Good afternoon. I'm Commander Ibad Khan, and I'm representing the Clinician Outreach and Communication Activity, COCA, with the Emergency Risk Communication Branch at the Centers for Disease Control and Prevention. I'd like to welcome you to today's COCA call, COVID-19 in the United States: Insights from Healthcare Systems. Today's webinar will be closed captions. A CC button in the Zoom webinar platform to enable closed captioning is located either on the top or the bottom of your screen.

All participants joining us today are in listen only mode. For participants using the Zoom platform to access today's webinar, if you're unable to gain or maintain access or if you experience technical difficulty, please access the live stream of the webinar on COCA's Facebook page www. facebook. com /CDCclinicianoutreachandcommunicationactivity. Again, that is www. facebook. com /CDCclinicianoutreachandcommunicationactivity.

The video recording of this COCA call will also be available immediately following the live call on COCA's Facebook page, should you wish to view it at a later time. The video recording will also be posted on COCA's webpage and available to view on demand at emergency. CDC. gov/COCA a few hours after the call ends. Again, that web address is emergency. CDC. gov/COCA. Continuing Education is not provided for this COCA call.

After the presentation, there will be a Q&A session. You may submit questions at any time during the presentation to the Zoom webinar system by clicking the Q&A button at the bottom of your screen and then typing your question. If you are unable to ask the presenters your question, please visit CDC's COVID-19 website at www. CDC. gov/COVID-19 for more information.

You may also email your question to COCA@CDC. gov. Facebook Live viewers, we will send your questions to the presenters after the webinar ends. If you're a patient, please refer your questions to your healthcare provider. For those who have media questions, please contact CDC Media Relations at 404-639-3286 or send an email to media@CDC. gov. We have a special request of our audience today. We want to hear all about the best practices you have to share from the clinical perspective regarding COVID-19. Please do so using the Q&A procedure described on the previous slide and enter your submission by clicking the Q&A button at the bottom of your screen and then typing your response regarding your best practices. Facebook Live viewers, please feel free to comment on our COCA Facebook page.

If preferred, all participants are also welcome to send us an email at COCA@CDC. gov. For more clinical care information on COVID-19, you may contact CDC's COVID-19 Clinical Call Center at 770-488-7100. The center is available 24 hours a day. Again, that number is 770-488-7100.

We'd like to remind clinicians to please refer patients to state and local health departments for COVID-19 testing and test results. Clinicians should not refer patients to CDC to find out where or how to get tested for COVID-19 or to get COVID-19 test results. Also, please remember to continue to visit emergency. CDC. gov/COCA over the next several days, as we intend to host more COCA calls to keep you informed of the latest guidance and updates on COVID-19.

In addition to our web page, COCA call announcements for upcoming COCA calls will also be sent via email. Subscribe to receive these notifications by going to emergency. CDC. gov/COCA/subscribe. asp.

Please share the call announcement with your clinical colleagues. Before I introduce our presenters for today's all, it is my honor and privilege to announce that we have a special guest speaker joining us

today, Dr. Robert Redfield, the director of the Centers for Disease Control and Prevention and Administrator of the Agency for Toxic Substances and Disease Registry. Dr. Redfield, proceed.

Thank you very much and good afternoon. I appreciate the opportunity to speak with you today. I think, as we all know, we are confronting the greatest public health challenge to our nation in more than a century. The current data indicates, however, that the pandemic is reaching a peak and declining in many parts of our country, where we're seeing decreased activity. Before my colleagues talk about what they're seeing in our health system, I just wanted to take a moment to personally reach out to each of you and tell you how grateful CDC is for all that you do.

The healthcare workers, you all putting your own health at risk each day are truly the heroes of our pandemic response. We always understood that healthcare workers would be essential combating pandemics, but I think you can see with this one, it's more true than many of us, I think, anticipated. You're in the front lines, and you face an unprecedented situation. I want you to know that protecting healthcare workers, yourselves, your colleagues is a priority for CDC, and we continue to try to focus on our public health response collectively. We've been working aggressively to advise healthcare personnel on how to keep one safe in this crisis.

This virus is clearly one of the most infectious respiratory viruses, I think, that we've ever had to deal with. We're trying to regularly develop an update our guidance resource practical tools that can be used to prevent COVID infections among healthcare personnel, as we learn more and more about this virus and how it is spread. We have released strategies to help healthcare facilities and personnel make the best use of PPE, as we hear from many of you on the ground where there's been episodes of lack of supplies or strain on the health system. We understand that our guidance and strategies -- we've had to alter some and because of the crisis mode of the current outbreak in our country, as you've seen with strategies, to try to reuse N95 masks et cetera. But these all reflect the hard realities of the crisis that we're trying to respond to and do all we can to try to keep healthcare professionals safe.

I will say myself personally, and I know my colleagues at CDC are inspired by the dedication that we see in healthcare professionals every day. Earlier this week, we did release the first report of healthcare professionals that became effective COVID-19. The report was up through almost nearly 10,000 individuals in early March, and the good news was a majority of those individuals did not require hospitalization. I think, yesterday, the numbers now are up to almost 16,000 healthcare professionals that have become infected. I wanted to take a moment to just remind us all that we're going to get through this together.

I think the other day many of you saw the announcement of guidance to try to begin to open up America again. When this outbreak first started, back in our first case in, I think, January 21nd, 22nd, a single case returning from China. During that period of time, from then and all the way to February 27th, this nation had 14 cases, all of which were linked to China travel. I will say that a majority of those cases, 11, were actually diagnosed because of astute clinicians that were practicing medicine that put COVID-19 in their differential diagnosis and was able to establish that diagnosis based on that epidemiological link. Obviously, since then, we've seen progressive community transmission throughout our nation, and I think many of you know the state of the outbreak.

In opening up America, again, I just want to come back to how important the work, that you as healthcare providers, is going to be. In the early outbreak in January, February, we were able to use containment as our major public health strategy. And it really was an effective strategy of early diagnosis, as I said, many times, because of astute healthcare providers followed by contact tracing with

your public health colleagues, isolation, and quarantine. And we were able to really have the containment strategy work, but then we saw that, unfortunately, the epidemic spread. We had sustained community transmission, and the public health containment strategy was no longer able to be conducted with the public health systems that we had and went into aggressive mitigation, and that's where we have been since.

We're now at the stage of reopening America, each state will develop their own plan and timing to do that. But the goal of that is to go back to reembracing containment as our central public health strategy, which is then further supported by different degrees of mitigation. And that containment is 100% dependent, again, once again on astute healthcare providers to be able to make an early diagnosis, isolate those individuals, work with your public health colleagues to do comprehensive contact tracing, and new diagnosis of the contacts, isolation, and then contacting their contacts. And you can see, over and over again, so that we can prevent this virus from being able to reenter into our society in a way that it has sustained community transmission. And I just want to emphasize that it's the backbone of our healthcare system, healthcare providers like you, which will determine whether we're successful in being able to bring containment back with these aggressive public health measures as the principal strategy to contain this virus.

We have some time to do that. As the nation opens up, it's going to be critical that cases that are identified are identify quickly and their contacts are evaluated effectively and efficiently and comprehensively. But it's also important that we build this team together, because it's very, very probable that next late fall 2020, winter 2021, that we will be back in the throes of fighting a substantial outbreak against this virus. And hopefully, this time we'll be able to stay in the mode of high containment because of astute early diagnoses, contact tracing, isolation, that you all will be a critical component of. So, America is a resilient nation, and I've got a lot of confidence in the American spirit to get this done.

I have enormous confidence in the medical capacity of our nation and the professionalism and the commitment of all of you. I'm confident that if we continue to work together, we will not only protect your patients and your coworkers, but we'll be able to protect our nation by allowing this public health response to basically challenge and defeat this virus. Lastly, I just would like, you know, this is a bidirectional learning. We learn a lot from each of you. Obviously, if you have insights, issues, concerns, things that you think need to be done better in the public health response, I truly do invite your comments, and I would appreciate them.

So, on behalf of everybody at CDC, I just want to thank you all for what you do. Thank you.

Dr. Redfield, thank you for your time, your expertise, and insight, and especially for your leadership. At this point, I would like to introduce our presenters for today's COCA call. Our first presenter, Dr. Aaron Harris, is the Team Lead for the Healthcare Systems Coordination Team for CDC's COVID-19 response.

Our second presenter, Dr. Nancy Foster, is the Vice President of Quality and Patient Safety Policy at the American Hospital Association. Today's third presenter will be Dr. David Reich, President and Chief Operating Officer at the Mount Sinai Hospital in New York. And our final presenter is Dr.

Amy Compton-Phillips, the Executive Vice President and Chief Clinical Officer at Providence St. Joseph's Health in Washington. Please note that Dr. Harris and Foster will not have presentation slides today. As such, the slides will not move during their presentations.

The slide presentation will resume when Dr. Reich begins presentation. I would now like to turn it over to Dr. Aaron Harris.

Dr. Harris, please proceed.

Thank you, Commander Khan and thank you, Dr. Redfield, for your opening remarks. CDC's Healthcare Systems Coordination Team is tasked with monitoring the impact of COVID-19 on the national health system. As part of this effort, we are really excited to learn early lessons from hard-hit health systems responding to the crisis on the frontlines. The number of cases of COVID-19 being reported in the United States continues to rise quickly, as we are in the acceleration phase of the pandemic.

As of April 16th, 658,873 reported cases of COVID-19 have been detected in all 50 states and territories. Most US states now report some community spread of COVID-19, of those, 30 states report COVID-19 cases are widespread. The overall cumulative COVID-19 associated hospitalization rate is 12. 3 per 100,000 persons with the highest rates in persons 65 years and older at 38. 7 per 100,000.

Hospitalization rates for COVID-19 in older people are higher than what is typically seen early in a flu season. CDC is also modifying existing surveillance systems to track COVID-19 impact on healthcare systems. CDC and state and local health authorities have been listening to patients, clinicians, and healthcare facilities to learn which challenges are most pressing. And CDC has been issuing guidance based on best available evidence to address these challenges. Certain jurisdictions and healthcare facilities have already experienced intense pressure on their health systems due to COVID-19 and have learned what strategies worked for them and which didn't, regarding their staff, space and supplies needed, and responding to this crisis.

Other jurisdictions and facilities may still be in the pre-crisis period and can learn from those who have already been there. It is important to note that the health systems we will hear from today had existing emergency plans in place, which highlights the importance of being prepared. We are fortunate to be joined today with Dr. Reich from the Mount Sinai health system and Dr. Compton-Phillips from the Providence health system to share valuable experiences and early lessons learned, including staff engagement and training, including integration of surge staff, innovative methods of care delivery with telemedicine, creating COVID-19 wings at their hospitals, doubling ICU capacity, including ventilator acquisition and management, including increasing ventilator capacity through use of non-traditional ventilators, therapeutics and clinical trials, and respecting the mental health strain on their staff.

The insights shared today on the call, as well as through the webinar chat function, will aid CDC in developing further guidance for healthcare facilities and health systems. Thank you. I will now turn the presentation over to Ms. Nancy Foster from the American Hospital Association.

Thanks so much, Dr. Harris. Let me begin by thanking you and your colleagues at CDC. I know that the AHA has been extremely pleased to be able to push out your guidance to all of our member hospitals and, in fact, all of the hospitals across the country. It has been so extraordinarily helpful to them, as they prepared and learned more about COVID-19 and began to deal with it.

We constantly hear from our members that they want more from CDC. So, I guess that is the challenge in front of all of you, but it's been such a great pleasure to work with you and your colleagues. And we count that as one of the great opportunities that continues to be there for all of us going forward. Let me talk a little bit about healthcare systems, just to sort of set the groundwork for what you'll hear from Dr. Reich and Dr. Compton-Philips, healthcare systems that the American Hospital Association has the

pleasure of representing all across the country, but they are highly varied. Some are multisite, multihospital systems that have a presence across a large number of states. Some are more regional and may surround a core hospital. You may see that in, say, an academic medical center or another large hospital in a region taking responsibility for and working with a series of smaller hospitals in their community. And then there are some that are just small regional coalitions of hospitals that have come together to really share information, share resources, and make their communities healthier.

The special strengths of working together in a health system are many, but let me highlight just five of them, that have proven to be really instrumental in the response to COVID-19. The first one I want to call out is that many of the health systems we have the privilege of working with have their own data teams, have a strong analytic team, and they are using that constantly to understand what's going on with their communities, what kind of patients are coming into them, what medications are working, what strategies are working, and so forth. It really drives decisions for their system, and they are able to take the decisions and the strategies that are working in one hospital and share that across many hospitals. It is complimented by the fact that they often have individuals who have the habit of following the literature in their particular field and who share those learnings in a way that is digestible and useful to their colleagues, so that everyone can learn from this consensus of the literature about what is most useful. That strength has provided such a unique opportunity for many of our healthcare systems to really get ahead of the curve, before it came into their community in ways that I think will prove to be one of the best practices ever for addressing any kind of emergency.

The second one I want to call out is the ability of a system to be able to move resources as needed. They often have more purchasing power, they have greater access to capital, and those are very valuable resources. When you have to do something quickly, you have to stand up tents or new structures, so that you can appropriately house additional COVID patients or screen for COVID in your parking lot in a tent or some other structure. These kinds of resources are very effective. One of the things that we saw from some of the hospitals and some of the systems is that they were able to move needed resources like PPE or ventilators around within their system in order to feel like the wave that was about to hit one community was well resourced in that community and then to shift those resources back if another part of the system was now faced with an outbreak.

I want to come back to this notion of great financial stress, because as we look across the country, we are seeing more and more hospitals under extreme financial stress. Many of them run sort of at razor thin margins anyway, but the double whammy of having to invest resources in preparing to address an outbreak in your community and having to curtail normal operations in your facility, normal elective surgeries or other procedures that could be put off, safely put off, has really caused financial strain on many hospitals. We believe that our systems are more able to sustain that kind of financial stress. They have a deeper set of resources at their epicenter, and I am critically worried about the small standalone critical access hospitals and other small standalone hospitals in this country, that are experiencing that stress but don't have that same depth of financial resource to turn to. It would not surprise me to hear more and more of those hospitals talking about thinking about bankruptcy or other severe steps in order to recognize the financial stress that they're under.

The third thing I want to call out is that our large systems have greater numbers of staff with the requisite expertise to address the COVID patients. And oftentimes, they have relationships with universities or companies that are engaged in innovating in their community, so coupling that expertise with those who want to innovate. We've seen a number of innovative strategies, new waves. In fact, I'm hoping Dr. Compton-Phillips will talk about some of the very innovative things that Providence did, including the standing up of 100 million mask campaign, that AHA has been privileged to take over

from them and disperse masks, engage with new, novel providers of face masks and face shields and a variety of personal protective equipment that is so desperately needed.

The fourth thing I want to call out is the existing telehealth platforms that many of these systems had, that they were able to augment and strengthen in order to do virtual visits and keep people healthy, particularly those with chronic diseases, while not having to have them come into the hospital. So critically important in this era, and I think set a pattern for what we will see going forward in the future. Certainly, I hope that that will be a part of the transformation of America's healthcare system coming out of this whole experience. And then, the final strength I want to call out is this notion of being able to use the real strength of a centralized system. Not all of our systems are centralized, but those that are, that have this common EHR platform, that have an ability to share data readily across all of the hospitals in their system, and that can think strategically about how to cohort COVID patients in a community, so that they might have a single hospital taking the bulk of COVID patients in a particular community, or at least able to marshal the right experts to the right hospital to take the most seriously ill COVID patients to intubate them, to put together intubation teams and to really effectively use those strengths across the healthcare system to bring them to bear on the patients in a particular community has been remarkable.

In addition to the strengths, I think there are a couple of special challenges for our large systems that I'd like to call out. One, those that cross state lines and have to deal with multiple jurisdictions have had some particular challenges in this outbreak. In fact, as we've talked to hospital systems that cross multiple state lines, one of the challenges is trying to keep up with all of the different statewide decisions and community decisions on who should self-isolate, who can come to work, what's the surge plan, what are the different data collection strategies. Those things take a lot of time and sometimes take resources away from actual care of patients. So, when you have to manage it across a lot of different domains, it is indeed a challenge.

I think, strategically, the nation needs to think carefully about how to work more effectively across the states and with the federal government to have a more unified approach to many of these that will be essential for addressing any kind of outbreak going forward, whether it's another wave of COVID-19 or it's a different pathogen that comes at us. The second challenge, which may also be an opportunity that many have faced, that we've heard from, is that they are seen as the coordinating force in a community. They're the largest healthcare delivery system in some communities, and therefore, they are seen as that coordinating force, which is a good thing in many respects. But for some of the hospitals in some of the systems, they were so busy trying to prepare themselves to take care of these critically ill patients, that it was a challenge to be able to spare the resources to help others get prepared as well, including nursing homes and smaller hospitals and private physician practices and others. So, we need to think about that carefully and how we can make that happen more effectively going forward.

And then, finally, probably a challenge that many systems have routinely is the larger they are, the harder it is to maintain this link to the community that is so vital to maintaining the trust of the community and delivering the right care for them. And particularly at a time when everyone in the community is feeling stressed, that trust is so important. So, how they've been able to engage with their local communities, while still maintaining this national or regional presence has been varied across the country, but it is something much on the minds of many of our system leaders as I know. In conclusion, I just want to point out that we'll talk a lot about some of the ways in which systems have responded, and I'm, like all of you, looking forward to hearing how Mount Sinai and the Providence health system have responded to this challenge. Even as we turn to recovery and to the next stage, which would be rebuilding, I think in all of that systems will play a critical vital role.

Maybe a little bit different depending on their own structures, but working together, sharing these kinds of stories will be vital through each of those stages of response, recovery, and rebuilding. With that, I'd like to turn it over to Dr. David Reich.

Thank you very much, Dr. Foster. My name is David Reich. I'm the President and Chief Operating Officer of the Mount Sinai Hospital, one of the eight campuses of the Mount Sinai health system. Next slide, please.

I think I'll go through this relatively quickly, but we'll start with the disclaimers slide that the views expressed in this presentation are those of the author and my compatriots in infection prevention throughout the Mount Sinai health system and do not necessarily represent the opinion of the Centers for Disease Control and Prevention. Next slide, please. So, being eight hospitals located throughout New York City with one hospital in Long Island, we, before COVID, would say that we had 4. 1 million annual patient visits, 410 ambulatory practices, 42,000 employees, and one medical school, the Icahn School of Medicine at Mount Sinai. And the pretty view that you see on this slide there, is of the campus where I work at the Mount Sinai Hospital, which shares the medical center campus with the School of Medicine.

Next slide, please. The major challenges could be thought of in these four buckets here, and so I'll just go through them relatively quickly in the interest of time. As far as personal protective equipment, I think that I'm saying nothing that none of you don't know already, that supply chain is extremely challenging when everyone around the world is competing for the same equipment. Training our staff has been extraordinarily difficult, especially when the equipment seems to change day by day sometimes. I saw pink and blue gowns today, and yesterday they were green, and then contingency planning is extremely difficult in circumstance where there is maybe two or three or five days of supply on hand.

Extended use and limited reuse of PPE has become very important to us, and I will come back to that later. Workforce management is key. We'll go over communication a bit later, but once again, communicate, communicate, communicate. We have to constantly be in touch with our staff. Sometimes emails work, sometimes rounding works, sometimes it's communication from supervisors down through the staff at the unit level.

It obviously has to be sort of tailored to the moment it has. Employee engagement has been so important to us, because our employees have been true heroes. I know that word is overused, but it is definitely so true, but making them feel that they are the most important thing to us is a challenge, especially when there are shortages of PPE et cetera. I want to make a key point right now about leadership redeployment. With the vast number of incredibly ill patients that came into our health system, three of our campuses are outside of Manhattan.

One is in Brooklyn, one is in Queens, and one is in Nassau County, which is part of Long Island. They were overrun, and one of the hospitals had a particular problem, in that two of the key leaders became ill, and it really started to fall apart at that hospital. And the key message that I want everyone to remember from this presentation is that when you have to send substitute leaders in, we didn't send one, we actually sent in a team. We sent in a chief operating officer, a chief nursing officer, and delegations of people from the Department of Surgery and other departments, because you really had to almost swarm into that hospital with a new leadership deployment team, because they were so overrun. And then, of course, we acted like a system and transferred as many patients out of that hospital as we could.

We'll come back to that. Increasing the workforce is very challenging, once again, when everyone's competing for agency nurses, chief, sorry, CRNAs, certified nurse anesthetists. I'm an anesthesiologist myself, and so the CRNAs are a very versatile workforce in this particular crisis. And then, team-based care models effectively means that when you stretch nursing beyond their normal capacity, you have to embed physicians and advanced practice providers in with the team, so that the traditional functions of nursing and physicians and advanced practice providers, they blur, and they blur actually fairly effectively, because in a moment of crisis people do come together. Physical plant and increase capacity.

Expansion of our critical care capacity was dramatic. I will go over that in the next slide, but at one point, by my estimation we have about four times the normal number of patients on ventilators at Mount Sinai Hospital. We increase the number of negative pressure rooms by an order of magnitude. We built in non-traditional care spaces, which I'll come back to that being tents that people talk about, but also in lobbies and atria. And our use of telemedicine skyrocketed by about 1000-fold.

Maybe we just weren't so good at telemedicine before, but all of a sudden, it became the only way anybody could see a patient on the ambulatory setting. So, we went from maybe 25 in the month of January to something in the neck range of 2,500 in the month of April or whatever, you know, averaged out over March and April. Testing and therapeutics. Getting in-house testing going was not easy. Laboratory professionals want tests to be reliable and valid and so does the rest of us and doing that in days instead of weeks and months is not an easy thing to do.

They did an amazing job. We'll go back into ventilator acquisition and management a little bit more. As an anesthesiologist, this is something I do feel comfortable talking about, and I've learned an awful lot about convalescent plasma, since we have one of the larger programs in the nation right now, and we'll come back to that as well. And providing access to clinical trials, not just at the university hospital, if that's what I might call this campus, but across all campuses is something that was extremely important to us and frankly, to the esprit de corps of all of our campuses. And finally, I'll go into the anticoagulation protocol.

Next slide, please. This is not the totality of our health system. This is the five of our eight campuses that have EPIC, as the electronic medical record, but the growth rate and the slope, I think, gives you some very important points to look at. If you look at the point of about March 22nd through March 25th, everyone from the governor on down was in a state of extreme anxiety, because we were doubling at one point every two and a half days. Thank goodness, social distancing and all of the other mitigation factors that were put in place in the state and the city of New York were effective, because we have now reached the point where the plateau was this week.

And we've finally starting to slowly come down on that from the peak of the curve and then the post-peak plateau. Next slide, please. This timeline was put together painstakingly by my amazing colleagues in Infection Prevention, and in the interest of time, I won't spend too much time on it. But these slides are going to be available afterwards for any of you who want to study in great detail. But I want to show you that on February 29th, a day I'll never really forget, because I was having a very nice dinner when I got a call from Dr. Gopi Patel, our Chief of Infection Prevention at Mount Sinai saying the first patients were coming in for testing, a couple that had traveled from a nation where COVID-19 was endemic, and that test was positive the next day.

And that's when we knew that it was not just theoretical anymore, it was very real, and the New York pause followed shortly thereafter. Already, by the middle of March, we had implemented social distancing in the state, and we were able to bring in-house testing live on March 17th. Now, that was

extremely important for us, because we were burning through PPE at a crazy rate, because the patient's under monitoring and the patients under investigation were waiting days, sometimes up to six days, before the external laboratories were able to get us results. And in our case, we were able to use one of the major company platforms, our case it was Roche, and that was a game changer for us in terms of knowing within 12 hours what the status was of every patient under investigation, and that eliminated the patient under monitoring candidate.

I will also note that we were blessed on March 24th, because we were able to import a test for antibodies from our research laboratory into our clinical laboratory, operating first under the emergency use authorization of our state laboratory in Albany known as Wadsworth, and then, just recently, about two days ago, we received an emergency use authorization from the FDA. But this was extremely important, because within only a few days of that we were able to begin the convalescent plasma program, using donors where we were able to know to a certain extent what the titers were. Although I want to be clear that the FDA has only given us an authorization for qualitative testing, but we did do titers on those patients. Next, I do want to point out that on March 26th, we started something which still exists to this day. We started putting two patients in ICU rooms, and we still have over 30 of those, and that is extraordinarily challenging for our staff, but something that was very much a key to our success in managing four times the number of ventilated patients.

On April 1st, 2020, we had the opening of field tents in Central Park, which is quite a sight to see. I have a slide of that in a moment and then greater than 1,500 patients in our health system on April 4th, 2020, and on April 8th, opening our first COVID-19 unit devoted to palliative care. A hopeful note on April 14th, 2020, we had discharged alive over 2,400 COVID-19 patients. Next slide, please.

In personal protective equipment, it was extremely important, when we were able, to establish special droplet precautions as a standard for the management of patients outside of the aerosolizing procedures. I don't think I need to tell this audience what special droplet precautions are. But effectively, it is not obviously the N95 mask, but the N95 respirators had to be preserved for aerosol-generating procedures. I will say that, though, there is a psychological benefit for our staff of wearing the N95 under a surgical mask. And so, as much as this was so important to us in the early stages of this, because we just didn't have enough N95s, it did not achieve the psychological needs of our staff.

And I think that's the fair point to take away from this slide. Next slide, please. In creating a better psychological spirit, a psychological sort of the sense of wellbeing that needed to be there for the floors, we move to what we call extended use PPE units. Now using what's probably a few miles of red, yellow, and green tape by creating zone markers on the floors of what's a hot zone, what's an intermediate zone, and what's a clean zone, we were able to, again, provide a better system for our staff to understand exactly how we should have limited reuse and extended use of N95 respirators, such also that it extended to extended use of the isolation gowns. If a patient is not on contact precautions for another pathogen, if the gown is not ripped, torn, or soiled, the gloves are removed, and hand hygiene is performed.

People felt comfortable with the extended use of the isolation gowns and, of course, the use of the N95 respirators. Next slide, please. Next slide, please. As far as workforce management, communication was just so important. This slide is me, and sometimes I wear a white coat, sometimes I wear a suit, but I do what I call elbow bump rounds, and I try to walk the COVID Hospital, which is about 90% of our total adult medical surgical and critical care hospital every day.

It's 9,000 steps. Thank you to Dr. Patel for teaching me how to measure the steps on my iPhone and doing twice daily huddles with local leadership. Crisis communication broadcast messages generally come out from the system as a whole, and we try to restrain ourselves from doing site-based messages to things that are very specific. We do twice daily calls also with our bargaining units.

We do have extensive unionization of the workforce in New York City, and maintaining a close relationship with union leadership has been very important to us. We've been doing weekly virtual town halls, and I do those here on this campus together with the dean of the School of Medicine, and they've been very well attended. At one point, we had more than 3,800 people, and we're about 10,000 people on the campus to give you an idea of how popular they were at the time when the anxiety level was so high. And then, I think it's time to move on to the next slide, please. Ensuring a stable workforce meant redeploying staff and leadership.

We have neonatologists, pediatric cardiologists, orthopedic surgeons, and rehabilitation medicine physicians, and advanced practice providers that are now working with hospitalist teams and critical care teams. Everyone lost their original title and became something new. We put out educational materials about the management of basically respiratory failure and critical care of these patients. And the team-based care model I referred to before essentially means that everyone forgot about what their original role was and figured out what their new role was. And I have to say people were very innovative and thoughtful about it.

We use volunteers and external staff. We pay crisis pay to effectively everyone other than physicians, nurses, advanced practice providers, the support services. We had incredible food donations, sleeping arrangements that were donated, respite stations, so that we could give our staff some support and set up wellness initiatives in the form of crisis hotlines and other means of supporting the staff. Next slide, please.

These holes you see, these white panels with little holes in them, those are negative pressure rooms that were created by putting HEPA filters in regular patient rooms. We transitioned 10 adult units to COVID-19 ICUs. Ninety-four licensed critical care beds became 240. We doubled the occupancy, as I referred to before. We converted a total of 260 patient rooms to negative pressure room.

We incorporated remote patient monitoring and point of care monitoring whenever possible, and we expanded our inpatient telehealth and consultation services. Next slide, please. These are tents in Central Park. I have been joking to my staff for years that it was such a waste of having Central Park next to us, and we needed to put patient care over there. Now, we have it.

I do, maybe it's poetic justice for my having said so, but it has been extraordinary, and we have right now 47 patients being cared for in those tents in Central Park with our partnership with Samaritan's Purse. They came with excellent physicians and nurses, and they are doing something that we could not do in our health system right now. They are caring for patients that -- in beds that we would otherwise not be able to staff. We've also built patient care space in tents. Luckily, we've not had to use too many of those, but you get the idea.

You have to think about non-traditional space. Next slide, please. Rapid expansion of testing. It was just so important to work with the public health laboratories and commercial laboratories to offer testing as quickly as we could.

And the game changers I referred to before was when we established actual in-house testing capacity. That made a huge difference for us when we're able to test several hundred patients per day. Next slide, please. COVID-19 antibody testing was extraordinarily important to us, because we felt that we needed to do something for our patients other than the existing trials. And we decided that setting up a convalescent plasma program would be extremely important to us.

The first lesson learned is you have to wait 21 days since symptom onset to make sure you had adequate titers and to the absence of viral shedding. Next slide, please. And I think I'll just say that this slide is available for everyone to review later, but this is just a basic algorithm for treatment that worked for us. I'm sure many of you have something similar to that, but the idea is that stratifying patients, since some of [inaudible] mild diseases in the hospital into moderate, severe, critical and multisystem organ dysfunction was very important for helping our staff to rationalize what the care would be across what could have otherwise been a very chaotic enterprise. Next slide, please.

And I think that the response of the New York community to the call for plasma donation has been nothing short of miraculous. We have identified at this point close to 3,000 patients with high titers of antibodies, and several hundred of them have donated to our plasma program. As of this morning, 91 patients throughout our health system have received convalescent plasma. Results are pending. Next slide, please.

So, the convalescent plasma program, in the interest of time, I'm just going to just say one thing, it's a heavy lift logistically. You can do it, and there's the Mayo Clinic sponsored Expanded Access Program. I encourage everyone to go to that website and learn about it, but if you can afterwards, come back to this slide, because the logistics are a bear. But you can do it, and it's very important, and we are hoping that it works. Next slide, please.

I think I'll skip over this slide in the interest of time and so next slide, please. Increasing ventilator capacity was very important. We used our human patient simulation laboratory in the Department of Anesthesiology to soup up transport ventilators and home ventilators to the point where they could deliver higher concentrations of oxygen. And there was, although as an anesthesiologist I don't like the idea, we came up with what we think is a safer concept for ventilator splitting protocols. I'm happy to share our protocols with anyone who writes to me at the end, and there'll be an email address.

Next slide, please. This is the respiratory device usage. Suffice it to say, we are using a lot of respiratory devices. This is a disease that's all about respiratory therapy support, everything from a ventilator on down to high flow nasal oxygen. Next slide, please.

We, along with other centers in the nation, have come to the realization that there is microvascular thrombosis ongoing in COVID-19. And as of last week, we established a system wide algorithm for the management of patients that are coming into the hospital with moderate to severe disease. And we are even looking at, not even looking into, we now have a case series of patients who are receiving thrombolytic therapy for the most severe disease. And I encourage everyone to come back and look at this slide and think what'd work in your health system. This is obviously not yet evidence base, but it is something that all of us feel strongly about, because we've seen so many thrombotic issues occur in the patients with COVID-19.

Next slide, please. We think this is plateau week, and we're past, and we're very happy about that. Next slide, please. And I think it's important to thank everyone. We're putting up a massive sign outside of our campus here to thank our healthcare workers, and I want to thank all of you for listening.

I very much appreciate your attention. Next slide, please. And that is my email address, and I promise that our team will get back to any of you who send a question. It is now my honor to and privilege to introduce Dr. Amy Compton-Phillips.

Great, thank you so much, and quick question for the moderator. I know we are pretty close to out of time. What do you think? Should I go ahead and try to go through the talk or would you rather just have questions?

Dr. Compton Phillips, we are very thankful for your time. So, I would like you to resume your presentation like you normally would. We have time allocated, that if we need to go over, that we can do the Q&A after you're done with your presentations. Please proceed as you normally would.

Okay. We'll go for that. All right. Well, thank you all so much, and if you go to the next slide, please. I'm Amy Compton-Phillips. I'm the Chief Clinical Officer at Providence St. Joseph Health and internist by background. And for those of you that don't know Providence, next slide, please, we're a large, one more, a large health system up and down the West Coast, and we extend from Alaska down to Southern California to Orange County, as far east as Texas. We have 51 hospitals and about 120,000 caregivers overall. Go to the next slide, please.

And we had the fortune or misfortune, depending on your approach, of getting the first patient with COVID back in early January, late January of this year. And what that did for us though is it made us realize, exactly like you did Dr. Reich in New York City, that this was real. You know, we'd been following it from afar, like all of our good infection preventionists do anytime there's a new emerging disease. But when it hit us in Everett, we actually started, or we put together our emergency command center, knowing that it was here in the States.

And we started doing the work just within the clinical sphere, and then rapidly, particularly with the first case of community transmission in February, we went into full on mode. And so, I'm going to talk about these different elements into the talk, how we actually ramped up our tech enabled care, ensure we'd had a pandemic playbook, so everybody could be on the same page across our system, working with the community. And now, we're actually into the post-crisis, as we're fondly calling the new abnormal, thinking about what does this mean for long-term care, and what does it mean for the future? So, if you go to the next slide, we realized early on that this was going to be bad, and that we really needed to be ready. And we figured that, you know, we would hope for the best, plan for the worst, like people do, and that if we planned effectively and we stayed ahead of the curve, we didn't have to be in reactive mode, that we could actually start helping people, realize we could be the port in a storm. And so, that's really what we've been planning from the very beginning, that we needed to stay ahead and be ready for whatever came our way.

So, if you go to the next slide, our initial framework was that we had, you know, as we were thinking back in early February that we had to be ready to triage a number of people that didn't know what was going on with them to get them access to testing capacity and to be able to treat them effectively, even though we didn't know what effective treatments was. We had to at least be able to manage their symptoms, and we had to do that in a way that people could understand and flow through. And since we're based in Seattle, we have a lot of tech talent near us, and so we started, if you go to the next slide, we said that we're going to leverage what we had in place, which was our telehealth capability and build on the chassis that existed to do some things. So, we used our digital innovation group to build a chatbot to be able to help people go online and assess symptoms and decide who needed to come in and get testing. And then, we rapidly set up drive-through testing that everybody has now.

At that point, the only people we'd heard of it being done was in South Korea, so we got that set up. We also had the capacity to click on to, and now I think everybody's doing it, into virtual visits that could help decide whether or not you needed to get testing. We also built something, because we knew that we wouldn't have bed capacity or we were anticipating we wouldn't have bed capacity for everybody. So, we built a home monitoring program, where if people were at risk for, you know, they were in a high risk population, and we were still waiting for, you know, 24, 48 hours or at one point it was up to seven days turnaround time for test results, we'd send them home with a pulse ox and a thermometer. And, in fact, we could even mail it out, if they never came in, that this was all done virtually, so that we could do self-monitoring at home.

And we started up by using our tele-ICU nurses to be able to staff that instantly, because we turned it on in like, I don't know, two days. And so, and now we've had about 2,000 patients go through the self-monitoring program, and it's been able to do things like keep 88-year-old people at home, that otherwise with COVID might be admitted just because of the risk pattern. We also rapidly have set up our acute care telehealth and, in fact, have turned on remote ICU monitoring. I think, actually, this week we go live in supporting New York with our tele-ICU monitoring to be able to rapidly step up, as well as tele hospitalist, so that we could actually ensure, that as you heard early on, hospitals in rural areas or underserved areas where there is a demand supply mismatch, we're able to support through telehealth. And so, having that chassis to build on instantly was a huge help, and, in fact, in the past, last year in 2019, we did roughly 70,000 video enabled telehealth visits.

At the moment, we're doing 70,000 in a week. So, 70,000 in a year in 2019, 70,000 in a week now. So, it's definitely been a huge scale event. If you go to the next slide, please. The other thing we did is we are progressing along, you know, we started out with, you know, like everybody, I think, probably in February and early March, you know, we were going we've got to figure this out, and then we realized the implications of what could happen, that New York had it happen.

You know, we didn't quite have it happen here in Seattle or on the West Coast, because we went to the social distancing very early, but we put together a pandemic playbook and that everybody in our system could be ready. And we really thought through what are the people that we need, what are the places that we need to do it, and what are the products, and we just went through what are our assets, where do we have them? We've put together an entire people plan. We now have a skills assessment tool for our online HR system to say who has what skills, so that we could rapidly redeploy. We did the same kind of pulling folks from the ambulatory environment to be in the inpatient environment. We taught all of our anesthesiologists how to turn OR anesthesia machines into ventilators and how that works.

So, we did a huge amount of the people work and caregiver assessing. We also did the same kind of thing with redeploying beds to be able to make, you know, ICU capacity be rapidly turned up. And in the product category, we did sourcing from all over the planet, but as the supply lines broke down, we got desperate and, as you heard, you know, ended up sitting down in our conference rooms and started to make masks. And the news heard, and that's how we ended up starting the 100 million mask campaign and now have recruited a significant number of corporate partners to help with ensuring the PPE supply is actually manufactured here on shore, so that we could keep our people in the PPE supplies that we need. We've actually gotten to the point now on the West Coast that we're starting to between conservation measures, between our reprocessing measures, because now we're able to do reprocessing of all surgical masks and of N95s, as well as through supply chain improvement.

We're actually starting to phase back in going to N95 protection, where previously we had all droplet protections. So, it's been good being able to have those supply lines start to improve. If you go to the

next slide. The pandemic planning was really important, but then we started seeing about two weeks or three weeks ago now here on the West Coast that we were probably over the peak of the curve or we were at least on the plateau of the curve, that our social distancing on this slide had actually been able to take us from what we were expecting, which is the red line down to the blue line, that we had decreased the transmission so much that we were going to keep the surge within the capacity of the healthcare system to be able to care for it. And because that happened, we've been able to start thinking that what is this new abnormal? What is it that we need to be doing now to figure out how to keep care happening in a post-COVID world? And so, that's really what the work is today, is to say, how do we do things like ensure we have COVID free sites, so that we can make patients be comfortable to come back in? We've seen our rates of people coming in for heart attacks and strokes, so things that you would not expect to be cured by COVID, go down by half.

We have anecdotally seen a significant number of people coming into our ERs with completed MIs and completed strokes that are no longer reversible. You know, we can't give TPA or any kind of anti-thrombotic therapy for, and because of that, our belief is that it really is fear keeping people away. And so, now as we're starting to come down the backside of that wave, we have to figure out how to help people get the acute care that they need and also think about how do we get people the ongoing care that they need. And so, at the moment, we're very much focused on how do we actually start to get people back to ensuring that it's not everything else that is impacting their health the way that we worry about. So, if you go to the next slide, what we've decided to do is we simply have to be able to use data to drive our decisions and so one more slide, please.

So, from the very beginning, we'd done it sounds like what you all did at Mount Sinai, and we started doing this, honestly, in late January, was building a data registry, a Coronavirus epidemic registry and data platform, that is incredibly helpful for us and actually not just looking at where we are at the moment, but looking at where we think we're going. And so, we can in real time, and this was just a screenshot of Monday's, I think, just because that's the day that we sent in the slides. So, just saying, you know, where are we, how many vents are we using, what's our capacity, what is it we can do? And you can see that our number of patients with COVID are significantly down off of our peak. So, we really do believe that we're on this backside of the acute care, but we're not filling up our facilities, and they're normally pretty full to the rim. And so, again, this is back into okay, what's the clinical care recovery look like? One more slide, please.

And so, the nice thing with the tool is it's not just planning on what's going on, but we can look at outcomes. And so, this slide happens to be of people who've been discharged from our facilities that use EPIC. So, it's not all facilities, but it is the 34 that are on EPIC right now, and so we're starting to look in and be able to do a little bit of both operational learning, as well as we can start doing health services research and look at kind of population level dynamics and saying, what are the people like, like things that we're seeing right now, about 25% of our admitted patients do die, and it's about 75% live, which is pretty good, because this is a very sick population that we end up admitting. We are seeing that, at the moment, we haven't had the kind of racial demographic differences that other parts of the country have seen, but our people of color tend to be younger than the people, the Caucasian that we admit to the hospital. And so, it's going to be really interesting, as we go along, understanding what's driving our outcomes.

Next slide, please. One thing we know, as we move forward and as we start talking about potentially reopening up the country, one of the tools that we need to have is syndromic surveillance, that unless we have testing, universal testing on demand for everybody, given the fact that we recognize that there is a symptomatic transmission of this germ, that we need to be able to look ahead and see what's out there,

what's going on in our communities, what's going around in our communities. So, one of the elements of our covered registry is syndromic surveillance, and we look for cough, fever, and shortness of breath. And so, if you actually just look at what our data, what we're seeing in our markets, so in our emergency rooms and our urgent cares, with people coming in with cough, fever, and shortness of breath, you can see that in February orange is it's more common than previous years, blue is it's the same as previous years. You can see in early February, we are starting to see a few pockets where we were getting slightly more cases than in previous years.

In March, we were seeing a lot more cases than we did in previous years, but by the end of March, it started going back down again, and that same pattern happened in Seattle, in Portland, in LA. And so, it really was telling us that the social distancing measures, that we did early and have done for quite a while out here on the West Coast, have been making a difference impacting the spread of the syndrome, the symptomatic syndrome that comes along with COVID. And it's going to be helpful, by the way, as we're going to keep monitoring this, as we start opening things up slowly, to see whether or not we have early signs of recurrence of outbreaks. Next slide, please.

As we're looking forward, one of the key things that we're doing is thinking about okay, as we come down of wave one, what is it we need to be doing to get ready? One, in acute care, what's that backlog of people who have put off not only issues like are strokes and heart attacks but also things like their cancer therapy or their surgery to debulk, you know, a tumor that they really need done, but were afraid to come in.

And so, right now, we're in the process of saying, how do we actually get restarted again? Who do we need to test? When do we need to test them? How do we ensure that our staff feel safe from carriers and our patients feel safe from our staff? And so, we're going through developing all those algorithms right now, and testing capacity has upped dramatically across the country, particularly through the reference labs in addition to our own labs. And so, right now, we're looking at the moment to resume some component of clinical care on May 1st, and so working hard to get that done.

In addition, chronic care, we previously had around 60,000 visits a day in our ambulatory clinics. We're down to about 10,000 a day visits in person, but about 12,000 virtual visits. Still, that's a third of the number of visits that people had previously, and so we're trying to think about, in chronic care, what is it we can be doing differently? How do we leverage remote technology? How do we leverage virtual care visits, so that we can ensure we're meeting the demand of people that need chronic care? And in population health, we're actually starting to talk to all of our insurance companies and our payers to say we think that there's been something positive coming out of COVID and that people are now adopting to virtual care.

We don't want to go back to the fee for service treadmill. So, how can we actually use this moment to get particularly to primary care capitation, so that we can actually ensure we're providing access to care with minimal burdens to everybody across our populations. And so, we're thinking right now of this moment with COVID not only in how do we manage through a pandemic and through a crisis, but using this as an opportunity to say, let's actually revamp the healthcare system, so that we can have something better on the backside. If you go to the next slide. So, our learnings that we've had today is we absolutely had to plan for the worst, and it says here expect more epidemics, but it's expect more waves.

And so, that's why we're doing the syndromic surveillance, as well as being prepared to flex up and down, as the demand goes up and down in each community, that we really need to think about ensuring that what we were able to do very rapidly in this pandemic creates lasting benefits, particularly when it

comes to remote health and remote technology, because we know that our patients are loving that. I didn't tell you, but we've been tracking our net promoter score of our telehealth programs, and they're well into the 80s, which is like, you know, better than better than Amazon and way better than Nordstrom. So, it's been very well received by patients that we know that we, you know, one of the challenges advocate together is that we are working hard to solve this public health crisis with a privatized health system. And so, we can only do that by working together, and so it's a big part of what we've been doing is trying to collaborate across many boundaries, so that we can sort out how to provide care for all in our communities. And then, last one of the key points is the environment's chaotic.

I really liked the leadership rounding message that that Dr. Reich shared, because it's been essential for us. We've had a very regular clear cadence of huddles each morning at 7:30 with an emergency operations group that comes together every day at 3:00 and regional huddles and system huddles and walk arounds by leaders. And by having a very reliable cadence, it's been a little bit of a reassurance, a little bit of regularity to be kind of a flotsam to hold onto in the storm of chaos that people are feeling at the moment. And as long as leaders can be there to be steadfast in chaotic times, it's been incredibly helpful for the psyche of our caregivers and for our patients.

And last but not least, being a consistent voice is really important, that make sure that we're not just telling, but we're listening. And so, we're really focused on ensuring that we have very clear two-way communication, because we know the other big thing that we know is that after the heroic phase of responding to a crisis, we expect to see the pit of disillusion. And we know that's coming, and so we just need to be able to listen and be ready for it, because people can't keep going in hero crisis mode for a prolonged time.

And so, we need to be ready and help, as people navigate the letdown that we know is on its way. So, that's all I have to share, very similar to Dr. Reich, happy to answer any questions and help with anything that we possibly can, because this is clearly something that we're not just all in this together across the US, to be honest, we're all in this together across the globe. And it's an all-in approach to winning against COVID, and that is the enemy that we're here to beat, and so we're all hoping we can do that together. Thank you.

Presenters, thank you for providing our audience with such useful information on this rapidly evolving pandemic and sharing your personal experience and insights. We appreciate your time and value. You're sharing such helpful information and lessons learned in your respective hospital systems thus far in the COVID-19 pandemic. At this time, we will go into our Q&A session. Please remember, you may submit questions through the webinar system by clicking the Q&A button at the bottom of your screen and then typing your question.

Also, remember, we are looking for best practices and lessons learned. If you'd like to share, input those in the Q&A field as well. So, our first question, there was mentions of telemedicine.

So, we've seen quite a few questions on telemedicine, and our inquirers would like to know, can you talk a little bit more about telemedicine strategies that were already in place, and how did each of the healthcare systems work to scale them up and what that involved?

Sure. Want me to go first? This is Amy Compton-Phillips, and at Providence, before we -- before COVID, we had both a express care virtual, which was our on demand urgent care kind of platform, and we were doing about 50 to 70 visits a day with express care virtual. And we also had a telehealth program, supporting about 110 hospitals, using telestroke, tele-ICU, telehospitalist, tele behavioral

health, and so, we have that functional platform. It was expanding the uses of that platform that we did very rapidly, and we use several different technologies, because the B2B, you know, the supporting hospitals takes a different technology than B2C, supporting patients. One thing that we did was turn on, in the middle of this, 7,000 primary care physicians the capacity to do telehealth visits in one day.

So, our IS group was absolutely amazing, and in primary care, we're using Zoom as the platform. In the hospitals, the hospitals we're using InTouch devices, as well as EPIC functionality as the platform. But having the platform that existed helped to rapidly scale.

Dr. Reich, would you like to add anything?

Yes, thank you. I think I just pulled up the appropriate email. We went from about 25 visits per month to about 2,500 overnight. We're a smaller health system than represented by Dr. Compton-Phillips, but the majority of that technology worked out to be EPIC-related.

We used EPIC video visits, EPIC telephonic visits, both increased by two orders of magnitude, and then also, there were a dramatic number of people who declared themselves as COVID-19 new patient assessments as part of that. And then, we set up a skin of a telehealth program called Mount Sinai Now, and that also ramped up from four to nine visits a day to 200 visits a day. So essentially, every telehealth platform that we had absolutely exploded with the pausing in New York, meaning the social distancing.

Thank you for your responses. Our next question is regarding deferring care for your non-COVID patients. This is something that was brought up during the presentation. **So, the question is asking, "Did you, or have you had time, so far, to go back and quantify the number of patients deferred care for non-COVID conditions because of the pandemic?" And follow up is, "How -- are you seeing more severe presentation of conditions than you would normally expect?"**

Well, I'm -- I can go first on that one. It's actually shocking how empty our emergency department is. This morning, there were 25 people in the emergency department at Mount Sinai Hospital. The number is usually quadruple that, and for whatever reason, people are hiding at home with their chronic conditions, afraid to come to hospitals. We did, of course, mention the telehealth component to it, but it is unknown what's going to happen in the New York area once people feel comfortable to come out again.

But we have not seen any major increase of the number of stroke codes or STEMIs within the city. And so, it's very strange we had about a 98% reduction in overall surgery at the peak of the crisis, and we still are much earlier in the process than the West Coast, specifically, the Providence system. So it's too soon to say whether there'll be that bounce in the green line that Dr. Compton-Phillips showed, and we are expecting that there'll be some return. But I guess every region is going to have its own pattern, and we have yet to see what that will be in New York region.

Yeah, it's been really interesting, and, you know, I think it's going to be really helpful for the CDC, you know, with MMWR maybe six months from now to look back and say what happened to the rate of sudden death or what happened to the rate of strokes during the time of COVID. We are now seeing anecdotes coming in, because as I mentioned, ours are down by half. So, they, you know, they didn't go down by 98%, but they're down by half, and the anecdotes coming in from our ERs are, like I was talking with an ER doc yesterday, and he was telling me about a gentleman who had amaurosis fugax, lost vision in one of his eyes three days earlier and didn't want to bother his daughter whom he was social distancing from. And finally, when he told his daughter she made him call 911, and he came in,

but, you know, with a completed stroke at that point. So, it's just really challenging understanding in the thick of it what the difference is, but we do know the acute cases are down by half, and none of us are supposing that COVID cures cardiovascular disease.

So, we think we're just not seeing it is our hypothesis.

Thank you for that. I appreciate both of your insight on how that is playing out. Next question, I think, is mostly for you Dr. Compton-Phillips, because I know that Dr. Reich went into some detail on PPE. **Can you talk a little bit more about how Providence optimized PPE use for staff members? And then, can you also elaborate on if you had any strategies similarly for optimizing ventilator use?**

Yeah, yeah to both. So, we, with our first patient, we literally had Ebola level PPE. So, it was, you know, incredibly strict PPE. That was January 21st. We rapidly went down to contact airborne precautions with eye protection, double gloving.

So, that was in late January, but that was requiring six changes of PPE per shift, when our first patient was on the floor, and 22, when he was in ICU. And so, we realized we had to start conserving. We had to start doing something. We, by the way, because we had that early patient, started very early ordering in additional PPE. And so, we had a little bit of grace in figuring it out, but we did go down to contact droplet precautions with eye protection, using respirators for aerosol-generating procedures back in early March.

And now, because our supply chain, as we have actually been able to start reprocessing both surgical masks and respirators, as well as getting in some large shipments from abroad, they finally started coming through. We just, this week, are now starting to go back to the CDC recommendations that say go back to having respirators when the supply chain allows. We're just now starting to go back to the respirators right now, as the supply chain's opening up. So, it's been the same thing that Dr. Reich talked about that, because the suppliers are different than we normally have used, the staff, it's challenging for the staff.

It's like, well, why don't I have my usual gown, where did this flimsy yellow thing come from? Well, the flimsy yellow thing is what we could get, and so, you know, supposedly it's just as good, and that's what our people say is just as good, but it's not what you're used to. So, it is very frightening for the staff. It's been and taken a lot of communication, and I'm still not positive with all the changes that we have the full trust of everyone that we're trying to do the right thing. But it is part of why we're trying to go back to respirators as soon as we can because if we don't have staff, if we can't keep our staff healthy and whole, you know, mentally and physically, we can't take care of patients. Of course, we want our keep our staff healthy and whole, but again, as I anticipate as coming down into the post-heroic phase into the cranky phase, that I know that PPE is part of that.

And we, by the way, never had to get to any of the innovative ventilator options that we were all thinking we were going to have to do. So, we never had to split ventilators. We never had to create ventilators out of modified BiPAP machines or CPAP machines. We did at one point have to get to using our OR anesthesia machines as ventilators, but that was a fairly brief thing, and then we've been able to go back to having a sufficient ventilator supply.

Thank you so much for that. **Our next question, I think, is for all our presenters, and that's asking about strategies that your facilities may have had to use to move patients to facilities that had a**

lower burden in your community as surge capacity to alleviate burden on your heavily burdened facilities, if you had any of those strategies or ideas that you could share?

Well, to this day, our transfer service, which is headquartered at the corporate headquarters for the health system, has literally saved hundreds of lives by moving patients around the health system from the overrun hospitals in Nassau County, Brooklyn, and Queens into Manhattan and also into the field tents in Central Park. There is nothing, nothing short of miraculous to see that we were able to take patients from hospitals that are very close to nursing homes and socioeconomically depressed areas of New York and move them into other areas as quickly as we could make capacity. So, I think I'll leave it at that, but effective transfer within a region will save lives.

Yeah, I would agree we never hit the point that we were totally overwhelmed, as I mentioned. We started trying to cohort all of our, and particularly in downtown Seattle, all of our COVID positive patients to one facility and realized okay, that was a no-go, because every facility had more COVID patients. And so, now we're thinking of reverse cohorting, mostly for the trust of our patients with putting all of the non-COVID patients into one facility for doing these urgent surgeries that we feel like we need to get scheduled sooner rather than later. And so, we're doing the opposite now, as we as we think about how to get going with non-COVID care again.

Thank you. **Next question, "Can you speak a little bit to your healthcare workers that may have been exposed or were ill with COVID-19? Did you implement any kind of worker exclusion or paid leave policies for those, and can you talk about if the CDC guidance of healthcare workers returning to work was helpful?"**

I think I'll start. This is David Reich. When we, obviously, are in New York City, where we have a very advanced public health department in our city Department of Health and Mental Hygiene. We have the New York State Department of Health and, of course, CDC guidance. And so, there was a slight deviance among the recommendations in terms of number of days in New York, and, of course, our healthcare system was a bit more overwhelmed than perhaps other regions.

And so, we are bringing people back to work after 72 hours afebrile without antipyretics with resolving symptoms. I'm usually supposed to do air quotes when I say that one and also, at least seven days since diagnosis, not 10. So, it is a little bit different than CDC, but I think that, frankly, the expediency of trying to maintain a workforce, which is so incredibly stressed, led to a slightly different interpretation by the state and city authorities.

Yeah, and so at Providence, we did use the same, the CDC guidance, so really, really appreciated having that, but it was a lot more than that. We have lots of HR policies that we added in, just because it was such a chaotic time. So, we did things like we continued pay where services were altered through April 30th. We had, for example, ASCs and primary care offices and urgent care clinics that literally just stopped doing work. But we continued the pay of those people, even if we couldn't repurpose their work at the moment.

So, we did pay some people to sit home. We also gave people 80 additional hours of paid time off, because we knew that it was going to be really challenging, added short-term disability coverage for people that hadn't been employed long enough to have it. We provided some backup childcare, because with schools closed, we knew that particularly for, you know, parents of kids it was going to be impossible for them to come into work. And so, we contracted with an agency that provided drop-in childcare, and if the agency ran out of childcare, we gave employees $100 a day for their own resources

to pay their own childcare, even if they could find a neighbor to watch their kids. And we also set up hardship loans to our credit union, because we realized it wasn't just COVID exposure that was putting people out of the office, but a lot of life circumstances and so really, really worked very closely with HR to ensure that our people could come into work.

Thank you very much, and I think we have time for one last question. **So, I think let's talk a little bit about lessons learned so far, even though we're not at the end of this pandemic by any means. The question I want to ask is, are there any new strategies or lessons learned that you have implemented during this pandemic that you would plan continuing using, even after the crisis is fully over?**

Well, I certainly can take that one on. I think that we learned how to bring together five pharmacy and therapeutics committees and academic leaders to establish something new, like the Anticoagulation Protocol in about two days. And we learned that it was feasible and impossible, and so I think that that is a message that we can take away is that our normal sort of bureaucratic and academic arguing over the details of how many viruses can dance on the head of a pin ended very quickly, and we were able to reach consensus. So, I certainly hope that that's a takeaway from this.

We learned that exact same takeaway and absolutely loved it. The other thing is that that, you know, listening is great, but decisions are critical. So, we made sure that we could be clear and decisive. The other thing, as I mentioned, simply, even if you don't know anything, communicating that you don't know yet is really critical, that leaders have to be present, they have to be visible, they have to be reliable, and that nothing should stop your ability to be available, when you say you're going to be available, because the frontline staff living in a chaotic world needs something to hold onto. And so, I think it's our job at the moment to be that rock to support the people who are being buffeted around in their community.

And I hope that we can continue that on an ongoing basis.

And this is Nancy Foster. I respect what they, what my colleagues have just said. I have sort of very different learnings from my perspective. One is I have been amazed at the number of novel organizations not traditionally part of healthcare, who've stepped forward to help us through this crisis. Being able to put up a red flag that says we're in trouble here we need some help doing X, whatever X is has brought forward people from the community, businesses big and small, and a variety of others.

I think that is a lesson we need to take to heart going forward, and then as someone who's worked in Washington for a very long time now, I have to tell you, I've also learned that federal agencies can move incredibly swiftly, when there is need for that. CDC, CMS, the FDA, they have pushed regulation out of the way, so that healthcare organizations can deal with this crisis at a pace I didn't even imagine possible, and I thank you all for that.

Thank you very much for that. On behalf of COCA, I would like to thank everyone for joining us today with a special thank you to our presenters, Dr. Harris, Dr. Reich, Dr. Foster, and Dr. Compton-Phillips, and to Dr. Robert Redfield for his leadership and taking time to speak with us today. A closed caption video and transcript for this call will be posted on COCA's webpage shortly after the live call at emergency. CDC. gov/COCA.

A video recording of this call will be available immediately after the call ends on COCA's Facebook page at www. facebook. com /CDCclinicianoutreachandcommunicationactivity. Again, that web address

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Thank you.

Thank you.