedures for discharging patients.

And then the third letter is a letter that I sent along with Senators Cornyn and McSally to CBP regarding the possible spread of Coronavirus across our border.

[The letters referred to were unavailable at time of printing.]

Senator CRUZ. I want to start my questions with that third letter.

Mr. Ferrara, would you please explain how the screening process at the border currently works and how people coming through the 29 land ports of entry in Texas are screened?

Mr. FERRARA. Thank you, sir. At all of our ports of entry, our officers and agents are trained to look for folks that may exhibit signs of illness. So that's something that happens every day of the week in our operations.

With particular note of Coronavirus, COVID-19, we have issued guidance to our officers to ask certain questions about travels, particularly folks who are coming from China, now Iran is included in that, and we do question. We check travel documentations and other information to try to see if in fact that person has traveled to those two areas.

If they in fact have, if CDC is available at the area, we work directly with them. If not, we have our reach-back and we use our public health officials, local public health officials that we have relationships with to come to the proper conclusion.

Senator CRUZ. So does CBP plan to work with CDC medical staff in the future to heighten the level of screening performed at those points of entry?

Mr. FERRARA. We currently work now with CDC and we follow the guidance, the medical guidance that CDC provides, so that interaction is continually happening, sir.

Senator CRUZ. Dr. Redd, let me ask some specifics about what we know of this virus.

Right now, what is the overall case fatality ratio for COVID-19?

Dr. REDD. There's a number that I can give you, but I'd like to say that as more cases occur and we gain more experience, that number's likely to change. There has been a lot of questions both about the detection of the numerator, the cases that have died, and also whether all of the cases that have infection with this disease have been identified. That's particularly true in China where the case fatality rates have been in general a little bit higher than they've been seen in the rest of the world.

So I would encourage us to answer that question to look for cases that have been imported in other countries and their spread and there's really kind of a cleaner set of information.

Senator CRUZ. With the understanding that information is still growing and there's a great deal unknown, what is CDC's best estimate of the fatality rate?

Dr. REDD. It's probably somewhere between—you know, today, I would say somewhere between half a percent and 1 percent and just to give you a frame of reference, seasonal influenza is about one in a thousand. So all of those estimates are higher than seasonal influenza today.

Senator CRUZ. OK. Now that number differs from the estimate from the World Health Organization. What explains that?

Dr. REDD. I think that number probably includes information from China where there's a question of whether all of the less severe cases have been counted. I think this is something that as more cases occur in China, we're likely to see that number, that percentage decline, but I think it's really stay tuned, but what we know now is it's substantially more severe than seasonal influenza.

Senator CRUZ. How contagious is COVID-19 and in particular what's the predicted R naught and if you would explain—

Dr. REDD. Sure.

Senator CRUZ.—what that means, as well?

Dr. REDD. Sure. The way that we assess transmissibility is how many cases occur from one case, how many additional cases can be sort of the downstream cases.

Seasonal influenza usually somewhere between a little bit more than one and one and a half new cases is generated from a single case.

For the information that we have right now for the novel Coronavirus, it's probably between two and three or two and a half and three and a half. That number is largely based on the experience in China.

The elements of that, sort of what determines what the R naught is, that number of new cases, has to do with the virus. It has to do with susceptibility of people who might be exposed to the virus and then it has to do with the context.

So situations where there's a lot of crowding might expect to see a higher R naught than in a place that had less crowding. So I think this is a number also we're going to be following.

I would say there has been a little bit less variability in that particular number than there has been in the mortality.

Senator CRUZ. Now reports are coming from China that have indicated the incubation period can be up to 24 days. That differs from my understanding of the 14-day protocol for releasing patients from quarantine. Can you speak to the accuracy of that report?

Dr. REDD. Well, that's one report and I think that is a key question. What we're doing—I think that it's just going to be important to monitor that.

We have not seen secondary cases after people have gone through that 14-day incubation period. I think our preliminary indication was that actually the incubation period of this virus was a little bit shorter on average than MERS or SARS to other Coronaviruses that can cause severe disease in humans.

So I think that this is something that provides some margin of safety between the average. I think it's something we're going to have to continue to follow and we'll adjust as new information becomes available.

Senator CRUZ. So, Dr. Redd, are there common sense and reasonable precautions that Americans at home should be taking now if you're concerned about your health and safety and your family's health and safety?

Dr. REDD. Absolutely. And I think this is an opportunity, as I close my statement, if you can help us with this, that would be terrific, but there are really things that we do to protect, prevent respiratory infections in general, hand washing, covering coughs. If you're sick with a respiratory illness, stay home. That can be a hard thing to do.

I think in this circumstance, it's even more important than it is in a usual basis, and, last, it's really important for people to stay informed, that information is changing so quickly that if you know something at the beginning of the week, it could be different at the end of the week, and I think particularly areas where the disease has been identified as something that has been changing quite rapidly.

Senator CRUZ. Thank you.

Senator Sinema.

Senator SINEMA. Thank you, Mr. Chairman.

My first question is to Mr. Ferrara and to Acting Under Secretary Szabat.

It's my understanding that it can be difficult for airlines to comply with passenger data requirements if travelers choose not to provide complete data or in the case of booking through third party sites.

I'd like to ask unanimous consent to enter into the record a letter from Airlines for America that has been sent to the Department of Health and Human Services outlining some suggestions to overcome this gap by having the Federal agencies set up a single online web form for all inbound international passengers. That would be by sea, land, or air.

Mr. Chairman, if there's no objection, I'd like to ask that that be entered into the record.

[The information referred to was unavailable at time of printing.]

Senator SINEMA. A single online web form would allow the CDC to directly collect information from passengers and provide for a more complete, accurate, and timely collection of data.

My question to you two gentlemen is what discussions, if any, have there been between the Department of Transportation, U.S. Customs and Border Protection, and the CDC with the concerns these airlines have raised along with their proposed suggestions?

From a public health perspective, would compliance be improved if all travelers were directed to some sort of single portal, and, if so, what kind of funding or additional authority would be needed from Congress to create such a system rapidly?

Mr. SZABAT. Senator, thank you for the question and your interest in this area.

Like you, I just want to tip my hat to those in the aviation industry and the association that have really stepped forward to try to offer common sense solutions to this challenge that we have.

As you mentioned, you know, this is a real need that we have within the Federal Government. As travelers are coming to the United States, we want to be able to contact trace them so that if it turns out that somebody who comes in is ill, we can reach back and find out who else they've been in contact with.

Previously, the information that has been gathered that we can collect directly from the industry only has about 20–25 percent accuracy. In part, you've alluded to the fact that much of this information comes through travel agents which are not directly affected by the information that is provided by the air carriers themselves.

So we have been working, I would say, multiple times daily communications among the agencies and also with the association trying to work through the technological difficulties of getting to the ultimate goal of this rule that has been put out which the carriers have said will take six to 12 months to fully comply with and so we don't want to wait 6 to 12 months to get that data.

So we have an interim system. The carriers have been kind enough to work with us right now, paperwork-based, on the travelers that are coming in. That works well, given the small number of passengers we have arriving right now. We're down to fewer than a thousand a day are coming in mostly from China.

With that, the system we have now covers that, but it's not scalable as we add—you know, the concerns of adding more countries to the travel.

So we think that the proposal that the carriers have put forward is definitely worth looking at and the challenge that we're going to have is a technical one of how well we work it within the various IT data bases of the Federal Government agencies.

Mr. FERRARA. We provide all the information that we have in our systems to CDC via the airlines and as the Under Secretary mentioned, it's not complete for the CDC purposes.

What we've done is a stopgap working with CWMD, the contractors who are manually inputting those into CDC computers directly at those 11 airports.

To the first part of your question, we have participated. It's an all of government effort to speak with the airline industry and this data exchange is a constant conversation, not just for this particular issue. So there are a lot of the right people working and getting through but there are some challenges.

Senator SINEMA. If you'd like to respond, as well?

Dr. REDD. Well, I think that at the moment, we're trying to make the system that we have work, but it's clear that we need a better system.

Just as a small example of how we're working together, when the Customs and Border Protection people didn't have computers to

enter the data, we were able to provide those from CDC so that we could facilitate that entry.

Senator SINEMA. Yesterday I had the opportunity to see Vice President Pence and as I mentioned in my opening statement followed up with a letter to him this morning.

My understanding is that there's a web developer who has the technology available to develop an app. similar to the mobile passport app that could be done as quickly as two to four weeks. Of course, the technical challenge is how do we get that across all of our institutions and deploy it, but I believe that that provides a real opportunity for us to address this contact tracing issue in a matter of several weeks rather than six to 12 months. So that's something I hope that we can work together on and consider how to implement that quickly.

Like the question that I asked earlier, the collaboration between the transportation industry and the government is incredibly important, but pharmaceutical manufacturers are also currently leading the way in developing both a vaccine and developing a plasma-based treatment.

Companies, like Johnson & Johnson, Gilead Merck, Sanofi, and many others are providing their expertise in dealing with previous pandemics and collaborating through the Biomedical Advance Research and Development Authority as well as other public health entities.

There has been conflicting information coming from different parts of the Administration on the timeline for not just the development but the implementation of a vaccine for ordinary Americans to access and that that is unacceptable.

So my question for you, Dr. Redd, is, is the CDC engaged with these biomedical and pharmaceutical companies both in the development of a vaccine and in development of treatment of those experiencing the illness? When one has been approved for use for either vaccine or treatment, how will the CDC work with others to deploy it amongst our transportation, border, and health personnel who, of course, are at increased risk for exposure because of the roles in keeping the broader public safe?

Dr. REDD. Thank you, Senator. I appreciate the last part of your question because I think that's where I can speak most directly.

The NIH and the Biomedical Advance Research and Development Authority are the main parts of the department that are working on the basic development and then the advanced development to get a product that could be approved.

I think that the example of the work that we did in H1N1 influenza, that would be what I would foresee. It's going to be awhile before we have a vaccine and probably a treatment, as well.

In H1N1, the government procured the vaccine, its distribution, and it was essentially a government-run program, quite similar and actually built on the vaccines for children's backbone for a product that wasn't licensed at the time.

We didn't procure it but we managed the distribution of a drug called Paramivir which is used to treat influenza.

I would envision that kind of a system. I think right now, the first part of your question is really the key one, is to get a product that is safe and effective.

Senator SINEMA. Thank you. Thank you, Mr. Chairman.

Senator CRUZ. Thank you. And just to underscore Senator Sinema's first question, my understanding is that the airlines have offered to contract with a third party vendor and to cover the cost themselves to stand up a website and/or a secure mobile app that they believe could be stood up within 2 weeks to gather the information that, as I understand it, CDC is requesting.

Do each of the three of you think that is a good idea?

Mr. SZABAT. Short answer, Senator, yes, it's a good idea. We welcome the fact they've reached out. They've made this proposal.

Our challenge at this end, and we're working this as hard and as fast as we can, is, is it technologically feasible to be implemented? That's the one challenge we have. If we can, that's a great solution that gets us from the temporary solution we're working with now and not having to wait six to 12 months for permanent solution.

Dr. REDD. The way the system is devised right now, CDC receives the information from Customs and Border Protection. I think, however, that information, if it's of high quality and complete, would be great.

Mr. FERRARA. It's technologically possible and it meets all the privacy rules and all of the different standards, security standards, I think it would be a great opportunity to look into for sure.

Senator CRUZ. Thank you.

Senator Gardner.

**STATEMENT OF HON. CORY GARDNER,
U.S. SENATOR FROM COLORADO**

Senator GARDNER. Thank you, Mr. Chairman. Thank you all for your work on this obviously very critical.

I want to thank public health officials in Colorado for the work that they have been doing and the Governor of Colorado for the work that he has been doing to make sure that we have a 50-state approach that protects our people, as I know you are fighting each and every day for. So thank you.

What steps has the CDC taken to coordinate with foreign governments to verify that their screenings and public health protocols abide by U.S. standards specifically with regard to travel from hot spots, like South Korea and Italy?

Dr. REDD. So we are in very close contact, particularly with the State Department and Department of Defense, in Korea. My understanding is that both Korea and Italy have instituted exit screening to identify persons who might be ill with the Coronavirus.

I think this is really an ongoing global effort. We're also working with the World Health Organization. Our work, really there's sort of two parts to that. One is in places where we have staff, we're able to directly interface. That's true in Korea, not true in Italy. It's true in China, not in Iran.

Senator GARDNER. Does it make sense to test everyone who comes in from countries of higher concern, hundred percent testing?

Dr. REDD. I think the problem with that would be similar to the symptoms screening, that a person could be incubating the disease, be—

Senator GARDNER. Test negative.

Dr. REDD.—tested and then later they develop symptoms or maybe not develop symptoms and actually have the virus.

Senator GARDNER. OK. When airlines or other transportation providers have questions regarding how to abide by the CDC IFR and best protect their passengers' and employees' health and prevent potential further spread of COVID-19, does the CDC have a person, a single individual prepared to serve as a point of contact for those questions?

Dr. REDD. What we've done, and this is part of the rulemaking process, is that that rule is out for comment, there is a way to provide comments to that rule. We're examining it—

Senator GARDNER. So we have no sort of expedited procedure to appoint one person who can answer these questions?

Dr. REDD. There actually are multiple people that are reviewing that. So I think we're probably getting—

Senator GARDNER. Reviewing the rule or reviewing whether or not we can appoint one person to answer questions?

Dr. REDD. Well, reviewing the comments that are being submitted.

Senator GARDNER. OK. So right now, if United Airlines needed to call somebody, there is no one person point of contact?

Dr. REDD. There is not. There is a joint—

Senator GARDNER. That's a problem.

Dr. REDD.—e-mail address that actually—well, it actually gets better coverage than a single person would provide. So that there is, I think, in effect, there is a place that—it depends also on what the issue is. If it's about the interim final rule, that really needs to—

Senator GARDNER. So how long does this interim final rule take?

Dr. REDD. I think there is—that interim final rule will be—it will be continued until the public health emergency is over or until there's resolution—

Senator GARDNER. And that's in effect now or we're waiting for public comment?

Dr. REDD. The rule is open for public comment now.

Senator GARDNER. OK. So when does it go into effect?

Dr. REDD. The interim final rule is—the part that makes it interim has gone into effect already. So that's this process of—

Senator GARDNER. Right. OK.

Dr. REDD.—getting data from—

Senator GARDNER. So you're able to operate under this as it is. So thank you.

Dr. REDD. Correct.

Senator GARDNER. Thank you. Has the CDC provided updated guidance to states on when to test for COVID-19 in light of community spread?

Dr. REDD. Yes, sir. In fact, when we were coming over here in the taxi, there was a news report that that's been released essentially giving broader discretion to clinicians caring for patients to get testing done rapidly. So that was put in effect today.

Senator GARDNER. And do you have national or international standards that govern airline precautions, disinfection protocols,

passenger coordination should an airline employee test positive for COVID-19?

Dr. REDD. We have guidance. I think the rules about that—I might defer to my colleague about the standards. We do have guidance that's posted specifically for COVID-19 on aircraft equipment issues, but there are also international regulations which I might turn to my colleague.

Mr. SZABAT. And, Senator, are you asking about the standards that we have for, you know, how we disinfect the aircraft or about health standards, PPE, for the crews?

Senator GARDNER. Both. I mean, how we make sure the airplane itself is safe and how we make sure the crew is safe, as well.

Mr. SZABAT. OK. So several different measures. Because we made a conscious decision, we issued the 212F, the travel restrictions with China, not to take down all flights that we still continue to have, passenger flights taking Americans back from China, we also wanted to put into place vigorous crew health protocols for both the passenger and the cargo planes that are flying back and those differ in terms of the requirements for whether they can leave the aircraft or airport facility and their contact with other people and the amount of everything from washing their hands to the types of protective gear that they wear.

Depending on whether or not they are China-based, in other words, they're living in China and flying out of China to the U.S., or they're coming from the U.S., staying briefly in China and then turning around and coming back.

Senator GARDNER. Let me just ask one more question because I'm out of time, and I think it follows up on what Senator Sinema had said.

So we have no way right now to a hundred percent or near one hundred percent contact every passenger on a plane who may be flying with an individual who tests positive for Coronavirus?

Mr. SZABAT. Half true. Before we put in these interim measures, our contact tracing was about 20–25 percent. With the interim measures we have in place now at the F11 airports that Mr. Ferrara was referring to, right now, according to DHS, they're at 94 to 96 percent accuracy with that contact tracing information.

Senator GARDNER. If I may, Mr. Chairman?

Dr. REDD. I'd like to actually amend my answer. The guidance for cleaning, we're expecting to be cleared today or very shortly. So we actually don't have guidance of today. So let me correct what I told you earlier.

Senator GARDNER. Well, I hope that gets approved immediately. Thank you.

Senator CRUZ. Thank you, Senator Gardner, and I'll note for the record that while after this hearing commenced, the news broke that we now have the 11th fatality in the United States from California, so the first that has occurred outside of Washington State.

Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman.

Rear Admiral Redd, I'd like to cover a couple of things. One, you know we're trying to do a supplemental to get more funds out to the states for public health. I think hopefully we'll vote on this be-

fore the end of this week, \$7.8 billion. I think there's \$11.5 million that would be a grant to Washington State for public health.

Do you think some of that money could be used to better direct the public toward the testing regime? Right now we're being very broad. We're saying if you suspect something, yes, call these various entities and then people are calling their doctors and they're saying we don't have that and you have to go over here. Then they call them and they're like no.

So can we use some of the dollars that you're going to get to be crisper about how to go about the testing? If you want a protocol that says you have to call your physician first, let's clearly state that and then let's be clear about how many tests a day that we're able to do and how we create a system for that. Does that make sense?

Dr. REDD. It does make sense. I think that some of that money certainly will be used for communication activities, and I think that guidance, clarifying that guidance on who should be tested and can be tested will be an important part of that. It's also likely to change over time as has already occurred.

Senator CANTWELL. That's why I think if you create this site and create accurate information for people, then you won't have the anxieties of people saying I feel sick, I have this going on, and I can't get a test, and so we want to alleviate that and so I hope that some of those dollars can be used for that.

Another thing that I would hope that you would advocate for is so Seattle Flu Study was a research institution, everybody working collaboratively to study and analyze flu results. Obviously you had to consent to be in that. That is how we caught the one student. The individual student thought they were sick with the flu and then 3 days, 4 days later, when we finally changed the protocol for who could get tested, they tested positive.

So I think now the University of Washington has changed that so that it also covers COVID-19. Every city in America should be doing this. Everybody should have a flu COVID-19 IRB. That's a research analysis, and the reason why it's important is so that we can see this interplay between those who think they just have the flu and so we can track the genetics of where this is going because now we find that it's all related to the Washington One case and this is finding out how community spread works.

So can we also do that?

Dr. REDD. Yes, ma'am. Actually, we are—I believe today, there will be the collection of specimens in several jurisdictions with additional jurisdictions through the week with the plan to build out a system that would be much broader really to all the reasons that you said.

Senator CANTWELL. But every city in America could start this now. They'd have it in place and then they have to get the agreement and they have to get the information so they can just put flu information in this.

Dr. REDD. Yes, ma'am. I think using the flu system, this is really being built on flu surveillance to add novel Coronavirus so that communities will know if the virus is in their community and—

Senator CANTWELL. Yes.

Dr. REDD.—would be able to have an estimate of if it's not there, what's the certainty that it isn't there.

Senator CANTWELL. I think it will help. I'm glad the University of Washington got this done.

So now for the airplane, which our colleagues were just asking about, how long can the virus material last on a surface?

Dr. REDD. The virus can last hours to a day. That has been the estimate. It's similar to other Coronaviruses.

Senator CANTWELL. Up to a whole day?

Dr. REDD. Yes, ma'am.

Senator CANTWELL. Up to a whole day. OK. I've not heard that before, but I'm glad you're clarifying that.

Dr. REDD. Different surfaces have different—

Senator CANTWELL. We've heard the generalization before and I think that's what is sometimes confusing. So up to a day and so now what do we need to do for our airplanes, given that?

Dr. REDD. That's going to be in the guidance that we hope is released very shortly of what—there's really the health side of that guidance which will be released and then the issue that we addressed in the earlier question.

Senator CANTWELL. Mr. Szabat, do you want to comment on this? I think people are concerned about the obvious individuals and being able to contact them, but then people want to understand what is our plan? What is the Department of Transportation's plan to communicate if the virus can be alive on a surface for a whole day? What kind of precautions do we need to take on our air surfaces?

Mr. SZABAT. Thank you, Senator, for the question. This is a whole of government effort because the Department of Transportation's authorities, when you look at the safety side, are related to the safety of flight, which is to say, we are in consultation with CDC, with the other agencies, and especially, I think, OSHA and NIOSH, which develop what are the standards for individuals on the airplanes.

Our focus is to ensure that the mix of chemicals and other treatments do not actually harm the aircraft itself.

Senator CANTWELL. Are you saying you don't have the authority to set the standard?

Mr. SZABAT. So we're saying that health standard is by design not our authority because it's a health authority for individuals.

Senator CANTWELL. OK. Whose authority is it? Is it CDC's or is it—

Dr. REDD. The information that we would have would be guidance. It wouldn't have statutory authority is my understanding.

Mr. SZABAT. And my understanding, and again I'm not the medical person on this panel, but much of the authority runs with OSHA, which is not on the panel here, and we are in current discussions with OSHA on developing these standards.

Senator CANTWELL. OK. I thank you for having the hearing, Mr. Chairman. I think this is something we need to tackle right away. We need to understand what we are saying to the flying public about what the airlines should be doing, what we should be doing to create the best and most positive environment for air transportation to continue.

As you said, Mr. Szabat, we're going to want air transportation and we want it to be done. So let's get this protocol clearly established. Let's work together, get it established.

Thank you, Mr. Chairman.

Senator CRUZ. Thank you, and to underscore Senator Cantwell's point, if there are authorities that are needed to keep the flying public safe, let Congress know immediately and we will create whatever authorities are needed because the priority needs to be public safety.

Senator Lee.

**STATEMENT OF HON. MIKE LEE,
U.S. SENATOR FROM UTAH**

Senator LEE. Thank you, Mr. Chairman. Thanks to all of you for being here, for the insight that you've provided.

As you know, Congress is preparing to consider supplemental funding to several agencies to respond to the Coronavirus outbreak.

Two weeks ago, the Trump Administration requested \$1.25 billion in new funding from Congress for various response efforts.

I'd like to ask each of you to just respond briefly to share how your agency would plan to use supplemental funding and also to respond to a related question regarding, you know, assuming the Administration's request reflected the needs of agencies to respond, if Congress gives you substantially more than what the Administration asked for or what you asked for, do you have a plan to responsibly spend all of it and what would that look like?

We'll start with you, Mr. Ferrara, and then just go down.

Mr. FERRARA. Thank you, sir. Currently, based on the current projected threat, CBP has what we need to do our job. Should things change working with the interagency and that threat would change, we would certainly inform on our resource needs.

Senator LEE. But you've got what you need right now without a supplemental, is that what you mean?

Mr. FERRARA. Yes, sir.

Senator LEE. OK. Mr. Redd. Dr. Redd.

Dr. REDD. Yes, we would use the funds, substantial amount of those funds would go to state and local health departments to do the work that is being done right now on identifying cases, testing those cases in their laboratories, identifying contacts. This is very labor-intensive work.

So laboratory testing would be an element of that at the state and local level, communication, surveillance, some of the things that we talked about with the effort to test specimens that are collected for other respiratory specimens. So there'd be a suite of activities that state and local governments would do.

At the Federal level, we would be able to use those funds for many of the same things but laboratory support, surveillance work, communication, the things that we do, we do in emergencies, so that I think we would not have a problem spending all the money.

Senator LEE. OK. And with regard to the part of the question dealing with the \$1.25 billion, I assume that included whatever supplemental sum you thought you might need.

So if we were to authorize more than that, tell me how that fits in.

Dr. REDD. Well, I think it might be better to see where we are with the bill that's going through. I think that there is a scalability to the amount. You know, a smaller amount of money would last a shorter period of time. A larger amount would last a longer period.

Senator LEE. Mr. Szabat.

Mr. SZABAT. Thank you, Senator, for the question. Under the game plan, sort of emergency response planning, this whole of government effort is led by the health communities, specifically the Secretary of HHS. So the vast majority of the money requested, and I believe the money that's under discussion right now by Congress, is for the CDC and the other health agencies.

Much of that money or some of that money would flow through them to address some of the needs, such as Senator Cantwell mentioned about what we're trying to do with health guidance and protocols for airlines, but that money is going through HHS.

So at the moment, there is no money requested specifically for the Department of Transportation.

Senator LEE. OK. Thank you. Dr. Redd, reports indicate that the South Korean Government has been trying to get a handle on who's coming into the country by having air carriers try to assess passengers as they're boarding the planes going into Korea to figure out whether they are suffering from the virus prior to boarding.

Have you provided any guidance to air carriers in the United States dealing with how we would assess this issue with inbound passengers?

Dr. REDD. So I'm not familiar with—if I'm understanding the question with South Korea, we have provided guidance for screening that would be in passengers coming to the United States, but if there's something else, if we are working on that, I'm not familiar with it.

I think that the value of that screening, a lot of that work is to figure out—collect some of the information that we've been talking about. That's the way we've done it in the past, to collect contact information so that those individuals can be tracked. It's very laborious and that's really the reason for this interim final rule is to do more to automate that system.

Senator LEE. To automate the system whereby you collect data on each passenger—

Dr. REDD. Correct.

Senator LEE.—with an eye toward hopefully excluding those who might bear symptoms or show some indication that they carry the virus?

Dr. REDD. Well, largely we can screen for symptoms, but it's that question from earlier. If a person is incubating the disease, being able to track them through that incubation period or at least informing them that if they have symptoms, here's what you should do.

So I think we wouldn't be able to identify people who are incubating disease from the contact information, but we could use that information to follow them.

Senator LEE. OK. Thank you. Thank you, Mr. Chairman.

Senator CRUZ. Thank you.

Senator Schatz.

**STATEMENT OF HON. BRIAN SCHATZ,
U.S. SENATOR FROM HAWAII**

Senator SCHATZ. Thank you, Chairman Cruz. Thank you to all of the testifiers.

Dr. REDD, I'm trying to get a handle on what our national strategy is in terms of containment versus mitigation, and it seems to me that containment is something you do in the first phase of something that's a potential pandemic and that we are rapidly entering a phase of this during which there's sufficient community spread where the containment strategy has sort of vanishingly smaller and smaller returns, and I want to make sure I'm getting that right and then ask a follow-up question.

Dr. REDD. That is correct. I think one sort of nuance to that is that there are likely to be parts of the country where mitigation is the right posture. At the same time, there could be other parts of the country where—

Senator SCHATZ. You can still use containment?

Dr. REDD.—containment—right, exactly.

Senator SCHATZ. OK. So that was—so my next question was if we're into mostly a mitigation strategy phase, then why restrict air travel at all? In other words, if we're talking about restricting air travel from Korea but it seems to me that with the exception of the episode in that religious organization in the southern part of South Korea, that what's actually happened in South Korea is they just tested more and got very aggressive about it. So their data is in, our data is not in.

It's not clear to me that their 6 or 7,000 cases, that their numerator and denominator's going to end up any higher than ours will end up by the time we do all of our testing and so then it gets a little silly if we're not allowing people to travel when one place is not any less or more safe than the other.

Dr. REDD. So I think I agree with your general point. I could give the example of H1N1 influenza where for a short period of time we had a travel advisory to Mexico. That didn't last very long because you'd be more likely to get H1N1 in the United States than you would if you were returning from Mexico.

So that would be a situation where we wouldn't—that would basically be—a scenario like that wouldn't make sense to do this really intensive effort to track people that are entering the country.

Senator SCHATZ. OK. And just a new question. Your website right now says there are 80 total cases. That's not true, is it?

Dr. REDD. We update that on a daily basis and as cases are reported from states, they do that on their own schedule. So ours is kind of a once-a-day—

Senator SCHATZ. Right. But it's sort of garbage in/garbage out. We just don't know yet. It's not that it's 80. It's that you've confirmed 80.

Dr. REDD. That's correct.

Senator SCHATZ. OK. So I would just recommend that you figure out a better way to reflect, and I understand the uncertainty here, but what's going to happen, I'm afraid, is that right now people are, I think, unreasonably reassured by this low total case count and unreasonably fearful of other places that are actually—really what's happened is they've deployed tests more efficiently and ef-

fectively than the United States has and so what's going to happen is we're going to be calm until the tests get deployed and then those numbers are going to spike like crazy and we're going to have a panic as a result of that.

So I think you've really got to figure out on the communications side how to reflect that uncertainty and prepare the public for the very high likelihood that the number of cases that we have confirmed is going to skyrocket not because epidemiologically anything changed but because we finally deployed the kits.

Dr. REDD. Yes, sir. I think we'll know. The study that Senator Cantwell described to us will help address that issue. If we do more testing and we don't find—that is possible. I think that—

Senator SCHATZ. I'm talking about in the next couple of weeks as the testing goes right up.

Dr. REDD. No. Right.

Senator SCHATZ. So final question for you. This is so constructive and so bipartisan, I thank the Chairman for convening this hearing and the Ranking Member.

Can you ask the folks at the CDC if they would commit to a daily briefing on camera, no politicians involved? It doesn't have to be inflammatory. It doesn't have to be alarmist, but just a daily here's what's going on because that's what happens in a natural disaster context. That's what happens when you have sort of a civil defense issue.

We just need to hear from a singular authoritative informed voice and on a daily basis so that we're not all catch-as-catch-can trying to figure out where the data is and where this thing is going.

Mr. Szabat, am I pronouncing your name correctly?

Mr. SZABAT. Yes, Senator.

Senator SCHATZ. Oh, good. My understanding is the FAA has the authority to implement an emergency order so that those—as you were talking to Senator Cantwell about this, that right now there are guidelines and then I understand that under normal circumstances, you're talking about the whether or not the airplane can fly safely, but these are emergency circumstances and I don't want to spend another two or three weeks figuring out whose authority is necessary to sort of—you know, and get a bunch of lawyers involved trying to figure out where you derive the authority.

In an emergency situation, you are certainly authorized to change those voluntary guidelines that the airlines, some are abiding by and some not, and just change that into an emergency order, and I'd like you to look at that, please.

Mr. SZABAT. Senator, we will, and we will look at it as a whole of government effort. One of the reasons for the Task Force is to see if there's something that has to be done and it legally falls through the cracks of the authority of one agency, we borrow the authority of other agencies in order to get it done.

Senator SCHATZ. Thank you.

Senator CRUZ. Dr. Redd, Senator Schatz asked about testing. From my conversation yesterday with Vice President Pence and Secretary Azar, my understanding is that testing kits are going out. What was told to me is by the end of next week, the capability will be there for 1.25 million tests, is that accurate?

Dr. REDD. That is a combination of numbers from the public health tests that CDC is deploying that are done in public health departments and what could be done by private companies applying through the FDA process to use a test that would be a commercial test, but that number is in the range that I've heard, as well.

Very small portion of those would be the public health tests. The majority would be company-developed.

Senator CRUZ. So one of the great frustrations is the lack of testing. You're telling the subcommittee that the tests are on the—the kits are on their way and testing that will be remedied shortly, is that correct?

Dr. REDD. For the public health testing, we will have the capacity to do 75,000 tests by the end of this week.

Senator CRUZ. OK. Senator Sullivan.

**STATEMENT OF HON. DAN SULLIVAN,
U.S. SENATOR FROM ALASKA**

Senator SULLIVAN. Thank you, Mr. Chairman, and thank you to the panelists for this very important briefing.

Secretary Szabat, I want to follow up on our earlier phone call, my discussion with you today, and see if there's any more progress.

You know, the broader discussion for the other witnesses is we've closed down the passenger travel from China and other areas where there has been a risk, big risk on the issue of mitigation of the spread for air travel.

However, there is a loophole and I think everybody I've raised this—I've been raising this issue now going on 4 weeks with senior Administration officials. The loophole is cargo air travel. Cargo is very important for the whole country, for the whole world. We want to be able to have the supplies to address and be ready for, you know, what could be a significant challenge for our country, but the pilots on these cargo flights in some ways are a loophole.

You have Chinese-based crews that get off in the United States, big cargo hubs, whether Anchorage or Seattle or L.A., Memphis, and they spend the night, you know, and they're in the population.

There's nobody I've spoken to, and I've spoken to everybody, including Secretary Chao and others, that doesn't recognize this loophole, but the agencies seem to be ping-ponging back and forth on how to address it.

One suggestion that I have made is to essentially do a turn-and-burn. You have cargo passenger airplanes come, say, to Anchorage. They have two sets of pilots. They land. They get rid of their cargo and then they get the other pilots to fly it back.

There was some concern they might retaliate against our cargo airlines. However, some of the senior officials I've spoken to don't seem to think that would be a problem.

So can you, Mr. Secretary, I'm hoping you can have a little more definitive answer than our discussion this morning, can you tell this committee what we're doing to address this issue because here's the real problem.

If somehow there's a spread in another city, say Anchorage, and it's traced back to, you know, a pilot on a cargo crew, the likelihood of us then wanting to react to shut down the whole system is going to be strong. So we're trying to preempt this with some good ideas.

These are decent ideas. They're workable. Nobody's really complained about them. But the authorities seem to be ping-ponging back and forth.

What are we doing to address this overseas-based crew loophole that everybody acknowledges we have?

Mr. SZABAT. Senator, thank you for the question and thank you for the courtesy of flagging this for me earlier today.

I regret I do not have a more definitive answer for you now than I had this morning, except to say we're working this hard. We'll have a definite answer to you as quickly as possible this week.

Senator SULLIVAN. When? When will that be? I've been literally raising this for almost a month, a month.

Mr. SZABAT. OK. So today is Wednesday. I will have it to you by close of business Friday and hopefully before.

Senator SULLIVAN. And will that be cleared by everybody, no ping-ponging in terms of FAA doesn't have authority?

There is this issue that some people are viewing the crew rest doesn't count if you're sleeping on a plane. Again, we're kind of dealing with an emergency here. I'm sure the pilots who are resting on the plane as they're sleeping to come over are rested enough to fly it back. OK? They're all capable, I mean, and so again if that's a reg or an authority that you need help on, let us know, but don't use that as—four weeks now since I've been raising this with people and so far so good. We haven't had a spread from a cargo pilot, but I think we're dodging bullets here and we need to address it.

Mr. SZABAT. I'll have a whole of government answer back to you by close of business Friday, Senator.

Senator SULLIVAN. Thank you. Admiral, I want to ask and highlight another issue that's a little bit more particular to my state, the great state of Alaska, where one concern I have is our Alaskan Native populations where, you know, there are over 200 communities in my state that are not connected by roads. So they're very isolated in very, very remote parts of America, the most remote parts of the whole country. They don't have hospitals. They barely have clinics. Some of these communities don't even have flush toilets and clean water, which is a tragedy for the whole nation in my view.

But as you likely know, the 1918 Spanish influenza decimated these communities in Alaska, decimated them. So they're vulnerable and what I'm concerned about is if there's enough focus from CDC, we do have a CDC office in Anchorage, in part because of our high rates of infectious diseases, what is the CDC doing to make sure that these extremely vulnerable populations, if you ever get an outbreak in one of them, where we're ready to address these situations so we don't have a situation that happened a hundred years ago which was in some ways still an impact on my state?

Dr. REDD. Yes, sir. I think this is an important issue. I know that you know that Dr. Jay Butler, who had served as the state health officer in Alaska, is now in Atlanta at CDC.

Senator SULLIVAN. He's outstanding.

Dr. REDD. So I think we have that local knowledge of Alaska now in Atlanta and I think that will help to make sure that we don't

forget about remote population. I think it's a real challenge, though.

Senator SULLIVAN. Can I get your commitment to have something a little bit more definitive that recognizes the vulnerabilities of certain communities like this that are very remote? In some ways, you might not get—the remoteness helps with the spread, but if it does get out there and there's really no very—there are no hospitals, there's very doctors.

Can I get your commitment to have a more definitive plan to help address these kind of—

Dr. REDD. Let me commit to get back to you with what our proposal would be and we can have a dialogue about that.

Senator SULLIVAN. Great. And you might want to work with the CDC office in Anchorage, which also—

Dr. REDD. Yes, sir.

Senator SULLIVAN.—does coordination with our Native Health System. Thank you.

Thank you, Mr. Chairman.

Senator CRUZ. Thank you.

Senator Tester.

**STATEMENT OF HON. JON TESTER,
U.S. SENATOR FROM MONTANA**

Senator TESTER. I appreciate that, Mr. Chairman. Now you beat me. I appreciate you all being here, and I want to thank you for the work that you've already done on this critically important issue, and I think it is critically important and I hope it doesn't turn out anything like I have imagining potentially in my head.

So I just want to give you my circumstance and that is I fly four legs a week. I have town hall meetings. I meet with people all the time, probably meet with 70–80 people today alone.

The question is, is that if anybody's going to get this, it's going to be people serving in the U.S. Senate because we all do that. Senator Cruz flies home. He takes a different airline than I do, flies a different leg, exposed to a different population, and we come back and have a Commerce Committee hearing together. OK.

So the question that I have for you is I got the washing the hands and getting the flu vaccine. Is there anything we can do to protect ourselves—I don't care who answers it—that you would recommend or do we just have to do it and hope you don't have something else wrong with you and so that you can get through it and survive it and move on?

Dr. REDD. So let me give a broad answer to that. I think hand washing is a critical element in protecting yourself and for all of us protecting ourselves. There is kind of the other side of it, which is things that we want other people to do who might contract this disease and give it to us, and that would be covering coughs, really, really important to stay home when sick, and I think that is probably something that we're going to have to just continue to stress and that doesn't protect the person who's staying home but it does protect everyone else.

I think—

Senator TESTER. And so I hear all those things. So what is the incubation period on this stuff, do you know?

Dr. REDD. Well, on average, five to six days with a range of shorter, couple of days to maybe up to two weeks, as we've heard.

Senator TESTER. So I've got a few achy bones today. I mean, I stay home?

Dr. REDD. I think I would not stay home or use that as a reason for Coronavirus. I think fever and respiratory symptoms would be where—

Senator TESTER. So by the time you stay home, you've already been infected for five or six days is what you're saying?

Dr. REDD. Well, you've been incubating. I think this is one of the issues.

Senator TESTER. OK. So do we know—and you can say no, we don't know, if we don't know, but during that incubation period, can I spread it to the good Senator from Illinois?

Dr. REDD. So I don't think that you're going to like my answer.

Senator TESTER. I did wash my hands. OK. Go ahead.

Dr. REDD. It's not possible to give a definitive answer on that. I'd say that there is a much stronger suspicion that with very mild symptoms or right before you develop symptoms, that there is, in a lot of cases, the chance of spreading the disease, which is different from the other Coronaviruses, different from most viruses where the viral load increases the sicker that you get.

This may be a case where viral load can be high even in that very early—just almost like the symptoms that you described. I wish it weren't true.

Senator TESTER. No. Look. I got it. So how long do you think it's going to take for this to run its course in our population?

Dr. REDD. I don't think that it's possible to speculate.

Senator TESTER. Nobody knows.

Dr. REDD. There are a lot of factors that could go into that. So it really isn't possible to say.

Senator TESTER. OK. So there has been a lot of talk—the good Senator Jacky Rosen just told me that Italy just shut down some of their schools. I think there has been talk about shutting this place down. There's talk about shutting all sorts of stuff down. I'm going to tell you I personally think that's a mistake because I'm not sure it's going to matter, to be honest with you, and I think it would contribute—the paralysis here is bad enough without really creating the paralysis and so what would be your recommendations on all that stuff because it's like you've got a person with Coronavirus in an airplane. They come in and they clean the airplane and somebody else gets on with the Coronavirus. You really haven't done a damn thing.

Dr. REDD. So that's a very difficult question. I think it's one of the reasons that the President has set up the system that he has with the Vice President in charge, that those different sectors are able to communicate more effectively so that we can talk about what health benefits might be, but the adverse consequences, we're not really expert in those.

So I think this is something that we'll facilitate the appropriate decisions being made as quickly as they're needed to be made.

Senator TESTER. Good. This is a question for Mr. Szabat. Do you believe that there are going to be flight restrictions placed if this thing plays out as potential?

Mr. SZABAT. Well, the easy answer to that, Senator, is we already have flight restrictions in place.

Senator TESTER. I know, but I'm talking about domestic flights.

Mr. SZABAT. I don't know. We're outside the playbook, you know. The original playbook did not envision travel restrictions, you know. Health officials have historically said in the case of, you know, widespread flu or similar contagious diseases, we don't do travel restrictions.

We went outside the playbook on this one and I would contend that the travel restrictions that we and some other countries did were very effective. In some cases, they weren't. Italy, for example, did even more of a prohibition than we did but they waited till after we did and it did not turn out to be effective. So there's going to be a lot of lessons learned from that.

But to your question, it's now in the playbook, something to think about, but I can't tell you under what circumstances we might consider pulling that trigger.

Senator TESTER. OK. Well, I just want to thank you all for your good work. I can't thank you enough. I have been frustrated with the President and his reaction to all this from the get-go, but you guys are pros, and I want to thank you.

Senator CRUZ. Senator Capito.

**STATEMENT OF HON. SHELLEY MOORE CAPITO,
U.S. SENATOR FROM WEST VIRGINIA**

Senator CAPITO. Thank you, Mr. Chairman. I want to thank the three gentlemen here today.

I want to just ask just a general question of Mr. Szabat. You may not have these statistics, but as of now, do you see domestic travel on the decline because of this and people canceling flights, less people traveling? What are you all seeing?

Mr. SZABAT. Senator, thank you for the question, and you're better served asking that question from the industry and industry analysts who have like specific numbers, but certainly, you know, we are in daily contact with the industry and they are looking at a decline in bookings going forward.

Having said that, so far the biggest hit for the airline industry has been on Asian travel. For the U.S. industry, that's the smallest part of both of their revenues and especially of their margins.

This only becomes a major hit for the U.S.-flagged airlines if the Coronavirus spreads or concern of the virus spreads and passengers decide not to travel largely domestically and, secondarily, between the United States and Europe.

Senator CAPITO. Thank you. Mr. Ferrara, thank you for your work at CBP and we had the TSA Administrator in front of our Subcommittee which is Homeland Security and Appropriations the other day and was talking about the protocols that have been put in place that you all are coordinating with.

Let me just say when somebody comes in and is at the 11 airports, those are the citizens coming in into the 11 airports, you do a prescreening. You do that in coordination with CDC.

What if somebody like exhibits the symptoms? Then are they tested immediately or how is that rolling out?

Mr. FERRARA. Thank you, ma'am. As you said, once they come in to one of the 11 airports, our officers identify them as potentially being ill or at least coming from either Iran or China. We refer them over to CDC or CWMD who's there. That's a medical determination. So they would determine if a test is required or not. As to our law enforcement, our priority is the law enforcement piece of it, making sure they get there, yes, ma'am.

Senator CAPITO. Get where they need to go.

Mr. FERRARA. Yes, ma'am.

Senator CAPITO. It was brought to my attention that there was an article in the *Wall Street Journal* this morning, the title of which is "Hackers Target Companies with Coronavirus Scams." I mean, it's pretty shameful that people would try to capitalize on what we see as some growing fears and anxieties about what's going on.

I don't know if this is a Homeland Security question. I know absolutely you all have cybersecurity capabilities within your agencies. Is this something that you all are made aware of that there are people that are impersonating the World Health Organization? Obviously this is a money-making kind of scam.

Dr. REDD, do you know anything about this?

Dr. REDD. I was not familiar with that article. I think that the general issues of cybersecurity are ones that we need to take very seriously and I think this would be an example of if those measures aren't in place, how that can lead to trouble.

Senator CAPITO. Well, you can imagine a scenario of a hacker contacting somebody and saying you want to buy 25 masks or some preventive or a vaccine or expedited travel or whatever you would be offering would really make a lot of the population very vulnerable to this kind of attack.

So I would suggest that all of you in your respective departments take this back with you as a red flag.

Mr. Ferrara, did you want to say something?

Mr. FERRARA. Yes, ma'am. That is a Department of Homeland Security. That's one of the functions—

Senator CAPITO. Right.

Mr. FERRARA.—that we do have. So I will certainly bring that back and provide that information to the department.

Senator CAPITO. Let me ask you, too, again. We've talked a lot about aviation. We obviously know about the cruise ship situation that occurred. We also have a lot of cargo going back and forth all around the world but certainly to the Far East and coming back in.

I think initially when I raised this question, Homeland Security said, well, the incubation period is so much so that if you're on a ship for 14 days getting back and forth, it's really not going to be an issue, but we see that it really is an issue because it could be passed from time to time to time.

So are you working with the Coast Guard on this to make sure that wherever those ships are coming in from that you have some kind of capabilities there?

Mr. FERRARA. Yes, ma'am. In conjunction with the Coast Guard, we again target people from either China or Iran who are traveling on those cargo ships and we make sure, working with our medical

partners, to keep those folks out of the port until we get the all-clear from the medical folks.

Senator CAPITO. Just as a regular course of everyday living, today I find I challenged myself to try to see how many things I could not touch that I know had been touched by numerous people before me. What a challenge and so I think if everybody would try the exercise around the country, you would realize how not just susceptible you are but how careful you need to be when you know you've been in some kind of contact or direct contact or you yourself maybe have a cold or are beginning to not feel well.

So that was pretty staggering, starting with the elevator, the doors, the restroom. I mean, we could go on and on, constituents coming to visit and all those things.

Thank you very much, Mr. Chairman.

Senator CRUZ. Thank you.

Senator Duckworth.

**STATEMENT OF HON. TAMMY DUCKWORTH,
U.S. SENATOR FROM ILLINOIS**

Senator DUCKWORTH. Thank you, Mr. Chairman. I want to thank you and the Ranking Member for having this hearing.

As of yesterday, Illinois, my home state, has had four individuals test positive. I wish them and everyone else who has been infected a speedy recovery, and I want to credit all of the staff at the state and local levels for the work that they've done.

But I have to share my frustration here because I can't believe that we're having some of the conversations we're having now after having faced other global outbreaks, such as H1N1 and SARS.

Did we not learn anything about the processes and procedures from those previous diseases?

You know, Americans have been flying commercially for more than a century, yet today on the cusp of a global pandemic, the inability of the Federal agencies to collect and share critical data effectively with U.S. airlines and state and local partners is really hindering our ability to stop the spread and to fight this disease, and so, you know, my last job in the Army when I was finishing out my last tour was working at the Pentagon in the DSCA Ops, which is the Defense Support of Civilian Authorities, and the last thing I did was give a briefing on global pandemics and what we would do in a particular office.

Dr. Redd, you worked on H1N1, right? You alluded to it earlier.

Dr. REDD. Yes, ma'am.

Senator DUCKWORTH. OK. That was in 2009. So how the heck has the CDC, the CBP, and DOT, how come we are still trying to figure out how to deal with these issues? How is it that our CBP don't have computers? How come we don't have a way that we're talking to airlines? How did we get here after we've seen Ebola, we've seen H1N1, we've seen SARS, and what are we going to do in this instance but then also looking forward to the next pandemic that hits and there will be another one that we're ready for and we're not caught flatfooted the way we are right now?

Dr. REDD. I think that we have improved since—really my own history begins with the mid-2000s and I think we're far ahead of where we were at that point in time through a lot of hard work

and attention from the members here, Congress and the Administration.

I think that you're pointing out some things that need to change and I think that there will be both in the very near term work to make sure that we're operating as effectively as we can now and that there will be after action review items that will come out, many of which you're listing.

Senator DUCKWORTH. So how long, for you and Mr. Ferrara, given the data-sharing challenges with airlines, how long does it take for state emergency management agencies and public health departments to receive flight information about potentially infected travelers? How long does it take the State Department? I mean, I have one of the busiest airports in the world in Chicago. How long does it take IDPH, Illinois Department of Public Health, or the local officials to receive information about a flight that's coming in that potentially has an infected patient onboard?

Mr. FERRARA. Yes. CBP transmits the information from these flights within an hour over to CDC. I don't know the process from CDC to the states.

Senator DUCKWORTH. OK.

Mr. FERRARA. But the information that we do have, we transmit within an hour.

Senator DUCKWORTH. OK. Dr. Redd, how long does my state—does it take before my IDPH gets it?

Dr. REDD. Well, I think the problem is that the information is often incomplete and that is really what the interim final rule is trying to correct, is that if we have a name, that's not very helpful. If we have a name and an address, that's somewhat helpful. If we have a name, address, phone number, e-mail address, we can find people, and that information at the health department would basically be the ability to do complete follow up if those data elements are available.

Senator DUCKWORTH. So you don't have a time-frame for me right now and we don't know when we're going to have the capability to rapidly let local public health people know?

Dr. REDD. Well, I think for what we have, it's a very short period of time, but the real question is getting complete information and doing that in a timely fashion.

Mr. SZABAT. And, Senator, if I may just add to that, because this has been discussed at the task force level, the goal of CDC, the health officials, has been to collect the information so that CDC has it by the time the plane arrives and is already providing it to the local officials.

The challenge that we have to the public health officials to where those passengers are actually going because, of course, they come to one of 11 airports for initial screening but that's not where they're ending up.

So if someone's flying into Chicago who's going on to Massachusetts, CDC wants to gather the information and extend it to the public health officials for wherever in Massachusetts they're going to.

The system that we have right now is an interim system which is working very well, but it is paperwork and personnel intensive and so it works for the passenger load we have coming in now from

China. We could not scale it up to be more broad and that's the challenge we're talking about about having a better nationwide system.

Having said that, the system we have now is immeasurably better than anything we've had before, whether it was with H1N1 or with SARS. So each time we have one of these, we learn and, as Dr. Redd said, we'll do a hot wash after this. We will learn from what we've done here and we'll do better next time.

Senator DUCKWORTH. Well, I think we need to do a lot more than better next time and I would ask our Chairman to maybe consider holding a hearing after the epidemic and see and learn about lessons learned and what they plan on doing next time.

I do want to add one more loophole to what my good friend, the Senator from Alaska, mentioned with the cargo.

Dr. Szabat, Dr. Redd, are passengers aboard charter and private flights from areas of concern receiving the same scrutiny as passengers aboard commercial flights because I think, in addition to the cargo aircraft, private aircraft are another loophole that's in the system, and I'm out of time.

Senator CRUZ. Please answer that question. It's a good question.

Mr. SZABAT. Senator, I'll answer the question. We'll get back to you with a full answer for the record, but I know I can speak personally. For example, for charter aircraft, we apply exactly the same rules to them as we do to any commercial aircraft. So if you're coming, for example, from China or now from Iran, we don't have direct flights from Iran, but if you're coming from China, you would have to land at one of the F11 airports.

Senator DUCKWORTH. But what about private?

Mr. SZABAT. I'll get you an answer for the record on that.

Senator DUCKWORTH. OK. Thank you, Mr. Chairman.

Senator CRUZ. Thank you.

Senator Rosen.

**STATEMENT OF HON. JACKY ROSEN,
U.S. SENATOR FROM NEVADA**

Senator ROSEN. Thank you, Mr. Chairman, for having this very important hearing. Thank you for the work that you're doing. I know your staff. You're just working around the clock to try to figure out how to get ahead of this, be proactive, protect our Nation. So I just want to share my appreciation and that of all Nevadans with you.

But since the Coronavirus is changing so rapidly, it is critical that our public health officials doing the work on the ground, as Senator Duckworth says, have all the information they need to do contact tracing and the monitoring of travelers when warranted.

So I just would like to understand what the threshold metric being used to determine when air travelers must fill out that Government Public Health Locator Form. Can you explain that to us? People are not having to do that? What is the threshold? Is it just people from China, just people from Italy? Please explain that.

Dr. REDD. OK. So the way for the current rule, it is travelers—in for final rule applies to travelers from China.

Senator ROSEN. Only. So we're not doing it for anybody outside of China. So should we expand that?

Mr. SZABAT. With your permission, Senator, I'll take that on.

We have two countries now that are covered by the so-called 212F process which are travelers from China, travelers from Iran. We have no direct flights from Iran. Very few Americans will be coming back from Iran in a 14-day window. So for the most part, the IFR rules apply to those travelers.

But we're looking at a model that can be scalable and expandable. So, for example, right now we just introduced new types of restrictions for travelers coming from Italy and South Korea where they're getting exit screening coming out of those countries but they're not being required to do the same kind of data collection that we're doing—

Senator ROSEN. Who's doing the exit screening? What qualifications and training are you providing for that?

Mr. SZABAT. OK. So it's a careful answer to that question, Senator. These exit screens are being done by the authorities in South Korea and in Italy. So these—

Senator ROSEN. Before they come here?

Mr. SZABAT. Exactly. Yes, yes. Exiting from there when they come here. That's correct.

Senator ROSEN. OK. So you're thinking about expanding it and you'll obviously keep us apprised of that and considerations for that.

I also want to build upon that a little bit because obviously we're talking about air travel and we have all of our wonderful flight crew, the pilots, the attendants, people who clean the cabins, but really the flight crew health, given the direct interaction and contact that the flight crew has with hundreds of passengers, I'd like to hear a little bit more about the recommendations for ensuring that their health is protected and what requirements does the DOT have for personal protective gear for flight staff, such as masks and gloves, if those become recommended by public health officials?

Mr. SZABAT. So I'm going to start with answering this question, Senator, and I'll put Dr. Redd on notice that it'll get passed on to him.

Department of Transportation, we, of course, work closely with the industry and we hear from both the representatives of the pilots and the flight attendants, but our role on the PPE side is that we pass on either the guidance or the requirements of—and it can be OSHA, NIOSH, or other health agencies.

So we are in a sense from the Department of Transportation perspective, we're a pass-through. Given my position on the task force, the role of the task force is to ensure that that guidance is put out and if I may just put a plug in, because, as you point out, you know, we give a lot of praise often for first responders but first responders are responding to something.

Our flight crews right now, they are on the cutting edge. They are the ones right now dealing with these risks every day and we do owe it to them to make sure that they have the very best equipment and the very best knowledge of how to perform self-safety practices.

Senator ROSEN. Well, so you talked about you're the pass-through. So how are we going to compel the airline industry to be

sure that the health of these workers are protected as they—look. All of us fly every week multiple legs on many different airlines.

Mr. SZABAT. Right. So at the moment, the requirements that we have are the airlines agree to meet these voluntary standards.

Now if they refuse to meet them or fail to meet them, you know, we can consider other measures, but right now, it's clearly in the economic interests of the airlines and certainly in the personal interests of their pilots and crew to follow these measures.

Senator ROSEN. And I just have a quick second, so I want to make this very short. Are we providing or are you helping the airlines to provide training, additional training to those flight crews for looking for signs of illness so that they may help when people are on the plane or when they're getting off the ground and assisting in any of those reporting issues there?

Dr. REDD. There's a lot of interaction with the airline industry in that domain. I'm not familiar if we're actually doing something very specific to Coronavirus, but there's been a longstanding collaboration in that kind of work. Let me follow up specifically on that question.

We do have guidance for protecting crews. Again, it's this question of voluntary guidance and kind of what you should do versus having the rule or the authority to do that which resides with OSHA.

Senator ROSEN. It's not just a question of the flight crew's health but then they become carriers in and of themselves and so that's the spread, the public spread can be great.

So thank you. I appreciate it. My time is up.

Senator CRUZ. Thank you.

Senator Thune.

**STATEMENT OF HON. JOHN THUNE,
U.S. SENATOR FROM SOUTH DAKOTA**

Senator THUNE. Thank you, Mr. Chairman. Thanks for this hearing and thank you to all of you for everything that you're doing, continue to do to address the crisis.

Dr. Redd, first of all, I appreciate the CDC's work in continuing to spread the Coronavirus and I want to thank you especially for being here today, and I want to just follow up on some questions I think that have already been asked.

But my understanding is that CDC has issued guidance to air carriers to ensure that they're taking the precautions necessary to contain or respond to potential Coronavirus cases on international flights so the public is aware.

Could you just kind of again perhaps talk about some of what those steps are, what the airlines are following?

Dr. REDD. I think the main thing is identifying patients who have respiratory illness and taking action to really notify. There's a system of communicating with the ground if something like that were to occur and it's really, I think, standard guidance but just putting a little sharper edge on it because of the situation that we're in with the novel Coronavirus.

Senator THUNE. Are there instances of domestic community spread that you've seen so far and does the CDC anticipate the

need to provide similar guidance to air carriers for domestic flights similar to what you've done with international?

Dr. REDD. So there are locations in the country which have cases that have been acquired within the United States, specifically in Washington State and in California, and I think it would not be surprising that other locations would see cases like that.

The guidance for identifying people who are ill is not limited to international carriers. So it wouldn't be only international carriers that get that kind of guidance.

Senator THUNE. Mr. Szabat, I understand and agree with the current focus on major international airports in large cities and efforts to contain Coronavirus, but it is important to ensure that smaller airports and public health authorities in rural areas are also prepared when confronted with a potential case.

Has the department conducted outreach or provided guidance to smaller airports on containing the spread of the Coronavirus?

Mr. SZABAT. Senator, thank you for the question and for the concern. We share the concern for the health of the entire traveling public and of which smaller airports are an important part of that web within the United States.

So we're working through again what is called the whole of government effort. When it comes to delivering health, preventive measures to these airports, to any one of our private sector stakeholders within the playbook, the emergency response planning that falls under Health and Human Services, and in Homeland Security.

So our job is to ensure that those communication channels are open and are flowing. We have had just in the last 2 weeks two major conference calls, including aviation organizations and individual airports, for exactly this reason, to connect them with—their first line is their own public health authorities and then through that is the CDC for health guidance.

Senator THUNE. Dr. Redd, what resources is the CDC providing airports across the country, including smaller airports, to ensure that they can properly respond to a potential outbreak?

Dr. REDD. I think in general, the quickest line of where to get help would be the local health department. We are certainly available to communicate but we would have guidance and we would work that through the state and local health departments. So that's going to be kind of the first line of defense in the public health system—the local health departments and the state health departments.

Senator THUNE. OK. Mr. Ferrara, it's my understanding that CBP has enhanced screening measures at major airports across the country to increase the chances that infected passengers are quarantined or denied entry into the United States.

Could you elaborate on the information that CBP collects on each passenger entering the United States during normal operations and how that has changed for points of entry where screening has been enhanced?

Mr. FERRARA. Thank you, sir. The information that we're collecting for contact tracing comes through the traditional CBP airline systems and that's passed on to CDC. I think that's the only

difference with the process is that it's passed on to CDC as a rule if these folks are coming in from those countries of Iran and China.

Senator THUNE. Mr. Szabat, does the department have an initial estimate for Coronavirus' effect on global air travel to and from the U.S.?

Mr. SZABAT. Senator, the department does not. However, we're closely following what the industry analysts are saying and so currently, the current projection seems to be in the range of 4.7 to 6 percent decline in global travel over the course of the year.

Senator THUNE. And does the department believe that the reduction in international travel will potentially lead to supply chain constraints for certain medical supplies?

Mr. SZABAT. As the department does not have a position on that, but I can certainly say as a member of the task force, we see that there are disruptions in certain parts of the supply chain. We would take as a lesson learned going forward and this is both through for our private sector counterpart as well as ourselves, I think there are a lot of lessons to be drawn here about having over-reliance on a single source of supplies.

Senator THUNE. Thank you. Thank you, Mr. Chairman.

Senator CRUZ. Thank you.

Senator Markey.

**STATEMENT OF HON. EDWARD MARKEY,
U.S. SENATOR FROM MASSACHUSETTS**

Senator MARKEY. Thank you, Mr. Chairman.

Admiral Redd, good to see you, sir. Thank you for your service. My wife is a retired Rear Admiral in the Public Health Service. So I know your core, your work and what you're dedicated to.

So if you could perhaps discreetly just describe to us what it means when the President starts to call the Coronavirus a hoax or puts out information which is medically inaccurate? What from your perspective is necessary in order for you to be able to do your job and for the public to be able to respond to the message which you are sending which is medically accurate in terms of the disease itself and then what the response should be from the public?

Dr. REDD. I think that in the last several weeks, there has been a focus on making sure that we are in alignment as a whole of government approach. I think that that has been very helpful with Vice President Pence in charge. I think that that will help make sure that when a decision needs to be made that there will be communication across departments so that really all the experts are able to work more closely together and I think that's going to be very helpful as we move forward here.

Senator MARKEY. Well, thank you, but just know that we respect you and we respect science. We respect your conclusions and we really don't want this to be politicized at all. That will interfere with our ability to implement the plan that is effective as soon as possible. I think we've already seen too much delay in not responding correctly and doing so soon.

I'd like to come to you, Mr. Szabat. It's on the question of airline fees. We have a pandemic which is going to hit the United States in much larger measure over the next weeks and months, according to the experts.

We have airlines that actually have taken charge fees, change fees, and they've made a whole industry out of it in terms of the amount of money which they can in fact charge.

The DOT is the only consumer protection agency overseeing air travel and you are statutorily charged to stop unfair practices in aviation. Allowing any airline to charge these excessive fees during the Coronavirus outbreak is beyond unfair.

So I urge the Department of Transportation to take action immediately and prohibit all cancellation and charge fees during this emergency. Anything less is a failure to fulfill your duty and that's why I plan to send a letter to Secretary Chao later this afternoon formally asking her to suspend these change and cancellation fees in the face of this public health crisis. The time for DOT to act is now. We don't want citizens deciding they have to fly, you know, just because the cancellation fee would be too large if in fact from their perspective given their own health or their other family members' health that it might be a danger to them if they came into contact.

Would you commit to ensuring that the DOT, which is the consumer protection agency, ensures that change in cancellation fees are suspended during this crisis?

Mr. SZABAT. Your concern and your request is noted, Senator, and you have my commitment that we'll get on that right away. As you say, this is an emergency response situation. We're not looking to spend months or years developing a rule. So we'll get you an answer back very quickly.

Senator MARKEY. Yes. I think that's not an incidental issue for many families. I can see more and more people—I've flown like seven times in the last 10 days. More and more people on each flight have a mask on. So for every one of those people is somebody else that's very concerned and didn't want to cancel the flight because they had to travel, but they might have if they didn't have the additional fee.

Mr. SZABAT. You're not the only one who's noticed that. I've noticed it. Several of the carriers in the industry have already decided to say that, you know, they will withdraw some of those fees.

Senator MARKEY. Yes. Well, I'd just recommend to you that it become an industry-wide practice through your insistence. I think it will be great.

If I may, Admiral, the highest fatalities from the Coronavirus have been in areas where the health care system has been overwhelmed. CDC must take steps to prepare hospitals for surges of Coronavirus cases that could stress health care systems capacity to care for those patients, especially those who may need hospitalization in airborne infection isolation rooms.

CDC's current guidance, which hasn't been updated since February 11, nearly a month ago, is for facilities lacking airborne infection isolation rooms to transfer patients to facilities with available rooms, but we know this option may not be available if there is a surge of cases in a particular region.

Dr. Redd, can you commit to provide hospitals and other health care providers clear and specific guidance on how to safely care for a surge of patients without airborne infection isolation rooms?

Dr. REDD. Let me look into that and get back with you. I think that you're bringing up a very important point in that if the number of patients exceeds the number of beds, there's going to have to be guidance for that situation.

Senator MARKEY. Yes. So you will provide clear guidance to those hospitals?

Dr. REDD. Yes, sir.

Senator MARKEY. Is that what you're saying?

Dr. REDD. Let me get back to you with that, but, yes, we will do that.

Senator MARKEY. Yes. I think you will get back to me or——

Dr. REDD. Yes.

Senator MARKEY.—you will provide the guidance?

Dr. REDD. First get back to you and then provide the guidance.

Senator MARKEY. I think they need guidance. I think that many places in this country need it right now. They need to know what to do. So I would honestly put a crash team together to try to figure it out tonight, put them in a room and send it out to these hospitals. They're out there waiting for you, you're the expert, to tell them what their——

Dr. REDD. Yes, sir.

Senator MARKEY.—plan should be. So I honestly believe that it could hit a region within the next couple of days and they'd be without any real instruction, and I think that would be providing a disservice to those people.

So thank you, Mr. Chairman.

Senator CRUZ. Thank you, Senator Markey.

I think it is important to correct the record, that I do not believe it is accurate that the President has said the Coronavirus is a hoax, and in fact I think that's quite contrary to what he has in fact said and in fact done. The President can obviously speak for himself, but my understanding is what the President referred to as a hoax was the partisan claim that some are advancing for partisan advantage that the Administration is not treating this public health crisis seriously and is not marshaling the resources to keep Americans safe, and I will say in my observation, having yesterday met with the Vice President of the United States, with the Secretary of HHS, with the Commissioner of the FDA, with the Head of the CDC, that the resources being marshaled are significant.

Admiral Redd, I want to ask you in your opinion as a health professional and as a lifelong expert in communicable diseases, how significant was the step that the President and the Administration took early on to halt air travel in and out of China and to quarantine Americans returning to China? How significant was that?

Dr. REDD. I think it was a very important decision to make and I think that there was a prolonged period of time when we had a very small number of cases. So I think that was the right decision at the right time.

I think we'll be in a better position to evaluate that more fully as time goes on, but at the present time, it was an important decision.

Senator CRUZ. In your medical judgment, had travel proceeded unimpeded, would we be facing in all likelihood a substantially worse outbreak in the United States?

Dr. REDD. We would have more cases, I think we can say for sure, if those measures had not been put in place.

Senator CRUZ. And, Mr. Szabat, from the perspective of the Department of Transportation, how unusual is it for an administration to take the steps this Administration took right at the outset of this outbreak?

Mr. SZABAT. Senator, those steps were beyond unusual. They were unprecedented.

Senator CRUZ. I can tell you I spoke personally with the President I think two days after air travel was halted to China and the President asked me directly, said, "Ted, what do you think?" I told him, "Mr. President, you made exactly the right decision." I recognized the real economic consequences to halting air travel but at the end of the day, the first priority has to be protecting health and safety, has to be protecting lives until we understand the scope of this outbreak, until we understand what is happening with this virus. We need to do everything that is possible to prevent this outbreak from becoming a pandemic and so I am grateful that the Administration acted.

That doesn't mean every step the Administration has taken has been exactly right. Dealing with any crisis, there are going to be challenges. There are going to be mistakes. But I think we have seen a serious focus on this public health crisis and that's the right thing, and I would note one of the mistakes was releasing an individual from Lackland who subsequently tested positive and that's a mistake that I addressed at the beginning of this hearing.

I want to ask a couple more questions. Then we're going to wrap up shortly.

It has been reported, my understanding is, the CDC has asked commercial airlines in affected regions to take the temperature of passengers boarding planes and that commercial airline gate agents are understandably feeling not prepared to do so, not trained to do so. They're not medical professionals.

Is that understanding correct and is it right to be asking the gate agent to be taking someone's temperature rather than a medical professional with the training to do that?

Dr. REDD. I will have to check on that. I'm not familiar with that process. I know that in Korea and in Italy, the governments are doing the exit screening, but let me get back to you on confirming that my lack of knowing about that is that it's not happening.

Senator CRUZ. Mr. Szabat.

Mr. SZABAT. Just an update because, you know, our information flow among the agencies here is good but it's not immediate. So from the Task Force level, you know, we've learned while these measures have been put in place by the respective governments of Italy and Korea in consultation with our agencies, they've chosen how to implement it and so, for example, in Korea, there are three levels of screening, thermal temperature screening. Two of them are walk-through. You walk past devices, one as you enter the airport, one as you go through security, but the third is they are asking all airlines, both Korean and that are flying to the U.S., to use one of those handheld temperature devices to check the temperatures of people who are going into the United States.

So, yes, that is a request that the governments have made of the U.S. carriers as well as the foreign carriers to do that testing.

Senator CRUZ. So is it your testimony, just so I can understand, that it's the Government of Korea that is asking them to do it, not the U.S. Government?

Mr. SZABAT. So the U.S. Government is saying to the Government of Korea if we want to continue to have flights from Korea to the United States, you have to do health screening. Come back and tell us how you intend to do it and this is how they've come back and told us they intend to do it.

Senator CRUZ. Well, let me suggest and listen, I think health screening makes an awful lot of sense from everything I've heard, but the concern from airline gate agents that they are not trained and they don't have the background to be doing that screening, that seems a very reasonable concern and it seems to me it ought to be health professionals that are doing public health screening.

Let me shift to another issue on the CDC. Last month, the CDC received reports that some of the testing kits were faulty and experienced inaccuracies in their testing.

Were there cases in which the CDC released patients after they had been tested with faulty kits, and, if so, in what circumstances?

Dr. REDD. Let me go through the details of the Lackland case and I think that is one instance where that occurred and that was not a faulty test. It was a process of communication. Actually, the thing that you talked about in your opening statement is what happened.

There was an individual who was ill, who had recovered from that illness, and the protocol at that point and still is the case is that two specimens that are negative more than 24 hours apart is a requirement to release an individual.

This person had one test that was negative, had a second test that was indeterminate and then had a third specimen obtained that was negative but that knowledge of that negative test didn't occur until after—let me get the sequence right. So there's a negative test. It was unknown to the people that did the third test. A fourth test was obtained by a different group.

According to the protocol, there was the negative test, the indeterminate test, and a negative test. So that met the criteria. Unfortunately, that fourth test was not known by the people making the decision to release the person and turned out to be a positive test.

I think the real issue was the communication there. No one should be released with a pending test. That's one just obvious thing that is really about the internal communication.

I think that the meaning of that test and whether there was some issue with the test or with a person having a very low level of virus, I think that's something that we don't know right now. I don't think it was related to the other issue of the quality control work that was done on the original test.

Senator CRUZ. Is CDC examining why someone who tested positive had two negative tests? That certainly raises questions.

Dr. REDD. Yes, sir. Yes, sir, I think one of the questions will be—I mean, this is really—it's a new infection. It's a new virus and, for example, in the Ebola response in West Africa, the role of sexual transmission wasn't something that was recognized before an out-

break of that size occurred. During that outbreak, it was learned that that can be an important cause of really outbreaks or infections.

I'm not suggesting that that's the case here but just there's more that the scientific community is going to learn about this disease. I think it may shed some light on how an outcome like that could occur.

Senator CRUZ. Is the current protocol for releasing someone from quarantine three consecutive negative tests with no intervening tests?

Dr. REDD. It's two negative tests separated by more than 24 hours. So that has not changed. I think that your suggestion that this is something that really needs a hard examination is completely correct.

I think the real issue here was that there was a test that was out there that wasn't—that the existence of that test pending should have been something that would have kept the person from being released at the first place and then with the positive test, we wouldn't have had the—it would still be the question of how do you get that kind of sequence but we wouldn't have had the situation where a person with a positive test was released.

Senator CRUZ. So with respect, Dr. Redd, I think it's important to frame the problem. The problem wasn't the fourth test that happened. We're grateful that it did because it actually caught someone who was still positive. The concern is why, assuming someone who started out as positive and ended up as positive, why were there two tests in the middle that were negative and why was there an inconclusive test? Like that raises—

Dr. REDD. Right.

Senator CRUZ.—real questions about the accuracy of the testing and I understand this is not an easy thing to do, but—

Dr. REDD. I can give you some possibilities, but I think I can't tell you for sure why that circumstance occurred.

Senator CRUZ.—I would welcome those possibilities.

Dr. REDD. One would be that there were a small amount of viral particles existing at that fourth test that were detected. It was a correct test, but the other negatives were also true. So you're right at the limit of detection that there wasn't actually live virus available, just kind of the remnants of the nucleic acid of the virus still existed, even though there wasn't a live virus and it was there in low amounts. So I think that would be one explanation.

Another would be that, I think this is kind of getting progressively less likely, but that there was some source of that virus that emerged, similar to AIDS or the Ebola virus, where a person can test negative over a long period of time but still have the virus in semen. So maybe there's some protected site that we don't know about.

I don't think that's very likely, but, you know, I do think it's a question that really demands scientific scrutiny.

Senator CRUZ. Let me also raise another question about the protocol. So in the letter from CDC Director Robert Redfield to Commissioner John Hellerstedt of the Texas Department of State Health Services, Director Redfield stated that “the 11 individuals who had been passengers aboard the *Diamond Princess*, that 11 in-

dividuals had been offered voluntary testing for the Coronavirus and were asymptomatic for the entirety of the 14-day quarantine period.”

Is the reason the testing was only voluntary because they were asymptomatic and does that make sense for lifting a quarantine if we know someone has been in an environment where they’ve been exposed?

Dr. REDD. I think this is a balance of individual liberty and protecting the health of the public and I think that the experience has been that staying asymptomatic for that period of time, that those people would not have had a positive test, but I think it really is kind of the civil liberties versus protecting the public balance.

Senator CRUZ. So are the current protocols that someone will be released from quarantine if they’re asymptomatic for 14 days whether or not they’ve been tested?

Dr. REDD. That’s correct.

Senator CRUZ. And those are the protocols, even though we had this exchange in our first Q&A—

Dr. REDD. Let me check. Let me check back with you. Let me verify that before I say something that’s incorrect.

Senator CRUZ. I mean, there is that study from China indicating a 24-day incubation period. That may not be accurate but if our current protocol is to release someone after 14 days without testing them, if there is an incubation period longer than 14 days, that could presumably contribute to the spread of the virus, is that right?

Dr. REDD. If those two circumstances were true, yes, it would.

Senator CRUZ. OK. I want to thank all of the witnesses for your testimony and I want to echo—you’ve heard Senators from both sides of the aisle thank the professionals and I know you guys are not getting a lot of sleep right now. You are working hard and this is a serious challenge. This is not easy. There are a lot of unknowns and I believe we need to follow the science, we need to follow the medicine, but we need to also be proactive protecting the American public, and so I thank each of you for doing so.

I also want to underscore a point that was made from multiple Senators, which is, if there are legal authorities that any of your agencies need right now to protect public health and safety and prevent the spread of this virus, tell us and tell us quickly. I think you will find a bipartisan eagerness to ensure we have the tools to prevent this outbreak from growing, to prevent further deaths, but we cannot address legal impediments if your agencies don’t draw them specifically to our attention.

I would note we have a funding bill that is moving rapidly and it is possible even as quickly as that funding bill attaching a provision to that if it proved necessary to addressing this challenge.

With that, I want to thank all of the witnesses for their testimony.

The hearing record will remain open for two weeks. During that time, Senators are asked to submit any questions for the record and upon receipt, the witnesses are requested to submit their written answers to the Committee as soon as possible.

And with that, this hearing is now adjourned.

[Whereupon, at 4:47 p.m., the hearing was adjourned.]

A P P E N D I X

PREPARED STATEMENT OF NANCY MESSONNIER, M.D., DIRECTOR, CENTERS FOR DISEASE CONTROL AND PREVENTION'S (CDC) NATIONAL CENTER FOR IMMUNIZATION AND RESPIRATORY DISEASES

Good afternoon, Chairman Cruz, Ranking Member Sinema, and members of the Subcommittee. I am Dr. Nancy Messonnier, Director of the Centers for Disease Control and Prevention's (CDC) National Center for Immunization and Respiratory Diseases. Thank you for the opportunity to testify before you, and for your commitment to supporting CDC's work in protecting public health.

Since President Trump took office, his work to protect the health and safety of the American people has included a specific focus on monitoring, preparing for, and responding to biological threats, such as infectious disease outbreaks. As soon as the United States became aware of a novel coronavirus at the end of 2019, the U.S. Government was tracking its spread and began preparing necessary responses.

Within the first two weeks of China's initial report of the outbreak in December 2019, China reported 45 pneumonia cases and two deaths. The outbreak has since expanded to over 80,026 cases and over 2,912 deaths in China, with the majority of cases still centered in Hubei Province, where the outbreak originated. Globally, 68 countries have reported a total of 88,992 cases and 3,042 deaths. More recently, there has been an increase in cases outside of China.

COVID-19 is a new disease, caused by a novel (or new) coronavirus that has not previously been seen in humans. This new disease, officially named Coronavirus Disease 2019 (COVID-19) by the World Health Organization (WHO), is caused by the SARS-COV-2 virus, which is in the same family of viruses as that cause the common cold. There are many types of human coronaviruses including some that commonly cause mild upper-respiratory tract illnesses. Coronaviruses are a large family of viruses. Some cause illness in people, and others, such as canine and feline coronaviruses, only infect animals. Rarely, animal coronaviruses that infect animals have emerged to infect people and can spread between people. This is suspected to have occurred for the virus that causes COVID-19. Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) are two other examples of coronaviruses that originated from animals and then spread to people. As of March 2, 2020, 91 cases have been reported across 10 states, and 45 cases have been detected among people repatriated from Hubei, China and the Diamond Princess. We expect to see additional imported cases and limited person-to-person spread. While community-wide transmission has not been documented yet in the United States, it is expected, and we are aggressively preparing for it.

Most cases of COVID-19 in the United States have been associated with travel from China, but some person-to-person spread among close contacts of travelers has been seen. It's important to note that this virus is not spreading within American communities at this time. The potential global public health threat posed by this virus is high, but right now, the immediate risk to most Americans is low. The greater risk is for people who have recently traveled to China or been exposed to someone with COVID-19.

On January 29, 2020, President Trump announced the formation of the President's Task Force on the Novel Coronavirus, which is chaired by the Secretary of Health and Human Services and coordinated through the National Security Council. The President's Task Force is composed of subject matter experts from the White House and several United States Government agencies, and it includes some of the Nation's foremost experts on infectious diseases. The Task Force is leading the Administration's efforts to monitor, contain, and mitigate the spread of COVID-19 while ensuring that the American people have the most accurate and up-to-date information to protect themselves and their families.

The President's top priority is the health and welfare of the American people, and his Administration has made it a priority to prepare for infectious disease outbreaks that can cross borders. In 2018, President Trump launched the National Biodefense Strategy, which lays out a framework for coordination among agencies, with the

Secretary of the U.S. Department of Health and Human Services (HHS) as Chair of the Biodefense Steering Committee and helps identify gaps in preparedness and response. As the situation around the new coronavirus evolves, the Administration will continue its coordinated response, in collaboration with state and local governments and the private sector and adjust its positioning as needed.

Within HHS, the Centers for Disease Control and Prevention (CDC), the Assistant Secretary for Preparedness and Response (ASPR), the National Institute of Allergy and Infectious Diseases (NIAID), and the Food and Drug Administration (FDA) play critical roles in responding to COVID-19 by preventing and slowing the spread of the disease, assisting repatriated Americans, protecting the supply of food, drugs, and devices, and developing diagnostics, therapeutics, and vaccines.

Centers for Disease Control and Prevention

In late December 2019, Chinese authorities announced a cluster of pneumonia cases of unknown etiology centered on a local seafood market in Wuhan, China, with an estimated case onset in early December. CDC immediately began monitoring the outbreak, and within days—by January 7, 2020—had established a Center-led Incident Management Structure. On January 21, 2020, CDC transitioned to an Agency-wide response based out of its Emergency Operations Center. This allows CDC to provide increased operational support to meet the outbreak’s evolving challenges and provides strengthened functional continuity to meet the long-term commitment needed to curb the outbreak.

As of March 2, 2020, CDC has deployed over 1,500 staff to work full time on the COVID-19 response, including those working on the response from CDC headquarters, overseas offices, and field deployments. This includes CDC staff supporting China through the CDC country office in Beijing, China; that office has a 30-year history of collaboration with the China National Health Commission and China Center for Disease Control on emerging threats and respiratory illness. Beyond China, CDC is assisting ministries of health in countries in every region of the globe with their most urgent and immediate needs to prevent, detect, and respond to the COVID-19 outbreak.

CDC’s most expert and practiced infectious disease and public health experts are dedicated to this response 24/7 to protect the American people. CDC is a disease preparedness and response agency, and this work is fundamental to our mission both domestically and internationally. The Agency’s approach to COVID-19 is built upon decades of experience with prior infectious disease emergencies including responses to SARS, MERS, and Ebola, and to pandemic influenza.

To mitigate the impact of COVID-19 within the United States, CDC is working alongside Federal, state, local, tribal, and territorial partners, as well as public health partners. This public health response is multi-layered and includes aggressive containment and mitigation activities with an objective to detect and minimize introductions of this virus in the United States so as to reduce its the spread and impact. It is impossible to catch every single traveler returning from China with this virus—given the nature of this virus and how it’s spreading. Our goal continues to be slowing the introduction of the virus into the United States as we work to prepare our communities for more cases and possible sustained spread.

To accomplish this, CDC is also working with multiple countries, in collaboration with U.S. Agency for International Development (USAID) and other Federal agencies and WHO to support ministries of health around the globe to prepare and respond to the outbreak. For example, the U.S. Government is helping to support countries to implement recommendations provided by WHO related to the identification of people who might have this new infection, diagnosis and care of patients, and tracking of the outbreak. CDC staff are also starting to work together with interagency colleagues in those countries to conduct investigations that will help inform response efforts going forward.

The Agency is using its existing epidemiologic, laboratory, and clinical expertise to gain a more comprehensive understanding of COVID-19. CDC is leveraging prior programmatic investments in domestic and global public health capacity and preparedness to strengthen the Agency’s response to COVID-19. Thus far, this response has been built largely on the foundation of our seasonal and pandemic influenza program’s infrastructure. The ongoing response to COVID-19 also demonstrates CDC’s continued commitment to strengthen global health security. CDC has been engaged in global health security work for over seven decades. Thanks to investments in Global Health Security, the U.S. Government’s work has helped partner countries build and improve their public health system capacity. This global effort strengthens the world’s ability to prevent, detect, and respond to infectious diseases like this new coronavirus.

This outbreak also underscores the need for the United States to continue to play a leadership role on the global stage, and to strengthen global capacity to stop disease threats at their sources, before they spread. Furthermore, the outbreak demonstrates the importance of continued investment in our Nation's public health infrastructure. Despite years of progress in domestic disease prevention and response, efforts to help modernize our federal, state, and local capability and health systems that are crucial to responding to and understanding unprecedented threats continue.

Within a week of China posting a genetic sequence online, CDC had developed a real time Reverse Transcription-Polymerase Chain Reaction (rRT-PCR) test that can diagnose COVID-19 in respiratory samples from clinical specimens. On Monday, February 3, 2020, CDC submitted an Emergency Use Authorization (EUA) package to the FDA in order to expedite FDA permitted use of the CDC-developed laboratory test kit, called the CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel. The next day, FDA approved the EUA and the test kit began shipping on February 5, 2020 to select, qualified U.S. and international laboratories. As states began validating the kit in their laboratories, an issue with one of the testing components was discovered. This issue was immediately reported to CDC and no further domestic or international kits were shipped. In addition, in response to this issue, CDC has significantly increased its test throughput in Atlanta allowing for continued monitoring of the outbreak without disruption. CDC is working on remanufacturing the test kit, which will help improve the global capacity to detect and respond to the 2019 novel coronavirus.

In addition to the development of a diagnostic test, CDC has publicly posted the assay protocol for this test. Availability of this resource is a starting place for greater commercial availability of these tests. CDC continues to upload the entire genome of the viruses from all reported cases in the United States to GenBank as sequencing was completed. CDC has also grown the COVID-19 virus in cell culture, which is necessary for further studies, including for additional genetic characterization. The cell-grown virus was sent to the National Institutes of Health's Biodefense and Emerging Infections Research Resources Repository for use by the domestic and international scientific community.

The U.S. Government has taken unprecedented steps to prevent the spread of this virus and to protect the American people and the global community from this new threat and allow State, local, territorial, and private partners time to prepare for any necessary response and mitigation activities. Since February 2, 2020, pursuant to arrival restrictions imposed by the Department of Homeland Security, flights carrying persons who have recently traveled from or were otherwise present within mainland China, not including Hong Kong, Macau, or the Island of Taiwan) have been funneled to designated U.S. airports with CDC quarantine stations. At these airports, passengers are subject to enhanced illness screening and self-monitoring with public health supervision up to 14 days from the time the passenger departs China. As of March 2, 2020, CDC, with assistance from the U.S. Department of Homeland Security, has conducted 49,827 passenger screenings at airports. This enhanced entry screening serves two critical purposes. The first is to detect illness and rapidly respond to symptomatic people entering the country. The second purpose is to educate travelers about the virus and what to do if they develop symptoms. Travelers who have been in Hubei Province in the past 14 days are either taken to a medical facility for treatment if symptomatic, or, if asymptomatic, are placed under a Federal, state, or local quarantine order for a 14-day period. For travelers from other parts of China, outside of Hubei Province, asymptomatic travelers are asked to monitor their health for a period of 14 days at their final destination, in coordination with their local health departments.

Furthermore, in an effort to slow the spread of COVID-19 in the United States, CDC issued its highest level of travel guidance for China, Level 3, recommending that travelers avoid all nonessential travel to the country. CDC has supported the Department of State in the safe and expeditious departure of U.S. citizens and other exempted persons.

As of February 26, 2020, this includes 7 chartered flights that returned passengers from Wuhan City, China and most recently, passengers from a cruise ship docked in Japan. These measures are part of a layered approach which includes our other core public health efforts, including aggressively tracking COVID-19 around the globe, building laboratory capacity, and preparing the national healthcare system for community spread. These core capabilities and expertise are essential to CDC's comprehensive approach to addressing this outbreak.

While CDC believes that the immediate risk of this new virus to the American public is low, CDC is preparing the Nation's healthcare system to respond to identification of individual cases and potential person-to-person transmission of COVID-19 in the community, at the same time ensuring the safety of its patients and work-

ers. CDC has developed guidance on appropriate care and infection control for patients with COVID-19 and is engaging regularly with clinical and hospital associations to confirm that its guidance is helpful and responsive to the needs of the healthcare system.

Furthermore, understanding the current constraints of the global supply of personal protective equipment (PPE), CDC is working with industry and the U.S. health system to comprehend possible effects on facilities' abilities to procure the needed levels of PPE, and to provide strategies to optimize the supply of PPE.

Effective disease surveillance enables countries to quickly detect outbreaks and continuously monitor for new and reemerging health threats. CDC continues to monitor the COVID-19 situation around the world.

CDC has begun working with domestic public health laboratories that conduct community-based influenza-like illness surveillance and leveraging our existing influenza and viral respiratory surveillance systems so that we may begin testing people with flu-like symptoms for the SARS-COV-2 virus. HHS is developing plans to expand this effort.

This collaboration with domestic public health labs is another layer of our response that will help us detect if this virus is spreading in a community. All of our efforts now are to prevent the sustained spread of this virus in our communities, but we need to be prepared for the possibility that it will spread. Results from this surveillance could necessitate changing our response strategy.

CDC has issued guidance for people at high risk of exposure to the virus, including flight crews, recent travelers to China, and healthcare workers. Through its extensive Health Alert Network, CDC shared guidance for clinical care for healthcare professionals and state and local health departments. Health departments, in consultation with healthcare providers, can evaluate patients and determine whether someone may have the illness and should be subjected to additional diagnostic testing.

The current outbreak meets two criteria for a pandemic. It is a new virus, and it is capable of person-to-person spread. If sustained person-to-person spread in the community takes hold outside China, this will increase the likelihood that the WHO will deem it a global pandemic. Extensive work has been done over the past 15 years in the United States to prepare for an influenza pandemic. Influenza pandemic preparedness platforms and plans are appropriate in the event that the current COVID-19 outbreak becomes a pandemic. Public health partners have been encouraged to review their pandemic preparedness plans and begin planning for community spread.

CDC has a demonstrated record of innovative science and evidence-based decision-making, and an experienced and expert workforce that is working 24/7 to combat this public health emergency. The COVID-19 outbreak is evolving rapidly, and the U.S. Government is constantly making adjustments to respond to the changing nature of this public health emergency. Our goal continues to be slowing the introduction of the virus into the United States and preparing our communities for more cases and possible sustained spread. While leaning forward aggressively with the hope that we will be able to prevent community spread, CDC remains vigilant in confronting the challenges presented by this new coronavirus.

Assistant Secretary for Preparedness and Response

Currently, there are no vaccines or therapeutics approved by the FDA to treat or prevent novel coronavirus infections. The Biomedical Advanced Research and Development Authority (BARDA), part of ASPR, is working with counterparts across the government, including within HHS and with the Department of Defense (DOD). The team is reviewing potential vaccines, treatments, and diagnostics from across the public and private sectors to identify promising candidates that could be developed to detect, protect against, or treat people with coronavirus infections. BARDA is working closely across the U.S. Government to assess and identify potential partners and technologies suitable to address the COVID-19 outbreak—both for prevention and treatment.

This has allowed BARDA to leverage existing partnerships, accelerating the development of COVID-19 medical countermeasures, including diagnostics, therapeutics, and vaccines. Established partners, including Regeneron, Janssen, and Sanofi Pasteur, have shown success in developing both prophylactic and therapeutic medical countermeasures for emerging infectious diseases.

BARDA is collaborating with Regeneron to leverage their partnership agreement to develop multiple monoclonal antibodies that, individually or in combination, could be used to treat this emerging coronavirus. Regeneron's monoclonal antibody discovery platform, called VelocImmune, was used to develop a promising investigational three-antibody therapeutic which was deployed to treat Ebola in the most re-

cent outbreak in the Democratic Republic of the Congo, and an investigational two-antibody therapeutic to treat MERS. The technology shortened multiple aspects of the product development timeline for therapeutics to treat MERS and Ebola from years to months. The technology helped shorten certain stages of drug development, including the process of antibody discovery and selection, preclinical-scale manufacturing, and clinical-scale manufacturing. BARDA and Regeneron are working to utilize these monoclonal antibodies, produced by a single clone of cells or a cell line with identical antibody molecules, which will bind to certain proteins of a virus, reducing the ability of the COVID-19 virus to infect human cells.

BARDA is working with Janssen to leverage their Ebola, Zika, HIV vaccine platform to expedite development of vaccines that protect against the SARS-CoV-2 virus. Using existing resources, BARDA will share research and development costs and expertise with Janssen to help accelerate Janssen's investigational COVID-19 vaccine into clinical evaluation. Janssen will also scale-up production and manufacturing capacities required to manufacture the candidate vaccine. This same approach was used to develop and manufacture Janssen's investigational Ebola vaccine with BARDA support; that vaccine is being used in the Democratic Republic of the Congo as part of the current Ebola outbreak response. Additionally, BARDA and Janssen are working together to help develop treatments for coronavirus infections. Janssen will conduct high throughput screening on thousands of potential antiviral compounds in order to identify medicines that could safely and effectively be used to reduce the severity of illness and treat COVID-19 infections, as well as identify compounds that have antiviral activity against SARS-CoV-2 as an initial step in developing new treatments. These products include those in development to treat and prevent MERS or SARS, which are caused by coronaviruses also related to COVID-19.

Finally, in their work with Sanofi Pasteur, BARDA is able to leverage a licensed recombinant influenza vaccine platform to produce a recombinant SARS-CoV-2 vaccine candidate. The technology produces an exact genetic match to proteins of the virus. DNA encoding the protein will be combined with DNA from a virus harmless to humans, and used to rapidly produce large quantities of antigen which stimulate the immune system to protect against the virus. The antigens will be separated and collected from these cells and purified to create working stocks of vaccine for advanced development.

BARDA has initiated early steps of medical countermeasures development with partners and will continue to work to accelerate this process. Availability of these medical countermeasures is essential to save lives and protect Americans against 21st century public health threats.

Our nation's healthcare system is better prepared than it has ever been. For example, all 50 states have Pandemic Plans, as a requirement of CDC's Public Health Emergency Preparedness Program (PHEP) and ASPR's Hospital Preparedness Program (HPP). HPP was established after the September 11, 2001, terrorist attacks, with the goal of improving the capacity of local hospitals across the country to deal with disasters and a large influx of patients in an emergency. Using HPP funding, state grantees initially purchased equipment and supplies needed for emergency medical surge capacity. Over time, the program has successfully evolved to support local, coordinated healthcare coalitions, including hospitals, public health facilities, emergency management agencies, and emergency medical services providers. Investments administered through PHEP and HPP have improved individual health care entities' preparedness and have built a system for coordinated healthcare system readiness. HPP is the only source of Federal funding to prepare the Nation's mostly private health care system to respond to emergencies, including COVID-19.

Beginning in 2018, ASPR has been supporting Regional Disaster Health Response Systems (RDHRS) pilot projects. The RDHRS concept aims to provide funding directly to hospitals and healthcare systems to establish multi-state regional partnerships to increase preparedness and response capability and capacity for hospitals and healthcare facilities in advance of, during, or immediately following incidents, including emerging infectious diseases. Two sites were selected in September 2018 to begin development of RDHRS pilots. In 2019, two grants were awarded to support new centers of excellence pilots focused on pediatric disaster care. The RDHRS and Pediatric Disaster Care Center of Excellence cooperative agreement requirements are intentionally aligned to ensure synergy between the programs and collaboration between all sites and facilities. Ultimately, these efforts inform best practices to help ready healthcare delivery systems for disasters and emergencies and are critical in aiding response and limiting the impact of disaster. As you all are aware, the United States is in the middle of influenza season. Many emergency departments are at 90 percent capacity. If influenza worsens, or if COVID-19 intensifies domestically, emergency departments would be severely strained, which is why

supporting models such as the Hospital Preparedness Program healthcare coalition network is so important.

The National Ebola Training and Education Center (NETEC) combines the resources of healthcare institutions experienced in treating Ebola to offer training, readiness consultations, and expertise to help facilities prepare for Ebola and other special pathogens. The regional Ebola and other special pathogen treatment centers, of which ASPR and CDC funded 10 across the country, all have respiratory infectious disease isolation capacity or negative pressure rooms for at least 10 patients, including pediatric patients. The NETEC and the regional Ebola and other special pathogen treatment centers are being used to support the ongoing quarantine effort. Should the coronavirus infections increase domestically, these centers will become critical in isolating infected persons and providing adequate treatment.

ASPR and CDC also work to enhance medical surge capacity by organizing, training, equipping, and deploying Federal public health and medical personnel, such as National Disaster Medical System (NDMS) teams, and providing logistical support for Federal responses to public health emergencies. NDMS was originally created during the Cold War to take care of military casualties from overseas in U.S. civilian hospitals. Today, NDMS teams are deployed to strategic locations across the country, caring for U.S. citizens evacuated from China who may have been exposed to SARS-CoV-2, effectively providing medical care and limiting the potential spread of the disease.

Currently, to assist in the repatriation effort, ASPR has stood up a National HHS Incident Management Team (IMT) located in Washington, DC. The IMT serves as the national command and control element. Currently, HHS has deployed 606 Public Health Service Commission Corps Officers and NDMS personnel:

- March Air Reserve Base (in Riverside County, California): 39 personnel onsite
- Travis Air Force Base (in Solano County, California): 214 personnel onsite
- Marine Corps Air Station Miramar (in San Diego, California): 127 personnel onsite
- Lackland Air Force Base (in San Antonio, Texas): 150 personnel on site
- Camp Ashland (in Omaha, Nebraska): 76 personnel onsite

In addition, HHS is providing cache equipment, (*e.g.*, medical supplies and resources) to Travis AFB, Marine Corps Air Station Miramar, Lackland, Air Force Base, and Camp Ashland. HHS deployed one Disaster Medical Assistance Team (DMAT) and one IMT on February 12, 2020 to support American citizens in Japan on the Diamond Princess cruise ship, as well as the U.S. Embassy, to provide medical care, prescriptions, and behavioral health support. Regarding the cruise ship, the Department of State facilitated voluntary repatriation of over 300 U.S. citizens and family members who were passengers. During the evacuation process, after passengers had disembarked the ship and initiated transport to the airport, U.S. officials received notice that 14 passengers, who had been tested 2–3 days earlier, had tested positive for COVID-19. For the flight, these passengers were kept in a specialized containment area on the evacuation aircraft to isolate them in accordance with standard protocols. After consultation with HHS officials, including experts from ASPR, Department of State allowed the 14 individuals, who were in isolation, separated from other passengers and continued to be asymptomatic, to remain on the aircraft to complete the evacuation process. All passengers were closely monitored by medical professionals throughout the flight, and any who became symptomatic were moved to the specialized containment area. Upon landing in the United States, passengers deplaned at either Travis AFB or Joint Base San Antonio and will remain under quarantine for 14 days. The 14 individuals who had tested positive for COVID-19 continued to the University of Nebraska Medical Center in Omaha, Nebraska. Every precaution to ensure proper isolation and community protection measures are being taken, driven by the most up-to-date risk assessments by U.S. health authorities.

Many active pharmaceutical ingredients and medical supplies, including auxiliary supplies such as syringes and gloves, come from China and India. This outbreak demonstrates why ASPR is seeking innovative solutions and partnerships to better protect national security. ASPR is working to increase access to personal protective equipment (PPE) by:

- Coordinating with CDC and other Federal agencies to share information about optimization of PPE, to prevent overbuying and overuse of existing supplies
- Engaging private sector partners who manufacture and distribute PPE to share information and concerns, and to explore options to anticipate and meet the needs of the U.S. healthcare sector more effectively. During recent discussions,

for example, distributors informed us that they have implemented allocations to help prevent stockpiling at healthcare facilities. The allocation is a percentage of a customer's previous orders and is designed to help protect the healthcare supply chain and ensure the right supplies are available for those who need it.

- We are also partnering with other Federal agencies such as DHS, DOD and the U.S. Department of Veterans Affairs who are large buyers of PPE, to develop acquisition strategies that incentivize industry to expand PPE production while not exacerbating supply challenges.

The Strategic National Stockpile (SNS) holds thousands of deployable face masks, N95 respirators, gloves, and surgical gowns that could be deployed if state and local supplies are diminished due to the current COVID-19 response and commercial supplies are exhausted. The SNS is working hand-in-hand with commercial supply chain partners and other Federal agencies to continue monitoring supply levels and to prepare for a potential deployment of SNS personal protective gear if it is needed.

The National Institutes of Health

The National Institutes of Health (NIH) is the HHS agency leading the research response to the global health emergency of COVID-19. Within the NIH, the National Institute of Allergy and Infectious Diseases (NIAID) is responsible for conducting and supporting research on emerging and re-emerging infectious diseases, including COVID-19.

NIAID is well-positioned to respond rapidly to infectious disease threats as they emerge by leveraging fundamental basic research efforts; a domestic and international research infrastructure that can be quickly mobilized; and collaborative and highly productive partnerships with industry. NIAID provides preclinical research resources to scientists in academia and private industry throughout the world to advance translational research for emerging and re-emerging infectious diseases. These research resources are designed to bridge gaps in the product development pipeline, thereby lowering the scientific, technical, and financial risks incurred by industry and incentivizing companies to partner in the development of effective countermeasures including diagnostics, therapeutics, and vaccines.

NIAID also supports the Infectious Diseases Clinical Research Consortium, which includes a network of Vaccine and Treatment Evaluation Units (VTEUs). The VTEUs conduct clinical trials to investigate promising therapeutic and vaccine candidates when public health needs arise. NIAID collaborates with other Federal agencies, including through the HHS Public Health Emergency Medical Countermeasures Enterprise (PHEMCE), to help advance progress against newly emerging public health threats. In addition, partnerships with academia, the biotechnology and pharmaceutical industries, domestic and international researchers, and organizations such as the World Health Organization (WHO) are integral to these efforts.

NIAID has a longstanding commitment to coronavirus research, including extensive efforts to combat two other serious diseases caused by coronaviruses: SARS and MERS. This research has improved our fundamental understanding of coronaviruses and provides a strong foundation for our efforts to address the challenge of SARS-CoV-2, the novel coronavirus that causes COVID-19. NIAID has responded to the newly emerging COVID-19 outbreak by expanding our portfolio of basic research on coronaviruses. NIAID scientists have rapidly identified the human receptor used by SARS-CoV-2 to enter human cells. In addition, NIAID investigators and their collaborators recently identified the atomic structure of the spike protein, an important SARS-CoV-2 surface protein that is a key target for the development of vaccines and therapeutics. NIAID scientists also are evaluating the stability of SARS-CoV-2 on various ordinary surfaces and in aerosols to better understand the potential for viral spread throughout the community.

NIAID-supported researchers are assessing the risk of emergence of bat coronaviruses in China, including the characterization of bat viruses and surveys of people who live in high-risk communities for evidence of bat coronavirus infection. Such research is necessary to better understand this emerging infection and to investigate optimal ways to diagnose, treat, and prevent COVID-19.

The NIAID Centers of Excellence for Influenza Research and Surveillance (CEIRS), which conduct influenza risk assessments in multiple sites throughout the world particularly in Asia, have responded rapidly to the COVID-19 outbreak. CEIRS researchers at the University of Hong Kong are evaluating the epidemiology, transmission dynamics, and severity of COVID-19. These scientists also have performed environmental sampling of the Wuhan market where the first COVID-19 cases were reported.

NIAID is working with CEIRS collaborators and the CDC to obtain additional virus and biological samples from patients to further advance research efforts on COVID-19. Recently, the NIAID-funded BEI Resources Repository made samples of SARS-CoV-2 available for distribution to domestic and international researchers at Biosafety Level 3 laboratories. In addition, CEIRS researchers and other NIAID-supported scientists are developing reagents, assays, and animal models that can be used to evaluate promising therapeutics and vaccines. These research resources also will be shared with the domestic and international scientific community as soon as they become available.

On February 6, 2020, NIAID issued a *Notice of Special Interest regarding the Availability of Urgent Competitive Revisions for Research on the 2019 Novel Coronavirus*. This notice encourages existing NIAID grantees to apply for supplements for research project grants focused on the natural history, pathogenicity, and transmission of the virus, as well as projects to develop medical countermeasures and suitable animal models for preclinical testing of COVID-19 vaccines and therapeutics.

NIAID has responded to public health concerns about COVID-19 by increasing ongoing coronavirus research efforts to accelerate the development of interventions that could help control current and future outbreaks of COVID-19. These activities build on prior NIAID research addressing other coronaviruses, such as those that cause SARS and MERS.

The CDC has developed a real-time Reverse Transcription-Polymerase Chain Reaction (rRT-PCR) test that can detect COVID-19 using respiratory samples from clinical specimens. NIAID is accelerating efforts to develop additional diagnostic tests for COVID-19, and NIAID-supported investigators are developing PCR-based assays for SARS-CoV-2 to facilitate preclinical studies and aid in the development of medical countermeasures. NIAID scientists also are developing reagents for an enzyme-linked immunosorbent assay for SARS-CoV-2. CEIRS researchers at the University of Hong Kong have developed a separate RT-PCR test and made their protocol publicly available through the WHO. These NIAID-supported investigators also have distributed assay reagents to 12 countries to facilitate the diagnosis of COVID-19.

NIAID is pursuing the development of antivirals and monoclonal antibodies for potential use against SARS-CoV-2. NIAID has launched a multicenter, randomized controlled clinical trial to evaluate the safety and efficacy of the antiviral drug remdesivir for the treatment of COVID-19 in hospitalized adults with laboratory-confirmed SARS-CoV-2 illness. The adaptive design of this trial will enable the evaluation of additional promising therapies. NIAID plans to assess other existing antivirals for activity against SARS-CoV-2, and NIAID scientists are working to identify monoclonal antibodies with therapeutic potential from COVID-19 patient samples as well as historical SARS patient samples. NIAID-funded scientists also aim to delineate new viral targets to facilitate the development of novel therapeutics with broad activity against coronaviruses. Finally, NIAID is expanding its suite of preclinical services to add assays that investigators can use to accelerate research and development of therapeutics for COVID-19.

A safe and effective vaccine for SARS-CoV-2 would be an extremely valuable tool to stop the spread of infection and prevent future outbreaks. Public and private entities across the globe have announced plans to develop SARS-CoV-2 vaccine candidates following the release of the SARS-CoV-2 genetic sequence. NIAID is supporting development of several SARS-CoV-2 vaccine candidates, and is utilizing vaccine platform technologies that have shown promise against the coronaviruses that cause SARS and MERS.

The NIAID Vaccine Research Center (VRC) is collaborating with the biotechnology company Moderna, Inc., on the development of a vaccine candidate using a messenger RNA (mRNA) vaccine platform containing the gene that expresses the VRC-designed spike protein of SARS-CoV-2. NIAID anticipates the experimental vaccine will be ready for clinical testing in the NIAID VTEUs within the next two months and will conduct preclinical studies as well as a first-in-human study of this COVID-19 vaccine candidate. The Coalition for Epidemic Preparedness Innovations (CEPI) will fund the manufacture of the first clinical production lot of this mRNA-based vaccine candidate using the Moderna rapid manufacturing facility.

NIAID Rocky Mountain Laboratories (RML) scientists are collaborating with Oxford University investigators to develop a chimpanzee adenovirus-vectored vaccine candidate against SARS-CoV-2; in addition, they have partnered with CureVac on an mRNA vaccine candidate. RML investigators also have launched a collaboration with the University of Washington and have begun early-stage testing of an RNA vaccine candidate against SARS-CoV-2. In addition, NIAID-supported scientists at Baylor College of Medicine and their collaborators are evaluating an experimental

SARS-CoV recombinant protein vaccine to determine if it also provides protection against SARS-CoV-2. NIAID is exploring additional collaborations with extramural research and industry partners on other vaccine concepts. NIAID also is supporting the development of standardized assays and animal models that will be utilized to evaluate vaccine candidates.

With all these efforts, NIAID is coordinating closely with colleagues at the CDC, BARDA, FDA, DOD, and other Federal and international partners.

To achieve the ultimate goal of having a SARS-CoV-2 vaccine available to the public, it is important that NIAID and the entire biomedical research community pursue a range of vaccine strategies in order to be better positioned to overcome the scientific or technical challenges associated with any particular vaccine approach. In this regard, NIAID has dedicated resources toward preclinical research to advance a robust pipeline of vaccine candidates into Phase 1 clinical evaluation. Further vaccine research, including Phase 2 clinical trials, will then be required. Additional research also is needed to better understand the fundamental biology of coronaviruses and to facilitate the design of vaccines that elicit optimal immune responses and protect against infection.

While ongoing SARS-CoV-2 vaccine research efforts are promising, it is important to realize that the development of investigational vaccines and the clinical testing to establish their safety and efficacy take time. Although we plan to begin early-stage clinical testing of an NIAID-supported vaccine candidate in the next few months, a safe and effective, fully licensed SARS-CoV-2 vaccine will likely not be available for some time. Currently, the COVID-19 outbreak response in the United States remains focused on the proven public health practices of containment—identifying cases, isolating patients, and tracing contacts.

NIH is committed to continued collaboration with other HHS agencies and additional partners across the U.S. government and international community to advance research to address COVID-19. As part of its mission to respond rapidly to emerging and re-emerging infectious diseases throughout the world, NIAID is expanding our efforts to elucidate the biology of SARS-CoV-2 and employ this knowledge to develop the tools needed to diagnose, treat, and prevent disease caused by this virus. NIAID is particularly focused on developing safe and effective COVID-19 vaccines. These efforts also help to expand our knowledge base and improve our continued preparedness for the next inevitable emerging disease outbreak.

Food and Drug Administration

The FDA plays a critical role in overseeing our Nation's FDA-regulated products as part of our vital mission to protect and promote public health, including during public health emergencies. Our work primarily focuses on four key areas: first, actively facilitating efforts to diagnose, treat, and prevent the disease; second, surveilling product supply chains for potential shortages or disruptions and helping to mitigate such impacts, as necessary; third, conducting inspections and monitoring compliance, including of facilities that manufacture FDA-regulated products overseas; fourth, helping to ensure the safety of consumer products. I will be providing an update of our ongoing work as well as tools that could help enhance the FDA's response capabilities.

A key focus area for the FDA is helping to expedite the development and availability of medical products needed to diagnose, treat, and prevent this disease. We're committed to helping foster the development of critical medical countermeasures as quickly as possible to protect public health. We provide regulatory advice, guidance, and technical assistance to sponsors in order to advance the development and availability of vaccines, therapies, and diagnostic tests for this novel virus.

On February 4, 2020, the FDA issued an emergency use authorization (EUA) to enable immediate use of a diagnostic test developed by the CDC, facilitating the ability for this test to be used in CDC-qualified laboratories.¹ The FDA is dedicated to actively working with other COVID-19 diagnostic developers to help accelerate development programs and requests for EUAs. We have developed an EUA review template for tests to detect the virus, which outlines the data requirements for a Pre-EUA package that is available to developers upon request. To date, we have shared the EUA review template with more than 65 developers who have expressed interest in developing diagnostics for this virus.

¹ FDA. 2019 Novel Coronavirus Emergency Use Authorization. February 4, 2020. <https://www.fda.gov/medical-devices/emergency-situations-medical-devices/emergency-use-authorizations#coronavirus2019>. FDA. FDA Takes Significant Step in Coronavirus Response Efforts, Issues Emergency Use Authorization for the First 2019 Novel Coronavirus Diagnostic: Critical Milestone Reached in Response to this Outbreak. <https://www.fda.gov/news-events/press-announcements/fda-takes-significant-step-coronavirus-response-efforts-issues-emergency-use-authorization-first>.

The medical product supply chain is always potentially vulnerable to disruption, which makes our surveillance work and collaboration with industry critical and why the Agency takes a proactive stance on any potential impact or disruption to the supply chain. An outbreak of this global scale has an impact on the medical product supply chains, including potential disruptions to supply or shortages of critical medical products in the United States. We are in contact with manufacturers; global regulators, like the European Medicines Agency; health care delivery organizations; and other participants in the medical product supply chains to quickly identify and address any supply concerns that come from issues related to China and other locations in Southeast Asia sourcing raw materials for manufacturing drugs.

We are also tracking reports of increased ordering of some essential medical devices through distributors, such as personal protective equipment (PPE) (*e.g.*, respirators and surgical gowns, gloves and masks). FDA is working proactively to stay ahead of potential shortages or disruptions of medical products. The agency will use all available authorities to react swiftly and mitigate the impact to U.S. patients and health care professionals as these threats arise.

Monitoring the safety of FDA-regulated product supply chains is one of the FDA's highest priorities. The FDA utilizes risk-based models to identify firms for inspection and prioritizes inspections based on specific criteria. Because of travel restrictions to China, the Agency has postponed planned inspection activities in China. However, we are currently continuing inspection and enforcement activities as normal for the rest of our operations. Inspections of facilities in China remain prioritized in our site selection model and, when travel restrictions are lifted, inspections of facilities in China will resume. Any travel to China that is deemed to be mission-critical is being assessed on a case-by-case basis in close coordination with other HHS components and with the Department of State. FDA is committed to maintaining its scheduled inspections around the globe to the extent possible, while maintaining the safety of the staff involved. We will revisit this approach and adjust as necessary as this outbreak continues to unfold. In the meantime, FDA is working with our partner government agency, U.S. Customs and Border Protection (CBP), to evaluate and adjust our risk-based targeting strategy to ensure FDA-regulated products are safe when entering the United States.

While the outbreak is impacting our ability to conduct inspections in China, it's important to underscore that the FDA's regular risk-based process of surveillance testing of imported products, including those from China, continues.

Inspections are one of many tools that the Agency uses to inform its risk strategy for imported FDA-regulated products and to help prevent products that do not meet the FDA's standards from entering the U.S. market. Other tools include: import alerts, increased import sampling, and screening. Inspections are also part of, among other things, the new and generic drug approval process. While such pre-approval inspections are on hold in China, we are working to mitigate the impact on new and generic drug approval decisions by requesting records that may be used in lieu of an inspection, depending on the circumstances. Based on our evaluation of previous FDA inspection history, a firm's previous compliance history and information from foreign health authorities with which we have mutual recognition agreements, we determine if the totality of the information would suffice in lieu of such a pre-approval inspection.

All products offered for entry into the United States, including items for personal use, are subject to the regulatory requirements of CBP. Imported shipments of FDA-regulated products referred by CBP, including those from China, are then reviewed by the FDA and must comply with the same standards as domestic products. At this time, we want to reassure the public that there is no evidence to support transmission of COVID-19 associated with imported goods, including food and drugs for people or pets, and there have not been any cases of COVID-19 in the U.S. associated with imported goods.

We established a cross-agency task force to closely monitor for fraudulent FDA-regulated products and false product claims related to COVID-19 and we have already reached out to major retailers to ask for their help in monitoring their online marketplaces for fraudulent products with coronavirus and other pathogen claims.

FDA is utilizing all our existing authorities to address COVID-19 and we welcome the opportunity to work with Congress to strengthen our response capabilities. There are four specific proposals included in the President's Budget that would better equip the Agency to prevent or mitigate medical product shortages.

(1) Lengthen Expiration Dates to Mitigate Critical Drug Shortages

Shortages of critical drugs can be exacerbated when drugs must be discarded because they exceed a labeled shelf-life due to unnecessarily short expiration dates. By expanding FDA's authority to require, when likely to help prevent

or mitigate a shortage, that an applicant evaluate, submit studies to FDA, and label a product with the longest possible expiration date that FDA agrees is scientifically justified, there could be more supply available to alleviate the drug shortage or the severity of a shortage.

- (2) **Improving Critical Infrastructure by Requiring Risk Management Plans**
Enabling FDA to require application holders of certain drugs to conduct periodic risk assessments to identify the vulnerabilities in their manufacturing supply chain (inclusive of contract manufacturing facilities) and develop plans to mitigate the risks associated with the identified vulnerabilities would enable the Agency to strengthen the supply chain by integrating contingencies for emergency situations. Currently, many applicants lack plans to assess and address vulnerabilities in their manufacturing supply chain, putting them, and American patients, at risk for drug supply disruptions following disasters (e.g., hurricanes) or in other circumstances.
- (3) **Improving Critical Infrastructure Through Improved Data Sharing: Requiring More Accurate Supply Chain Information**
Empowering FDA to require information to assess critical infrastructure, as well as manufacturing quality and capacity, would facilitate more accurate and timely supply chain monitoring and improve our ability to recognize shortage signals.
- (4) **Device Shortages**
FDA does not have the same authorities for medical device shortages as it does for drugs and biological products. For instance, medical device manufacturers are not required to notify FDA when they become aware of a circumstance that could lead to a device shortage or meaningful disruption in the supply of that device in the United States, nor are they required to respond to inquiries from FDA about the availability of devices. Enabling FDA to have timely and accurate information about likely or confirmed national shortages of essential devices would allow the Agency to take steps to promote the continued availability of devices of public health importance. Among other things, FDA proposes to require that firms notify the agency of an anticipated meaningful interruption in the supply of an essential device; require all manufacturers of devices determined to be essential to periodically provide FDA with information about the manufacturing capacity of the essential device(s) they manufacture; and authorize the temporary importation of certain devices where the benefits of the device in mitigating a shortage outweigh the risks presented by the device that could otherwise result in denial of importation of the device into the United States.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARSHA BLACKBURN TO
DR. STEPHEN REDD

Question 1. Why were two passengers, who tested positive for COVID-19, flown back to the United States on the same plane as passengers who tested negative? Given our prior experience with a similar situation during the SARS outbreak in 2003, shouldn't we have been prepared for this?

Did the Department of State override the CDC's decision to not let those passengers come back to the U.S. If yes, who made this decision?

Answer. As a preliminary matter, the U.S. Government's operations overseas related to this coronavirus outbreak represent the culmination of years of collaborative work between the Departments of State (DOS), Health and Human Services (HHS), Defense, Homeland Security (DHS), Transportation, and others. During complex operations, such as the evacuation of U.S. citizens out of Wuhan, China or from the Diamond Princess cruise ship, there will be situations that merit interagency discussion and rapid decisionmaking. In the case of the Diamond Princess evacuation, HHS had staff on the ground in Yokohama, in Washington state, and staff to receive evacuees in California, Texas, and Nebraska HHS worked closely with the Department of State in bringing those U.S. citizens home.

As a general practice, HHS provides DOS public health guidance from the Centers for Disease Control and Prevention (CDC) and preparedness policy and operational support through the Assistant Secretary for Preparedness and Response (ASPR). Regarding the Diamond Princess cruise ship, CDC supported the DOS-led mission to repatriate U.S. citizens returning to the United States from Japan who were aboard the Diamond Princess cruise ship. Due to the dynamic nature of the ongoing outbreak, the U.S. Government recommended that U.S. citizens disembark and return to the United States. As DOS and HHS describe in their joint media statement

from February 17, 2020 (<https://www.state.gov/joint-statement-by-u-s-department-of-state-and-u-s-department-of-health-and-human-services-on-repatriation-of-american-passengers-from-the-diamond-princess-cruise-ship/>), during the evacuation process, after passengers had disembarked the ship and initiated transport to the airport, U.S. officials received notice that 14 passengers, who had been tested 2–3 days earlier, had tested positive for COVID–19. After consultation with HHS officials, including experts from HHS ASPR, and the State Department made the decision to allow the 14 individuals, who were in isolation, separated from other passengers, and continued to be asymptomatic, to remain on the aircraft to complete the evacuation process.

On February 16, 2020, 329 American citizens returned to the United States by flights chartered by DOS. The planes were met by a team of U.S. Government personnel deployed at the bases to assess the health of the passengers. The passengers were screened before leaving the Diamond Princess and were monitored and evaluated by medical and public health personnel during the trip, after arrival, and throughout the 14-day quarantine period. All of these individuals completed their quarantine.

The President’s Coronavirus Task Force is positioned to arbitrate disagreements on matters of interagency response policy and allow for healthy resolution where Department-level Principals hold differing opinions. The Task Force brings each Department’s authorities and expertise to bear on current problems of unprecedented complexity. Such an arbitration and decision has thus far not been required, as each Department works with their partners to find the best way forward.

Question 2. Are there plans in place if a passenger or crewmember, becomes symptomatic while on board the aircraft? Have DOT and the airlines worked with public health officials to determine whether these precautions create an appropriate level of separation to main safety until the aircraft lands?

Answer. CDC has recommended actions should a passenger or crewmember become ill during their international arrival flight to the United States. In the case of COVID–19, this includes individuals who exhibit symptoms like fever, difficulty breathing, and persistent cough. Once a symptomatic individual has been identified, CDC recommends several infection control measures which include, among others:

- Minimizing contact between passengers and cabin crew and the sick person. If possible, separate the sick person from others (ideally by a distance of 2 meters or 6 feet) and designate one crew member to serve the sick person and keep interactions as brief as possible
- Offering a facemask, if available and if the sick person can tolerate it. If a facemask is not available or cannot be tolerated, ask the sick person to cover their mouth and nose with tissues when coughing or sneezing.
- Encouraging sick travelers to wash their hands or use alcohol-based hand sanitizer, if available.

In addition, the Federal Aviation Administration (FAA) published a Safety Alert For Operators (SAFO) 20009, dated 4/17/20, which has since been updated as of 5/11/2020, which pointed to CDC guidance. Further, this aligns with International Civil Aviation Organization (ICAO) recommendations and Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA).

ICAO, based on research from CAPSCA, published an Electronic Bulletin, EB 2020/30, “Implementing a Public Health Corridor to Protect Flight Crew During the COVID–19 Pandemic (Cargo Operations),” to introduce the concept of “public health corridor.” This concept uses a risk-based approach, taking into account safety management principles, with the key elements being the use of “clean”¹ crew, aircraft, airport facilities and transporting “clean” passengers.

Please see the following resources for more detail:

- Guidance for Airlines on Reporting Onboard Deaths or Illnesses to CDC: <https://www.cdc.gov/quarantine/air/reporting-deaths-illness/guidance-reporting-onboard-deaths-illnesses.html>
- Updated Interim Guidance for Airlines and Airline Crew: Coronavirus Disease 2019 (COVID-19): <https://www.cdc.gov/quarantine/air/managing-sick-travelers/ncov-airlines.html>

¹“Clean” in this context refers to implementing measures to ensure as far as possible a “COVID–19 free” status within the aviation transport sector, per EB 2020/30 dated May 11, 2020. (<https://www.capsca.org/Documentation/CoronaVirus/eb030e.pdf>)

- Preventing Spread of Disease on Commercial Aircraft: Guidance for Cabin Crew: <https://www.cdc.gov/quarantine/air/managing-sick-travelers/commercial-aircraft/infection-control-cabin-crew.html>

CDC continues to work closely with the Department of Transportation and airlines to assess the existing precautions to help keep travelers safe. In addition, the DOT/FAA is in constant communication with ICAO and civil aviation authorities worldwide to accept relief to ensure transparency and consistency around the world.

Question 3. Regarding the passenger who flew out of John F. Kennedy International Airport to Rochester, NY, over the weekend had coronavirus and was contagious. How was this individual allowed to fly?

Was this passenger's temperature checked before departure and after landing?

Answer. CDC only screens international travelers arriving from countries with restricted or limited entry. This screening includes temperature checks, questions, and a visual observation for signs and symptoms.

Question 3a. How many health screenings are sufficient to assess a person's well-being to fly?

Answer. CDC's guidance has always been that individuals who are ill should not fly and not put their fellow travelers and receiving communities at risk. If CDC is notified of an ill traveler as part of the reporting requirements under 42 CFR 70.11 and 71.21, then CDC works with state and local health departments to implement a public health response.

Question 3b. What cleaning techniques are absolutely necessary to ensure future passengers of that specific jet won't contract the virus?

Answer. CDC has published guidance for disinfecting an aircraft if an ill passenger has been identified as follows (<https://www.cdc.gov/quarantine/air/managing-sick-travelers/ncov-airlines.html>):

- Clean porous (soft) surfaces (*e.g.*, cloth seats, cloth seat belts) at the seat of the symptomatic passenger(s) and within 6 feet (2 meters) of the symptomatic passenger(s) in all directions.
- Clean porous (soft) surfaces (*e.g.*, seat covers and carpet) by removing visible contamination if present and using appropriate cleaners that are compatible with aircraft surfaces and components in accordance with the manufacturer's instructions. For items that can be laundered, use the warm setting and dry items completely on high heat.
- Clean non-porous (hard) surfaces (*e.g.*, leather or vinyl seats) at the seat of the symptomatic passenger(s) and within 6 feet (2 meters) of the symptomatic passenger(s) in all directions, including: armrests, plastic and metal parts of the seats and seatbacks, tray tables, seat belt latches, light and air controls, cabin crew call button, overhead compartment handles, adjacent walls, bulkheads, windows and window shades, and individual video monitors.
- Clean non-porous (hard) surfaces with disinfectant products with EPA-approved emerging viral pathogens claims that are expected to be effective against the virus that causes COVID-19 (SARS-CoV-2) and ensure these products are compatible with aircraft surfaces and components. All products should be used according to label instructions (*e.g.*, concentration, application method and contact time, PPE).
- Clean lavatories used by the symptomatic passenger(s), including: door handle, locking device, toilet seat, faucet, washbasin, adjacent walls, and counter.
- Properly dispose of any items that cannot be cleaned (*e.g.*, pillows, passenger safety placards, and other similar items).

Question 4. Earlier this week, a TSA officer at Orlando International Airport tested positive for COVID-19. TSA officials said they coordinated with the Greater Orlando Aviation Authority and performed enhanced cleaning where the individual worked. Officials told other TSA officers who were in close contact with the impacted officer to stay home and self-observe for the next 14 days.

Is the Department working closely with the Orlando Airport on this critical finding? Have you notified passengers who have also come in close contact with the employee?

Answer. CDC's Quarantine Stations were not engaged in the case of a TSA Officer at Orlando International Airport who tested positive for COVID-19. CDC defers to other Federal agencies' internal occupational health protocols for their employees but shares guidance and CDC's internal practices when requested.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. AMY KLOBUCHAR TO
DR. STEPHEN REDD

Coronavirus (COVID-19) has now infected people in states across the country including Minnesota. On Thursday, I voted to secure \$7.8 billion in emergency funding to help states, local governments, and tribes prepare to confront the virus and to aid in the rapid development of a vaccine, and this critical legislation was signed into law on Friday.

Question 1. Can you describe the CDC's process for the development and distribution of clinical care guidance for health care professionals, as well as state and local health departments?

Answer. CDC's evidence-based guidance to address coronavirus disease 2019 (COVID-19) is designed to protect patients and healthcare personnel, encourage safe practices, improve health outcomes, and save lives (searchable guidance website here: <https://www.cdc.gov/coronavirus/2019-ncov/index.html>). Guidelines are based on systematic evidence reviews that balance considerations of:

- Efficacy and real-world usefulness,
- Feedback and input from public health partners to refine and improve guidance, and
- The urgency of information needed by healthcare professionals and health departments across the country.

Working with state and local health departments, CDC has also provided interim guidance for healthcare professionals on steps to prevent the spread of SARS-CoV-2, the virus that causes COVID-19, infections in healthcare facilities and improve patient outcomes, including steps to improve infection control, provide testing and treatment for COVID-19, and protect patients and workers (available here: <https://www.cdc.gov/coronavirus/2019-nCoV/hcp/index.html>). CDC is adjusting its response and guidance as conditions change and as more is learned about this emerging infectious disease.

CDC works with key partners in the clinical and public health sectors to quickly, directly, and widely disseminate guidance to improve health outcomes for workers in these fields. This includes, but is not limited to, the engagements below:

- Weekly calls with state health departments, the Council for State and Territory Epidemiologists, National Association of Community Healthcare Workers, National Association of City and County Health Officials, and the Association of Public Health Laboratories to provide both updates on new guidance and surveillance analysis, as well as an opportunity for these partners to ask questions of CDC experts and leadership.
- Weekly/Biweekly calls with the American Academy of Pediatrics, American Nurses Association, American Medical Association, American College of Emergency Physicians, and the Society for Healthcare Epidemiology of America to both provide updates on CDC's guidance regarding the clinical care and case management of persons with COVID-19 and venue to answer questions directly from key front line healthcare workers.
- Clinician Outreach Communication Activity (COCA) calls, a webinar-format outreach activity hosted by CDC, which typically reach hundreds of care providers to dive into specific updates to CDC's guidance for infectious disease outbreaks, which currently focus on COVID. These meetings are recorded and saved for reference on the CDC's website.
- CDC is working with the Infectious Diseases Society of America to build connections across health care disciplines and to provide access to the latest information on fighting the disease that has ended the lives of more than 120,000 Americans and affected even more (press release available here: <https://www.idsociety.org/news—publications-new/articles/2020/idsa-awarded-cdc-grant-for-covid-19-support-for-health-care-workers/>)

A *New York Times* article reported that an employee at Dartmouth-Hitchcock Medical Center who went to the doctor with a fever and respiratory symptoms ignored his doctor's advice to self-quarantine. Three days later, he was tested for COVID-19 and confirmed to have the virus. One of his close contacts has since also tested positive.

Question 2. What is the CDC doing to ensure that Americans are informed about the virus and to prevent those who may have symptoms of COVID-19, but have not yet been tested, from spreading it?

Answer. CDC provides critical information to the states and the American public about community-based interventions for COVID-19 mitigation through webinars, trainings, focused calls, and online postings. Community-based interventions can be grouped into three categories:

- *Personal protective measures* (e.g., voluntary home isolation of ill persons, voluntary home quarantine of exposed household members, respiratory and cough etiquette, using cloth face coverings in community settings, practicing hand hygiene)
- *Community measures* aimed at increasing social distancing (e.g., temporary school dismissals, social distancing in workplaces (like working remotely), postponing or cancelling mass gatherings)
- *Environmental measures* (e.g., routine cleaning of frequently touched objects or surfaces)

In addition, CDC continues to release new resources on its website to help communities adjust community mitigation strategies. Guidance released in the past few weeks has included decision tools, suggestions and consideration documents, and other resources for various sectors including K-12 schools, camps, restaurants and bars, and faith-based communities, among others. These are intended to help inform decisions about the most appropriate actions to meet the needs of local communities.

CDC provides technical assistance to states by disseminating new guidance, considerations, tools, and suggestions as they are released through outreach to key partners in relevant sectors (e.g., health and education agencies, national professional organizations) as well as through web content.

In addition to direct dissemination efforts, CDC has made a set of communication resources available on its website (<https://www.cdc.gov/coronavirus/2019-ncov/communication/index.html>) and has provided an easily accessible repository of guidelines, tools, and resources from CDC and others for states, tribes, localities, and territories (<https://www.cdc.gov/coronavirus/2019-ncov/php/index.html>). CDC also routinely provide technical assistance on COVID-19-related considerations through e-mails and calls with health departments, education agencies, and the general public.

Question 3. Can you speak to the challenges that the CDC and state and local health departments are facing in attempting to contain the virus?

Answer. The Coronavirus Disease 2019 (COVID-19) pandemic is the most significant public health challenge to face our Nation in more than a century. This is a rapidly evolving pandemic in which approaches must change to keep pace with the needs of the state, territorial, and tribal jurisdictions. Some key challenges CDC, alongside our state, tribal, local, and territorial partners, has worked to address include, but are not limited to:

Data Modernization: At the heart of any public health response is the critical need for accurate information and data. This crisis has highlighted the ongoing challenges presented by the Nation's fragmented and outdated public health data infrastructure—a condition that predates the pandemic—but it has also helped illuminate the way forward. Congress has provided critical investments in CDC's data modernization initiative, including \$50 million in CDC's Fiscal Year 2020 appropriation and \$500 million in the CARES Act. These investments will help CDC enhance the capabilities of state and local health departments so they can marshal fast, targeted responses to disease outbreaks; enhance syndromic surveillance to serve as a national early warning system of emerging health threats; and build out Laboratory Data Exchange to enhance rapid and accurate transmission of critical laboratory information, among other improvements.

Health Disparities: This pandemic has also highlighted the persistent disparities in our Nation and the challenges we face to overcome them. Existing health disparities, housing patterns, work circumstances, and other factors might make members of many demographic groups especially vulnerable in public health emergencies such as outbreaks of COVID-19. CDC recognizes that responding to the needs of all communities is a priority in this response, and we strive to continuously identify needs and improve our outreach. Please see this information on our website, www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/racial-ethnic-minorities.html. To accelerate progress toward reducing COVID-19 health disparities and achieve health equity, CDC established in the COVID-19 Incident Management Structure, a Chief Health Equity Officer whose focus is to ensure an all-of-response approach to identifying and addressing health disparities. To address these disparities, CDC crafted a strategy to ensure that key data are available and that high impact programs and initiatives—that are culturally and linguistically responsive

and tailored to address the unique circumstances of groups at increased risk for COVID-19, are implemented. The health equity strategy prioritizes:

- Expanding the evidence base to increase our understanding of the impact and factors that lead to the disproportionate burden of COVID-19 in communities at highest risk.
- Expanding testing, contact tracing, isolation options, and preventive care and disease management in populations at increased risk for COVID-19.
- Expanding programs and practice activities to support essential and frontline workers to prevent the spread of COVID-19.
- Increasing cultural responsiveness and application of health equity principles among an increasingly diverse COVID-19 responder workforce.

Frontline Public Health Capacity: Additionally, enhancing frontline public health capacity in state, local, tribal, and territorial (STLT) health departments to intensify the coordinated response to COVID-19 is critical to containing and mitigating the virus. Staffing challenges have been at the forefront of STLT health departments. These challenges include finding qualified staff (*e.g.*, laboratorians) and STLT specific hiring constraints such as overall economic shortfalls and furloughs, competing demands, and fiscal/administrative hurdles to rapid hiring. Specific to workforce challenges, CDC is using a multi-pronged approach to identify and support innovative hiring mechanisms designed to address the surge staffing needs of health departments. This CDC initiative will help provide STLT health departments access to a variety of staffing mechanisms to complement local efforts to increase capacity, such as:

- Realigning existing CDC field staff embedded in health departments.
- Providing flexibilities to applicants and recipients of Federal financial assistance affected by COVID-19 to redirect funds for temporary reassignment of personnel.
- Deploying CDC teams to address outbreaks in special settings.
- Partnering with CDC Foundation and other organizations to place surge staff for STLT health departments across the Nation.
- Partnering with other Federal agencies (*e.g.*, AmeriCorps) to offer staffing options with states.
- Facilitating access to a variety of contact tracing and case investigation training products and tools for a diverse and evolving public health workforce.

CDC is also providing programmatic guidance, technical assistance, and resources related to hiring and training new and existing staff. CDC has developed a range of guidance documents and is facilitating access to a variety of training products and tools for a diverse and evolving public health workforce. These products and tools are available through *Get and Keep America Open* (www.cdc.gov/coronavirus/2019-ncov/php/index.html). Additionally, CDC COVID-19 supplemental appropriations contribute to epidemiology, laboratory capacity expansion, contact tracing, surveillance and analytics infrastructure modernization; disseminating information about testing; and workforce support necessary to mitigate COVID-19. Specifically, in the Paycheck Protection Program and Health Care Enhancement Act, the Department of Health & Human Services was provided \$11 billion for states, localities, and territories, tribes, tribal organizations, and urban Indian organizations to develop, purchase, administer, process, and analyze COVID-19 tests, conduct surveillance, trace contacts, and support related activities. CDC utilized the existing Epidemiology and Laboratory Capacity (ELC) grant to award \$10.25 billion to 64 state, territorial, and local jurisdictions and \$750 million was allocated for tribes, tribal organizations, and urban Indian organizations through the Indian Health Service.

One specific staffing challenge has been around contact tracing. Depending upon the level of SARS-CoV-2 spread, communities may choose to scale up and train a larger case investigation and contact tracing workforce and work collaboratively across public and private agencies in order to stop the transmission of COVID-19. Prior to COVID-19, there were about 2,000 fully trained contact tracers in the US. Various studies estimate that about 100,000 fully trained contact tracers may be needed for COVID-19¹. CDC's primary role regarding contact tracing is to provide guidance and support to STLT health departments in the development and implementation of effective contact tracing programs. CDC published sample contact tracing training materials online that are available for local and state public health

¹ https://www.centerforhealthsecurity.org/our-work/pubs_archive/pubs-pdfs/2020/200410-national-plan-to-contact-tracing.pdf

agencies to utilize in scaling up training efforts. Those training materials are available online at <https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/index.html>. The goal is for STLT jurisdictions to have robust public health systems, which may include a fully developed contact tracing infrastructure. In support of this goal, CDC communicates daily with our STLT partners to share resources, guidance, training, and technical assistance that assist in their development of plans for expanded contact tracing.

