

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, Coronavirus disease 2019 update, What Clinicians Need to Know to Prepare for COVID-19 in the United States. You may participate in today's COCA call via Zoom.

Due to the high demand for today's COCA call, we ask that you access the call in a group format if possible. If you are unable to gain or maintain access to today's call via Zoom, you can watch a livestream on COCA's Facebook page at www.facebook.com/CDCClinicianOutreachAndCommunicationActivity. Again, that is www.facebook.com/CDCClinicianOutreachAndCommunicationActivity. A few hours after the call, a video recording will be posted on COCA's webpage at emergency.cdc.gov/coca. Again, that web address is emergency.cdc.gov/coca. The livestream will also be available on COCA's Facebook page for viewing after the call. Continuing education is not provided for the call.

After the presentations, there will be a Q and A session. You may submit questions at any time during the presentation through the Zoom webinar system by clicking the Q and A button at the bottom of your screen and then typing your question. Please, do not ask a question using the chat button. Questions regarding the webinar should be entered using only the Q and A button. If we are unable to get to your questions, please visit CDC's COVID-19 webpage at www.cdc.gov/COVID-19 for the latest guidance and updates. Again, that web address is www.cdc.gov/COVID-19. For those who have Media Relations, please contact CDC Media Relations at 404-639-3286, or send an email to media@cdc.gov. If you're a patient, please refer your questions to your healthcare provider. Before we begin our presentation, I would like to turn the presentation over to Doctor Daniel Jernigan, CDC's Incident Manager for the 2019 COVID response. Doctor Jernigan, you may begin.

So, thank you very much and thanks for the opportunity to speak with you all. I think, you know, many of you are in the midst of seeing patients that either might have COVID ID or are concerned about it. Many of you have a lot of questions about it to actually control practices, about availability of tests. And so, hopefully through the call today, we'll be able to answer some of those. Some of the things we may not have answers for, and I think that just reflects the evolving nature of this at this time.

You know, as many of you have been following, there are many cases that are being detected. With the availability of testing through public health laboratories, our public health partners have been working overtime to try and evaluate those patients and seeing clusters and chains of transmission in a number of places. I think most affected right now of course are on the west coast, in Washington state and in California, most recently, actually on the east coast in West Chester County, New York. But the things that are of great concern, of course, are the healthcare settings and those skilled nursing facilities and long-term care facilities where we are seeing that the most vulnerable individuals are getting infected, and that that becomes a very complicated

situation to try and manage. We hope at this time that there's still the ability to identify cases, identify their contacts, do the work to try and see how they're connected.

But we do recognize that there's an increasing number of cases. And it makes things very difficult to know sometimes where an infection might be coming from. For that reason, the CDC and the rest of the federal government is really leaning forward. And we'd ask you to take a look at our website for all the information that we have about the use of ways to help people with social distancing, ways to help individuals prepare, ways to have healthcare systems prepare, homes prepare, and also for communities. There are a number of measures that can be taken at different levels that would help to prevent the spread of this virus.

So, we have made some recommendations recently about expansion of who should be tested or who can be tested. I think that that's in anticipation of testing capabilities that will be available sometime soon. There is a new release that was presented that was published today from Quest Diagnostics. It does indicate that they will be receiving requests for testing on Monday. Those tests will be performed at one of their laboratories on the west coast.

So, the turnaround time we be -- commiserate with what they normally provide for their reference services. Their throughput capacity seems to be very high. I've spoken with leadership from other of the commercial laboratories, and they are all moving very quickly to get their assays up and running under the new FDA guidance. And that means that perhaps next week we will see even more of these commercial assays available for ordering. So, we believe that that will help out, but in the interim, the testing is currently available only through the public health laboratories.

And the intent of those testings are really to first detect what's happening in the community, be able to understand what the transmission is happening in that community so that we can do the right public health measures. And then also to assist with clinicians in determining how best to handle things with infection control, what's happening in your hospital, monitoring healthcare workers and identifying if there are any infections in those individuals as well. So, I think for the short-term here until that testing is available through commercial laboratories, we will be dependent on the public health lab system. And we will be needing to have some system whereby the clinicians speak with the public health officials, the public health agencies to determine what's going to be the most targeted, the most useful from a both public health standpoint as well as from a--.

Doctor Jernigan, we seem to be having some audio difficulties.

Standpoint, and so that discussion is-- [Inaudible].

There have been 100 cases that a recent travel in China or other [inaudible] -- 53 cases are currently under investigation. Cases have been reported in 14 jurisdictions, including 13 states and one city. There are currently ongoing investigations of multiple

clusters involving at least two patients in multiple states. Recognizing persons at risk for COVID-19 who require testing is a critical component of identifying cases and preventing further transmission. With the increasing availability of testing, as Doctor Jernigan mentioned, clinicians can use their judgement to test any symptomatic person, even in the absence of travel history to affected areas or known exposure to another case.

This is a rapidly evolving situation, and the ability to quickly detect and respond to community spread of the virus in the United States will be key. With this rapidly evolving situation, practical considerations are important when making testing decisions. First, there are epidemiologic factors that might help guide decisions about COVID-19 testing. Documented COVID-19 infections in a jurisdiction and known community transmission may contribute to an epidemiologic risk assessment that may inform testing decisions. Clinicians should use their judgment to determine if a patient has signs and symptoms compatible with COVID-19 and whether a patient should be tested.

Most patients with confirmed COVID-19 have developed fever and-or symptoms of acute respiratory illness such as cough or difficulty breathing. Priorities for testing may include hospitalized patients who have signs and symptoms compatible with COVID-19 in order to inform decisions that are related to infection control in acute healthcare settings. Other decisions and other symptomatic individuals who might be considered for prioritization for testing might include older adults over 65 years of age and individuals with underlying medical conditions. With the increasing availability of diagnostic testing for COVID-19, clinicians will be able to evaluate potential cases and work with local and state health departments to coordinate potential public health response and coordinate testing currently through public health laboratories. COVID-19 diagnostic testing authorized by the FDA under an emergency use authorization is becoming available in clinical laboratories as mentioned.

This additional testing capacity will allow clinicians to consider COVID-19 testing for a wider group of symptomatic patients. Cases of COVID-19 should be reported to local and state health departments. Mildly ill patients should be encouraged to stay home and contact their healthcare provider for guidance regarding testing and clinical management. Patients who have severe symptoms, such as difficulty breathing, should seek care immediately. And older patients and-or individuals who have underlying medical conditions should contact their physician early in the course of illness.

Clinicians should consider testing for other causes of respiratory illness as well. When evaluating patients, clinicians should consider testing for any persons that include healthcare personnel or those who have had close contact, including those who have had close contact with a suspect or laboratory confirmed COVID-19 patient within 14 days of symptom onset. Additionally, those individuals who have a history of travel from affected geographic areas within 14 days of symptom onset. I'd like to turn it over to Doctor Vasquez.

Hi, this is Amber Vasquez with the Infection Control Team here. Just a reminder that I'm not going to be showing any slides, so I'm just going to be talking. And before I begin with my comments, I'd actually like to just thank all of you, all the providers that are on the line, those of you who are caring for a confirmed or suspected COVID-19 case and also helping to prepare your own facilities to potentially receive a case in the future. It's our role here at CDC to provide you with as much support, guidance, and technical expertise as we possibly can. But if you're on the frontlines making sure that safe and effective healthcare is maintained for your patients.

So, thank you very much for what you do. I have a few key messages that I'd like to communicate, and I'll use those to highlight some new or updated guidance that we've recently put up on the CDC website. I know many of you are already familiar with that guidance that we've put up on the web and are staying up to date on those. But the first thing I'd like to emphasize is that while we've learned a lot about COVID-19 over the past couple of months, there is still a great deal of unknowns regarding this virus. The situation is constantly evolving, and our guidance has been and will continue to evolve along with it as we learn more and as the situation changes on the ground, particularly given evidence of community transmission.

So -- but what I'll touch upon specific aspects of our recommendations, the second key thing is that the best way to protect yourselves, your patients, and visitors is to lean on established infection control strategies that all facilities should be implementing on a daily basis to prevent the spread of any respiratory viral illness. If a patient has signs or symptoms consistent with an undiagnosed viral illness, they should be immediately placed in standard contact and droplet precautions with use of eye protection. And these should remain in place while the etiology is unknown. As we have been supporting healthcare facilities over the course of this response, this has been one of the biggest challenges we've faced is that healthcare providers have been exposed to cases at higher risk levels when these precautions were not put into place. So, I would implore you to take an aggressive approach to identifying patients with possible respiratory viral illness and placing them and appropriate precautions as quickly as possible.

Additionally, standard precautions and common-sense practices remain the cornerstone of prevention activities and healthcare facilities. Effective triage and early identification of patients with respiratory systems, healthcare worker monitoring of their symptoms and avoiding work while ill, frequent hand hygiene, respiratory hygiene, and cough etiquette, environmental cleaning with a focus on high-touch surfaces, proper handling cleaning and disinfection of patient-care equipment. These are all practices that you are familiar with, and they remain the backbone of our recommendations to protect healthcare providers and patients from spread of any respiratory pathogen, including COVID-19 in healthcare facilities. And on that note of healthcare worker exposures, I'd like to discuss some recent updates to the interim guidance for healthcare personnel with potential exposure to COVID-19 patients that's been up on the website for a few weeks. But we just updated it, and that became available on the website last night.

So, please go check it out, but I'll highlight a few things. This guidance still takes a risk-based approach to assessing healthcare worker exposures to COVID-19 cases in a healthcare facility, monitoring healthcare workers for symptoms, and recommendations for work restrictions. But this re-stratification has been simplified in the table from the last version based on the most common scenarios and with a focus on presence or absence of source control measures, use of PPE by healthcare providers, and degree of contact with a patient. Some aspects of the recommended healthcare worker monitoring have also been revised. For example, healthcare workers with a low-risk exposure undergoing self-monitoring with delegated supervision, we've removed the requirement for healthcare facilities to actively verify the absence of fever and respiratory symptoms when those healthcare providers report to work.

And that's not optional. Healthcare providers can continue to take this cautious approach to risk assessment, monitoring, and work restriction. However, with community transmission of COVID-19 in the US being reported in multiple areas, contact tracing and risk assessment of all potentially exposed healthcare personnel has become impractical for implementation by healthcare facilities in those situations. And in the setting of community transmission, all healthcare personnel are at some risk for exposure to COVID-19, be that in the workplace or in the community. And devoting resources to contact tracing and retrospective risk assessment could divert resources from other important IPC activities.

So, we are recommending that those facilities shift emphasis to more routine practices. These include asking all healthcare personnel to self-report recognized exposures, regularly monitor themselves for fever and symptoms of respiratory infection, and not report to work when ill. Facilities should develop a plan for how they will screen symptoms and evaluate ill healthcare personnel, which could include having personnel report absence of fever and symptoms prior to starting work each day. There are additional recommendations for situations where healthcare personnel have had an identified exposure to a COVID-19 patient and contingency if the facility is experiencing staffing shortages. So, I'd encourage you to go onto the web and familiarize yourself with that document as you put your contingency plans in place.

Which leads me to my final point, which is that the time to prepare your healthcare facility for community transmission is now. While most of you are not likely experiencing any cases in your area or at your facility, and it's not possible to predict the future course of the outbreak, planning for a scenario in which many people become ill and seek care at the same time is an important part of preparedness planning to ensure that healthcare facilities can continue to care for all patients and improve outcomes if an outbreak actually occurs in your area. This past weekend, we posted a new set of guidance, titled Interim Guidance for Healthcare Facilities Preparing for Community Transmission of COVID-19 in the US. And this document outlines strategies that healthcare facilities can use to prepare for a possible outbreak of COVID-19, such as educating your staff, exploring alternatives to face to face triage and visits, planning to optimize your facility's supply of PPE, reviewing triage and management of patients with respiratory illness to ensure that all appropriate precautions are in place. And when you

develop that plan, communicating that to staff so that they are aware of what steps are being taken.

There are also recommendations in this guidance for actions facilities can take if there is already spread in the community, with some specific ideas on what can be done based on the setting, such as outpatient, inpatient, or long-term care. And for the sake of time, I won't go in-depth, as I'm sure you will read that guidance if you haven't already, but I will encourage you to utilize these tools and your local public health department as you take the opportunity now to prepare. And with that, I'll turn it over to Captain Lisa Delaney with our worker health and safety team.

Great, thank you. And thanks for the opportunity to speak today. As a reminder, I will not be showing slides with my portion of the call. CDC's goal is to provide sound infection prevention and control recommendations that protect healthcare personnel and are feasible and acceptable to implement. CDC has issued interim infection prevention and control recommendations for confirmed or suspected COVID-19 patients and healthcare settings, which I'm sure most of you are familiar with.

CDC's also developed guidance titled Strategies for Optimizing the Supply of N95 Respirators that describes a series of strategies or options on how to optimize supplies of disposable N95 filtering facepiece respirators, commonly called N95 respirators, in healthcare settings when there's limited supply. I'll discuss this document in more detail later in my presentation. And both of these documents can be found on the CDC COVID-19 website in the healthcare professional section. It's important to remember that the US healthcare system responds to infectious disease threats every day. The actions and strategies CDC currently recommends to stop the spread of SARS-CoV-2 are not new.

We have used many of these strategies for threats like influenza, tuberculosis, and measles. CDC is working with partners across the global supply chain and within the US government to evaluate and respond to reported shortages and personal protective equipment, particularly N95. Healthcare organizations should plan for increased demand and -- increased demand and decreased supply of PPE. Organizations should use existing preparedness plans plus knowledge about current PPE inventory, ability of vendors to fill orders, and local conditions as they pertain to COVID-19 when planning. Controlling exposures to occupational hazards is a fundamental way to protect personnel.

In occupational safety and health, we use the hierarchy of controls approach. The hierarchy is framed as an upside-down pyramid, where elimination of the hazard and substitution of less hazardous material are the most effective solutions. But we know that these are not typically options in the healthcare setting. However, exposure to transmissible respiratory pathogens can often be reduced or possibly avoided through engineering controls which isolate people from the hazard, and administrative controls, which are practices that change the way people work. Finally, PPE is the lowest on the

hierarchy, because its effectiveness involves a high level of worker involvement and commitment and is highly dependent on proper fit and use.

In the continuum of care, the following measures can be categorized as conventional capacity, which consists of providing patient care without any change in daily practices. This set of controls should already be implemented in general infection prevention and control plans in healthcare settings. Examples of measures that can be implemented include using physical barriers such as glass or plastic windows at reception areas and curtains between patients and properly maintaining ventilation systems to provide air movement and a clean to contaminated flow of direction. Consideration could also include limiting number of patients going to the hospital or outpatient setting, excluding all healthcare personnel not directly involved in patient care, excluding visitors to patients with known or suspected COVID-19, and implementing source controls, meaning place a facemask on patients, cohorting patients, and limiting respirator use during trainings. Strategies for conserving respirators include using alternatives to N95 where feasible that provide equivalent or higher protection than N95, such as other types of disposable filtering facepiece respirators, elastomeric respirators, or powered air purifying respirators.

Implementing contingency capacity actions may change daily practices that may not have significant impact on the care delivered to the patient or the safety of the healthcare personnel. These actions include decreasing length of hospital stay for medically stable patients, using N95 respirators after the manufacturer designated shelf-life for training and fit testing, and extending the use of N95s. And what we mean by this is for repeated close contact encounters with patients, the same respirator can be worn when caring for multiple patients without taking it off between patient encounters. Lastly, crisis capacity strategies, which are not commiserate with current US standards of care, can be considered when N95 supplies are running low. Considerations include using respirators beyond the manufacturer designated shelf-life that still perform with NIOSH standards for healthcare delivery, and prioritizing the use of N95 respirators and facemasks by activity type for healthcare personnel with the highest potential exposures, including being present in the room during aerosol generating procedures performed on symptomatic persons.

Before I conclude, I want to again remind you that the guidance related to the information I discussed today can be found on the CDC COVID-19 website. And with that, I'll now turn it over to Doctor Angela Campbell.

Good afternoon. I will not be showing any slides for my presentation either. I'm going to spend a few minutes in this section of the call reviewing the clinical, EPI, and risk factors for COVID-19, clinical manifestations, lab and radiographical findings. And then I'll speak a little bit about clinical management and treatment. And so, even as I speak, there are probably additional publications appearing online.

But I'm going to try to provide you with the information we know right now. So, most of the early reports that describe the clinical presentation of patients with confirmed

COVID-19 were limited to hospitalized patients with pneumonia. Although, there are starting to be more reports that include milder and even asymptomatic cases. Still, the bulk of the literature is from China and deals with these large case series of hospitalized patients with pneumonia. Like most respiratory viruses, the symptoms of COVID-19 are relatively nonspecific, and we're learning that SARS-CoV-2, the virus that cause COVID-19, can really cause a spectrum of disease presentations ranging from no symptoms to severe pneumonia and death.

So, in a recent review of all the patients confirmed in China, and that was about 44,000 I think, about 80% were noted to have disease classified as mild, which did include those with and without pneumonia. About 20% were severely or critically ill, and then I will just say that the proportion of truly asymptomatic infections is unclear as this -- and we don't know what that role will play in SARS-CoV-2 transmission. We still have a lot to learn on this, but I don't think we really even know the proportion of asymptomatic infection. So, speaking about risk factors for severe illness, in general, these are still being elucidated, but similar to respiratory virus like influenza, older patients and those with some chronic medical conditions appear to be at high risk for severe illness. So, in that same China report of more than 44,000 confirmed cases of COVID-19, and that was of February 11th, patients who reported no underlying medical conditions had an overall case fatality rate of 0.

9%. But this CFR was higher for older patients and patients for comorbidities. So, the case fatality rate among cases aged sixty years and older, it really nearly doubled by every 10-year increment. So, from sixty to 69 years it was about 4%, seventy to 79 years, 8%, and eighty and over it was 15%. And the CFR by chronic medical condition was about 10% for those with cardiovascular disease and then 6 to 7% each for diabetes, chronic respiratory disease, hypertension, and cancer.

But I will say, one problem is that those chronic medical conditions aren't separated out by age. So, I can't tell you how high the risk is if you're four-year-old versus a seventy-year-old with diabetes, for instance. It didn't break it down into that. Also, keep in mind, these numbers are from an analysis of the Chinese experience only. And I don't mean to tell you that these case fatality rates are necessarily going to mirror the worldwide experience or what we'll see in the United States.

But I think the relative comparisons among age groups and medical conditions are useful and helps us to get a sense of which people are at higher risk. So, we're now starting to see a spectrum of COVID-19 illness in the United States and other countries as well. From critical illness among people whom we might predict to be at high-risk, but also among some younger and apparently previously healthy adults. And then at the other end of the spectrum, we're seeing people of all ages with mild upper respiratory symptoms who test positive. I do want to make a comment about a group that we might have expected to have poor outcomes if we used seasonal influenza as a guide and that's children.

But based on limited data, so far symptoms of COVID-19 and the clinical course appear to be more mild in children compared with adults. Of those confirmed 44,000 COVID-19 cases in China, only about 2% were less than twenty years old and no deaths were reported among those less than 10 years old. So, there is some suggestion in a current, more recent publication that this 2% proportion of infected children may be increasing more recently the epidemic in China. And I'm sure we'll continue to learn more about the -- you know the real number and what that would look like for us. As far as symptoms, those reported in children are really very similar to those seen in adults, and I'll speak to that in just a minute.

Severe disease, that requiring ICU admission or ventilator support appears to be uncommon among reports of children with COVID-19 to date. As far as I'm aware, one 13-month-old child has been reported in the literature who developed ARDS and septic shock and required ICU admission and ventilator support, and that child did survive. So, the other point I would make is that risk factors in children have not been yet described, but it may be that children with underlying medical conditions and special healthcare needs are at higher risk of severe disease. So, moving to the clinical manifestations, frequently reported signs and symptoms of patients admitted to the hospital include fever. But I just want to say that not all patients have fever when they initially present.

And that's also true for children. It was reported that about half the time among children and publish reports they had fever at presentation. Other common symptoms for both children and adults include cough, myalgia or fatigue, and shortness of breath at illness onset. And then, other less commonly reported respiratory symptoms, actually, just to say I mentioned I said at illness onset but again, most of those reports are from people being admitted to the hospital with pneumonia. So, now that we're seeing more mild cases, they're not all going to have shortness of breath.

In fact, that sort of varied between three to 30% depending on which publication you look at it. So, it's not always present at the beginning. I didn't want to be misleading there. Some of the other reported respiratory symptoms include sore throat, headache, cough with sputum production or even hemoptysis and nasal congestion and rhinorrhea. Some patients in the literature and in the US have experienced gastrointestinal symptoms such as diarrhea and nausea prior to developing fever and the lower respiratory tract symptom and something that has been noted.

That may be an important feature of this disease is that some reports, in the literature and experienced in the US thus far, suggests that the potential for clinical deterioration is during the second week of illness. Though in various reports, the second week was when dyspnea developed, pneumonia was diagnosed, hypoxia developed. I think this is really important to be aware of. Pneumonia is the most common complication. In China ARDS developed in twenty to 30% of hospitalized patients with pneumonia and the median time from symptom onset to ARDS was eight days.

So, again just into that second week. Among critically ill patients admitted to the ICU there's a spectrum of support required including high-flow oxygen, and both non-

invasive and invasive mechanical ventilation. And again, In China, three to 12% were supported with ECMO. Other reported complications in the literature include cardiac injury, arrhythmia, septic shock, liver dysfunction, acute kidney injury, and multi-organ failure. And we have heard about each of these complications from clinicians caring for patients in the United States as well.

So, moving to lab and radiographic findings; common lab abnormalities reported in China and in the US among hospitalized patients with pneumonia on admission include leucopenia and specifically lymphopenia. This has been reported as highest in like at least 2/3 of the patients. And even if a leukocytosis present, we've heard from our US clinicians that there's still often a relative lymphopenia. It's so left shifted that the lymphocytes are actually decreased. Other abnormality that has been noted is elevated AST and ALT levels in about a third of patients.

For the most part, elevated procalcitonin has not been frequent. Most patients, if checked, had relatively normal serum levels of procalcitonin on admission but it's more likely to be elevated if it is found in ICU patients. We've also heard some reports of elevated creatinine and acute kidney injury, but this is not a predominant abnormality. Typical CT findings of COVID-19 include parenchymal lung abnormalities. Typically, bilateral multi-focal ground glass opacities sometimes with patchy consolidation.

Prior to CT or in patients in whom no CT has performed our US clinical colleagues have described bilateral interstitial infiltrates on chest X-ray. I didn't mention above but in the Chinese literature there's a low number of patients who reportedly developed bacterial or fungal secondary infection. This has been less than five to 10% depending on the publication. It's a little bit difficult to know how to interpret that because I would also note that corticosteroids are often given in China which may actually contribute to some of the secondary infections. We don't seem to be hearing about many bacterial or fungal infections here in the US with the exception of what are likely ventilator associated pneumonia.

There have not been many reported autopsies yet. Postmortem biopsies in one patient who died of ARDS reported pulmonary findings of diffused alveola damage. CDC has been working closely to provide assistance and testing on specimens from some of the recent deaths in the United States. So, we will learn more about the pathologic findings associated with COVID-19 soon. Clinical management and treatment as has been said by others; patients with a mild clinical presentation, they may not initially require hospitalization, and some may never, and many can stay home.

But as I mentioned before, clinical signs and symptoms may worsen with progression to lower respiratory tract disease in the second week of illness. And so, all patients, especially those older adults or with risk factors, should be monitored closely. Possible risk factors for progressing to severe illness, again, I think we feel pretty confident about the older age. We're still trying to tease out the underlying medical conditions. A lot of what we are reading in the literature is consistent with influenza, but we don't know that they're going to truly mirror each other.

So, for hospitalized patients clinical management includes prompt implementation of the recommended infection prevention and control measures and supported management of complications, really. I mentioned it before, but I just want to emphasize corticosteroids should be avoided. Both CDC and WHO recommend against the use of corticosteroids unless they're indicated for other reasons. For example, at COPD exacerbation. And this is because of the potential for prolonging viral replication.

As far as therapeutics or vaccines there currently are no vaccines or anti-viral drugs licensed by the FDA for the treatment of SARS-CoV-2. In the United States, the NIH and the collaborators are working on development of candidate vaccines and therapeutics. There are some in vitro. or in vivo studies that suggest potential therapeutic activity of different compounds against Coronaviruses. But there's really no available data from observational studies or randomized controlled trials in humans to support recommending any investigational therapeutics for patients with COVID-19 at this time.

I will mention remdesivir. It's an intravenous, investigational, antiviral drug. It's the nucleotide analog. Its clinical impact remains unknown, but it has been given to a small number of patients with COVID-19 both inside and outside the US on a compassionate use basis. In addition, in China to clinical trials of remdesivir have been implemented and in the United States there's an NIH randomized controlled trial ongoing in which remdesivir is the first drug to be studied.

And as of yesterday, there were two additional trials posted on clinicaltrials.gov by Gilead the manufacturer. Open label trials for remdesivir and hospitalized patients. There's also been interest in the combined protease inhibitor lopinavir/ritonavir which has in vitro activity against SARS-CoV. Not SARS-CoV-2 but the original SARS-CoV.

It also appears to have some activity against MERS-CoV and animal studies. But uncontrolled use of this agent has been described but the efficacy is really unclear. There is an open label trial in China. It was not a randomized trial and those results are not yet available. I really want to emphasize that this time public health efforts are focused concurrently on containing spread and mitigating the impact of this virus.

And the most important strategy against COVID-19 is supportive care of the patients that are hospitalized and the use of non-pharmaceutical interventions that in communities so that people in communities can help slow the spread of respiratory illness. And you'll find an entire section on our website dedicated to information on how we, as individuals and communities, can protect ourselves from getting and spreading respiratory illness. So, I think that I would point to all of the links on the slide that has been shown. It takes you to all of our resources. I would also mention the CDC EOC number which is on one of those slides.

It's 1-800-CDC-INFO. It is a way to get through to ask your questions. And I will stop my part of the presentation and open up for questions.

Presenters. Thank you for providing our audience with such a wealth of information on this rapidly changing outbreak. We appreciate your time in value your clinical insights on this matter. We will now go into our Q and A session. Please remember, you may submit questions to the webinar system by clicking the Q and A button at the bottom of your screen and then typing your question. Again, please do not ask a question using the chat button.

Our first question is regarding the significance of PUI criteria changes. Can you please elaborate on that and discuss the recent changes?

This is Doctor Gerber. The CDC criteria for testing patients for COVID-19 have been developed based on what's known about COVID-19, the limited information. The criteria change as additional information becomes available and that also includes changes in the geographic areas with sustained transmission of COVID-19. The overall epidemiologic characterization of reported COVID-19 cases in the United States.

Thank you for that. One of the more common questions that we're seeing from practitioners is that there is a lot of guidance available. What is the best way for providers to get updates whenever CDC releases new guidance?

Hi, this is Amber with IPC. I'll actually take that question though I don't think it's IPC specific. You know, there's a lot of guidance that goes up and it's hard to keep track. We don't expect you to, you know, sit all day, refreshing CDC COVID main page. But we would recommend checking the CDC COVID main page on a daily basis.

Guidance that has the newly posted or updated will highlight at the bottom under a box that says what's new and each of those things that have been recently updated or recently posted will have a date next to it. When you click on one of those links, if it was a revision to a prior guidance there should be a notification at the top of that individual guidance that indicates the dates when that guidance was updated. And there's, and we're now putting bullets, you know, few highlights, a few bullets highlighting the recommendations that have changed from the prior version. So, that's what we recommend for now.

Thank you. We also have multiple questions about the clinical trial drug remdesivir. Our practitioners would like to know if they want to acquire the drug for their patient what do what steps you to have to take to obtain it?

Hi, this is Angie Campbell. Right. So, I think I did mention when I was actually introducing remdesivir too, it actually is the one drug that does have in vitro data showing that it inhibits SARS-CoV-2 replication in nonhuman cells. But again, it's just in vitro. So, I just want to say we don't have human data yet before I tell you how you can get it.

There are currently three ways to obtain remdesivir in the United States. So, I mentioned that a small number of patients have received it for compassionate use. This

is outside of a clinical trial setting through an emergency investigational new drug request to the manufacturer. We have a webpage online. It's our clinical care guidance webpage that is one of the links on the slide that you were shown that has this information as well.

But Gilead has a medical information line webpage and, actually, they have kind of a nifty phone number. It's 866-MEDI-GSI. But it's kind of hard to remember but really you would contact Gilead and you would actually talk to them about all of these options. So again, the first one is the compassionate use. The second, as I mentioned, FDA has approved NIH to run an adaptive, randomized, double-blind, placebo-controlled trial.

This is an adaptive trial so it's actually not specific to remdesivir versus placebo. It will be used to look at other therapeutics as they come in the pipeline. But remdesivir is the first therapeutic agent being studied. So, it is IV remdesivir compared with a intravenous remdesivir placebo. It's on clinicaltrials.gov. The link to that specific trial is on our clinical care guidance webpage. If you search for it on clinicaltrials.gov, you just have to search for adaptive trial COVID-19 and not remdesivir because it is meant to examine a number of therapeutics. They have on-boarded quite a few clinical sites in the last week and I don't know how many more they will enroll but that's something that could be pursued.

And then, as of yesterday, there are two additional open label clinical trials of remdesivir that are being conducted by Gilead. These are for the treatment of hospitalized patients; one for moderate COVID-19 disease and one for severe COVID-19. They both are comparing regimens of five days to 10 days. The compassionate use regimen has typically been 10, although not all patients have gotten the full 10 days and the NIH trial also uses 10, I believe. But this new -- these open label trials are going to compare the duration.

There's several criteria that define moderate and severe. One of the main ones is that if their oxygen saturation is equal to or less than 94% it's considered severe. And then, there's other criteria that have to be met as well. So again, I would point you two our clinical care guidance that can that get you to these. The other places you can go directly to clinicaltrials.gov and look up the trials or to the Gilead website. And you can, if none of that is working for you, you can call the CDC info number that I mentioned at the beginning and we can assist.

Thank you. Another question we have is regarding influenza and COVID-19. The question asks is it safe to assume that a patient that a patient who tests positive for influenza does not also have COVID-19? Is COVID infection a possibility?

Hi. So, I'll start with that one. This is Angie Campbell again thinking about the wording is it safe to assume? I think what I can say is that as Doctor Gerber mentioned we do encourage ruling out other diagnoses and sort of thinking about the clinical scenario and the epi in your area. That and common things being common we're still we're still in flu season. That being said there, I don't think they're published but I've heard anecdotally

of a couple of instances of co-infection, not only with flu and COVID-19 but also of other respiratory viruses and COVID-19.

So, it doesn't -- now, I can't think of how it was worded. It doesn't mean it's safe to assume that it's definitely not but I think that's where you have to sort of go through as Sue described and think about your level of index of suspicion for COVID-19 based on some of the epidemiologic factors as well. Do you have anything to add?

No, not at this time.

No?

Thank you.

Thank you for that. Our next question is travel related. It asks should I test a patient for COVID-19 if they have traveled to King County, Washington?

Thank you for the question. This is Doctor Gerber. This is a rapidly evolving situation so I am not going to answer specifically about King County, but I am going to answer in a generality that would include factors to possibly determine how a patient who might be considered for testing. First, is the clinical picture. Is a clinical picture consistent with COVID-19? Are there other causes of this patient's illness that need to be considered and factoring in should this patient who should be tested? And also, what consultation with local and state health departments? And some of that is going through some of the risk factors.

What kind of travel to anywhere is important? Did that patient visit a health care facility, for example, or other potential risk factors where there might be COVID-19 patients? So, these are the types of decisions to be made, hopefully, between clinicians and consultation with their local and state public health departments to help determine appropriate testing. And as available testing widens and there's an increase in testing options this will, actually, will provide additional support for these types of testing decisions. Thank you.

Thank you for that. Our next question is equipment related and the question asks can respirators other than those approved by FDA be worn in health care settings?

Yes, that's a great question. This is Lisa Delaney. I know this has been a point of confusion. There's been some activity in this week that was a great opportunity to provide that information to you. The FDA regulates respirators intended for use in a health care setting.

And these respirators are referred to as surgical N95. However, CDC's National Institute for Occupational Safety and Health approved both the surgical N95, but they approve the whole suite of respirators including other disposable respirators that are at least as

protective as the N95s. These respirators are used in construction and other industrial settings and therefore don't need to go through that FDA requirement. That FDA requirement actually adds one more level of testing around fluid resistant so it helps protect against like blood splashes or sprays that might occur when providing care. So, these respirators are named based but the regular respirators, the industrial respirators, are named after their filtration efficiency and their ability to protect against oil.

So, they include N95s that aren't surgical, R99s, P100s, and there's a few others. But given the increased demand and supply challenges on the availability of the surgical N95, which is a very small piece of the market. Earlier this week the FDA granted as a CDC request for an emergency use authorization EUA. This EUA will allow healthcare personnel to use certain industrial respirators during the COVID outbreak in health care settings. So, this will help maximize the number of respirators that are available to meet the demands and required of the US health care system.

So, manufacturers or organizations who have stockpiles are able to submit opt into this EUA a request to the FDA in order to have their products added. And then, FDA will be adding those products that they granted the EUA onto their website so you can get that information on the FDA website.

Thank you. We have another question related to similar topic. What is the risk of transmission due to surface contamination in health care facilities?

Hey. This is Amber IPC, Amber Vasquez, IPC. We don't have much data in terms of, you know, there's some scant data in terms of how long SARS-CoV-2 can survive on surfaces but it's not definitive and we really don't have data about how that may or may not translate to actual risk of transmission. But there are two important points I'd make. One is the paramount importance of washing your hands.

The main risk of transmission from services is through contamination of one's hands and subsequent self-inoculation from touching your mouth, nose, or eyes. So, as you already know frequent hand hygiene is just really critical. The second is that we recommend continuing standard practices for cleaning already established at your facility using an EPA-registered, hospital-grade, disinfectant with an emerging viral pathogens claim. Or, if that's not available, products with label claims against human Coronavirus and using those in accordance with label instructions and then focusing on the cleaning of high touch services.

Thank you very much. Our next question asks what guidance does the CDC have for outpatient clinics?

This is Amber again. So, I guess I would reference the guidance that I've already talked about and the recommendations that I've already said earlier in this conference, is that the strategies that I outlined the CDC recommends for IPC is applicable to all health care facilities, including outpatient settings. And these are the same practices that outpatient clinics employ to prevent transmission of other respiratory viruses during cold

and flu season. Patients with respiratory symptoms need to be quickly identified, placed in a face mask for source control of respiratory secretions, and separated from other patients or visitors in the waiting room. You probably already have but to, of course, you know, placing lots of signage and educational materials about hand hygiene and respiratory etiquette, et cetera, for your patients is also important.

And the guidance that I mentioned earlier in terms of health care facilities preparing for community transmission of COVID-19 also does outline some ideas for things that you can do to prepare your clinic if there is community transmission. Such as using your telephone system to deliver messages to incoming callers about when they need to seek medical care, be that in your office, or an urgent care, or emergency room and that they should, whenever possible, they should know how to call in advance. If they have symptoms concerning for COVID-19. And there's a number of other recommendations. So again, I would encourage you to go onto the website and check that out.

Actually, this is Angie Campbell. I would just add a comment to what she was mentioning. We're actively working with the health care system team to come up with triage algorithm that could be used both as a self-assessment tool but also by clinics and institutions and telehealth. There's a huge telehealth conference today, actually, to develop phone triage line systems. Not my area, I can't think of the right word.

But to help implement that in various systems.

Thank you. Our next question asks do CT scans have a role in the diagnosis of COVID-19?

Hi. This is Angie Campbell. Yeah, we've been asked that several times. And although CT was primarily used for a radiographic pneumonia diagnosis of COVID-19 and reports from China, in the United States we're not recommending or using chest CT to diagnose COVID-19. We really don't have data that support recommending CT over chest X-ray for clinical management and PT recommends diagnosis using RT-PCR testing for SARS-CoV-2, as you know, and not imaging.

So, really not recommending that here. I guess one study I read that I thought was rather interesting actually looked at the time of presentation of different groups of patients and about half of patients who presented within two days of the symptom onset actually had a normal CT at that time. So, I just think, you know, we really want to keep the focus of diagnosis on the RT-PCR testing.

Thank you. Can you please elaborate on the risks and recommendations you have for long-term care facilities in managing suspected or confirmed COVID-19 cases?

Thanks. This is Amber again. Yeah, say a few critical things which again will highlight the importance of precautions for any undiagnosed respiratory illness. One, to avoid introduction of any respiratory illness into the facility, educating the staff and visitors,

posting signage at the entrance, instructing visitors not to enter if they have any symptoms of a respiratory infection. Ensuring that there are sick leave policies in place that allow staff to be able to take off work if they're ill so they don't have to come in, and assess any incoming residents to the facility for signs of respiratory illness so that appropriate infection prevention practices can be put into place.

The second thing is, again, to employ all those appropriate infection prevention practices for any undiagnosed respiratory illness. So, that includes monitoring the staff and residents for fever, respiratory illness, and again, keeping staff off work if they if they do have any symptoms. But for residents with any unknown respiratory illness restrict them to their room unless it's medically necessary. If there's a procedure that needs to be done, at which point, they should be put in a face mask for source control. Put a sign on the door indicating that precautions need to be taken and ensure that the appropriate PPE is put outside the door with a trash bin nearby so that they can be disposed of appropriately after exiting the room.

And that PPE, again, is going to include standard contact and droplet precautions. So, gown, gloves, facemask, and eye protection. And then, you know, ensure that staff know that they need to use those precautions every time they have a patient encounter. Third is to stay up to date on the status of COVID transmission in your community. If there's evidence of community spreads in addition to the precautions that I already mentioned, you should get in touch with your local public health authority to see if there are any additional guidance that they would recommend.

And lastly, if at any time you suspect that a resident or an employee may have COVID-19 just immediately notify your local health department as well as your state HAIAR coordinator.

Thank you. We have time for one last question. Question states do children have different symptoms of presentation when compared with adults? And what about very young children or infants?

Hi, this is Angie Campbell. Well, as I mentioned, limited reports of children with COVID-19 in China have described basically cold like symptoms such as fever, runny nose, and cough. Vomiting and diarrhea have also been reported in at least one child with COVID-19. There was a case series of hospitalized infants that range from one to 11 months of age. That was the series, actually, where half presented with fever; the other half did not, and they all had a very mild illness course.

In fact, they probably didn't actually need -- I don't think they all met medical criteria for hospitalization but again, they were COVID positive or SARS-CoV-2 positive. I did mention that there was that one 13-month-old child with severe disease but children with severe illness haven't yet been commonly described in the literature. There have also been some interesting reports of asymptomatic or relatively well children with SARS-CoV-2 RNA detected in their respiratory samples for up to about three weeks after symptom onset and another report where it was in the stool for a month after

symptom onset. And then, there was a very recent case report of a six-month-old infant. This infant was admitted to the hospital because the parents both had COVID-19 and the infant had no symptoms at the time but tested positive.

The infant had detection of SARS-CoV-2 RNA in the nasopharyngeal blood and stool specimen, actually at very high levels and didn't actually have any symptoms except a fever about two days after admission: one recorded temperature of 38/5. So, children are a little bit mysterious at this point. Still, lots of mild asymptomatic disease but certainly potential for severe illness. And I think I mentioned before, it's just really not clear what this asymptomatic viral detection. It's not clear what that role will play in transmission either from children or for adults.

There are several adults, lots of adults out there now that have been documented to have asymptomatic viral detection. So, we just don't have enough evidence at this time to say what that means or to say any really more extensive information about the presentation of children. But I actually take this opportunity to mention we're in the process of putting together a joint COCA call in the near future where we'll talk about what is known about children in more detail as well as about pregnant women and I can take this opportunity to say that there's very little out there about pregnant women, frankly. There was one Chinese paper that had 147 pregnant women and I think about only like sixty some of those were confirmed, the rest were suspected. One percent of them were noted to have critical illness and 8% had severe disease.

So, that's kind of all I could find, really, about pregnant women. We still have a lot to learn about that, but there are some good guidance documents on the web about infection prevention approaches to pregnant women and also some FAQs about pregnant women, children, and breast feeding. Sorry, long answer, but thanks for that.

Thank you very much. On behalf of COCA, I would like to thank everyone for joining us today with a special thank you to our presenters. The recording of this call will be available at emergency.cdc.gov/coca.

The recording will also be available at COCA's Facebook page at www.facebook.com/CDCClinicianOutreachAndCommunicationActivity. Again, that is www.facebook.com/CDCClinicianOutreachAndCommunicationActivity. To receive information on upcoming COCA calls or other COCA products and services join the COCA mailing list by visiting the COCA webpage at emergency.cdc.gov/coca and click on the join the COCA mailing list link. To stay connected to the latest news from COCA be sure to like and follow us on Facebook at [facebook.com/CDCClinicianOutreachAndCommunicationActivity](https://www.facebook.com/CDCClinicianOutreachAndCommunicationActivity). Again, thank you for joining us for today's call and have a great day.