

THE LOGISTICS OF TRANSPORTING A COVID-19 VACCINE

HEARING

BEFORE THE

SUBCOMMITTEE ON TRANSPORTATION AND SAFETY

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

SECOND SESSION

DECEMBER 10, 2020

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED SIXTEENTH CONGRESS

SECOND SESSION

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THE LOGISTICS OF TRANSPORTING A COVID-19 VACCINE

THURSDAY, DECEMBER 10, 2020

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

The Subcommittee met, pursuant to notice, at 9:31 a.m., in room SR-253, Russell Senate Office Building, Hon. Deb Fischer, Chairman of the Subcommittee, presiding.

Present: Senators Fischer [presiding], Wicker, Thune, Capito, Duckworth, Cantwell, Klobuchar, Blumenthal, Peters, Baldwin, and Tester.

OPENING STATEMENT OF HON. DEB FISCHER, U.S. SENATOR FROM NEBRASKA

Senator FISCHER. The hearing will come to order. Good morning. I am pleased to convene today's hearing as Chairman of the Senate Subcommittee on Transportation and Safety.

Since the beginning of the pandemic, over 280,000 of our family members, friends, and fellow citizens have died from COVID-19. Many more have had the disease and, in some cases, with severe symptoms and potential long-term impacts. Even more have felt the economic impacts, either through losing a job, facing shorter work hours, or being forced to close businesses. And all of us have adjusted to what we modestly call a new normal, which has kept us apart from family, friends, and colleagues. It has kept us from celebrating holidays together, engaging in our favorite pastimes, and enjoying each other's company in person.

So when we all heard news that vaccines may soon be available, we were impressed with the science and the hard work that went into developing them and relieved that we may be nearing the beginning of the end to this pandemic. We must all remember that until vaccines are widely available and people are vaccinated, we need to continue to wear masks, social distance, and wash our hands.

Once the vaccines are vetted and approved, we will again rely on the transportation sector, as we have throughout this year, to complete what has been one of the biggest logistics challenges in recent history. Today, we have an opportunity to hear about the ongoing preparation to ensure the quick, safe, and efficient transportation of a vaccine to its destination—from the manufacturer to State-designated providers.

First, I want to thank the administration, Operation Warp Speed, participating agencies, scientists, and vaccine manufacturers for all of their dedication and ingenuity to getting us where we are today. We must also remember all of the frontline workers who have given so much this past year.

The CDC says its goal is for everyone who wants to get a vaccine to be able to get one as soon as possible. HHS and DOD, as part of Operation Warp Speed, aim to procure and assemble enough supply kits to support administering 660 million vaccine doses. UPS and FedEx will play a critical role in ensuring these vaccines are delivered to providers identified by the states. States will then ensure the vaccine is either administered or redistributed, as necessary.

Each of the witnesses here today will provide insight into the planning that has already gone into transporting and distributing a vaccine, the anticipated challenges, and what Congress and the public should expect from this process.

One of the more notable challenges will be maintaining the cold chain, meaning that the vaccine does not experience a warmer temperature during transportation and storage than it can handle without spoilage. The Pfizer vaccine must be kept at -70 degrees Celsius, or -94 degrees Fahrenheit. The Moderna vaccine must be maintained at -20 degrees Celsius, or -4 degrees Fahrenheit. We want to hear about the transportation network's capacity to ship a vaccine.

More people were already using e-commerce as a result of the pandemic, and even more will want to ship gifts for the holidays. So how will the vaccine transportation fit into this demand for shipping?

We also want to know if the witnesses have the necessary Federal guidance and resources to transport the vaccine, particularly following the Department of Transportation's notice last week that the necessary guidance and waivers were in place for the vaccine transport.

Finally, we want to hear about near-and long-term plans to transport an increasing number of vaccine doses through the spring and summer of 2021.

I look forward to your testimony, and I would now like to invite my colleague and the Ranking Member, Senator Duckworth, to offer her opening remarks. And I believe Senator Duckworth is speaking to us remotely.

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

Senator DUCKWORTH. Thank you, Madam Chair. Thank you for holding this very important hearing. As this is likely our last subcommittee hearing of the 116th Congress, I want to take a moment to thank you for your leadership and for your partnership in working with me to address pressing transportation and safety issues that are facing our Nation.

In our very first meeting as Chair and Ranking Member in early 2019, we discussed issues of mutual interest and agreed to work collaboratively on critical legislative matters, such as passing a bipartisan pipeline safety reauthorization, and today, we are ex-

tremely close to finalizing that important safety legislation. I hope we are able to complete that journey with our House counterparts over the next few days.

Luck has been in short supply for so many this year, but should we both be fortunate to find ourselves in these seats again in the 117th Congress, I look forward to continuing our productive, bipartisan collaboration.

And to our witnesses, thank you for your participation today. Unfortunately, millions of our friends and neighbors are grieving the loss of a family member or loved one this holiday season. This tragedy has been repeatedly exacerbated by President Trump's refusal to take this pandemic seriously.

To say that I am disappointed with the President's coronavirus response is a depressing understatement of epic proportions. From the onset of COVID-19, the President has renounced his responsibilities and abandoned logic, civility, and expert advice, while prioritizing self-promotion and blame shifting. But for the hard work of many dedicated career public servants, health officials, and frontline workers, COVID-19 may very well have stolen twice as many American lives than the more than 290,000 souls who have already perished.

If committee staff could please bring up the graphic. In October, the President once again dismissed the pandemic as a media hoax by suggesting that after Election Day, and if you look at this graphic, I quote, "We won't be hearing much about it anymore." Well, Mr. President, since Election Day, an additional 55,000 Americans have died, and COVID-19 infections and hospitalizations have spiked to record highs across this Nation.

In the past week and a half, the President has held potential super spreader holiday parties at the White House, despite the advice of his own health experts. He has held a self-congratulatory vaccine summit and issued an executive order so meaningless that he did not even bother to inform the top scientists for Operation Warp Speed.

As is often the case with this administration, others must plan, others must prepare, and others must implement, in the absence of Presidential leadership. Fortunately, industry appears confident, particularly FedEx and UPS, that they already operate a massive logistics network capable of distributing all types of vaccines nationwide.

Perhaps most importantly, the shippers testifying before us today appear to be confident that their respective network of freezers that already exists for transporting perishables, medical goods, and supplies will be up to the task of safely shipping vaccines. Of course, this subcommittee does not exist to simply accept confident predictions at face value. After all, in 2020, it is prudent to prepare for and expect things to go terribly wrong.

Accordingly, I hope today we will learn more about what evidence underlies the confidence of our witnesses. Have shippers stress-tested their capacity to handle the massive holiday shipping boom and the distribution of a lifesaving vaccine, or multiple vaccines with different storage requirements, for example? Have companies taken the steps to proactively secure supplies, like dry ice,

in anticipation of shortages resulting from a spike in global demand?

While the President has undermined America's scientists, public health experts, and logistics professionals at every turn, our long-standing history of public-private partnerships and developing medical countermeasures has enabled us to develop vaccines in record time. Until the Oval Office returns next month to patient and practiced hands, our Nation is depending on the private sector and State and local governments to execute what may be one of the most complex logistical challenges our country has ever faced.

This won't be easy. Our country has lost significant ground. However, I am cautiously optimistic about the outcome because of actions taken thus far by many public and private sector stakeholders to develop and implement a strategic road map needed to ensure the safe, efficient, and equitable distribution of vaccines to Americans as quickly as possible.

Again, thank you to our witnesses for participating. Thank you, Madam Chair, for holding today's hearing.

I am going to be turning off my camera because, as you can see, I am at home. I am doing my daughter's distance education, and it is a little crazy here. Nobody needs to see this. But thank you, everyone, and I look forward to today's hearing.

Senator FISCHER. Thank you, Senator Duckworth. It has been a pleasure to work with you on the issues that we agree with each other on, and it is always a joy to be able to work out differences, so that we can pass good legislation for the people of this country. Thank you, Senator.

Next, I would like to recognize Senator Roger Wicker. Chairman Wicker, you are recognized for an opening statement. I believe you are also at a remote location.

**STATEMENT OF HON. ROGER WICKER,
U.S. SENATOR FROM MISSISSIPPI**

The CHAIRMAN. Right. I am at a remote location in the Dirksen Building. Can you hear me, Madam Chair?

Senator FISCHER. I can. I see you are in your office, sir. Good to see you.

The CHAIRMAN. OK. And my office does not compare to Senator Duckworth's kitchen—hers is much—her location is much neater and tidier than my desk, but here we are. And thank you, Senator Fischer, for your leadership and holding this hearing.

I just checked. We just hit over 290,000 deaths in the United States because of the COVID-19 pandemic, and that is—it is tragic in every way. But really, today is a day of good news. I anticipate the FDA will give approval today to one of the vaccines. I certainly hope so.

And also, it is just a time to celebrate the great success of Operation Warp Speed. It is breathtaking how our scientists have really exceeded expectations and performed miracles. And here we are, where vaccines are now being given globally and will soon be given in the United States. So there is good news amidst the tragedy.

Today's hearing will inform the Committee about the logistics of distributing the vaccines across the country. These newly developed vaccines were produced at record pace because of Operation Warp

Speed, a public-private partnership devised by the Trump administration. There is just no way around that. Congress passed legislation to invest in this. It has been bipartisan, and it makes me feel good, as an American and as a member of the U.S. Senate and a member of this committee.

Efforts to ship and deliver vaccines will begin immediately, once the FDA issues emergency authorization. So we will be looking for news today. Our Nation's transportation network has been critical in helping sustain our economy during this pandemic, and it will be just as critical in enabling us to defeat the virus in the months ahead. I know there is much left to do, but we are turning the corner. And as we turn the page on a new year, I think things are really looking up, and thank goodness for that.

I look forward to hearing today from our witnesses about their roles in ensuring the vaccines are distributed safely and efficiently. We will be asking about adequate communication between Federal, State, and local officials

[inaudible] vaccines with the rest of what we are looking for, and then we will be wanting to hear from witnesses about any cyber threats that we might have.

So thank you very much. Glad to be part of this. Thank you much to our witnesses, and I yield back to you, Madam Chair.

Senator FISCHER. Thank you, Chairman Wicker.

Next, I would like to introduce our witnesses for their opening statements. Let us begin with Dr. Rachel Levine, Secretary of Health for the Commonwealth of Pennsylvania. Dr. Levine is also here today as President of the Association of State and Territorial Health Officials.

Welcome, Dr. Levine.

STATEMENT OF RACHEL L. LEVINE, MD, SECRETARY AND STATE HEALTH OFFICIAL, PENNSYLVANIA DEPARTMENT OF HEALTH; AND PRESIDENT, ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICIALS

Dr. LEVINE. Well, good morning. Thank you very much.

And so, I would like to thank Chairman Senator Wicker, Ranking Member Senator Cantwell, Subcommittee Chair Senator Fischer, Subcommittee Ranking Member Senator Duckworth, and all of the distinguished members of the Senate Commerce, Science, and Transportation Committee for the opportunity to appear before you to discuss the challenges facing states like Pennsylvania due to the COVID-19 pandemic.

As you kindly stated, my name is Dr. Rachel Levine. I am the Secretary of Health for the Commonwealth of Pennsylvania, and I am currently the President of the Association of State and Territorial Health Officials. I joined the Wolf administration in January 2015, after approximately 20 years at the Penn State Hershey Medical Center and Penn State College of Medicine. As the Physician General of the Commonwealth, I was named Acting Secretary in July 2017 and then confirmed in 2018.

During this time, public health preparedness has always been one of my absolute priorities. And what I would always say is the thing that would keep me up at night would be the risk of a global

pandemic, or what the CDC has called Disease X, and unfortunately, that has come to pass.

From a public health perspective, there are three ways to address a pandemic such as COVID-19. You can work on containment, which includes testing and contact tracing, with appropriate isolation and quarantine. You can work on mitigation, such as wearing a mask, washing your hands, social distancing, avoiding large and small gatherings, and other necessary mitigation factors that have been implemented by states. And then, there is a vaccination. We continue to apply containment, mitigation measures to control the spread of COVID-19, and we have seen success, and we have seen challenges. But as has been mentioned, the only way to truly end this pandemic is through widespread vaccination, and this will be our biggest challenge yet.

As has been stated, there are two vaccines currently that we anticipate will be available in the next several weeks, the Pfizer vaccine and the Moderna vaccine. And I also applaud the success of Operation Warp Speed in terms of the development of these vaccines. These are two vaccines based on novel technology using genetic material called messenger RNA to induce an immune response. It has never been done before. It is really a tremendous achievement.

Each vaccine needs different methods of containment, transportation, and distribution. In Pennsylvania, we have collaborated with public health officials from across the country to solve these logistical challenges. However, the challenges of this essential mission do go beyond getting the vaccine from point A to point B.

We are facing challenges in coordination and in communication in such a massive mission between Federal, State, and local health agencies. We are facing challenges—and I must say that states had little or no involvement in any key policy decisions or discussions. We are facing challenge in terms of the development of a coordinated communication strategy to promote confidence in the public in the safety and efficacy of the COVID-19 vaccines and to be able to counter vaccine hesitancy. And finally, we are facing challenges in finding sufficient funding to execute a timely, comprehensive, and equitable vaccine campaign over the long haul.

But despite this, we are confident in our ability to carry out this mission because running vaccination programs is really fundamental to our work in public health. We do have experience in vaccinations, and we have detailed plans to meet the challenge of this historic moment.

But I emphasize this will not be a short-term operation, and the \$300 million allocated to states, territories, and big cities is simply insufficient. If you break it down, there are about 330 million people in the United States. So that is a little over \$1 per person in the United States to mount an immunization enterprise that is unparalleled in scale and complication, and it is insufficient.

The Association of State and Territorial Health Officials, of which I am President, has partnered with the Association for Immunization Managers, and we are requesting that Congress provide \$8.4 billion in emergency supplemental funding for this ongoing mass vaccination campaign. That will include funding for work force, for infrastructure, for outreach to priority populations, com-

munications, and educational efforts to increase vaccine confidence and combat misinformation.

At the Pennsylvania Department of Health, our vision is a healthy Pennsylvania for all, and we are laser focused in moving toward that mission and ensuring all people have access to the COVID-19 vaccines. I am so proud of the immense public health work we have done in Pennsylvania, and across the country, that has worked to slow the spread of this virus and save lives. But one thing this pandemic has reinforced is the need for continued investment in public health and place a spotlight on the need for additional funding to support our efforts to vaccinate the entire country to bring this pandemic under control.

Thank you so much for the opportunity to offer this testimony and for all of your partnership, and I am pleased to answer any questions.

[The prepared statement of Dr. Levine follows:]

PREPARED STATEMENT OF RACHEL L. LEVINE, MD, SECRETARY AND STATE HEALTH OFFICIAL, PENNSYLVANIA DEPARTMENT OF HEALTH; AND PRESIDENT, ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICIALS

Chairman Wicker, Ranking Member Cantwell, Subcommittee Chair Fischer, and Subcommittee Ranking Member Duckworth and distinguished committee members of the Senate Commerce, Science, and Transportation Committee, thank you for the opportunity to appear before the committee today to discuss the challenges presented by the biggest public health crisis facing this country in the last century, the COVID-19 pandemic. As the United States experiences an exponential increase in new infections of COVID-19 nationwide, we must redouble our efforts to combat the pandemic through a comprehensive and multi-faceted approach. As public health officials and indeed as a nation we have and must continue to apply strong containment and mitigation efforts to combat the virus. These efforts include but are not limited to case investigation, contact tracing, capacity and event limits, encouraging mask usage, and more.

The introduction of safe and effective COVID-19 vaccines will be a critical tool to combat the rampant viral spread in the United States. However, distributing the COVID-19 vaccine along with administering it is a herculean effort, one that our Nation has never experienced. Currently, there are two vaccines under consideration by the Food and Drug Administration (FDA) for an Emergency Use Authorization (EUA); and most likely to be the first product that states receive, is the Pfizer vaccine which requires ultra-cold storage capacity and ships quantities of 975 doses that cannot be broken down into smaller allotments. The second product likely to receive an EUA is from Moderna. The Moderna vaccine does not have the same logistical constraints that Pfizer's product requires. The Moderna vaccine can be stored and handled much like other vaccines that providers use daily.

While we along with public health officials throughout the country spent countless hours preparing this mission is fraught with significant challenges that go well beyond just transporting the vaccine from point a to point b. The challenges to this effort include sufficient funding to rapidly execute a timely, comprehensive, and equitable vaccination campaign; coordination and communication between federal, state, and local health agencies; minimal state or local governmental public health pre-decisional involvement in key policy decisions such as the use of private sector pharmacy providers, including chain pharmacies, by the Federal government to administer vaccines, all confounded by the lack of a coordinated communication strategy to promote confidence in the safety and efficacy of COVID-19 vaccines.

At the Pennsylvania Department of Health, our vision is a healthy Pennsylvania for all. Right now, we are laser focused in moving towards that vision by ensuring all people have access to the lifesaving COVID-19 vaccinations. It will take very careful orchestration to get the right vaccine into the right arm at the right time. However, Pennsylvania, and many other of my state health official colleagues are committed to this task. Running vaccination programs is foundational to our work in public health. We learned a lot through our collective experience during H1N1 and we have detailed plans to meet the challenge of this historic moment; however it will take a comprehensive national approach to ensure its success, making coordinated adjustments along the way, and bring an end to the pandemic.

Pennsylvania is a large and geographically diverse state with population density varying from fewer than 15.0 people per square mile in our most rural counties to 64,263.1 people per square mile in our most urban counties, according to the 2010 U.S. Census.¹ Additionally, there are about 250 hospitals across the Commonwealth that vary in size from small critical access hospitals to health systems offering quaternary care. These geographic, resource, and jurisdictional issues present unique challenges and planning considerations to our statewide COVID-19 vaccine distribution efforts. These challenges are not only presented in Pennsylvania, but across the Nation's states and territories.

COVID-19 Vaccine Logistics

The logistics of the vaccine distribution are complicated and the degree of coordination among federal, state, and local levels of government (and commercial and nonprofit entities) required for this enormous undertaking is unprecedented. The direction and pace of each state's vaccine distribution plan is determined by the individual jurisdictional characteristics, vaccine type, amount, and availability. Transport of COVID-19 vaccines to the states will be the sole responsibility of Operation Warp Speed (OWS), and the Centers for Disease Control and Prevention (CDC) in partnership with federal, state, local, tribal and territorial health departments. The Pfizer vaccine, which requires ultracold storage, will be delivered directly from Pfizer, as arranged by OWS, to pre-identified large health systems with existing ultracold storage capabilities. Other vaccines, including Moderna, will be distributed to states through McKesson Distribution. Proper, swift, and reliable transportation, of not only the vaccine but the ancillary supplies that are needed to provide the vaccination, will be absolutely key in getting COVID 19 vaccines into the hands of providers standing ready to administer the vaccine.

Given the differences in the logistical requirements of the Pfizer and Moderna vaccines and the anticipated limited supply of vaccine in the early months of the vaccination efforts, each state and local department have had to develop plans taking into account their own jurisdictional characteristics (geography, storage capabilities, among others) and healthcare system capability to develop a strategy to most effectively use the two vaccine products as they become available. Due to the less than optimal logistical constraints of the Pfizer vaccine, Pennsylvania intends to direct the Pfizer vaccine to go to large health systems that have ultracold storage capacity and the ability to vaccinate many adults in a short period of time meeting the storage and administration requirements. Pennsylvania intends to use the Moderna product in more rural settings (hospitals and providers) who may not have the ability to store an ultracold vaccine and may have smaller numbers of staff and patients to vaccinate at once.

In addition to the complexities around transportation and storage of both vaccines, each vaccine requires a second dose in a specific timeframe. At this time, both vaccines have been shown to have some side-effects which may prompt some people to be more hesitant to receive a second dose. Disadvantaged and marginalized communities will face more hurdles to achieve their access to care.

States and territorial public health departments are responsible for identifying the health systems, hospitals, and providers to receive vaccines and coordinating with CVS and Walgreens regarding their access to long term care facilities.

COVID-19 vaccine providers are required to sign a specific provider agreement; which notes that the site is responsible for documentation, storage, and administration of the COVID-19 vaccine. The sites are also responsible for security of the vaccine while in their possession. Any additional transferring or moving of vaccine is at the discretion of the facility as long as the provider agreement is being adhered to.

Like most states, Pennsylvania's COVID-19 vaccine plan is broken into three phases, with Phase 1 divided to protect the highest risk or most critical workforce. In Phase 1a, when limited doses are expected initially, Pennsylvania will align with the recommendation of the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices in identifying the priority populations of health care personnel in hospitals and skilled nursing facilities and residents of skilled nursing facilities as the first groups to be vaccinated.

Ten large health systems distributed across the Commonwealth will be responsible for immunizing their providers, as well as providers from nearby hospitals. Pennsylvania has opted into the Pharmacy Partnership with CVS and Walgreens. Under this partnership, those organizations will send personnel into skilled nursing

¹ 2010 Census: Pennsylvania Profile https://www2.census.gov/geo/maps/dc10_thematic/2010_Profile/2010_Profile_Map_Pennsylvania.pdf.

and assisted living facilities and personal care homes to vaccinate residents and staff.

Phase 1b will include health care personnel who were not vaccinated in 1a and utilize partnerships with pharmacies and Federally Qualified Health Centers to reach our rural settings. Additionally, the Emergency Management agencies located in each of the 66 counties will be essential in coordinating community-based vaccination in those counties.

At the same time, Pennsylvania will shift focus to other congregate settings, correctional facilities, businesses, critical workers, colleges, and universities. This will be done through partnerships and unprecedented collaboration with providers and pharmacies who know their communities best.

In late spring or early summer, we will hold mass vaccination clinics in communities across the Commonwealth to ensure accessibility to all who desire to be immunized. Pennsylvania specifically focused our COVID-19 vaccine plan with deliberate intent to reach individuals of rural, ethnic, religious, homeless, differently abled, immigrant, refugee and LGBTQ populations. These efforts will be executed in close partnership with our Office of Health Equity and already established community partners through our COVID-19 testing initiatives.

Health Equity

As with other communicable and chronic diseases, COVID-19 has disproportionately impacted communities of color, people living with disabilities, and those living in rural and frontier areas. Immediate policy changes that support investments in social and environmental health factors and address these disparities head on are needed to reduce COVID-19 illness and death in all populations, especially in communities of color, settings where individuals with disabilities live and rural and frontier communities. This focus on equitable access to the COVID-19 vaccine and addressing health disparities is a key tenet of Governor Wolf's administration. Pennsylvania's COVID-19 vaccine plan was developed through a departmental health equity lens, heavily influenced by the Secretary's Vaccine Crisis Committee, a group of hospital specialists including vaccinology, gerontology, and medical ethics, as well as representation from the pharmacist association, federally qualified health centers, business, and aging, which developed our ethical allocation strategy, and was informed by our departmental Health Equity Workgroup.

When we talk about vaccinating "healthcare workers," we're not just talking about physicians and nurses. We intend to prioritize all personnel who work in healthcare settings in that top tier of need for early vaccination. This includes all paid and unpaid persons serving in healthcare settings who have potential for direct or indirect exposure to patients or infectious material. These healthcare workers could include emergency medical service personnel, nurses, nursing assistants, students and trainees, environmental services, laundry, and volunteer personnel.

Communications

According to a recent poll conducted by the Kaiser Family Foundation, the share of adults who trust CDC to provide reliable information has decreased by 16 percent since April.¹ Moreover, public health experts and institutions have been attacked, threatened, and intimidated by the public. To date, there has been little clarity on a CDC and HHS plan to raise public confidence in COVID-19 vaccine safety. We believe this communications strategy is imperative and must be tailored state-by-state to address our Nation's diversity, as well as local concerns that may not apply nationwide. This pandemic has reinforced the value of consistent and coordinated communication between the Federal government, state and territorial government entities, and stakeholders. In this case, it is key for state government entities to have a clear understanding of their anticipated vaccine allotments, and the absence of that information can and has presented challenges in vaccine planning operations and logistics. It is important to emphasize that distribution including transportation of the COVID-19 vaccine is just one component of this mission.

The incoming administration should execute a robust communications strategy across the entire Federal government, and "flow down" throughout all levels, including state, local, and tribal governments. A robust scientific evidence base should be utilized devoid of political interference. This communications strategy ensures a unified approach to combatting COVID-19 without sending confusing mixed messages. Communications about COVID-19 should leverage the expertise of local leadership, celebrities, and businesses to target hard-to reach-populations. The information should be shared in a culturally competent way for multiple audiences.

Among all Pennsylvanians and especially with our underserved communities, appropriate and effective communication strategies will be vital. We have been working hard to deliver key health messages related to prevention of COVID-19 and in-

crease access to testing to all Pennsylvanians through multiple channels. We have been relying on community partners on COVID-19 education and testing access and will be leveraging those relationships when the time is available to do community-based vaccinations.

There is a baseline level of governmental distrust among Pennsylvanians, and a historic national distrust of the medical enterprise among our black and indigenous people of color that could significantly negatively impact vaccine uptake in the Commonwealth. Combatting this vaccine hesitancy and building trust in these communities is a cornerstone of the Commonwealth's vaccine plan. In addition, given the unprecedented speed these vaccines have gone from concept to production has caused a level of distrust among the American people that will need to be addressed with accessible, actionable, and coordinated messaging. My communications team, along with other state's communications teams, have a host of creative ideas and concepts they would love to bring to fruition.

Challenges

Unfortunately, states and territories do not have the adequate funding to support communication campaigns to promote the safe and effective vaccines, recruit and train the necessary workforce to reach communities of color and other vulnerable populations, stand up federally supported supplemental vaccination sites and promote new strategies for mass vaccination, enhance existing public health infrastructure and strengthen vaccine confidence. The \$340 million allocated for states, territories and big cities to date is simply not enough. If you break it down, that's about \$1 per American to mount an immunization enterprise that is unparalleled in scale and complication. The Association of State and Territorial Health Officials along with our partners at the Association for Immunization Managers are requesting that Congress provide \$8.4 billion in emergency supplemental funding for a mass vaccination campaign which will include funding for workforce, infrastructure, cold supply chain management and outreach to priority populations, communications, and educational efforts to increase vaccine confidence and combat misinformation.

This will not be a short-term operation. We expect this operation will take months to vaccinate all the citizens across the states and territories. This task will be undertaken by a public health and healthcare system that is already strained and stressed by the current and ongoing response to COVID-19. The resource challenges—monetary and personnel—are enormous. Although vaccination will be accomplished through many healthcare partnerships; states and territories understand that some portion of this will fall on public health and public health nurses, who are already overtasked with case investigation and general public health response. The public health infrastructure and investment in this country has been systematically stripped away over decades. What we have seen is that this pandemic has revealed the devastating impacts of that reality, along with the disconnect between public health and medicine.

In recent mock shipments of vaccine to train and test the transportation/logistics planning that has been done by OWS, there have been varying levels of success. While the authorization of a vaccine, is a great step towards the ending the pandemic, it is critical that vaccine and ancillary supplies arrive in a timely manner to the appropriate location. In approximately $\frac{1}{4}$ of states, at least one significant issue arose during the mock shipment that requires attention prior to shipping actual vaccine. States experienced vaccine arrivals with a 2-day lag in the arrival of ancillary supplies. Vaccine that arrives without the ancillary supplies required to administer it will delay the vaccination of key prioritized populations.

Lastly, following a successful rollout of vaccination, states and territories will need to continue to work with CDC, Health and Human Services (HHS), and Centers for Medicare and Medicaid Services (CMS) as to how the vaccination will impact those who have already had COVID, and how this will impact CMS guidance on frequency of staff and resident testing which are real operational and funding initiatives that we would be better able to plan for if we understand where things are going. Continuing these multi-level discussions will be key to a coordinated nationwide plan.

Conclusion

Despite these challenges I outlined today, I am proud of the immense amount of public health work that have led in the mitigation and containment of the virus not only in Pennsylvania, but throughout the Nation. This pandemic has reinforced the need for investment in public health, collaboration among public and private partnerships, and public health education.

There is a grave need for additional funding to support additional personnel and the creation of an impactful communication campaign to ensure that we can achieve

the life-saving goal of vaccinating everyone who wants it in order to bring the COVID-19 pandemic under control.

Thank you for the opportunity to offer this testimony and for all your partnership. I am pleased to take any questions you may have.

Senator FISCHER. Thank you, Dr. Levine.

Next, I would like to introduce Richard Smith. Mr. Smith is the Regional President of the Americas and Executive Vice President of Global Support for FedEx Express. In this role, he oversees operations in the United States domestic market, Canada, Latin America, and the Caribbean. Welcome.

**STATEMENT OF RICHARD W. SMITH, REGIONAL PRESIDENT,
AMERICAS AND EXECUTIVE VICE PRESIDENT, GLOBAL
SUPPORT, FEDEX EXPRESS**

Mr. SMITH. Thank you. Chairman Fischer, Ranking Member Duckworth, and members of the Committee, thank you for inviting me, representing FedEx and UPS, here today to speak about our efforts to support the upcoming distribution of vaccines to combat the spread of COVID-19. We recognize that this is complex and critical work and appreciate the Subcommittee's focus on this mission.

Before I begin, I would like to express my sincere appreciation for the courageous work of our more than 600,000 FedEx Global team members who have been on the front lines since the start of this pandemic, providing essential transportation services and keeping critical supply chains moving. As a result of their dedication and commitment to the communities we serve, we have delivered over 2 billion face and surgical masks, 55 kilotons of personal protective equipment, and over 9,600 discrete humanitarian aid shipments to support the global response to COVID-19, to date.

Earlier this year, when the pandemic reached the United States, we worked quickly to support over 40 community testing sites, spanning across 10 states, delivering test kits and samples for analysis. I am very proud of the significant, positive impact the FedEx team's work has had on the response to this pandemic and will continue to have as we enter this next critical phase. I am grateful for and humbled by their continued, unrelenting commitment to service, which we refer to at FedEx as "delivering the Purple Promise."

Forty-seven years ago, FedEx was created for the exact purpose and service required for today's mission—fast, reliable delivery of time-sensitive, high-priority goods. As the largest global express transportation provider, FedEx has an unparalleled worldwide network serving over 220 countries and territories, connecting more than 99 percent of the world's gross domestic product. Within the United States, we can deliver to every zip code. With the largest fleet of cargo airplanes, over 670, and over 180,000 motorized ground vehicles, we deliver more than 17 million packages on an average day.

Every day at FedEx, we focus on what we can control and prepare for the things we cannot. We invest in our team members and innovative technologies, all in preparation to serve the needs of our customers and communities. FedEx has a long history of sup-

porting critical relief efforts around the world, and we are ready for the challenge ahead.

For the past several months, we have been working closely with our healthcare customers, both the vaccine manufacturers and distributors, as well as the Federal Government on vaccine distribution plans. We have years of experience in this area, shipping flu vaccines every flu season and moving vaccines globally for decades, as well as transporting over 80 million vaccine doses to combat H1N1 in 2009.

We also regularly carry vaccines for commercial and government organizations, both domestic and international. Our healthcare team has been able to leverage this experience, flex our comprehensive network, and work with various stakeholders to build customized solutions to achieve our collective goal—moving COVID-19 vaccine shipments as safely, securely, and quickly as possible. This is who we are and what we do.

Once the vaccines are approved and ready for distribution, vaccine and related healthcare shipments will be the top priority for FedEx Express' network. Our Priority Alert team will actively monitor and track vaccine shipments for our healthcare customers using a suite of advanced tracking and monitoring tools, including SenseAware ID, which uses FedEx patented technology, as well as our FedEx Surround platform, providing predictive analytics. These technologies provide increased visibility and real-time updates on sensitive packages, enabling us to intervene and intercept a shipment, if necessary. Long ago, we recognized that information about the package was just as important as the package itself. We invested in these innovative solutions for this exact purpose.

We have also made significant investments in our cold chain infrastructure over the years, including our packaging, aircraft, motorized vehicles, and facilities. At present, we have more than 90 temp-controlled facilities across 5 continents, with plans to open additional facilities in the coming years. We are also expanding our network of ultra-low temperature freezers at some of our major hubs. As demonstrated by these actions, we have planned for the various contingencies required for missions like this and are prepared to respond as needed.

Finally, maintaining the health and safety of our essential front-line workers will remain our top priority throughout this effort. To date, we have spent over \$225 million in personal protective equipment and cleaning services to keep our employees safe. We will continue to invest in our employee health, safety, and monitoring programs, providing safety equipment, regularly cleaning our facilities, and ensuring that our employees have access to COVID-19 testing. Their health and fitness are vital to this effort.

From day one of our operation, FedEx has taken the necessary steps and is well positioned to respond, both here and abroad. This concludes my statement. I appreciate your time today and look forward to answering any questions you may have.

[The prepared statement of Mr. Smith follows:]

PREPARED STATEMENT OF RICHARD W. SMITH, REGIONAL PRESIDENT, AMERICAS AND
EXECUTIVE VICE PRESIDENT, GLOBAL SUPPORT, FEDEX EXPRESS

Chairman Fischer, Ranking Member Duckworth, and Members of the Committee:

Thank you for inviting me here today to speak about our efforts to support the upcoming distribution of vaccines to combat the spread of COVID-19. We recognize that this is complex and critical work and appreciate the Subcommittee's focus on this mission. Before I begin, I would like to express my sincere appreciation for the courageous work of our more than 600,000 FedEx global team members who have been on the frontlines since the start of this pandemic providing essential transportation services and keeping critical supply chains moving. As a result of their dedication and commitment to the communities we serve, we have delivered over two billion face and surgical masks, 55 kilotons of personal protective equipment, and over 9,600 humanitarian aid shipments to support the global response to COVID-19 to date. Earlier this year when the pandemic reached the United States, we worked quickly to support over forty community testing sites, spanning across ten states, delivering test kits and samples for analysis. I am very proud of the significant, positive impact the FedEx team's work has had on the response to this pandemic and will continue to have as we enter this next critical phase. I am grateful for and humbled by their continued, unrelenting commitment to service, which we refer to at FedEx as delivering the Purple Promise.

Forty-seven years ago, FedEx was created for the exact purpose and service required for today's mission: fast, reliable delivery of time-sensitive, high priority goods. As the largest global express transportation provider, FedEx has an unparalleled world-wide network serving over 220 countries and territories, connecting more than 99 percent of the world's gross domestic product. Within the U.S., we can deliver to every ZIP code. With the largest fleet of cargo airplanes (over 670), and over 180,000 motorized ground vehicles, we deliver more than 17 million packages a day. Every day at FedEx, we focus on what we can control and prepare for the things we cannot. We invest in our team members and innovative technologies, all in preparation to serve the needs of our customers and communities. FedEx has a long history of supporting critical relief efforts around the world and we are ready for the challenge ahead.

For the past several months, we have been working closely with our healthcare customers, both the vaccine manufacturers and distributors, as well as the Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, U.S. Department of Defense, U.S. Department of Transportation, and U.S. Department of Homeland Security on vaccine distribution plans. We have years of experience in this area, shipping flu vaccines every flu season and moving vaccines globally for decades, as well as transporting over 80 million vaccine doses to combat H1N1 in 2009. We also regularly carry vaccines for commercial and government organizations, both domestic and international, including Defense Logistics Agency Troop Support and Logistics Health, a U.S. Army contractor. Our dedicated, experienced healthcare team has been able to leverage this experience, flex our comprehensive network, and work with various stakeholders to build customized solutions to achieve our collective goal: moving COVID-19 vaccine shipments as safely, securely, and quickly as possible. This is who we are and what we do.

Once the vaccines are approved and ready for distribution, vaccine and related healthcare shipments will be the top priority for the FedEx Express network, with support provided by our FedEx Logistics and Custom Critical teams. Our established FedEx Priority Alert team will actively monitor and track vaccine shipments for our healthcare customers using a suite of advanced tracking and monitoring tools to ensure the integrity of the shipments as they move through the system, including SenseAware ID (which uses FedEx patented technology), as well as our FedEx Surround platform. These technologies provide increased visibility and near realtime updates on sensitive packages. Our FedEx Priority Alert teams and healthcare customers will have access to this information, enabling us to intervene and intercept a shipment if necessary. Long ago, we recognized that information about the package was just as important as the package itself and invested in these innovative tracking and monitoring solutions for this exact purpose.

In addition to our tracking and monitoring technologies, we have made significant investments in our infrastructure over the years to develop temperature-control solutions throughout the network, including our packaging, aircraft, motorized vehicles, and facilities. At present, we have more than 90 cold chain facilities across five continents, with plans to open additional facilities in the coming years. In 2016, we opened the Cold Chain Center at our world headquarters in Memphis, Tennessee, creating over 20,000 square feet dedicated to temperaturecontrolled storage. This facility incorporates the latest temperature control solutions, allowing us to maintain

packages at frozen, refrigerated, and room temperatures in the event of unforeseen delays. We are also expanding our network of ultra-low temperature freezers, capable of maintaining temperatures as low as -94° to -112°F. As demonstrated by these investments, we have planned for the various contingencies required for missions like this and are prepared to respond as needed.

Finally, maintaining the health and safety of our essential frontline workers will remain our top priority throughout this effort. To date, we have invested over \$225 million in personal protective equipment and cleaning services to keep our employees safe. We will continue to invest in our employee health safety and monitoring programs, providing the recommended health safety equipment, cleaning our facilities regularly, and ensuring that our employees have access to COVID-19 testing, if needed. We encourage our team members to take any signs of illness seriously and seek medical attention as needed. Their health and fitness remain vital to this effort and we will follow and promote the health safety guidance issued by the leading health organizations to ensure their safety.

As evidenced by the above, from day one of our operation, FedEx has taken the necessary steps and is well-positioned to respond on a domestic and global level to events like we currently face. We will continue to support our healthcare customers throughout this effort, and work with the various Federal and state agencies as necessary to ensure a coordinated, safe, secure, and efficient vaccine distribution effort.

This concludes my statement. I appreciate your time today and look forward to answering any questions you may have.

Senator FISCHER. Thank you, Mr. Smith.

Next, I would like to introduce Wesley Wheeler. Mr. Wheeler is the President of Global Healthcare at UPS. In this role, he oversees UPS' work related to pharmaceuticals and medical device transportation, wholesalers, retail distributors, and customers of regulated healthcare products. Welcome, sir.

STATEMENT OF WESLEY WHEELER, PRESIDENT, GLOBAL HEALTHCARE, UNITED PARCEL SERVICE

Mr. WHEELER. Good morning, Chairwoman Fischer, Ranking Member Duckworth, and members of the Subcommittee. My name is Wes Wheeler. I am the President of UPS Healthcare, the company's Healthcare and Life Sciences Division. Thank you for the opportunity to appear before you this morning and discuss our involvement in COVID-19.

I will focus my testimony today on our capabilities, our involvement in Operation Warp Speed, and the solutions we are implementing to ensure the safe and effective delivery of vaccines upon approval. I trust that my testimony today will clarify our involvement, and I look forward to your responses and questions.

While UPS is known primarily for its brown trucks and drivers, members of the Subcommittee may not be aware that UPS is also a longstanding provider of supply chain services for the many healthcare companies around the world. We handle medicines in more than 10 million square feet of facilities in more than 30 countries. Our regulated facilities are designed to handle biologically derived drugs, such as vaccines, at any temperature. We also offer end-to-end cold chain transportation service by air, ground, or ocean, and we deliver, on average, more than 25 million packages per day.

UPS has been on the front lines of COVID-19, as FedEx has, since February of this year. We supported FEMA and Project Airbridge by moving more than 24 million pounds of PPE and opened up our facilities to the National Strategic Stockpile Program. We also supported 32 states by distributing millions of diagnostic test kits and biologic samples for COVID-19.

We are also involved in clinical trials. Our UPS Healthcare group was proud to be the logistics partner for the Pfizer COVID-19 vaccine clinical trial. In fact, we are providing logistics support for 8 of the 10 leading vaccines in clinical trials today. Our experience with these trials helps us to prepare for vaccines when they come to market.

UPS is a proud partner of Operation Warp Speed, and we were delighted to present at the Vaccine Summit this week for the President, and we are in daily contact at all levels with the team. And just last week, General Perna and Dr. Slaoui visited one of our newest healthcare facilities in Louisville, Kentucky, where we reviewed our supply chain planning and the preparations we have in place. We discussed how we will handle ultra-low temperature shipments and, in particular, how our dry ice replenishment program will be managed. I believe they left feeling confident with our degree of readiness.

Let me elaborate further on the transportation security and temperature issues, which I believe the Subcommittee is interested in. Please understand that UPS has spent many weeks designing the supply routes and expected data flows for these vaccines. Capacity has been reserved in our air network, our operating hubs, and our ground operations. Our 3,000 U.S.-based pilots will know that they are carrying vaccines. Our trailers will have escorts.

We will monitor all vaccine shipments in a newly dedicated 24/7 command center, which collects data from all sources including GPS and temperature monitors. Each package will also carry a UPS exclusive active tag, which provides visibility in our network. Command center staff have been trained to monitor and, if required, intervene and recover a vaccine package. UPS has also designed software which can detect network disruptions before they occur.

On the issue of temperature control, UPS has extensive experience handling shipments at any temperature. However, it is important to note that in the case of these vaccines, the temperature in transit will be maintained by its packaging, which is designed to keep its internal temperature at temperature for several days. Pfizer and McKesson have chosen appropriate, validated, and environmentally friendly packaging for these two vaccines, and we have extensively tested both.

UPS has also invested in dry ice manufacturing capacity for replenishment at dosing sites, where required. UPS will produce over 24,000 pounds of dry ice per day in Louisville, and we will ship 40 pounds of dry ice to all Pfizer dosing locations 1 day after the vaccine arrives. UPS is also nearing completion of two very large coolers and freezers in the same facility for storage of future vaccines in the pipeline. And we offer a program to supply ultra-low temperature freezers for dosing sites where dry ice may not be available.

We are ready. I would like to take a moment to thank the thousands of UPSers who are poised and ready to deliver the greatest contribution to this country we could possibly imagine. Together, without General Perna and our colleagues at Operation Warp Speed, none of this would be possible.

Thank you very much, Chairwoman Fischer. I will take your questions.

[The prepared statement of Mr. Wheeler follows:]

PREPARED STATEMENT OF WESLEY WHEELER, PRESIDENT, GLOBAL HEALTHCARE,
UNITED PARCEL SERVICE

Good Afternoon Chairwoman Fischer, Ranking Member Duckworth, and members of the Subcommittee. My name is Wes Wheeler, and I am the President of UPS Healthcare, the company's healthcare and life sciences division. Thank you for the opportunity to appear before you to discuss our involvement in COVID-19 vaccine distribution. I will focus my testimony on our capabilities, our involvement in Operation Warp Speed and the solutions we are implementing to ensure the safe and effective delivery of vaccines upon approval. I trust that my testimony today will clarify UPS's involvement in this effort and I look forward to answering your questions.

While UPS is known primarily for its network of brown trucks and drivers, members of the subcommittee may not be aware that UPS is also a longstanding provider of supply chain services for many healthcare companies. We handle regulated medicines in more than 10 million square feet of facilities in 32 countries. Our temperature controlled facilities are designed to handle biologically derived drugs such as vaccines at any temperature. We also offer an end-to-end cold chain transportation service by air, ground or ocean and we deliver 50,000 shipments per day of lifesaving medicines.

UPS has been at the forefront of the COVID-19 fight since February of this year. We supported FEMA and Project Air Bridge by moving over 24 million pounds of PPE and we opened up our facilities to the National Stockpile program. We also supported 32 states in distributing millions of diagnostic test kits and biologic samples for COVID-19.

We are also involved on the clinical side. UPS Healthcare was proud to be the logistics partner for Pfizer's COVID-19 vaccine clinical trial. In fact, we are providing logistics support for eight of the ten leading vaccines in clinical trials today. Our experience with these trials is helping us prepare for the vaccines when they come to market.

UPS is proud to be a partner in Operation Warp Speed. We are in daily contact with each member company and the OWS team itself. Just last week, General Perna and Dr. Slaoui visited one of our newest healthcare facilities in Louisville, KY. We reviewed our supply lane plans and the preparations we have in place with their guidance. We discussed how we will handle ultra-low temperature shipments and in particular, how our dry ice replenishment program will be managed. I believe they left feeling confident with our degree of readiness.

Let me elaborate on the subjects of transportation security and temperature-controlled shipping, as I understand these are areas of interest for the subcommittee.

Please understand that UPS has spent many weeks designing the supply routes and expected data flows for these vaccines. Capacity has been reserved in our air network, operating hubs and ground operations. Our pilots and drivers will know they are carrying vaccines. We will monitor all vaccine shipments in a newly dedicated 24/7 command center which collects data from all sources including our client's temperature recorders. Each package will also carry a UPS-exclusive active tag which provides visibility in our network. Command center staff have been trained to monitor and, if required, recover any vaccine package. UPS has also designed software that can detect network disruptions before they occur, and then recommend counter-measures in real time.

On the issue of temperature control, allow me to correct any misperceptions about our ability to deliver vaccines at ultra-low temperatures. UPS has extensive experience with storage and transport of any material at any temperature. However it is important to note that, in the case of these vaccines, the temperature-in-transit will be maintained by its packaging, which is designed to keep its internal temperature—at temperature—for several days. Pfizer and McKesson have chosen appropriate, validated and environmentally-friendly packaging for the first two vaccines, and we have prior experience handling them.

UPS has also invested in dry ice manufacturing capacity for replenishment at dosing sites where needed. UPS will produce over 24,000 pounds of dry ice per day in our Louisville facility and we will ship a box with 40 pounds of dry ice to all Pfizer dosing locations a day after the vaccine arrives. UPS is also nearing completion of very large coolers and freezers in the same facility for storage of future vaccines in the pipeline. We have also invested in a 'freezer farm' for -80C storage and we offer

a program to supply portable ultra-low temperature freezers for dosing sites where dry ice may not be available.

I'd like to take a moment to thank the thousands of UPSers who have devoted their time and energy into making sure our network is prepared for the challenges ahead. Without their dedication, none of this would be possible.

Thank you for the opportunity to testify, and I look forward to answering your questions.

Senator FISCHER. Thank you, Mr. Wheeler, and thank you to all of our panel.

I would like to begin the first round of questions. Mr. Wheeler and Mr. Smith, as you know, we are in the midst of peak shipping season, when transport capacity is expected to be tight. At the same time, tens of millions of vaccine doses are likely to be available today. Once vaccines are approved, will UPS and FedEx ensure capacity is available in your network for COVID-19 vaccines, and if so, how will you ensure that capacity is available? Mr. Smith?

Mr. SMITH. Well, we begin planning for peak in January of that year. So we recognized early on this would be a record peak season, and of course, throughout the months, as the COVID picture changed and we saw all of the folks ordering things at home and the volume spike, we adjust our plans accordingly. So we have even taken to calling this peak "the ship-a-thon" months ago because we knew it was going to be a record peak.

But just as my esteemed competitor here said about their network, we also knew the vaccines would be coming when we started planning for this with Operation Warp Speed and our healthcare customers, the manufacturers and distributors who would play a role in this. So we started reserving capacity for that.

We have been preparing for months, working with all of our customers, as I said, to match network capacity with the demand we expect to see, just as we do for any surge event. Whether it is peak season, a new iPhone release, or any new product introduction, we have been planning for this for some time. We have also hired 70,000 more team members across the FedEx enterprise to support all of our needs this season. And again, as I said before, this is who we are and what we do. This is what we were built for, and we plan for things like this regularly. Maybe not on this scale, with all of the ins and outs, but we are well versed in this type of planning.

Also, I will point out for FedEx, we run—we have different operating companies that focus on different things. You may note that you will see a FedEx Ground truck on the road, and sometimes you will see a FedEx Express truck. The FedEx Ground system, which we have been investing in tremendously, will handle the bulk of the surging online retail orders, all of your Christmas presents. And the Express network focuses more on time-definite critical deliveries, like vaccines. That is the company that will be focused on delivering your mission-critical vaccines.

Thank you.

Senator FISCHER. Mr. Wheeler?

Mr. WHEELER. Thank you. I am an engineer. About 2 or 3 months ago, we started building a forecasting model trying to predict, as best we could, how many vaccine companies would be approved this year and next year, where the manufacturing locations

were. So we had the origins. We started to think about how many doses per shipment, and we built a very detailed forecasting model, which would allow us to predict—sorry—which would allow us to predict how much we would be having to reserve in our capacity.

During peak, of course, we are now above our 25 million per day. We are at 34 million, I think, a couple of days ago. We have reserved plenty of capacity in all the lanes, from all the manufacturing locations, even for the vaccines that are still in development. So we have talked to all the companies, including Novavax, AstraZeneca, J&J, to find out just how much volume may come through the pipeline at the first of the year, or beyond.

So we have reserved plenty of capacity in all the lanes. We are ready now. We have the dry ice capacity to start with a large number of Pfizer vaccine shipments, starting next week, we hope, and we are very much looking forward to that.

Senator FISCHER. So if I am understanding you both correctly, you knew this was going to be a peak season anyway, and now you put COVID on top of it and the challenges that we face there, just in our daily lives, with people becoming ill and having to take time off and having those people replaced. So you hire more people. You use different delivery systems, whether it is for regular shipping, compared to the shipping we are going to see now with the vaccines.

When you—do you foresee a need that the vaccines are going to have to become a priority because of the—if the development of the vaccine increases at a higher capacity, at a faster capacity, have you planned for that? And then, how do you plan to get that out? Do you plan to follow a model of hiring more people, getting the resources you need, whether it is finding other shipping companies, air freight, and then the freezing capacity and getting it delivered throughout the United States?

Mr. SMITH. Well, we have said throughout this that there will be no higher priority shipments in our network than these vaccine shipments. So they will have the highest priority of anything we carry in all of our FedEx networks, but certainly in the FedEx Express system that will be carrying them.

We will be using new technologies, and I am sure someone will get to a question on that. So I will not go into too much detail about our respective monitoring and tracking technologies that will allow us to have positive control of these shipments at all times, know where they are, give them that highest priority in our network, and make sure they are delivered, intercede if there are any unforeseen delays, weather related, on road traffic delays. We will have eyes on them. We will be able to jump into action. But make—

Senator FISCHER. Do you—I am going to interrupt you.

Mr. SMITH. Yep.

Senator FISCHER. Do you have a good working relationship with airports, for example—

Mr. SMITH. Absolutely.

Senator FISCHER.—that you will move into priority lanes there? Do you transport by rail, trucking?

Mr. SMITH. These shipments will move in our integrated air-ground system, the Express network, but we are working closely

with the FAA, and we have great relationships with the airports. But we are working with the FAA to identify the flights that will have these shipments. So they will get the highest priority.

To your question on staffing, so as I said, we staff up, just like UPS does, for peak. We hire a lot of new team members during peak. We know that as these vaccines come on and ramp up, we will continue operating at elevated levels post peak. But we are confident we have the team members in place and will maintain a lot of those team members that we have staffed up for peak to continue with this vaccine distribution beyond.

Senator FISCHER. Thank you. Mr. Wheeler, did you have any—

Mr. WHEELER. Very similar. So, every year, we plan on peak. We have added 100,000 temporary workers to get us through. This was going to be our biggest peak ever. I believe that is probably the same for my colleague here. So planning for the capacity is something we do every year, and we have done this now for several months. It turns out that the volume is there. We are seeing that.

In terms of the vaccines, similar to what Richard was showing is we have a UPS Premier gold service. This is—there is four radios in this label. This label will go on every single vaccine package and every dry ice package. This allows us to see the package as soon as it arrives in any of our locations. So as soon as it arrives in any hub, any airport, and even some of our ancillary supply areas, we will see the package. It will get priority. It goes on the plane first. It comes off the plane first. And so, that gives us the ability to see the package.

We have triple redundancy. So when the packages leave Kalamazoo, Michigan, or one of the locations of the vaccine manufacturers, the trucks will have a sensory device. This is a GPS tracker that also gives temperature, that gives light exposure, and motion. So it gives us a lot of data. And Pfizer is also providing data from their own packages. So we have three ways of looking at the package through the system. And all that data streams into our command center, and we transmit that data to Operation Warp Speed.

So we are all watching the packages all day long. And we have very, very high confidence that we will see all the packages running through the network.

Senator FISCHER. Thank you, sir. Senator Klobuchar.

**STATEMENT OF HON. AMY KLOBUCHAR,
U.S. SENATOR FROM MINNESOTA**

Senator KLOBUCHAR. Thank you very much, and thank you to all the witnesses here. I think we all know that this vaccine—or the vaccines are going to be critical to getting our economy moving again in such a big way. And while states, including my own state of Minnesota, are making the decisions about exactly their own plans for distribution, I think we all know they can't do it alone. So that is why this time is so critical, as we are in this hearing room. And I want to thank the Chair and the Ranking Member for holding this important hearing at this time.

We have got to make sure that our resources are there for the states and locals. And so, I guess I would start with a quick question there of Dr. Levine, and that is that could you explain, Dr. Le-

vine—and thank you for your good work—why it is so important to get some Federal help in getting the vaccine distribution going?

Dr. LEVINE. Well, thank you very much, Senator, for that question. So, you know, the states and the territories as well as the big cities chosen for this mission stand ready to accomplish it and to immunize everyone in the United States that will accept the vaccine. But that is a critical point. It is absolutely essential that we have proper communication and education messages from the CDC, but also from each state, territory, and city, to be able to educate people about the safety and effectiveness of the vaccine, and to educate people, and to dispel misconceptions about the vaccine, as well as work past vaccine hesitancy. We currently have no funding to accomplish that part of our mission.

So, again, \$340 million to all of the states. Pennsylvania's share of that is approximately \$14.6 million, and that is going to give us a start as we work to distribute and administer the vaccine, hopefully starting next week and then through December and into January. But this is a long mission—

Senator KLOBUCHAR. Agreed.

Dr. LEVINE.—and it is going to take much more funding.

Senator KLOBUCHAR. OK.

Dr. LEVINE. And we have no money for the communication.

Senator KLOBUCHAR. OK, thank you.

Dr. Smith and—Mr. Smith—you feel like everyone is becoming doctors now—and Mr. Wheeler, thank you for the work, and also of your employees right now. I left my apartment building in Washington and saw all the packages and people working hard, including Postal Service employees, your employees, and so many people every single day are on the front lines. So I want to thank them, through you, for that. Make no complaints about package deliveries. That is not—everything has been going well.

But I was concerned about how these vaccines are going to get to the rural areas, because they are not just going to be parachuted in the middle of Laverne, Minnesota, or to one of the communities in Nebraska, for Senator Fischer. So could you talk about how you are paying attention to that?

Mr. SMITH. Sure, of course. As I mentioned in my remarks, we have the capability to serve every zip code in the United States of America. We do it every day. We have over 1.7 billion zip code service combinations. So, with this network capacity, whether you live in Chicago, Illinois, or Murdo, South Dakota, we are able to ensure time-definite deliveries of these shipments, and we feel very confident in our capabilities in this regard. This is what our network was built to do.

Senator KLOBUCHAR. OK. And then could I add, Mr. Wheeler, just because time is limited here, pharmaceutical companies have reported that about 5 to 20 percent of vaccines spoil during distribution. Not your fault, it is just a fact since they are highly perishable products. We don't have an unlimited supply. More than ever, it is really, really important that they not do that. And I assume this tracking technology that you both were talking about is part of that. So, in addition to talking about rural, could you get at that?

Mr. WHEELER. If I understand the question, Senator Klobuchar, it is about the protection of the product?

Senator KLOBUCHAR. Mm-hmm.

Mr. WHEELER. OK. Well, this is the product. This is a 2-mL vial.

Senator KLOBUCHAR. Mm-hmm.

Mr. WHEELER. So this is the Pfizer vaccine. Five—not the actual vaccine—

Senator KLOBUCHAR. OK, that is good to know.

Mr. WHEELER.—salt water. Five doses from this, when they dilute it. With the packaging that Pfizer has developed, and exclusive to Pfizer, we presented that to the President's vaccine summit this week. Very, very highly complex, it has dry ice in the bottom. It has the payload in the middle. It has what we call "pizza trays" where they can put up to 195 of these small vials in the tray. And then they are packed with more dry ice, and then there is a tracking device on top.

I can assure you that I have never seen packaging quite that complicated before, and they have been very proud to develop that, and we are the first to show that out this week. I am pretty confident, aside from real big damage, that we are going to have a lot less spoilage than you think.

Senator KLOBUCHAR. Mm-hmm. And my last question is just the dry ice that I think, Mr. Wheeler, you talked about how—I know UPS Healthcare announced increased dry ice production capacity, producing something like 1,200 pounds of dry ice per hour? Is that right?

Mr. WHEELER. Twenty-four thousand per day.

Senator KLOBUCHAR. Can any of that dry—OK. Can any of that dry ice be made available for hospitals and clinics that need extra cold storage? And how is supply for necessary transportation and storage materials kept up with this increased demand? I am trying to look at this as, you know, the entire supply chain here as we get this vaccine out.

Mr. WHEELER. Well, I am sure we both agree on the same, that there is plenty of third-party supply for dry ice, and we are both prepared to do that. We have that now, and we are fine with the first several months of dry ice. But to top that off, we actually built a dry ice manufacturing plant in Kentucky. So we now have the contingency dry ice, and we are able, if we have extra dry ice—and I am sure we will—we can provide that to independent hospitals and clinics around the world—around the country.

Senator KLOBUCHAR. Very good. You want to add anything, Mr. Smith?

Mr. SMITH. No, I think he covered it well. We have talked to a number of vendors we use across the country—across the world on dry ice, in terms of dry ice replenishment or top-off for packages when they experience a delay, particularly an international package with a prolonged delay, where you may be asked by the customer to top it off. We are not being asked in this instance to do that while it is in transit.

Post delivery, there may be some dry ice top-off that certain specialty couriers and vendors—Marken, which UPS acquired and is part of their healthcare business, which Mr. Wheeler ran, will be providing some of those services where they top off post delivery.

But in talking to all these vendors out there, they do not believe that this talk of a dry ice shortage is real. They think there is plenty of dry ice out there.

Senator KLOBUCHAR. OK, good. Thank you, both of you, and thank you, Dr. Levine, as well.

Senator FISCHER. Thank you, Senator Klobuchar. I appreciate your comments on how to get things out to rural America. I live an hour and a half south of Murdo, South Dakota. And with that, I would like to recognize Senator John Thune.

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

Senator THUNE. Thank you, Chairman Fischer, for holding this important hearing in the midst of such a challenging year. We are excited about the high level of innovation and ingenuity that went into developing these vaccines, and it is going to take a high level of ingenuity and innovation and coordination, obviously, to get the vaccines distributed across the country. And I also will echo what my Chair from Nebraska and my colleague from Minnesota said about getting it to rural areas, particularly places like Murdo, and so, I appreciate your focus on that.

And I want to know—there is a—obviously, it is going to take a sophisticated, multimodal supply chain at this scale. And that is going to require logistical coordination not only within the individual organizations, but between them. At least two vaccines, each with its own set of considerations and methods for distribution, are likely to be authorized in the near future. Could you speak, Mr. Smith and Mr. Wheeler, to how are you preparing to simultaneously distribute these vaccines at scale in a safe and rapid manner? And does the potential authorization of additional vaccines add further complexity to that challenge?

Mr. SMITH. Well, there are two models currently with the vaccines that we are talking about here, the Pfizer and the Moderna vaccine. Moderna has opted to use McKesson to put together the full package, if you will, to do the kitting of the vaccine with the syringes, needles, alcohol wipes, and if vaccines require a diluent or an adjuvant, they will do all of that at the distributor's site, ship it out at once.

Pfizer's model is a little different. The actual vaccine will come from the Pfizer manufacturing site, and it will marry up with the kitting, which will come from McKesson, at the administration site.

Having said that, as I alluded to earlier, when I talked about the discrete—just in the U.S., the discrete origin-destination pairs we can connect with our network and a network like UPS, that is not really a challenge. We can—as more vaccines come on—this is what we do every single day.

They are asking us to transport them rapidly and reliably from point A to point B, to get them from either the manufacturer or the distributor site to tens of thousands of administration sites. We do that every single day. And the packaging, as Mr. Wheeler alluded to, the onus of protecting the product is mostly on the packaging in transit, unless there is some sort of unforeseen delay.

Mr. WHEELER. I think Richard said it well. I will just add to this. There is a complex difference between the two. The Pfizer vaccine

does require a diluent and the diluent is going with the McKesson shipment, with the kits and the PPE and the syringes that are necessary.

The good thing about that process is that those kits are going out from UPS a day before the vaccines arrive. It gives us good visibility of where the vaccines will be delivered. So if there are any errors at all in the addresses, we will know that. So when the kits arrive at the dosing sites, then the vaccine the next day, and then we top it up with dry ice. That is the Pfizer.

Moderna is a little different, just as Richard said. All the whole package is going together from McKesson. Makes it a little bit easier, that we are picking up from the McKessonsite in Shepherdsville, Kentucky, and then taking it to all destinations that we are assigned.

Senator THUNE. So, in addition to the work that you all are doing, there are some passenger carriers, including United, American, and Delta, that are preparing also to rapidly distribute some of the vaccines. Can you describe how your companies plan to coordinate with other carriers in that distribution?

Mr. SMITH. Well, I think in the domestic United States, we don't have a need to collaborate with any passenger carriers. As I mentioned, we run the largest all cargo airline in the world. Our esteemed competitor here runs a pretty substantial airline themselves, and we have plenty of capacity for this in our own system, particularly in the domestic United States, but we think worldwide.

Senator THUNE. As you know, the U.S. Department of Transportation is committed to providing the regulatory flexibility that is necessary for rapid vaccine distribution. Beyond the actions that have been taken by the Department so far, do you have any suggestions for regulatory relief that would improve the ability of supply chains to adequately meet the task? Are you getting what you need from the Transportation Department?

Mr. SMITH. I mean, in our view, the Federal Government has been highly supportive in helping essential service providers to continue to operate during these difficult times. As one example, the DOT has been proactive, issuing guidance and providing relief on expiring driver's and pilot's licenses, medical certifications, facilitating alternative methods of training where appropriate, developing guidance on employee health safety practices, and working with states and foreign governments on policies that allow our team members to continue to work. So we have been getting a lot of great support.

Senator THUNE. OK. Mr. Wheeler?

Mr. WHEELER. I will just add one thing that was mentioned earlier. We are working with the FAA. They have actually asked us to send them a file every day of where the flights are landing. So, in the event that they have difficulties or backup landing aircraft in a certain airport, they will know that vaccines are coming and will give priority to those shipments coming in.

Senator THUNE. Good. I am pleased to hear that.

Madam Chair, I think that the willingness of the DOT to make this as easy as possible, given obviously all the regulations that you all live by on a daily basis, it is really important to expedite

it, and get it out there as quickly as possible in a safe way. So, thank you, we appreciate you being here.

Senator FISCHER. Thank you, Senator Thune. Next, we have Senator Peters, please.

**STATEMENT OF HON. GARY PETERS,
U.S. SENATOR FROM MICHIGAN**

Senator PETERS. Thank you, Madam Chair.

Good morning, gentlemen. Good to have both of you here, and a third via the online here.

Dr. Levine, a question for you. I think it is a similar question that was asked of Mr. Smith, but I think it is important for me to get a sense from your state because Pennsylvania is a lot like Michigan. Michigan is the home of a significant number of rural communities. In fact, two-thirds of our state is classified as rural, and about 30 percent of those residents in those areas are over 60, who, as you know, are high priority for receiving the vaccine.

But given the number—limited number of medical facilities and infrastructure in these communities, give me a sense of how you are preparing to make sure these vaccines remain stable and at the temperature that they need. It is a significant challenge, and we have got to get a sense of what you are doing in Pennsylvania, and it may help us as we are thinking through our issues.

Dr. LEVINE. Well, thank you very much for that question, Senator.

So, yes, Pennsylvania is a very rural state. So, for the first vaccine, the Pfizer vaccine, we have approximately 100 hospitals that will be served as the first stage of the vaccine to be able to immunize healthcare workers for that first part of the mission. Those are hospitals that have the ability to do two things. One is to have the cold chain storage and the refrigeration capacity at their hospital. And the second is to do a widespread vaccination of at least 975 doses with the first trays, as our colleagues talked about.

After that, we are anticipating that the Moderna vaccine will come out, hopefully within several weeks. That is the vaccine that will be distributed to the rural hospitals, much of whom do not have the capacity to be able to store the Pfizer vaccine. And we will be accomplishing the mission of immunizing healthcare workers in those rural areas with a hub-and-spokes method.

In terms of long-term care living facilities, both vaccines will be going to distribution centers for our pharmacy partners, CVS and Walgreens, and then they have hired significant personnel to go out to nursing homes and other facilities to accomplish those immunizations.

Senator PETERS. Does your state or other states have resources to implement perhaps a mobile vaccination clinic to reach some of these areas rurally?

Dr. LEVINE. Yes, we will. That will come into play with future phases of the vaccine, particularly Phase 2 and Phase 3, where actually the Department of Health is coordinating much of the vaccination through vaccine clinics, through FQHCs, and through something like mobile vans. For Phase 1, it really is going to be the hospitals that will be immunizing most of the healthcare workers, and again, CVS and Walgreens, our pharmacy partners, going

directly to long-term care facilities to accomplish those immunizations.

Senator PETERS. All right. Well, thank you.

Question for Mr. Smith and Mr. Wheeler. You know, IBM recently released a very disturbing report detailing cyber attacks on COVID-19 vaccine distribution infrastructure. And just last month, a cold chain storage company also reported that they were the target of a cyber attack. So my question to both of you is, what specific steps have you taken to ensure hackers are not able to disrupt the distribution networks for the vaccines through your companies?

Mr. SMITH. Thank you, Senator, appreciate this question. I know you understand the sensitivity of this type of information that we are dealing with. We certainly do at FedEx, and we are engaged with all of the relevant agencies and stakeholders on this issue. We are taking all of the necessary precautions, using the latest technology, as we pointed out, to safely and securely support these vaccines.

We also have a tremendously strong information security group, Infosec we call it, at FedEx. It is not my area. I run operations and network planning and engineering for the Americas, but we can certainly follow up with you with more specifics on all the things we have done. They do a fantastic job hardening our network and protecting us from attacks.

Senator PETERS. All right, thank you. Mr. Wheeler?

Mr. WHEELER. Just to add to that, I think a good way to answer the question is Pfizer and McKesson, the two primary distributors coming up soon, are longstanding clients of ours, and I am sure FedEx works with them as well. So the data movement between these companies and UPS is well, well trodden. It is a path that we have been walking for a very long time.

Those data feeds are well protected. We have firewalls. We have all the necessary security measures. And we actually presented this yesterday at the Operation Warp Speed headquarters, here at HHS, to give them the assurance that we have the right security measures in place.

Senator PETERS. Right. Thank you.

Senator FISCHER. Thank you, Senator Peters. Next, we have Senator Capito.

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

Senator CAPITO. Thank you, Madam Chair, and thank you all for being here. Can you see me here?

Senator FISCHER. Yes, we see you.

Senator CAPITO. OK, we got it.

Senator FISCHER. We hear you, as well.

Senator CAPITO. Great. Great. Thank you for having this hearing, and thank you, all three of you, for being here. As you can imagine, this is very much top of mind of many, many people, certainly in the State of West Virginia, but all across the country, and the logistics of this, I think, are exceedingly important.

So, Dr. Levine, I would like to ask you the first question. In your neighboring state of Pennsylvania, you might have noticed our state of West Virginia. We have really relied on our National

Guard to serve as the supply chain, to do PPE for our schools. They have done a lot of testing and have really filled in an enormous gap for us, as a state, and have really been the frontline workers, and the Governor has relied quite a bit on them. Is there any plan in Pennsylvania to use that supply chain, or that knowledge that the Guard has accumulated over the last 8 to 9 months, to be a part of this distribution once you secure the vaccine?

Dr. LEVINE. So I know that other states do plan to utilize the National Guard for that mission. Right now, in Pennsylvania, we do not. Our National Guard members, who also have been integral to our response, are actually working primarily in nursing homes and long-term care living facilities. And so, we have used medical personnel extensively as strike teams, to go into challenged nursing homes to provide direct care to patients and to—who have specific—in nursing homes that have particular staffing issues because their staff either have COVID-19, or they are in quarantine.

In addition, if we have to open alternative care sites for hospitalized patients, then we would use National Guard for that purpose. So we have not used the Guard in our planning.

Senator CAPITO. OK. Second question is on the dosages. Let me ask a simple question. If you get the Pfizer first dose, is the amount of the first dose the same as the amount of the Pfizer second dose? In other words, are they alike? Yes?

Dr. LEVINE. Yes.

Senator CAPITO. OK. On tracking that, I think this going to be a potential problem, particularly in rural America. How do you track who has gotten the first one? How do you retrack if you don't have connectivity for certain areas?

Who has the responsibility of that? Do you, as the Chief Medical Officer? Does Pfizer have that responsibility? Where does that responsibility lie, and where is the recheck going to be on this? Because my understanding is that second dose is very critical.

Dr. LEVINE. So you are correct. The second dose is critical to produce the appropriate immune response so that the individual will have a really good chance of being immune to COVID-19. It is primarily our responsibility to track when the first dose is given and the second dose is given. We will be, of course, working with the healthcare providers themselves, who have to input into our system that those doses are given. And both the healthcare providers and the Department of Health have recall mechanisms to contact patients who don't come for their second dose.

Senator CAPITO. So do you have the systems already available to you that would be perfect for inputting this data so that you can follow up quickly and all that? That system, I am going to assume, exists now? It is not something you have to build?

Dr. LEVINE. No, the system exists now. We did have to update our current immunization system and make it much more robust, with redundancies for this mission, which is much bigger than other immunization campaigns we have had. But we have those systems present now.

Senator CAPITO. OK. Mr. Smith and Mr. Wheeler, let me ask you this question in terms of last house. My understanding is that, in some cases, the last house delivery from UPS or from FedEx may

be from the U.S. Postal Service. Is that a correct assumption? Am I right there?

Mr. SMITH. You want to take it? We both have services where we utilize the United States Postal Service for final mile delivery, primarily of lightweight, low-value, e-commerce items.

Senator CAPITO. Would the—OK, would the vaccine fall into this, or would that be something that you—

Mr. SMITH. Absolutely not. The vaccine will be delivered by FedEx Express, by a FedEx Express courier to these administration sites.

Senator CAPITO. And is that the same with UPS?

Mr. WHEELER. Exactly the same with UPS. We are a 100 percent UPS network. And as you know—

Senator CAPITO. OK, good.

Mr. WHEELER.—all the employees are UPS employees.

Senator CAPITO. Good. Well, I would imagine, I mean, utilization of that—however many—the fewer hands between—

Mr. WHEELER. We agree.

Senator CAPITO.—the vaccine and the person who actually receives it obviously eliminates any kind of room for error there. So I am pleased to hear that.

Mr. WHEELER. Agree 100 percent.

Senator CAPITO. Good. And then I was interested to hear, too, that there have been some relaxations of certain regulations, times of service. I heard expired licenses of pilots—or extension of pilot licenses and other things. I understand that is going to be very helpful to both of you to make sure that you have got full capacity to be able to move forward. Do you have anything to add on that aspect, where you might need some other flexibilities?

Mr. WHEELER. We are actively testing all of our pilots on a regular basis to make sure that we can rotate the pilots efficiently. We have 3,000 pilots in the U.S., and we are testing them all.

Mr. SMITH. We are doing the same. Our pilots are being tested before they fly on a mission, particularly internationally. So, same.

Senator CAPITO. OK. But then, let us say—let us go to your trucks, same thing? I mean, there are hours of service restrictions on those, too. Do those come into play for you, or not—

Mr. SMITH. We think we can—

Senator CAPITO.—in this instance?

Mr. SMITH. We can manage those, and we don't have any additional asks in that regard here.

Senator CAPITO. OK.

Mr. WHEELER. I will just add, we said before that we are giving priority to all the vaccine shipments. So as soon as they arrive in the destination location, our sort facilities or our hub facilities, the drivers will know exactly that they are moving vaccines. So it is a priority for them. They will put those packages on their trucks first, and the others will follow.

Senator CAPITO. OK, final question for both of you. Obviously, getting a vaccine—I saw you with the little vial of the fake Pfizer vaccine. Obviously, you need swabs. You need injection devices. Are you in contact with those manufacturers, too, to make sure that—are you a part of that whole stream of logistics that are going to be important to delivering this vaccine? Mr. Wheeler?

Mr. WHEELER. Yes, UPS moves everything. So we are moving ancillary supplies to our customers. We are moving glass vials—

Senator CAPITO. But I mean, is that something that you are making special considerations for, as you are for the vaccine itself?

Mr. WHEELER. Of course.

Senator CAPITO. Yes.

Mr. SMITH. We are planning for everything.

Senator CAPITO. OK. Mr. Smith?

Mr. SMITH. Yes, same. We are planning for everything, anything that we are asked to move from a distributor like McKesson or directly from a manufacturer like Pfizer. In terms of just shipping vaccine or whether we are shipping vaccine and kitting, we are same as UPS. We are prepared for it and ready and planning that with them.

Senator CAPITO. OK, thank you.

Senator FISCHER. Thank you, Senator Capito. Senator Baldwin, you are recognized.

**STATEMENT OF HON. TAMMY BALDWIN,
U.S. SENATOR FROM WISCONSIN**

Senator BALDWIN. Thank you, Madam Chairwoman.

Like so many of my colleagues, we are very much looking forward to hearing from the FDA later today, but we all know that we have a lot of work to do. We still need to wear our masks. We still need to limit our gatherings, until at least 70 percent of Americans are vaccinated. And to get there, our states are going to need support.

I want to share that in hearing from Wisconsin officials, they have been working overtime to provide care to patients with COVID-19, reduce the spread, and prepare for the vaccine distribution. But the state estimates that they will need an additional \$10 million for vaccine infrastructure readiness over the months to come.

States are doing as much as they can to get ready, but they can't do this work alone, as we all know. And I am concerned about the potential for breakdown in coordination between the Federal Government, states, and partners of the private sector. We have got to get this right from the very start.

So, Mr. Wheeler and Mr. Smith, given your roles in the distribution process, can you describe which points in the distribution coordination will be the most critical and where you see the potential for breakdowns? What do we need to do to ensure better coordination at these various points?

Mr. WHEELER. I think what I would ask is that the State jurisdictions that are working with Operation Warp Speed come up with a very good forecasting model. As soon as we can see the volume coming through the pipeline and through the system, the better. We—I think that is probably the best way to answer it. We are taking orders from McKesson and Pfizer for these two vaccines that come straight in. We have embedded employees at their locations, so we are scanning everything from the origin to the final destination. And Operation Warp Speed is really driving the train here. They are the ones giving us the orders to move.

Mr. SMITH. Yes, and I would just second that. I mean, we feel very confident, as I know UPS does, about our role in this, particularly the transport from point A to point B. You know, we don't decide where the vaccines go, how much is allocated to each state, how it is allocated within the state. We are the transportation provider, and our mission is to get it there rapidly and reliably, safely and securely.

But we are very confident about it in our system. There are certainly things before it enters our system that are outside of our control. There are things after we deliver it that are outside of our control. But I am confident about it when it is within our control, and I will just echo what Wes—

Mr. WHEELER. I might add that it is very useful to have CVS and Walgreens signed up as really the primary destinations, at least for these first few months. That is very helpful because both companies know CVS and Walgreens very well. We have all the addresses. We deliver every day for all sorts of things. So having that focus is very, very important to the supply chain, I believe.

Senator BALDWIN. Thank you.

Dr. Levine, I would like to ask you about dry ice, especially given its essential role in delivering the Pfizer vaccine doses. Pfizer has developed plans to secure access to dry ice for their initial shipments. But I am wondering about the second phase of dry ice demand, when Pfizer's shipping containers are replenished with dry ice, at the State and local level. I understand that it is State and local health leaders, or whoever receives the shipment within the state, who are responsible for ensuring their supply at that point.

This is all happening at a time of heightened demand for dry ice around the holidays, and in an industry that operates in a just-in-time basis, given the short window to use dry ice after it is manufactured. Do State and local leaders who anticipate receiving a shipment of Pfizer vaccines have clear and robust information about how and where to source dry ice that is needed for the replenishment and adequate cooling of the supplies they are likely to receive?

Dr. LEVINE. So, yes. The Pennsylvania Department of Health, working with PEMA—the Pennsylvania Emergency Management Agency—would be able to obtain dry ice, if necessary. For the first stages, we actually don't anticipate it will be necessary because, again, the Pfizer vaccine will be going to hospitals. And particularly, that vaccine will be going to hospitals that have, themselves, the refrigeration capacity to be able to keep it at the ultra-cold storage temperature that is necessary. And then, for the long-term care facilities, as was mentioned, it is going to distribution centers at CVS and Walgreens, and those centers also have the refrigeration capacity to be able to keep it at an ultra-cold temperature.

Now, with future distributions, as it goes more out to FQHCs, and et cetera, you know, we are going to be able to really try to work that they can be administered, you know, right when the box is opened, and we can administer that amount of vaccine. I think the Moderna vaccine, which has less requirements, will be much easier to distribute, as I mentioned, to rural Pennsylvania and other parts of Pennsylvania that will not really have access to those refrigeration capacities.

Senator BALDWIN. Is there any information that you would like to be made available, by the Federal Government or through co-operation of the industry, to ensure that local health officials have a clear direction on dry ice sourcing protocols or alternative sourcing plans, if needed, and pricing? Any sort of dashboard that should be required?

Dr. LEVINE. Absolutely. I think what we have shown is that it is really challenging when the states are almost competing with each other for needed resources, and that occurred in the spring, particularly for personal protective equipment. Since, you know, we know that every state in the country is going to need this material for the eventual distribution, as time goes by, of the Pfizer product, it would be helpful if the Federal Government coordinated that, and we didn't have to bid against our sister States.

Senator BALDWIN. Thank you.

Senator FISCHER. Thank you, Senator Baldwin. Senator Tester, you are recognized.

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

Senator TESTER. Well, thank you, Chairman Fischer. I want to thank you and the Ranking Member for holding this hearing. It is one of the reasons—I don't normally sit on this Subcommittee, but it is a critically important area, and I want to thank you guys for doing this. And I want to thank all the folks who have testified.

Now, this is for Mr. Smith and Mr. Wheeler. We have got about 10,000 doses coming into Montana in this first round. They are all going to be allocated to hospitals that are in the seven major cities in Montana. I hope there is going to be no problem there, and I don't think there will be a problem. It sounds like you guys have planned for that. They have access to things that a lot of the rural and frontier towns that have hospitals in them do not. I think if this vaccine is going to be distributed throughout the country, and I think Chairman Fischer knows this as well as anybody, the rural areas are really going to, I think, pose some issues.

And so, the first question I had, for either or both of you is, and I know it depends on location, but how long to the furthest location out there, do you think it will take to get from the distribution center, where you pick the vaccine up, to its final location, assuming that it is more than just those seven major cities in Montana—assuming it is a town like Chester, Montana; or Harlowton, Montana, that have much smaller populations, that are a ways away from these more populated areas in the State of Montana?

Mr. SMITH. I have to take this one because I can't resist. In the United States, as our old tagline used to say, absolutely, positively, overnight.

Senator TESTER. OK, good. Mr. Wheeler?

Mr. WHEELER. We are planning on a next day, 10:30 a.m. arrival anywhere in the—anywhere that we are assigned. So, of course, FedEx and UPS have split the country into two. We know exactly what states we have, and they know what states they have. We are guaranteeing overnight, from the time that it leaves the Pfizer location or the McKesson location until it arrives the next morning at 10:30.

And of course, remember that the dry ice packaging with Pfizer is a 10-day package. So it is good for 10 days, and then they will have additional 40 pounds of dry ice to replenish, which gives you more life.

Senator TESTER. No, I think that is good. I think the key is to get the vaccine into the bodies of the people who need it.

Has Pfizer or Moderna or anybody—CDC or anybody—told you guys what the protocol is going to be to let you know when you are going to pick it up so that the hospital knows? I mean, you guys are going to deliver it overnight or within—by 10:30 the next day. That hospital has to be ready for it. They have to let their patients know it is available and probably individually call the patients who are most susceptible.

What is going to—have they told you what the protocol is going to be to letting people know that, you know, this vaccine is coming to X town in Montana?

Mr. WHEELER. Not really, but we have some—we have an idea how they want to do this. Pfizer has very, very specific protocol for how the package is handled, how many times a day it can be opened, how many vials can be withdrawn.

I think the best answer to the question is the states and the jurisdictions and all the dosing centers have to have their patients lined up, lined up so they don't waste any vials. Once you take the vials out of the box and they thaw, you can't refreeze them.

Senator TESTER. Got you.

Mr. SMITH. Yes. I will just echo my colleague here that, you know, they have those processes they are working on. When it is tendered to us, we are told to transport it to the administration site overnight, and as Wes pointed out, we also deliver it by 10:30. We have the same commit time for our priority overnight shipments to business locations by 10:30. Like good competitors, we keep each other—one another on our toes, and we have the same commitment.

Senator TESTER. We like competition. So this isn't on you guys, but I certainly hope somebody out there. We are going to distribute these vaccines in the winter. I mean, truthfully, some will be done in the spring, too, but primarily in the winter. And you guys know, because you deal with this stuff, if they are going to get a hold of the patients, get them there so we don't waste the vaccine, it is going to take some planning. And I hope somebody is listening to this hearing that has some stroke in that because, quite frankly, you get a blizzard that blows through, and it is going to screw stuff up. And so, it is important.

Mr. Smith, I want to touch base with you, and this is a question that Senator Thune asked, and it didn't go to Wheeler. But very, very quickly, he talked about Delta and American and the airlines—the commercial airlines, potentially carrying this, and his question was how are you going to work with them? And you said, "We got the capacity. Don't worry about it."

Well, let us say that whoever is the king maker out there says, "Well, you know what? I don't care if UPS or FedEx has the capacity, we are using Delta," for whatever reason it might be. Do you guys have that relationship to be able to work with those commercial airlines, in case it isn't on your ship?

Mr. SMITH. Sure. We work with them in the international environment, both our companies do, with what the industry calls freight forwarding, where we will use passenger underbelly lift to move deferred air cargo point to point, airport to airport, as we say. But in the United States, we have plenty of capacity, as I pointed out, that decision to use a commercial airline I don't think would make a lot of sense because they don't have the infrastructure to connect all those origin-destination pairs that I talked about, right, the 1.7 billion zip code combinations we connect. Because it is not just about moving it from airport to airport. You have got to move it from the ramp at the airport to the station and then get it out into the field. So they don't have the infrastructure ability to do that—

Senator TESTER. I got it.

Mr. SMITH.—and connect the country on such a widespread basis. So I don't think that would happen in the U.S., but we would certainly work with them if they were brought in.

Senator TESTER. OK, that is fine. That is good. Thank you very much.

And once again, Madam Chair and Ranking Member Duckworth, I just want to thank you guys for doing this hearing. I appreciate all the witnesses. Thank you.

Senator FISCHER. Thank you, Senator Tester. While we are waiting for a couple more Senators to come, I am going to ask a couple more questions here, please.

Dr. Levine, you noted in your testimony that during mock vaccine shipments, a quarter of the states experienced a lag in receiving the ancillary supply kits. Could you elaborate on what the challenge was, and have you noticed any corrective action that is being taken to address it?

Dr. LEVINE. Well, as you have stated, through ASTHO, you know, we keep in touch with all of the State health officials, and there was a dry run. In Pennsylvania, we did receive the mock shipment and the mock kitting that was discussed that will be shipped separately for the Pfizer product. But in significant number of states, they did not all come at the same time. So, as was mentioned, you are going to have three different components—the vaccine itself, the diluent, and the kitting—and it all needs to arrive at the exact same place at the right time so that the vaccine can be administered.

Now we don't transport that. I mean, that is being transported, you know, through our partners here, the other testifiers, as well as, you know, under the jurisdiction of Operation Warp Speed. And so, when the ball comes to us, and all of it is present, and then our supervision comes in and we work with the hospitals and then with the pharmaceutical partners to administer the vaccine.

So all of that was relayed to Operation Warp Speed about the challenges that some of the states had. And so, hopefully, those difficulties will be ironed out, and everything will arrive at the correct time next week, when the Pfizer product, hopefully, will ship.

Senator FISCHER. Thank you. And Mr. Smith or Mr. Wheeler, is FedEx or UPS planning to be involved in the shipping of the ancillary supply kits? And how are you ensuring those shipments are timed to arrive with the vaccines doses that are arriving?

Mr. WHEELER. I was going to mention that this week when we presented to the vaccine task force, McKesson basically said that they have built 150 million test kits already. So they have stockpiled the ancillary supplies. Moderna and Pfizer are both being built now. So they are ready to go. That has the syringe, the diluent, the PPE, the instructions to the dosing sites, the mixing vials as well.

All that is ready to go. UPS will be supplying 100 percent of all the kits to the country. FedEx and UPS will then follow with the vaccine shipments, and then we will follow all 100 percent of the sites with dry ice.

Senator FISCHER. OK, thank you.

Mr. SMITH. So, in some respects, just to point out how profound this is, you have two fierce rivals here and competitors in FedEx and UPS, who literally are teaming up to get this delivered. And in some cases, that relationship is interdependent, with them shipping the kitting and us shipping the vaccine to certain states. So we are relying on one another. It is almost like, and I hope Senator Wicker is still watching, but it is almost like two rival college football teams—say, Ole Miss, Hotty Toddy, and Mississippi State—coming together on the same NFL team to play as teammates.

Senator FISCHER. OK, thank you. Senator Blumenthal, you are recognized.

**STATEMENT OF HON. RICHARD BLUMENTHAL,
U.S. SENATOR FROM CONNECTICUT**

Senator BLUMENTHAL. Thanks, Mr. Chairman, and thank you both for being here. Thanks for your cooperation. I don't know whether football is a perfect analogy, but on this issue, I am glad you are on the same team and that you are working together because the American people really need that kind of cooperation.

And we are on the cusp of historic approval of the Pfizer vaccine, hopefully next week the Moderna vaccine, and as you know, there are challenges in shipping it. I am proud to say that a number of efforts by manufacturers are innovating in this area on cold storage and transport.

In fact, I attended a virtual demonstration of the Bozrah-based Gilman Brothers vaccine transport system, demonstrating their capability for vaccine transportation. And I think that kind of innovation and invention can help in the massive—and I emphasize massive—challenge of distribution. People expect that it will arrive at their local CVS tomorrow because that is the way American enterprise works, but I recognize you have great challenges ahead.

I want to emphasize one particular aspect of this challenge, which actually arose yesterday in a hearing of the Veterans' Affairs Committee. The head of the Veterans Affairs health system indicated that they are facing obstacles and challenges to deliver the vaccine to their health facilities. That is veterans health facilities. Could you address what specific steps you are taking to provide this vaccine to our veterans, which is so important?

They are in the age group that is most vulnerable. Many of them are veterans of wars of decades ago, and they need this vaccine, and they need it right away. They are going to get it, hopefully, through their veterans facilities, like the West Haven facility in

Connecticut, which, right now, is apparently not on the list to receive it because of these logistical obstacles. So maybe you can address that aspect of the issue.

Mr. SMITH. I am not aware of any logistical obstacles that prevent us from delivering to the veterans. We were founded by a proud veteran of the Marine Corps, Vietnam veteran, who did two tours of duty in Vietnam. So we live to serve our veterans. We employ a lot of veterans.

We don't have any control over where the vaccine goes. We are told where to deliver it. We are simply the transportation provider here. So I am not aware of any logistics challenges that would prevent us from delivering to the VA hospitals or to getting it to our veterans. Certainly willing to look into that, anything you have heard on the logistics side, because I have not heard that.

Mr. WHEELER. Senator Blumenthal, I think Connecticut is assigned to UPS, so we will be delivering to Connecticut. We don't have the addresses yet. I was on the phone with General Perna yesterday, and we are waiting for the addresses any day now. We have sent the kits out. So the kits have gone. They are arriving this morning. We will look at the addresses and make sure we get them.

Senator BLUMENTHAL. I am so glad to hear that because I think our veterans will expect it, and I would like to work with both of you, have my staff perhaps contact you and work with the VA to make sure that there are no difficulties. I am not attributing any of those obstacles to you, I should emphasize, but I just want to make sure that we focus on getting the job done.

As you know, onsite cold storage is as critical to vaccine efficacy and effectiveness as storage during transportation. What challenges do you anticipate providers may face after receiving those vaccine shipments?

Mr. WHEELER. Yes, we have talked a lot about—I mean, Moderna and Pfizer are a little bit different. So, Moderna is at -20 , typical freezer temperature. So, in terms of storage at the sites, there is probably more of that available at most of these sites.

Pfizer, recognizing that, has built this amazing package that can keep that -70 for 10 days, and we are providing additional dry ice to keep it longer. And beyond that, we have offered to many sites—in fact, we already have 100 orders of portable freezers that you plug into your outlet, at -70 degrees, and it maintains temperature forever. So we have offered that as well.

Senator BLUMENTHAL. Thank you.

Mr. SMITH. We have talked to some of the big pharmacies like Walgreens, who is our customer, and they are acquiring some of these freezer units as well to stage the product and keep it ultra-cold after delivery.

Senator BLUMENTHAL. Thank you. Thank you both.

My time has expired, but this topic is top of mind, I think, for all of us, and your being here today, along with Dr. Levine of Pennsylvania is very welcome, and I am sure we will be hearing from you again. Thanks so much.

Senator FISCHER. Thank you, Senator Blumenthal.

As we wait for the Ranking Member, Senator Cantwell, to come ask questions, I have a couple more questions that I would like to ask.

Dr. Levine, the CDC, and Operation Warp Speed planning documents, indicate that the jurisdictions will be responsible for any redistribution of vaccines after the doses are shipped to the identified provider. Do you anticipate jurisdictions redistributing many vaccine doses after those have been received by the providers, and if so, can you outline what those redistribution procedures may look like?

Dr. LEVINE. Well, so as the Moderna product is going out—particularly because it doesn't require the ultra-cold chain—to hospitals, we will distribute some of those, for instance, to federally Qualified Health Centers because we want to think of healthcare providers extremely broadly. It is not just hospital providers. It really has to be anybody that is on the front lines, seeing patients with COVID-19, for instance, including EMS providers. So we do anticipate some redistribution, particularly of the Moderna, to accomplish that.

Senator FISCHER. Thank you. And for the entire panel, given the magnitude of transporting so many vaccine doses, I anticipate flexibility among all stakeholders is going to be extremely important. How are each of you planning to incorporate changes into your logistics or planning as the vaccination effort progresses?

Dr. Levine, would you like to start, please?

Dr. LEVINE. Sure. So, you know, all of the vaccine plans that we have, really, I consider drafts for our state and for all of the states because there are many different factors that are going to come up as this mission proceeds. For example, we don't yet know what recommendations the FDA might state about the Pfizer and then the Moderna product, which would change our vaccine plans, as well as when it goes to the Advisory Committee on Immunization Practice from the CDC, which might have some specific recommendations about administration, which would then change our plans. That would be true of the Moderna product as well.

Of course, as the time is going and we are immunizing according to the three phases of the CDC, things are going to change in terms of the spread of the virus and which groups might be most impacted. And so, I think that it will be very important for the States, territories, and cities involved to be very nimble and flexible with their plans going forward, just to make sure that we are able to immunize the members of the public, as is necessary.

Senator FISCHER. Thank you. Mr. Smith?

Mr. SMITH. Sure. There is an old saying I am very fond of. Men make plans—or men and women make plans, and the gods laugh. We deal with the unforeseen every day—weather, traffic, you name it. For international shipments, regulatory holds, customs delays, and that sort of thing. So our plans have to be flexible every single day. And it is customer specific, often.

I mentioned a new product introduction, like a new iPhone or a new medicine that is being brought to market. I mean, those things require tremendous planning, and sometimes the forecasting is wrong, so you have to adjust. So we do this every day, adjust to changes on the battlefield, as we say. And we are well versed in

it, and we don't expect anything that we won't be able to handle in that regard.

Mr. WHEELER. The beauty of our network is that all of these vaccine shipments are going from—for the first couple of months anyway until we get the next vaccine approved, will come from three locations into our Louisville Worldport facility. Every day, we have 400 flights landing and 400 flights taking off to reach destinations around the country the next morning.

Every time a vaccine shipment is sourced, it comes with the tag, the tag gives it priority, and as soon as we have a change in addresses or change in priority or change in volume, we can immediately pivot to make sure that those vaccines arrive the next day at whatever location is required. We are taking direction from General Perna and his team, and we are very flexible, both companies.

Mr. SMITH. Yes, I should add that both of these networks have tremendous redundancy built into them. So we have our Express super hub in Memphis, Tennessee. We have our other major inland sort location in Indianapolis. We also have hubs in Newark, Greensboro, Miami, Dallas-Fort Worth, Oakland, and Anchorage, Alaska, just in the United States alone. So we have redundancy in the event of weather events or other unforeseen things.

Senator FISCHER. OK. And I would like to go back to follow up a little bit on Senator Peters' question about the IBM report on the cyber attacks. IBM specifically identified phishing e-mail attacks in its report. What also are you doing to ensure employees have the appropriate cybersecurity training to ward off these attacks?

Mr. SMITH. Yes, we battle those every day. As I mentioned, our Infosec, information security department, is extremely good. We can certainly follow up with more information about all of the things they are doing, in cooperation with Federal agencies and internally, to battle this.

We have regular training and communications that go out to employees. We mark any e-mail that doesn't come from within the FedEx system behind the firewalls as external, so they know that it is an external e-mail. We tell them not to open links, not to open the e-mail. We constantly train them and refresh that training. So we do a number of things to harden our systems, but also to educate our employees about what to look out for.

Senator FISCHER. I imagine you both face hundreds of thousands of attacks every single day. In this public setting, can you give us any information on if you have been specifically targeted by any type of cyber attack, and if it was to your administration, or was it to an employee? Can you tell us any of that in this setting?

Mr. WHEELER. We are not in a position to say that today, but we have attacks every day, and we have information security and cybersecurity. We work with CISA on best practices. Whatever comes up in the industry that is new, that is better than we have, we adopt those things. But we have incredibly tight e-mail systems and systems around the country. And as I said earlier, Pfizer and McKesson, the data flows between Pfizer and McKesson and UPS and Operation Warp Speed are well established and have been for quite some time.

Senator FISCHER. OK. Thank you very much. Senator Cantwell.

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

Senator CANTWELL. Thank you, Madam Chair, and thank you and Senator Duckworth for holding this important hearing. I have had to be in and out because Small Business is also talking about PPP, so we are really trying to pay attention to what we need to help people dealing with this unbelievable COVID pandemic that is increasing in impact right now at a very critical moment.

So I wanted to ask a question about what we are doing to help states and municipalities on the delivery system. I have heard from my mayors in my state. I have heard from my state's health officials. This is a very intense operation on the ground, and they are going to need help and resources in the delivery system.

And I want to make sure that we are thinking about how to give equitable access. I heard some of the discussion about nursing homes and I definitely agree about that distribution, but I want to make sure that we are getting equitable distribution to very challenged and hard to serve communities. We, in the State of Washington, have 29 tribes and a big geographic area and delivering to Native Americans, and I am sure I could give other examples of hard to serve communities.

And then I just want, one more time, to ask the question that Senator Capito was trying to get at. With major layoffs in the aviation sector, are we sure that there is nothing we need to do there, to make sure that both pilots and equipment are ready on the rotation side? When you lay people off they obviously have to then requalify. And when you have equipment that has been out of service, it needs to be—I don't know what the right word is—reevaluated and put back into service in a new way.

So I just want—if you can answer those questions or address those issues which are, what do we need to do to help State and local governments on the distribution side? What do we need to make sure to do to be equitable for minority communities? And are you sure we have this figured out on the workforce and equipment side?

Mr. SMITH. Let me answer those in reverse order. We are very confident, and I believe that Wes would say the same, that we have the assets, we have the crews, we have the infrastructure to support this mission. We have—

Senator CANTWELL. And is that—just if I could, because nobody in the rest of the larger aviation sector will be called on or will there be some transport over our general carriers? Because they are in the carrier business, too. So, is there nothing that they are going to be impacted on?

Mr. SMITH. We don't believe, at this point in time, in the United States, to deliver this we are going to need to rely on the passenger airline sector at all. Again, they could fly it airport to airport. We have plenty of capacity for that, plenty of well-trained, excellent pilots and crew members who fly our missions every day. I know UPS is the same. We have plenty of capacity in the United States.

But also, the ability with these networks we operate, there are only two companies in the United States of America that have the networks to connect all those O&D pairs that I talked about on an overnight basis, and they are both represented at this table. So the

reason we are both here and we are both doing this is because we are the only ones that can. So that is the answer to the last question.

On the second, in terms of equitable distribution, we have no say in how this is being distributed. We are simply the transportation arm, and our job is to get it from point A to point B, rapidly and reliably, safely and securely. That is just not a decision that we make. We are told where to take the vaccines on a daily basis, and that is what we do.

And then getting it out to rural areas, as I mentioned, we service every zip code in the United States of America. So does UPS. And we do that every day, on an overnight basis, by 10:30 the next day.

Mr. WHEELER. A lot of what he said, but just to add to that. The beauty of our network is that it works only as a network. So we are planning 100 percent with the UPS aircraft, UPS package cars, and drivers and trucks. But we also have a very extensive courier network. So if we get into trouble anywhere and we have to get a vaccine overnight on a commercial aircraft, we have relationships with all of them, and charter aircraft. And we are actually working with a lot of the manufacturers to move active ingredient and bulk product into the United States from overseas on charter aircraft. So we have that ability.

To go back to the question about helping states. We got pretty good at this with test kits. So when we started testing and moving laboratory samples from patients to lab companies, we got very, very familiar with the State governments, the State jurisdictions, and the health authorities there. And we were helping a lot of the states to do that, and we still are, and that allows us to give you help wherever you need it.

Senator CANTWELL. Yes, Madam Chair, thank you again. It is so great that you had this hearing, but we need to figure out whether it is us or someone else that has to have the rest of this conversation. It reminds me a lot of what happened with the hurricanes in Puerto Rico, where there was a lot of undistributed cargo on the docks.

And I know you have equipment that can get you into communities, but we still have this big question of who are you delivering the vaccine to, and what do they have set up? And we see the complexity on TV, of what it takes to actually administer the vaccine. So the question is, who is going to do that?

And my sense is that states, cities, and public health districts need resources, and we need to make sure they have them. Otherwise, you are going to do a really great job, and we are still going to have a roadblock.

So, thank you so much. This is helpful.

Mr. SMITH. I will just add, I am very familiar with the situation in Puerto Rico because we flew a ton of that cargo into Puerto Rico. A lot of the issue there on the ground was the infrastructure being wiped out, so—

Senator CANTWELL. Well, we—you have to have the infrastructure to deliver the vaccine. So, anyway, we will get to this question, but again, thank you, Madam Chair, and thank you for working around the clock to help us on this pandemic.

Senator FISCHER. Thank you, Senator Cantwell.

At this time, I ask consent to enter several letters into the record—a statement from McKesson, regarding their role in the vaccine distribution process; a letter from the Transportation Intermediaries Association regarding third-party logistics providers' role in the distribution process; letters from transportation industry and labor associations regarding vaccine prioritization; and a letter from the transportation safety associations regarding the safe transportation of vaccines.

Without objection, so ordered.

[The information referred to follows:]

McKesson Corporation
6535 State Hwy 161
Irving, TX 75039
www.mckesson.com

Pete Slone
Senior Vice President, Public Affairs

MCKESSON

December 10, 2020

The Honorable Deb Fischer
Chairman
Senate Committee on Commerce, Science and Transportation
Subcommittee on Transportation and Safety
United States Senate
Washington, D.C. 20510

The Honorable Tammy Duckworth
Ranking Member
Senate Committee on Commerce, Science and Transportation
Subcommittee on Transportation and Safety
United States Senate
Washington, D.C. 20510

Dear Chairman Fischer and Ranking Member Duckworth:

McKesson appreciates the opportunity to submit a statement for the Subcommittee's hearing on "The Logistics of Transporting a COVID-19 Vaccine". On behalf of the 80,000 employees of McKesson Corporation, we are pleased to discuss our effort to distribute COVID-19 vaccines and supply kits to the American People. In a highly integrated plan with government and private sector partners, we are proud to play an important role in helping to address the needs of the healthcare community during this global health crisis.

We look forward to working with the Congress, federal and state partners, and others as we continue responding to the COVID-19 pandemic. If you have any questions or require further information, please contact me.

Sincerely,



Pete Slone

TESTIMONY OF SHAWN SEAMANS, PRESIDENT, RxCROSSROADS; EXECUTIVE SPONSOR
ENTERPRISE COVID VACCINE PROGRAM, MCKESSON CORPORATION

Chairman Fischer, Ranking Member Duckworth and Members of the Subcommittee on Transportation and Safety. On behalf of the 80,000 employees of McKesson Corporation, I am pleased to share with the Committee our effort to distribute COVID-19 vaccines and supply kits to the American People. In a highly integrated plan with government and private sector partners, we are proud to play an important role in helping to address the needs of the healthcare community during this global health crisis.

Our mission

For over 185 years, McKesson has led the industry in the delivery of medicines and healthcare products. As one of the world's largest and oldest healthcare companies, we are at the forefront of supply chain innovation; delivering vital medicines and supplies that touch the lives of over 100 million patients in healthcare settings.

McKesson is a mission driven company, focused on our vision to improve healthcare in every setting—one product, one partner, one patient at a time. *We believe the patient comes first.*

Vaccine Distribution

Our leadership and experience in managing complex logistics extends to vaccine solutions and cold chain handling. McKesson is the largest seasonal flu vaccine distributor, delivering millions of doses annually to all settings of care including public health clinics, hospitals, physician offices, nursing homes and other long-term care facilities. We also deliver many millions of other refrigerated non-flu vaccines every year.

For the last 13 years, McKesson has been the central distributor for the Centers for Disease Control (the "CDC") Vaccines for Children program. The Vaccines for Children program, including the CDC's Vaccine Tracking System ("VTrckS"), is also the backbone to the distribution of COVID-19 vaccines. Each year we work at the direction of the CDC to distribute 75 million doses of over 60 different vaccines to 44,000 locations across the U.S. In addition, we delivered millions of vaccine doses, meeting critical logistical needs, during the 2009 H1N1 outbreak. As the CDC's central distributor, we delivered 127 million H1N1 vaccines to 90,000 locations. At the time, this was the Federal government's largest public health initiative. *As you can see, McKesson has deep experience and a track record of successfully moving vaccines and medical supplies at scale.*

COVID-19 Response

McKesson has been steadfast in our support of Federal and state response efforts to the COVID-19 public health crisis. We have played a critical role supporting the U.S. Department of Health and Human Services and the Federal Emergency Management Agency in their sourcing and distribution efforts, contributing our advanced understanding of the supply chain.

As a participant in Project Airbridge, we coordinated closely with Federal and state agencies to move products to the front lines. Our Health Mart pharmacies have leveraged their significant footprint in rural and medically underserved communities to expand the reach of community based COVID testing to patients nationwide. These pharmacy locations are prepared to join the many other administration sites being marshaled to deliver hundreds of millions of COVID vaccine doses to patients.

Our commitment to the COVID-19 response extends to Operation Warp Speed. McKesson is the CDC's central distributor of COVID-19 vaccines (except Pfizer) and ancillary supply kits for all vaccines, including Pfizer. Now that two COVID-19 vaccines are near Emergency Use Authorization by the Food and Drug Administration, *we are prepared to meet this moment for our Nation.* Our best-in-class practices make McKesson well-positioned to assist the government in getting the right vaccines and supplies needed for administration to the right place at the right time.

I would like to discuss in greater detail the operational steps McKesson is tasked with in furtherance of the largest mass vaccination initiative in the history of the United States. Our program is designed to ease the burden on the states by allowing them to focus on administration itself.

McKesson is today operating dedicated distribution centers for both the vaccines and ancillary supply kits in close proximity to hub operations of FedEx and UPS in Memphis, Tennessee and Louisville, Kentucky.

Safety, security, and accuracy are our highest priorities at every step of the process.

McKesson will distribute the Moderna vaccine—and other future vaccines that would require refrigeration or frozen storage, as well as any that can be maintained at ambient temperatures. Pfizer has maintained responsibility for distributing its vaccine, directly through FedEx and UPS, which requires ultra-frozen storage and distribution. We, however, will distribute supply kits that are needed to administer all vaccines, including Pfizer’s vaccine.

We have a superior cold chain process to maintain the right temperature throughout the transportation process. McKesson will accept Moderna’s vaccine at its manufacturing site, bring vaccine doses to McKesson distribution centers, verify via temperature sensors that proper temperature was maintained while in transit, and finally, store the vaccine doses in pharmaceutical grade freezers until a fulfillment order is placed by the Federal Government.

The Federal government—in coordination with state governments—will determine where, when, and how many doses McKesson will distribute. Once an order is received, McKesson will package the vaccines into a specially designed shipping container with cold packs that are designed to maintain the product within the manufacturer’s required temperature range during transit from our distribution center to the administration site. Each package will include a temperature monitor so the administration site can confirm upon receipt of shipment that vaccines remained within the appropriate temperature range. Our carrier partners, FedEx and UPS, will retrieve the vaccine shipments from our distribution centers and deliver them to administration sites, typically within 24 hours. Those carriers will use their highest priority shipping method and will embed Bluetooth technology to track each package.

McKesson has already pre-assembled ancillary supply kits (including syringes, needles, alcohol wipes and face shields) to support administration of more than 150 million doses. Supply kits for Pfizer’s vaccine also include diluent to reconstitute the vaccine to its proper dosage. The ancillary supply kits are also shipped by FedEx or UPS and are intended to arrive prior to or at the same time as the vaccine shipments.

Safety for our employees is equally important. McKesson takes very seriously compliance with Federal and state public health COVID guidelines and protocols. We are proud of the thousands of associates across the United States who are working tirelessly to deliver vaccines, supply kits and other critical personal protective equipment such as masks, gloves, and gowns during this pandemic.

While McKesson will be instrumental in the distribution of COVID vaccines and supply kits, all decisions regarding allocation and prioritization will be made by the Federal government, in consultations with the states. State governments will determine how vaccines will be received, stored, and where administered. Agreements between government agencies and pharmacy chains or independent pharmacy networks allow for vaccines to be shipped directly to their site locations. CVS and Walgreens, for example, have agreements to administer vaccinations at long-term care facilities.

Centralized distribution for COVID vaccine delivery leverages the strength of all stakeholders. This model is important for the current pandemic and future pandemic preparedness. McKesson believes that public-private partnerships can help ensure that our country deploys an integrated set of solutions, informed by experience and careful consideration of the ways in which future crises could differ from the one at hand. A comprehensive pandemic response plan should include material preparedness; supply chain resiliency; data sharing and highly integrated communication and coordination. These elements are built into the COVID vaccine and kit distribution plan.

We look forward to working with the Congress and the states, along with our private sector partners on maintaining an integrated supply chain to support efficient procurement, inventory management, and deployment of essential vaccines, medical supplies, therapeutics, and medicines.

Together we will alter the trajectory of this pandemic.

ADDENDUM

THE CENTRALIZED VACCINE DISTRIBUTION MODEL

- The Federal government utilizes its buying power to procure the vaccines and develops an overarching strategy for administration.
- The state governments leverage their local resources—public health entities and private sector providers—to facilitate administration.

- The Federal Government purchases vaccines and ancillary supplies. Over one and one-half million supply kits, supporting more than 150 million vaccine doses, have been assembled and ready for shipment. Supply kits include syringe, needle, alcohol wipe, and face shield. Supply kits for the Pfizer vaccine will also include diluent to reconstitute the vaccine to its proper dosage.
- Manufacturers ship to the central distributor, where product is inventoried and stored.
- Health and Human Services has ownership of the Pfizer vaccine stock. The Centers for Disease Control has ownership of the Moderna vaccine stock and supply kits. Each Federal entity allocates product to the states (factoring in population size, needs of prioritized groups, as well as other national health imperatives and criteria).
- McKesson, as central distributor, then distributes vaccines and ancillary supplies at the CDC's direction. States can designate a redistribution site or have products shipped directly to end administration sites.
- States are responsible for overseeing vaccines administration and coordinating the local healthcare response.

TRANSPORTATION INTERMEDIARIES ASSOCIATION
Alexandria, VA, December 8, 2020

Hon. DEB FISCHER,
 Chairwoman,
 Subcommittee on Transportation and
 Safety,
 Committee on Commerce, Science, and
 Transportation,
 United States Senate,
 Washington, DC.

Hon. TAMMY DUCKWORTH,
 Ranking Member,
 Subcommittee on Transportation and
 Safety,
 Committee on Commerce, Science, and
 Transportation,
 United States Senate,
 Washington, DC.

Dear Senator Fischer and Duckworth:

I am writing on behalf of the almost 1,800 members of the Transportation Intermediaries Association (TIA) to voice our willingness to be a part of both the discussion and operations for delivering a vaccine to all 50 states in a timely manner. Thank you for having this important oversight hearing entitled "The Logistics of Transporting a COVID-19 Vaccine." As you know, our industry facilitates the movement of freight from a shipper to the actual carrier of record. The distribution of the COVID-19 vaccine could be the largest logistics operations in the country's history and our members are eager to be on forefront of this monumental task. Moving pharmaceuticals, and vaccines, is among the highest maintenance, time sensitive and sophisticated freight that exists. TIA members have experience moving these types of goods.

Transportation intermediaries or third-party logistics professionals act somewhat as the "travel agents" for freight; however, given the wide varieties of freight, specific needs of each shipper the diverse issues applicable to anyone load, third-party logistics professionals must have expertise far beyond what a traditional "travel agent" must possess. They serve tens of thousands of shippers and carriers, bringing together the transportation needs of the cargo interests with the corresponding capacity and special equipment offered by rail, motor, air, and ocean carriers.

I urge Congress and the incoming and outgoing administrations to utilize the 3PL industry as a resource both for information and for the physical movement of the vaccine. I have heard directly from our members who are eager to serve their country. Just like these companies did earlier this year during the economic shutdowns, TIA members will step up and do what it takes to ensure that this important vaccine is distributed safely and efficiently. Thank you again for this important oversight hearing.

Sincerely,

ANNE REINKE,
President & CEO,
 TIA.

December 9, 2020

The Honorable Deb Fischer, Chairman
The Honorable Tammy Duckworth, Ranking Member
Subcommittee on Transportation and Safety
Committee on Commerce, Science, and Transportation
United States Senate
Washington, D.C. 20510

Dear Chairman Fischer and Ranking Member Duckworth:

Thank you for your leadership in holding tomorrow's hearing, "The Logistics of Transporting a COVID-19 Vaccine." We respectfully request that this letter be included in the hearing record.

While our Nation continues to suffer the devastating effects of the coronavirus pandemic, we are grateful for your attention to this vital part of the relief effort. As leaders of organizations with public health and safety missions, we appreciate the goal of ensuring that vaccines expeditiously reach the public. It is also imperative that safety on our roads remains a key priority. The objectives of transporting vaccines efficiently and safely must not be mutually exclusive.

Fatalities in large truck-involved crashes have risen dramatically. According to 2019 estimates by the U.S. Department of Transportation (DOT), crashes involving large trucks killed more than 5,000 people -- a staggering 48 percent increase since a low in 2009. Additionally, the latest data available from DOT show that in 2018, 151,000 people were injured in crashes involving a large truck and the cost to society from commercial motor vehicle (CMV) crashes in 2018 was estimated to be \$143 billion. Although we are not living in ordinary times, these facts provide compelling reasons to prioritize truck safety improvements and most certainly not to erode current safety protections.

In 2018, of the nearly 5,000 people killed in large truck crashes, almost 900 were occupants of CMVs. In fact, driving a truck is one of the most dangerous professions in the U.S., according to the Bureau of Labor Statistics. The heroic efforts of truck drivers during this crisis are commendable, and they deserve a safer "work environment" in which to conduct their essential work.

Unfortunately, numerous lifesaving truck safety advances have lagged for years, including requirements for automatic emergency braking systems, speed limiters, effective underride guards, adequate driver training, and obstructive sleep apnea screening and treatment. Failure to take action by the National Highway Traffic Safety Administration and the Federal Motor Carrier Safety Administration have needlessly imperiled the safety of all road users -- truck drivers and motorists. We commend Ranking Member Duckworth for sponsoring the Protecting Roadside First Responders Act (S. 2700) and urge the Subcommittee to move this legislation as well as support other measures requiring the DOT to move forward with these essential safety

improvements, many of which already are required in other countries and most of which have been recommended repeatedly by the National Transportation Safety Board.

We understand that exemptions to truck safety rules and protections may be requested in the coming months in response to the public health emergency. However, these exemptions must be narrowly tailored in time and scope with appropriate safeguards to protect not only the drivers themselves, but all road users. Additionally, we strongly oppose enshrining them in statute considering their temporary nature.

Any potential negative consequences to public safety must be minimized by ensuring exemptions: 1) are limited to the duration of the national emergency declaration; 2) are not overly broad but instead are constructed in a way that clearly delineates goods and services that are essential for direct pandemic response; and, 3) include precise language that these exemptions cannot be used to justify any future rollback or repeal of truck safety rules.

The safety of truck drivers as they provide continued movement of vaccines and essential freight and those on the roads with them, including families, law enforcement, first responders and construction crews, must be paramount. Thank you again for holding this relevant hearing.

Sincerely,

Advocates for Highway and Auto Safety
 Citizens for Reliable and Safe Highways
 Consumer Federation of America
 Consumers for Auto Reliability and Safety
 KidsAndCars.org
 National Consumers League
 Parents Against Tired Truckers
 Public Citizen
 Trauma Foundation
 Truck Safety Coalition

cc: Members of the U.S. Senate Commerce, Science, and Transportation Committee

HOW UNITED AIRLINES OVERCAME ONE OF THE LARGEST LIMITATIONS TO TRANSPORTING PFIZER'S COVID-19 VACCINE TO THE US

Author: Thomas Pallini

To read this story on the web, please click:

<https://www.businessinsider.com/how-united-airlines-overcame-major-limitation-to-fly-pfizer-vaccine-2020-11>

Pfizer has tasked United Airlines with transporting the first doses of its vaccine to the U.S., the *Wall Street Journal* reported on Friday, in preparation for an expected emergency authorization from the Food and Drug Administration scheduled to come in the upcoming weeks.

A chartered Boeing 777-200 aircraft filled with the pandemic-ending drugs first flew on Friday, the *Journal* reported, traveling from Brussels, Belgium to Chicago, a United hub. Unlike the daily United passenger flight between the two cities, Pfizer would have likely had the entire plane to itself as a dedicated charter.

United set up a vaccine task force earlier this year for this very possibility and had crafted standard operating procedures for each vaccine as it wasn't initially clear which one would cross the finish line first. In November, it became clear that the two leading contenders would be Pfizer and Moderna. But transporting Pfizer's vaccine came with a problem: its below-freezing storage temperature requirement of -94 degrees Fahrenheit. Drugs with requirements that far below-freezing are packed with dry ice to keep them at temperature, presenting a problem for airlines tasked with flying them.

Dry ice is classified as a dangerous good in aviation as it sublimates from a solid to gaseous carbon dioxide, which can incapacitate the flight crew and passengers. Regulators limit how much dry ice can be flown on cargo and passenger planes but given the unique circumstances, carriers have request exemptions to these limits in order to fly more vaccine doses in the upcoming airlift to transport doses around the world.

The Federal Aviation Administration granted United an exemption to the dry ice limitation, according to the *Journal*, allowing the airline to fly more of the drug than it normally would have. As the flight was a charter, no other passengers were onboard, and only essential crew were looking after the aircraft during the flight.

"The FAA is working with manufacturers, air carriers, and airport authorities to provide guidance on implementing current regulatory requirements for safely transporting large quantities of dry ice in air cargo," the regulator said in a statement e-mailed to *Business Insider*.

United is now allowed to fly up to 15,000 pounds of dry ice on the Boeing 777-200, according to the *Journal*, five times the previously allowed limit for the wide-body aircraft. The shipping containers carrying Pfizer's vaccine have around 23 kilograms, or around 50 pounds, of dry ice packed inside of them, according to Julian Sutch, Emirates SkyCargo's global manager for pharma, in a previous interview with *Business Insider*.

Although operating cargo-only flights with no passengers, the Chicago-based airline still has to comply with regulations for passenger airliners such as the Boeing 777-200, according to Chris Busch, managing director for United Cargo in the Americas, in a previous interview with *Business Insider*. And even without passengers, all freight flown by United flies in the belly cargo hold and not the passenger cabin.

Most, if not all major airlines with pharmaceutical-carrying capabilities are gearing up to potentially participate in the life-saving airlift as more vaccine candidates enter the authorization process. But unlike the first mass transport of COVID-19 supplies that saw anybody with a plane transport personal protective equipment from China, aircraft operators will face hurdles including adequate storage and limited onboard space thanks to the dry ice limitations of each aircraft.

Pfizer taking the steps to move around the vaccine before its authorization shows the confidence the drug-maker has in the product. Chartering a Boeing 777 can quite easily cost tens of thousands of dollars per hour and multi-day international trips can easily add up, especially as cargo space is now yielding a premium during the pandemic.

Now that it's in the U.S., Pfizer will rely on over-the-road trucks for regional transportation to its storage facilities until the Food and Drug Administration passes down an approval that will see immediate distribution as the U.S. begins the long journey to herd immunity. Trucks can better deal with transporting a frozen

vaccine as they have higher dry ice limitations than aircraft. From Chicago or one of Pfizer's storage facilities, the vaccine can be on either coast in a matter of days using team-truck driving.

The Food and Drug Administration is expected to grant Pfizer's emergency authorization request as early as December 10, with Moderna set to file for emergency authorization on Monday.



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December 9, 2020

The Honorable Roger Wicker
512 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable Deb Fischer
512 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable Maria Cantwell
511 Hart Senate Office Building
Washington, D.C. 20510

The Honorable Tammy Duckworth
512 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairs Wicker and Fischer and Ranking Members Cantwell and Duckworth,

As you discuss the important topic of safely transporting the COVID-19 vaccine, I respectfully provide the views of the more than 59,000 professional airline pilots represented by the Air Line Pilots Association, International (ALPA). Since the beginning of the pandemic, ALPA members at passenger and cargo carriers have been on the front lines transporting essential workers and personal protective equipment and are now flying the vaccine from manufacturing plants around the world.

The ability for our nation's airlines to deliver safe and effective COVID-19 vaccines where they are needed reinforces the vital importance of air transportation—and of the pilots and other workers who make it possible. However, with tens of thousands of aviation workers currently furloughed, widespread distribution remains threatened. Congress must finalize a deal now to extend the successful Payroll Support Program to ensure that airlines can quickly ramp up operations for vaccine distribution.

As vaccines make their way through the approval process and begin to be distributed to frontline health-care workers, ALPA urges Congress and the administration to recognize the essential role of airline pilots in the supply chain. Flight crews have already been deemed essential workers by the by Cybersecurity and Infrastructure Security Agency. It is critical that, following the initial distribution, airline pilots are provided priority access to the vaccine as well. As pilots continue the vital work of connecting our nation and transporting vital health care workers and products, our all-cargo flight crews, for example, have experienced an alarming increase in COVID-19 exposure and infections. Ensuring this prioritization will allow the logistical component of transporting the vaccine to continue unencumbered.

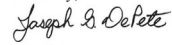
As you know, airline pilots are required to maintain medical certification from the FAA, but approval for use of the vaccine is required by the agency before it can be administered to flight crews. Receiving the COVID-19 vaccine before the FAA's approval could result in suspension of a pilot's medical certificate, creating potential staffing challenges that would threaten the efficiency of vaccine distribution across the United States. It is essential that the FAA approve this vaccine for

use by airline pilots as soon as possible following the Food and Drug Administration's Emergency Use Authorization to ensure that pilots who receive the vaccine will remain qualified to transport it nationwide.

Air transportation infrastructure is critical to getting our nation's economy back on track. ALPA members look forward to continuing to do their part to fight the pandemic by transporting the vaccine and providing the possibility of a healthy future. However, to ensure a robust supply chain, airline workers jobs must be protected through an extension of the Payroll Support Program, and our members must have access to the vaccine to maintain their own health and be granted the ability to receive the vaccine without risking their medical certification.

Thank you.

Sincerely,

A handwritten signature in cursive script that reads "Joseph G. DePete".

Joseph G. DePete
President

Senator FISCHER. The hearing record will remain open for two weeks. During this time, Senators are asked to submit questions for the record. Upon receipt, the witnesses are requested to submit their written answers to the Committee as soon as possible.

I would like to thank all of our panel today for a very informative hearing that we had. I appreciate the work that you and the people you represent do every single day to keep this country moving and keep us being able to receive what we need, when we need it, so that it is effective.

So, thank you very, very much. Thank you, Dr. Levine, remotely. We appreciate your comments, as well.

With that, the hearing is adjourned.

[Whereupon, at 11:12 a.m., the hearing was adjourned.]

A P P E N D I X

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. DAN SULLIVAN TO
RACHEL L. LEVINE, MD

Background: On average, rural populations are older, poorer, and sicker than their urban counterparts. These populations are more severely impacted by a coronavirus infection. To make matters worse, nationally, 61 percent of rural hospitals do not have an Intensive Care Unit (ICU)-and that is when a rural area has a hospital. It is imperative that we immunize rural populations according the CDC guidelines at the very same time as their urban counterparts. A delay will allow COVID-19 to continue to severely overwhelm rural health systems, like hospitals, clinics and the emergency medical systems that support rural communities.

Question 1. As Congress continues to discuss what should be included in the next COVID relief package, what should we prioritize to ensure equitable access to the COVID-19 vaccine to all individuals in each population group, regardless of their zip code, rural or urban?

Answer. Investment into communication campaigns is important. Reaching our most vulnerable populations who may speak another language, not understand how to access electronic media, or be part of the digital divide can be difficult. Additionally, states have different populations that speak different languages. Reaching these populations through proper language translations and different mediums is important to improve messenger services to help combat vaccine hesitancy. Additional flexible support for equitable vaccine distribution methods and evaluation is also important—mainly state logistic resources and data and system collection improvements for reaching and understanding vulnerable populations and those in rural areas.

Background: COVID-19 deaths are on the rise in rural America. For the fifth straight week, the number of rural deaths due to COVID-19 set records. Last week, there were more than 3,000 rural deaths due to the virus. Alaska has personal experience with this type of rural tragedy. The 1918 pandemic decimated our rural regions, which are largely made up of predominantly Alaska Native communities. The fear and historical trauma of that pandemic is still felt today. HHS has allocated vaccines specifically for tribes, which has been incredibly helpful.

Question 2. Do you think that states and IHS are equipped to distribute vaccines across challenging geographies that ensure equitable access to the Covid-19 vaccine for every population, including Alaskan Natives and other Native American populations? Are there ways to better support our states as they endeavor to take on this responsibility and to ensure that high-risk populations do not fall through the cracks?

Answer. HIS has a well laid plan to describe vaccine availability, prioritization, distribution and ordering, administration, safety, and communications. Although Pennsylvania is not one of the states with tribal territories, it has a population of more than 51,000 American Indians or Alaskan Americans. Pennsylvania's goals are to prioritize persons, while the vaccine supply remains limited, who receive the vaccine to maximize benefits and minimize harms caused by the virus, promote justice, mitigate health inequities, and promote transparency. Pennsylvania has worked throughout the pandemic to address disparities within racial and ethnic minority groups.

Addressing COVID-19 through a health equity lens is just as critical for the administration of vaccines. Providing vaccines to American Indians or Alaskan Americans is essential to creating a healthy Pennsylvania for all. Investment into communication campaigns and additional vaccine dosages to increase coverage is important. Support to improve trusted messenger services to help combat vaccine hesitancy would be of great assistance.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO
RACHEL L. LEVINE, MD

State Funding. States and local communities have been on the frontlines fighting the COVID-19 virus from the beginning of this pandemic. Healthcare workers have been battling this virus around the clock since it first came to our Nation despite being underfunded and undersupplied. Now they are being tasked with the herculean effort of distributing and administering a vaccine to millions of people on an accelerated timetable. In September, CDC Director Robert Redfield testified before Congress and said that states will need \$6 billion for vaccine distribution. The Association for State and Territorial Health Officials puts that number closer to \$8.4 billion. Yet so far, less than \$340 million has been allocated to states to help plan for and distribute a vaccine. Facing a national emergency and a vaccine campaign of unprecedented proportions, that amount is simply unacceptable.

Question 1. What are the most critical elements for ensuring a successful vaccination campaign at the state and local level?

Answer. Use of multiple partnerships for planning and operationalizing. Ability to pivot planning and operational needs to adjust to the vaccine availability, phase and timing and the engagement of traditional and non-traditional vaccination partners.

Question 2. What are the public health consequences that will result if states and localities do not receive more financial support?

Answer. It will take longer to get all Pennsylvanians vaccinated who want to be. The greater the delay in vaccination of large numbers of Pennsylvanians, the longer it will take to achieve herd immunity, the longer people will suffer the consequences of the COVID-19 pandemic, including the disproportionate effects on vulnerable communities.

Strain on the Healthcare System. The U.S. healthcare system is under severe strain. Our healthcare workers have been working nonstop to treat this virus and to keep people safe. However, there are not an unlimited number of healthcare workers, and that number is further strained as we deal with a surge in COVID-19 cases. Additionally, with mass vaccine distribution underway, those healthcare systems need infrastructure and inventory management systems that can ensure extreme temperature requirements are maintained for the COVID-19 vaccine.

Question 3. Are you concerned about the healthcare system's ability to handle a mass vaccination campaign while also managing the recent surge in COVID-19 cases? If so, what are the most critical pressure points in the healthcare system that must be bolstered?

Answer. Yes. We have been relying on our health system partners to vaccinate not only their own staff but also non-affiliated healthcare personnel—in addition to managing surging COVID-19 admissions. Additional Federal funding would enable us to hire a contractor or contractors to conduct mass vaccination clinics that would allow the health systems to focus on their primary mission and increase the rate of vaccination across the Commonwealth.

Question 4. How are states addressing the distribution needs of rural or remote areas that may not have cold-chain storage to support some of the vaccines?

Answer. We are utilizing the Moderna vaccine which does not have the ultra-cold chain requirements of the Pfizer-BioNTech vaccine for our hospitals and providers in rural and remote areas. Our Federally Qualified Health Centers (FQHCs) and enrolled local pharmacies are key partners in this effort. We also anticipate that the Retail Pharmacy Partnership (PA has chosen Rite Aid and Topco) will also be important and we will be choosing locations in parts of the state with limited existing vaccine providers.

Vaccine Equity. COVID-19 has disproportionately impacted communities of color, people living with disabilities, and those living in rural and frontier areas. Minority communities have faced higher cases rates, hospitalization rates, and death rates than white Americans. There are also concerns about distributing the vaccine equitably to communities that speak different languages or are difficult to reach, especially when supply is limited.

Question 5. How are states ensuring that the vaccine is distributed equitably, and are there any specific shortages of personal protective equipment or infrastructure that may impact equitable distribution of the vaccine across the country? Where are those shortages likely to occur?

Answer. Public health crises have the potential to affect all populations but typically have more severe impacts on underserved populations, making those populations more vulnerable to severe illness and death. A first step in developing an

equitable vaccine distribution plan is to understand and identify populations most at risk of contracting COVID-19 and severe illness. We have worked across state agencies and with external partners to identify vulnerable populations for whom receiving the COVID-19 vaccine is especially critical. Estimates of the number of these identified vulnerable populations are derived from the 2019 U.S. Census, the Behavioral Risk Factor Surveillance System (BRFSS), State Health Assessment, and health systems patient databases (Medicaid, IBX), and Tiberius. We have also developed a vulnerability index to look at social factors, demographics, and health risks to identify potential areas that are most in need of the vaccine.

Currently, the vaccine distribution is not affected by lack of PPE. However, we are cognizant that the PPE supply chain is still strained, and that any disruption in supply (or significant increase in demand) is likely to impact the ability to procure PPE necessary for an effective vaccination campaign.

Question 6. What do states and local governments need from the Federal Government to ensure equitable vaccine distribution?

Answer. The Commonwealth's approach for Pennsylvania's COVID-19 Interim Vaccination Plan utilized a health equity lens to proactively mitigate the disparities in the risks associated with COVID-19 with no new resources for health equity assessment. We have been relying on our limited health equity staff to collect data and assess social risks and health statuses associated with severe outcomes from COVID-19. Additional Federal funding would enable us to hire a contractor or contractors to conduct assessments and lead interventions to address health disparities associated with COVID-19.

Question 7. What social and environmental investments are needed to address the disproportionate impact on certain communities in the future?

Answer. Interventions to address the digital divide across different geographies and socioeconomic statuses; trusted messenger strategies and centralized approaches to sharing evidence, mitigation standards, and vaccine planning; information technology platform readiness, specific to demographic race and ethnicity reporting capabilities and exercising mandates to create corporate support for the collection of actionable public health data; funding and implementation support for vaccine strategies and pharmacy partnership programs specific to underserved communities.

Security. In late 2020 we saw reports that cyber criminals and foreign adversaries had attacked companies involved with the storage and transport of the vaccine in Europe. Additionally, it has come to light that Russia was likely behind one of the largest cyber-attacks against the United States. I am concerned that entities critical to the distribution of the vaccine may not have the cyber expertise needed to deal with these new threats.

There have also been reports of some individuals intentionally sabotaging vaccines once they have been received by healthcare facilities by removing them from the appropriate storage containers.

Question 8. What are the top threats to vaccine viability that state and local healthcare facilities and providers must deal with, and what is needed from the Federal government to bolster state and local responses to those threats?

Answer. Anecdotally, we have heard that the largest challenge to vaccine viability at the facility level is "vaccine shopping" by eligible individuals, who may make appointments with or seek vaccine from multiple providers; this leaves a vaccine provider with reconstituted vaccine but without a patient to vaccinate. We have not heard of any credible external threats, such as tampering or theft, from any partners.

Question 9. Are you aware of any impacts the recent SolarWind cyber-attack or other cyber security threats have had on the Nation's healthcare infrastructure or the COVID vaccine supply chain?

Answer. We are not aware of any impacts.

COVID Vaccine Distribution Delays. It has been reported that states are seeing a reduction in the number of vaccines allocated to them through the end of the year. On December 17, 2020, Pfizer released a statement stating that they have had no production issues and that millions of vaccines are waiting in storage waiting on shipping instructions from the Federal government.

Question 10. Has the Federal government provided states with an explanation for the reduction in vaccine allocation?

Answer. We have been advised to use the numbers initially given for planning purposes only. We have also been advised that it would take several weeks to establish a cadence for the amount of vaccine allocations.

Question 11. Are you aware of, or have you experienced delays in vaccine delivery?
 Answer. Delays have been due to incorrect addresses in the vaccine tracking system which prevents delivery of vaccine until the address is confirmed.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. TAMMY DUCKWORTH TO
 RACHEL L. LEVINE, MD

Temperature Requirements. Preserving cold chain and temperature requirements for bulk distribution.

Question 1. In review of the COVID-19 Distribution Plan established by Operation Warp Speed, it is clear that steps have been taken to preserve the cold chain and temperature requirements for the bulk distribution of the vaccines to each State under the supervision of state health departments. This addresses some key risks during these early steps of the cold-chain process. However, it is still important to promote public confidence that the vaccine is effective when administered to the patient.

What percentage of COVID-19 vaccines do you estimate will be lost in transit, due to temperature, or other issues? What precautions are you taking to minimize this?

Answer. The vaccine is delivered either directly to the site from the manufacturer or to the site through the distributor. The state is not involved in this transport.

Question 2. What measures is your state taking to mitigate the risks during the “Last Mile” administration of the vaccine?

Answer. The Commonwealth is not directly involved with the last mile; we have provided storage and handling training to providers receiving the vaccine.

Question 3. As containers, pallets and boxes of vaccine are broken down to be distributed throughout each state, will temperature technology on the individual vials of vaccine be utilized and requested by the state health departments to ensure the vaccine vials remain at the required temperature range and are safe and effective for the patient receiving these doses?

Answer. The Commonwealth is not redistributing the vaccine. The Pfizer-BioNTech vaccine does arrive with a tracker for temperature monitoring due to the ultracold requirements. There are no additional requirements by the state outside the routine temperature monitoring by each site.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. GARY PETERS TO
 RACHEL L. LEVINE, MD

FEMA and Healthcare Distribution. As Ranking Member of the Senate Homeland Security and Governmental Affairs Committee, I have been conducting oversight of FEMA’s role in the Federal COVID-19 response. FEMA played a large part in the distribution of personal protective equipment (PPE) throughout this pandemic and we unfortunately continue to hear reports of shortages.

Question 1. From your perspective as Secretary of Health for Pennsylvania as well as President of ASTHO, how has the PPE distribution process with FEMA gone, and what can be learned from that experience as the Federal government executes a similar distribution effort of vaccines and ancillary supplies?

Answer. FEMA and other Federal partners (such as HHS) have provided significant quantities of PPE to the commonwealth over the last 11 months. One of the largest challenges to the order and receipt of Federal assets throughout has been the change in process and eligibility requirements—to date, we have had at least 2 request process changes (between HHS and FEMA) and one major revision to eligibility. These changes, especially at the incipient phase of the response created challenges to the timely procurement of PPE through Federal partners. However, recently, we have not had any challenges in procuring PPE.

Question 2. Is a lack of PPE in your state affecting vaccine distribution plans?

Answer. Currently, the vaccine distribution is not affected by lack of PPE. However, we are cognizant that the PPE supply chain is still strained, and that any disruption in supply (or significant increase in demand) is likely to impact the ability to procure PPE necessary for an effective vaccination campaign.

All parties involved in the distribution of COVID-19 vaccines must be closely coordinated to ensure successful and safe vaccine delivery. I am concerned by recent reports of miscommunication regarding vaccine allocations to states. States must receive accurate, timely information about vaccine deliveries from the Federal government, so they can plan accordingly.

Question 3. Has your state received clear communication from the Administration on vaccine allocations, including visibility into the number of COVID-19 vaccines you expect to receive and when you expect to receive them?

Answer. The vaccine allocations are uploaded weekly. Vaccines are tracked through the vaccine tracking system. There are daily reports sent to states as to the delivery of vaccines.

Question 4. What can be improved in the communication between states and the Federal government regarding COVID-19 vaccine allocation and distribution?

Answer. Communication between states and the Federal government would be improved by the provision of a longer time frame for expected allocations rather than weekly.

Question 5. What are the most pressing unanswered questions that states have regarding the vaccine distribution process?

Answer. When will the allocations increase to meet the demand of vaccination needs?

Question 6. Vaccine distribution efforts will be a costly undertaking for the states. Has your state received adequate guidance from FEMA on what vaccine distribution costs will be reimbursable under this national emergency?

Answer. Our state emergency management agency has taken the lead for Federal reimbursement through the Stafford Act/FEMA process. This partnership has ensured that we have the relevant information to seek appropriate reimbursement for costs not covered under other HHS Federal funding streams.

Question 7. What further information does your state need to understand what costs can be covered by the Federal government, whether FEMA or another Federal agency?

Answer. Both HHS and FEMA have provided adequate guidance and continuing consultation on the eligibility of Federal reimbursement of costs incurred under this response.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. KYRSTEN SINEMA TO
RACHEL L. LEVINE, MD

Vaccine Security. Vaccine security is an important issue that must be addressed as part of the logistics process for vaccine distribution. Earlier this month, Interpol issued a global warning alerting its members that organized crime networks could attempt to steal doses of the vaccine.

Question. Are there any particular considerations related to vaccine security that smaller regional hospitals must consider as they receive the vaccine?

Answer. Since the shipments of vaccine are going directly to the providers without the commonwealth as a logistics intermediary, security and responsibility for the vaccine is within the purview of the receiving site

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. DAN SULLIVAN TO
RICHARD W. SMITH

Background: On average, rural populations are older, poorer, and sicker than their urban counterparts. These populations are more severely impacted by a coronavirus infection. To make matters worse, nationally, 61 percent of rural hospitals do not have an Intensive Care Unit (ICU)-and that is when a rural area has a hospital. It is imperative that we immunize rural populations according the CDC guidelines at the very same time as their urban counterparts. A delay will allow COVID-19 to continue to severely overwhelm rural health systems, like hospitals, clinics and the emergency medical systems that support rural communities.

Question 1. As Congress continues to discuss what should be included in the next COVID relief package, what should we prioritize to ensure equitable access to the COVID-19 vaccine to all individuals in each population group, regardless of their zip code, rural or urban?

Answer. Our role in this effort has been focused on providing rapid and reliable transportation to the administration sites across the Nation using our robust air and ground network. This is a complex task and there are only a few companies in the world that can do what we do, connecting an incredible number of origin-destination pairs across countries and continents via the vast networks we operate, including rural communities across the U.S. FedEx has the ability to service every ZIP code in the U.S. As the U.S. moves forward in this effort, it is critical that we continue to work closely with our healthcare customers, as well as federal, state and

local officials, on plans for transporting the vaccines as soon as they become available to ensure they reach their destination as determined by the Federal and state authorities.

Background: We all know the story of Balto, the lead sled dog who helped deliver the diphtheria vaccine to Nome, Alaska in 1925. The weather was so cold that planes would not start, but Nome needed that vaccine. Over 20 mushers took part in a race to get the vaccine to Nome in a negative 23-degree blizzard. Balto and his team safely delivered the vaccine, resulting in many lives saved. The point of this story is that Alaska has many barriers that other states do not have. We have ultra-rural, sometimes referred to as frontier regions, communities off the road system, communities without water, blizzards that shut down entire communities. Recently, a 37-year old tragically died in a rural community off the road system in Alaska because he was unable to get to the nearest hospital, and helicopters and planes were unable to get to him because of severe weather. This is a rural problem, most acute in Alaska.

Question 2. The CDC Advisory Committee on Immunization Practices appropriately outlined vaccine priorities based on population groups. While states are leading the distribution effort, many rural states, including Alaska, will have geographic challenges. How will you work with states to ensure equitable access for high-risk populations in rural areas? For example, will a frontline health care worker in Bethel, Alaska get the vaccine at the same time as a health care worker in Anchorage?

Answer. The FedEx network was created for the exact purpose and service required for today's mission. FedEx is the world's largest express transportation provider, with an unparalleled global network of more than 680 aircraft, including a wide range of aircraft types that can serve both large metropolitan areas and smaller, rural communities alike, and with more than 200,000 vehicles. We have made significant investments in our people, infrastructure, and assets that allow us to serve every ZIP code in the U.S., including facilities on Tribal lands and those in rural communities. For example, we have a hub at Ted Stevens International Airport and more than a thousand Alaskan team members who understand the unique needs of the communities they serve. We have been working closely with Federal and state government officials since the start of this effort to ensure that as soon as vaccines are available, they are delivered to the destinations as determined by the government authorities.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. RICK SCOTT TO
RICHARD W. SMITH

Background: Recently, the U.S. Department of Transportation announced that it had taken all regulatory measures to provide flexibility for companies to transport the vaccine. The CDC also requested that states provide a plan for how they will operationalize the vaccine response within their jurisdictions.

Question. Do you feel the Federal government and states have provided clear plans and guidance for vaccine distribution?

Answer. FedEx has been working closely over the past several months with our healthcare customers, as well as federal, state and local officials, on plans for transporting the vaccines as soon as they are approved and become available to ensure they reach their destination as determined by the government authorities. This is a complex task that requires close coordination. It is essential that as we move forward in this effort, the collaboration with these stakeholders continues.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO
RICHARD W. SMITH

Cyber Security. In late 2020 we saw reports that cyber criminals and foreign adversaries are attacking companies involved with the storage and transport of the vaccine in Europe. Additionally, it has come to light that Russia was likely behind one of the largest cyber-attacks against the United States.

Question 1. What is FedEx doing to ensure the security of the vaccines from both virtual and physical threats?

Answer. In addition to complying with regulatory obligations set forth by the Transportation Security Administration, FedEx operates under a high level of physical and virtual security awareness at all times and has robust policies and procedures designed to protect our employees, equipment, packages and customers. In

preparation to support this effort, we conducted targeted risk analyses and physical security audits and enhanced threat monitoring capabilities. As an added safeguard, we have developed protocols to enable our team to react immediately to any potential vaccine shipment anomalies.

To combat potential threats from cyber adversaries, FedEx relies on multiple layers of security defense mechanisms using the latest technologies and network monitoring 24 hours a day, 365 days a year.

Regarding the physical security of the vaccines, FedEx and our customers are using the latest technology to monitor the shipments in real-time. This includes the use of FedEx-patented technology, SenseAware ID device, that can precisely track a package's location. FedEx Priority Alert teams have been engaged from the beginning, monitoring, tracking and tracing these shipments from the moment they enter our network until they are delivered to our customers, leveraging our FedEx Surround platform, that uses predictive analytics to alert our agents of potential exception events such as weather or traffic before a failure occurs so they can proactively intercede.

Question 2. Are you aware of any impacts the recent SolarWind cyber-attack have had on your infrastructure or the COVID vaccine supply chain?

Answer. The FedEx infrastructure nor our COVID-19 vaccine distribution have had any impacts from the recent SolarWinds cyber-attack.

COVID Vaccine Distribution Delays. It has been reported that states are seeing a reduction in the number of vaccines allocated to them through the end of the year. On December 17, 2020, Pfizer released a statement stating that they have had no production issues and that millions of vaccines are waiting in storage waiting on shipping instructions from the Federal government.

Question 3. Are you aware of, or have you experienced, delays in distribution of the vaccine? If so, what have been the causes of those delays?

Answer. Vaccine shipments remain the top priority for the FedEx Express network. At this time, we have not experienced any delays in distribution based on factors within our control.

Question 4. Specifically, are you aware of or have you experienced delays in the distribution of the vaccine as a result of lack of instruction from the Federal government?

Answer. FedEx has not experienced any delays in distribution based on factors within our control and continues to work closely with the U.S. government task force to ensure timely distribution.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JON TESTER TO
RICHARD W. SMITH

Question 1. COVID has disproportionately impacted minority communities, and in Montana, this pandemic has significantly impacted our Native communities. As we discuss the distribution of a vaccine, it is absolutely critical that we consider the unique challenges of reaching the remote communities where many Native folks live. What steps are you taking to make sure that remote facilities like those on Tribal lands receive vaccines in a safe and timely manner?

Answer. FedEx was created for the exact purpose and service required for today's mission: fast, reliable delivery of time-sensitive, high priority goods. Over the years, we have invested in our people, infrastructure, and assets, to ensure we have solutions that meet the needs of the communities we serve. As a result of these investments, within the U.S., we can deliver to every ZIP code, including facilities on Tribal lands, and are committed to ensuring timely vaccine distribution to the communities we serve at the direction of federal, state and local officials.

Question 2. At the beginning of the pandemic my office heard from a number of businesses in rural Montana that they either were not receiving shipments or they took much longer than usual. When there are major disruptions in the supply chain, rural America often faces the brunt of those changes. What precautions are you putting in place to ensure a stable supply chain to our rural communities?

Answer. FedEx has been on the frontlines since the start of this pandemic providing essential transportation services and keeping critical supply chains moving across the U.S. and the world. In the U.S., we have continued to serve rural communities without disruption and will continue to do so. The FedEx network was designed for today's mission and we remain committed to serving communities across the U.S. and the world.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. GARY PETERS TO
RICHARD W. SMITH

Cybersecurity. Cyber-attacks are a real threat as our Nation ramps up efforts to distribute millions of COVID-19 vaccines. In 2017, the largest container ship company was hit by the NotPetya cyber-attack, which compromised the company's operations for months. Just this month, the U.S. government experienced troubling cyber-attacks from foreign adversaries. At the hearing, I asked you about the security measures your company has in place to ensure vaccine distribution networks are protected from bad actors.

Question 1. Please detail the specific security measures that are currently in place, including contingency plans, and whether these plans include cooperation with Federal agencies and commercial competition to ensure the safe delivery of vaccines.

Answer. FedEx and our customers are using the latest technology to monitor vaccine shipments in real-time. FedEx operates under a high level of physical and virtual security awareness at all times and has robust policies and procedures designed to protect our employees, equipment, packages and customers. To combat potential threats from cyber adversaries, FedEx relies on multiple layers of security defense mechanisms using the latest technologies, and we constantly monitor our networks for illicit activity via a dedicated global cybersecurity operations center operating 24 hours a day, 365 days a year.

FedEx Express is CTPAT certified and has a Transportation Security Administration compliant security program. Beyond compliance with Federal regulations intended to secure and deny unauthorized access to air cargo shipments, FedEx has conducted targeted risk analyses and physical security audits in preparation for vaccine transportation and has enhanced our threat monitoring capabilities. As an added safeguard, we have developed protocols to enable our team to react immediately to any potential vaccine shipment anomalies.

FedEx is actively engaged with the U.S. government task force and has robust security relationships with Federal agencies, as well as with major distributors and manufacturers globally. Contingency and crisis management capabilities are in place to address potential business interruption scenarios.

Question 2. Have you received sufficient support and guidance from the Department of Homeland Security's Cybersecurity and Infrastructure Security Agency?

Answer. FedEx engages with CISA via multiple information sharing platforms and has open channels of communication with the Agency at both the headquarters and regional levels.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. KYRSTEN SINEMA TO
RICHARD W. SMITH

Rural and Tribal Communities. As you know, Arizona is a vast state—the sixth largest state by area. Arizona is home to Phoenix, one of the largest cities in the country, and is also home to many smaller, rural, and tribal communities across the state. Unfortunately, many of these smaller, rural, and tribal communities have been particularly impacted by the COVID-19 pandemic.

Question 1. What are the challenges associated with vaccine distribution to rural and tribal communities, as compared to larger urban areas and what has your company done to address those challenges?

Answer. The FedEx network was created for the exact purpose and service required for today's mission. FedEx is the largest global express transportation provider, with an unparalleled global network of more than 680 aircraft, including aircraft capable of serving large metropolitan areas and smaller, rural communities, and more than 200,000 vehicles. We have made significant investments in our people, infrastructure, and assets that allow us to serve every ZIP code in the U.S., including facilities on Tribal lands, and will continue to do so to ensure continued connectivity to the communities we serve.

Vaccine Security. Vaccine security is an important issue that must be addressed as part of the logistics process for vaccine distribution. Earlier this month, Interpol issued a global warning alerting its members that organized crime networks could attempt to steal doses of the vaccine.

Question 2. What security and tracking measures are in place for vaccine shipments to ensure that vaccine shipments reach their destination?

Answer. FedEx has a robust suite of tools and technology we are deploying to ensure the safety, security, and integrity of vaccine shipments. This includes the

FedEx SenseAware ID device, our sensor-based technology that can precisely track a package's location, and FedEx Surround platform, which uses data and predictive analytics to alert our agents of potential exception events before a failure occurs so they can proactively intercede if needed. These tools are monitored by our Priority Alert teams who have been engaged from the beginning, monitoring, tracking and tracing these shipments from the moment they enter our system until they are delivered to our customers.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO
WESLEY WHEELER

Cyber Security. In late 2020 we saw reports that cyber criminals and foreign adversaries are attacking companies involved with the storage and transport of the vaccine in Europe. Additionally, it has come to light that Russia was likely behind one of the largest cyber-attacks against the United States.

Question 1. What is UPS doing to ensure the security of the vaccines from both virtual and physical threats?

Answer. UPS leverages secure escorts (US Marshals and/or local law enforcement on moves into Louisville. Internal UPS Security and UPS's Command Center monitor each vaccine shipment with UPS Premier, which includes real-time monitoring in the UPS network. UPS networks are secure and protected by threat (we offer our best practices to CISA on a regular basis). Vaccine tracking information is secured behind UPS firewalls and only shared in protected transactions to vaccine partners.

Question 2. Are you aware of any impacts the recent SolarWind cyber-attack have had on your infrastructure or the COVID vaccine supply chain?

Answer. UPS has not been impacted by SolarWind cyber threats and vaccine delivery specifically has not been impacted.

COVID Vaccine Distribution Delays. It has been reported that states are seeing a reduction in the number of vaccine's allocated to them through the end of the year. On December 17, 2020, Pfizer released a statement stating that they have had no production issues and that millions of vaccines are waiting in storage waiting on shipping instructions from the Federal Government.

Question 3. Are you aware of, or have you experienced, delays in distribution of the vaccine? If so, what have been the causes of those delays?

Answer. No. UPS delivered 100 percent vaccines by scheduled day in December and near perfect in January. Since the start of vaccine shipments UPS is running 99.98 percent on time by day and 99.9 percent on time by 10:30 AM commit times.

Question 4. Specifically, are you aware of or have you experienced delays in the distribution of the vaccine as a result of lack of instruction from the Federal government?

Answer. UPS is not aware of any delays related to the lack of instruction from the Federal Government.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JON TESTER TO
WESLEY WHEELER

Question 1. COVID has disproportionately impacted minority communities, and in Montana, this pandemic has significantly impacted our Native communities. As we discuss the distribution of a vaccine, it is absolutely critical that we consider the unique challenges of reaching the remote communities where many Native folks live. What steps are you taking to make sure that remote facilities like those on Tribal lands receive vaccines in a safe and timely manner?

Answer. These remote territories are serviced by UPS with next day service. Time commitments may be later within the day, but UPS will deliver the next business day as with urban areas. UPS has experienced severe weather in some of these areas since the vaccine distribution began, but extraordinary efforts have been made by our people to ensure vaccines were delivered on the proper day.

Question 2. At the beginning of the pandemic my office heard from a number of businesses in rural Montana that they either were not receiving shipments or they took much longer than usual. When there are major disruptions in the supply chain, rural America often faces the brunt of those changes. What precautions are you putting in place to ensure a stable supply chain to our rural communities?

Answer. This has not been an issue for UPS. Our service rate has been 99.98 percent on time by day for vaccines since the start of vaccine shipments in mid-December. If weather or other events delayed movements of vaccines into these territories,

UPS has contingent support in these locations to receive later aircraft and ensure same day deliveries. If needed, UPS can leverage support from our Marken/Express Critical groups for same day ground or air movements. UPS is prepared to leverage charters as well if needed in case of significant circumstances, which has not been required to date.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. GARY PETERS TO
WESLEY WHEELER

Cybersecurity. Cyber-attacks are a real threat as our Nation ramps up efforts to distribute millions of COVID-19 vaccines. In 2017, the largest container ship company was hit by the NotPetya cyber-attack, which compromised the company's operations for months. Just this month, the U.S. government experienced troubling cyber-attacks from foreign adversaries. At the hearing, I asked you about the security measures your company has in place to ensure vaccine distribution networks are protected from bad actors.

Question 1. Please detail the specific security measures that are currently in place, including contingency plans, and whether these plans include cooperation with Federal agencies and commercial competition to ensure the safe delivery of vaccines.

Answer. UPS takes extensive actions to ensure our networks are protected from cyber-attacks. This includes regular training for our employees on threats. UPS regularly interfaces with CISA and other security support groups to share best practices. In terms of physical security, UPS leverages U.S. Marshals and local law enforcement escorts for bulk ground moves as well as private security when vaccines are on UPS property. Real-time tracking is used and monitored by UPS's Command Center and internal UPS security. Contingency plans are a way of life at UPS. We have late aircraft plans by specific location to ensure timely delivery, hot spare aircraft, and same day capabilities with our Express Critical and Marken business units. UPS does collaborate with commercial airlines and other logistics providers to enable this contingency support.

Question 2. Have you received sufficient support and guidance from the Department of Homeland Security's Cybersecurity and Infrastructure Security Agency?

Answer. Yes, UPS has regularly meets with these agencies and receives ample support. The CISA team met with UPS in December of 2020 to specifically discuss security with vaccine rollout.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. KYRSTEN SINEMA TO
WESLEY WHEELER

Rural and Tribal Communities. As you know, Arizona is a vast state—the sixth largest state by area. Arizona is home to Phoenix, one of the largest cities in the country, and is also home to many smaller, rural, and tribal communities across the state. Unfortunately, many of these smaller, rural, and tribal communities have been particularly impacted by the COVID-19 pandemic.

Question 1. What are the challenges associated with vaccine distribution to rural and tribal communities, as compared to larger urban areas and what has your company done to address those challenges?

Answer. The greatest challenge posed for rural deliveries is related to weather threats. Rural communities are delivered next business day, as with urban deliveries. At times, weather can impact the small feeder aircraft used to reach these areas, which is an additional challenge. In addition, longer driver and road conditions when storms hit can be a difficult factor. UPS is proud to say that we have worked to overcome these factors in the handful of winter storms experienced so far this year. UPS was 100 percent on time by day in December and 99.96+ in January for on time by day.

Vaccine Security. Vaccine security is an important issue that must be addressed as part of the logistics process for vaccine distribution. Earlier this month, Interpol issued a global warning alerting its members that organized crime networks could attempt to steal doses of the vaccine.

Question 2. What security and tracking measures are in place for vaccine shipments to ensure that vaccine shipments reach their destination?

Answer. A number of both physical and technical security measures are in place for vaccines. Security escorts are leveraged for ground movements to our air hubs. Private armed security is used when vaccines are on UPS property for longer dura-

tions. UPS monitors each movement of the vaccines using our Sentry devices, which provides real-time GPS tracking. We have separate devices for temperature and other discrete data points. These asset/network tracking tools are used by UPS's Command Center. Each vaccine delivery is forecasted in advance down to the specific driver making the delivery. The UPS Command Center monitors the progress and close out of each vaccine shipment daily. UPS has eyes on these shipments at various levels through the entire chain of custody.

