



AMA, FDA video update: The critical role of health care professionals during COVID-19

The AMA and Reagan-Udall Foundation hosted a live video conversation with Stephen M. Hahn, MD, commissioner, U.S. Food & Drug Administration, to discuss the critical role of medical professionals during COVID-19.

Moderated by AMA President Susan R. Bailey, MD, Dr. Hahn outlined the FDA's response during the pandemic, challenges presented and information on the latest developments.

Event schedule and speakers

Welcome

Susan Winckler, RPh, CEO, Reagan-Udall Foundation for the Food and Drug Administration

Opening remarks

Susan R. Bailey, MD, president, American Medical Association

Remarks

Stephen M. Hahn, MD, commissioner, U.S. Food and Drug Association

Questions and answers

Moderated by Dr. Bailey

Transcript



August 10, 2020

Dr. Winckler: Good afternoon, everyone. And welcome to this video conversation, or good morning if you're joining us from the West Coast. My name is Susan Winckler, and I serve as the CEO of the Reagan-Udall Foundation for the FDA. And we are pleased that you could join us for this important conversation with Commissioner Hahn. The foundation is a nonprofit, non-government organization created by Congress to advance the mission of the FDA. And helping to host today's webinar is one small way that we can do so. And we're honored to help make the connection. As a pharmacist myself, I'm aware of the countless contributions of health care professionals during the ongoing pandemic and appreciate each of you taking time to join us today.

I have a few housekeeping notes as we get started, and then I'm going to turn things over to Dr. Susan Bailey to help moderate the conversation with Commissioner Hahn. So our important housekeeping notes. It will be helpful with bandwidth if you turn off your transmitting video and then we can focus on commissioner Hahn and Dr. Bailey. Also, stay on mute so that we can minimize background noise. But we do want to hear your questions. So to submit questions, please go to the chat function and that's that little circle towards the bottom and you can submit a question to either the presenter or to the host. And we will make sure that that gets to Dr. Bailey and Commissioner Hahn so that they can consider that in their dialogue. With that, I'm going to say thank you, Hahn, for joining. And I'm going to turn the microphone over to you, Dr. Bailey.

Dr. Bailey: And thanks to the Reagan-Udall Foundation for sponsoring this. It's a wonderful opportunity. My name is Dr. Susan Bailey. I'm president of the American Medical Association. And it's my great pleasure to welcome you to this virtual event, examining the critical role of health care professionals during the COVID-19 pandemic. Joining us today is Dr. Stephen Hahn, commissioner of the U.S. Food and Drug Administration, who'll provide us with the latest information about COVID research, vaccine development, and discuss the role of the FDA and its partner agencies to help turn the tide in this pandemic. Then Dr. Hahn and I will answer your questions and we'll conclude with some final thoughts on where the massive pandemic response effort goes from here.

It's amazing to think back at all that's changed in our communities and in our country in just the last few months, and all of us at the AMA salute the heroic physicians, nurses and other health care workers on the front lines who have worked tirelessly and courageously to contain the spread of this deadly virus. Your heroism in the face of such a formidable foe has been truly remarkable and also a source of inspiration for me as I'm sure it's been for everyone who's dedicated their life to improving the lives of others.

On behalf of every one of the AMA, I send my most sincere and heartfelt thank you and yet we still have a long road ahead of us against this virus. And so I want to say thank you too to the people at every state who have made great sacrifices in service of public health, wearing masks and maintaining a safe distance from others and heeding the advice of public health officials to minimize the risks to

themselves and their loved ones. All of us, I think, are seeking any ray of hope we can find in this pandemic, which is why our ears perk up every time we hear about or read news reports that suggest a COVID-19 vaccine is right around the corner. But the reality is that developing, testing, manufacturing and distributing a vaccine is a complicated and time-consuming process.

Given the urgency of this moment, normal vaccine development timelines are being compressed and public private partnerships have been formed to provide funding. But the need for safety and efficacy must remain our priority. We cannot sacrifice the trust and well-being of our patients in our eagerness to develop a cure for this virus. We can't seek to end one health crisis by inviting another. Now, I know Dr. Hahn shares our view on vaccine safety, and in his remarks today, he'll talk about the role of the FDA in the process to develop new COVID-19 tests, vaccines, and therapeutics in the months ahead. And we'll save plenty of time at the end to answer your questions. So without further ado, please welcome FDA Commissioner, Dr. Stephen Hahn.

Dr. Hahn: Dr. Bailey and Dr. Winckler, thank you so much. It's great to be here with the AMA and the Reagan-Udall Foundation. As a former member of the AMA, I know how important your role is in American medicine. And I want to second what you said, Dr. Bailey, about thanking the health care workers of this country. One thing we've learned is that the heroic and they truly are heroic efforts of our doctors, nurses and other providers really just made an amazing impact on the outcome of patients with COVID-19. And I thank them for their service to our nation and to the people of this country.

I'm really pleased to have this opportunity to have a dialogue with you today about COVID-19, the FDA's role in responding to this public health emergency and the continuing challenges the agency in the medical profession face as it continues to evolve. And I'd like to begin by thanking all of you, Dr. Bailey, the American Medical Association for hosting and moderating this event today, as well as the Reagan-Udall Foundation for their continuing support of the FDA. And of course, again, reiterating the thanks to all the physicians and health care professionals who are on the call today, your incredible work, your thoughtfulness and your commitment during this challenging time is very much appreciated.

So I wanted to start by talking about the heroes that are among us, the patients who have gone through COVID-19, as well as the heroes who have emerged from this crisis, the health care professionals. The nation is so indebted to you into the work that you have done in your service to all of us. As we move forward, we know that the pandemic continues to evolve and the health care community must continue to deliver high quality care to all patients. And I am certain that that will happen. Fortunately, we have made, thanks to the great work of our health care providers, significant progress in our understanding of this disease. Our ability to combat it and our efforts to help patients suffering with it.

As health care professionals and scientists, we understand there are no easy answers. We still have so much more to learn about this disease with many unanswered questions. And we need to not only treat patients with the disease, but also prevent the spread of the disease as we seek effective therapeutics. And importantly, as Dr. Bailey said, a safe and effective vaccine. Today, I want to talk to you about some of these challenges and about the nature and the importance of science and data as we search for answers. I also want to speak with you in your role as doctors and other health care professionals who are dealing with the very practical questions involving patients and experience that I understand and empathize with from my own practice as an oncologist. Most importantly, I want to reassure you that the decisions that FDA will make in the coming months with regard to new tests for COVID-19, new therapeutics, and new vaccines will be based on good science and sound data. Nothing else will be used to guide our decisions.

Because of the speed with which we need to make decisions, there has been discussion about whether FDA will compromise any of our scientific principles in reviewing data and making decisions about new products. Let me assure you that we will not cut corners. All of our decisions will continue to be based on good science in the same careful deliberative processes we have always used when reviewing medical products. It's important that you as medical practitioners not only understand this commitment, but that you reassure your patients as well. We have seen surveys reporting that significant percentages of the public would be reluctant to take a vaccine once available. And we hope that you will urge your patients to take an approved vaccine so that we can seek to establish widespread immunity.

I pledge to you again that the decisions made by FDA will be based on good science and good data. And to the extent that we can by law, we will be transparent to the processes that we use to make those decisions. I ask in turn for your pledge that you'll urge your patients to follow the self-protection measures needed now to control the spread of the virus. But also, I hope you'll feel confident in the use of the therapeutics and the vaccines that might, in the future, have FDA's endorsement.

We can emerge from this emergency only by working together. We know that the overwhelming quantities of COVID-19 information and data that seem to continually be expanding can place a significant burden on you as clinicians seeking to respond to patient questions, and when appropriate, modify treatment recommendations. Indeed, COVID-19 is affecting the practice of medicine in many ways. And the FDA has, in my opinion, an important role to play in supporting providers and patients through this evolution. Although it seems as if we've been engaged in the battle against COVID-19 for a very long time, in the broader context of disease in science, it's actually been a relatively short period.

Consider that as recently as this January, just six months ago, few people other than a limited group of health care professionals and infectious disease experts had ever heard of the novel coronavirus. It's easy for me to recall just how recently SARS-CoV-2 appeared on our national radar. That's because

the first reports of the outbreak began just weeks after I was sworn in as FDA commissioner. I'd like to share with you my own experiences and what I've learned in the past six months. From the very beginning, this has been a perplexing and challenging medical mystery presenting far more questions than answers. Even for those who have followed this public health crisis from its earliest days, little information on understanding of the disease was available. We didn't know, for instance, basic things such as how aggressive, virulent or contagious the virus was. And of course in a health emergency, information is our ally, and accurate information is our ally.

Now, that's not a comfortable position for health care professionals who like to be well-informed particularly when we work at agencies charged with protecting the American public. I learned quickly that despite the relative lack of knowledge, we at the FDA had to make decisions about relative benefits and risks with the data we had. The FDA regulates the safety, effectiveness and quality of all medical products, drugs, vaccines and medical devices. We also regulate food safety, which of course is critical during crisis like this. There is always a steep learning curve in the response to a public health emergency particularly when it involves a new disease, but this learning curve has been especially steep for all of us.

I am trained as many of you know as a clinical scientist and a radiation oncologist. And when this pandemic emerged, I conveyed to the leadership and staff at the FDA that even in the face of a public response to this emergency, we at the FDA need to apply scientific rigor to any decisions being made no matter how quickly they needed to be made. It was reassuring to me that the FDA leadership and staff agreed wholeheartedly with this approach. This is how the FDA has always functioned in its role as a federal agency that makes regulatory decisions based on scientific rigor. We at the FDA and you as health care professionals have had to respond to challenges like these in real time. For this pandemic in particular, for the FDA, this has meant supporting the development of safe and effective medical countermeasures.

These actions also included ensuring that our front-line health care workers had and will continue to have the necessary protective equipment. Since the beginning of this pandemic, FDA scientists have been immersed in providing a central regulatory advice, guidance and technical assistance needed to advance the development of tests, therapies and vaccines. And it's meant that we have been vigilant in seeking to prevent the sale of fraudulent products that could harm the public. And we've certainly seen that during this pandemic. To be successful in each of these efforts, we've been working hard to strengthen the scientific response. We've done this by supporting collaborative efforts, creating open communication channels, and building public private partnerships.

Dr. Hahn, continuing: Let me give you an example. The FDA has created resources like reference grade sequence data for SARS-CoV-2 to support research and reference panels for COVID-19 diagnostic tests. In order to support the development of further testing, the agency has supported the NIH's public-private partnership for therapeutic and vaccine development. And the FDA has also

partnered with a number of other external stakeholders to gather real-world evidence such as the Reagan-Udall Foundation to help inform our understanding of the natural history of COVID-19, drug utilization, and performance of COVID-19 diagnostics and therapeutics. I am so pleased that many of you and the professional organizations you are part of have been involved in some of these collaborative efforts.

It's essential that we bring forward the best ideas and innovations to support the development of new and effective treatments. Working together has been an instrumental part in our ability to come so far and so fast. And it's my sincere hope that many of these approaches will become permanent fixtures in our regulatory approach. Now, this approach is consistent with and indeed goes to the core of FDA's mission. We constantly gather new information and evidence about the disease to inform our actions. As we learn, we discover more answers, but that in and of itself is not enough. We must continue to be vigilant and aggressive, constantly reviewing, evaluating the data as they emerge.

The principle underlying this, that our decisions must not only be informed by the most rigorous data and best science, but also that the evidence on which we base our continuing review is regularly refreshed and expanded through new experiences and opportunities is a basic approach of science. All scientists and doctors do this as we evaluate data and we evaluate patients. And it's certainly a personal principle that has been a priority for me throughout my career as a physician and researcher. We are learning more every day. For example, as doctors have treated more cases of COVID, it has become clear that it is not just a respiratory element, but can affect many other organ systems, including the kidneys and heart, and can also cause vascular complications.

And although initially many of us believe children were not significantly affected by the COVID-19 virus, subsequent reports from across the United States and Europe show that some young COVID patients were found to have pediatric multisystem inflammatory syndrome or PMIS. Now, these cases exhibited clinical features very similar to Kawasaki disease, a rare inflammatory disease primarily affecting young children, which causes blood vessels to become inflamed or swollen throughout the body. Similarly, some dermatologists revealed that some of their patients who were later diagnosed with COVID-19 had symptoms that could be due to vasculitis, including frostbite like pain, small, itchy eczema-like lesions on their extremities and red and patches of skin.

We're all concerned about the reports of rising case counts in different locations across the U.S., particularly in the Sun Belt states. The emerging data also continue to confirm the disproportionate impact of the disease on different communities based on age, ethnicity and race. And as health care providers, this must be top of mind for us. The coronavirus task force of which I am a member continues to carefully analyze and monitor the prevalence of the virus throughout the US using the best available science to track, predict and mitigate the curve of the outbreak. We are closely watching the entire country and working to determine the reason behind any new outbreaks or the spread of the disease.

At the FDA, our work goes beyond analyzing the numbers. Our responsibilities involve a range of efforts relating to the diagnosis, response, and treatment of COVID-19 and supporting solutions to bring an end to this crisis. This includes facilitating the development of tests, both diagnostic and serologic, supporting the advance of treatments and vaccines for the disease and working to ensure that health care workers and others have PPE and other necessary medical products to combat it. Since day one of this emergency, our focus in addressing these challenges has been to meet the need for speed, to facilitate the development of new treatments and effective tests and to make sure we had adequate supplies of essential medical equipment such as ventilators.

Now, we've redoubled our efforts to employ regulatory flexibility and streamline processes where they're needed and where they're appropriate without compromising the science. The goal has been to use every available tool in our toolbox to move new treatments to patients as quickly as possible while ensuring as best as possible the safety and efficacy. We're moving equally fast in our efforts to help support the development of COVID-19 vaccines. As this audience is well aware, preventive vaccines for infectious diseases are foundational to modern public health. The FDA is committed to ensuring the potential vaccines for COVID-19 are safe and effective.

In late June, the agency issued a guidance outlining key recommendations for vaccine development. In particular, the agency emphasized the importance of recruiting diverse populations, especially those patients who have been disproportionately affected by the pandemic. The FDA also recommended in that guidance that sponsors use an endpoint estimate of at least 50%, which could have an important impact on an individual and public health while vaccines with a lower efficacy may not. Now, there's been a lot of questions about this and I'm very happy to address that endpoint in our question and answer session. Several COVID-19 vaccine candidates have recently initiated large-scale clinical trials. And while I cannot predict when the results of these studies will be ready, I can promise you that when the data are available, FDA will review them using its established rigorous and deliberative scientific process.

We all understand that only by engaging in an open review process and relying on good science and sound data can the public and you as providers, have confidence in the integrity of our decisions. One important tool we have used during the public health emergencies to support the scientific investigation is to employ our emergency use authorization authority, otherwise known as an EUA. An EUA allows the use of unapproved uses of other medical products to diagnose, treat, or prevent serious or life threatening diseases or conditions when certain criteria are met, including that there are no adequate approved and available alternatives. These EUA decisions have been an important part of FDA's efforts to shape an effective and timely response. Although EUA decisions are based on emerging scientific evidence, we are continually evaluating and reevaluating them. We look at the data in order to ensure that the known and potential benefits of products outweigh the known and potential risks.

Since the earliest days of the pandemic, we'd issued EUAs for tests, ventilators, and drug treatments. The FDA in fact has issued more than 190 EUAs for COVID-19 tests and reviewed more than 200 clinical trials for potential therapies. Nevertheless, we understand that the pace of FDA announcements and decisions can cause confusion for the public and providers. For instance, some of you may be wondering whether an EUA changes the approach being used to develop drugs or vaccines. What all doctors should know and I hope tell their patients, about what's going on is that with these drugs. So these questions about what goes into an EUA and what drugs are under development and which are the safe and most effective, these are really a good opportunity for me to communicate with you about what we're doing here, but also for you to communicate with your patients.

Let me reiterate that although EUAs may be made on the basis of an emergency basis, they are still guided by science and the continuous review of the most recent up-to-date data and evidence available. Even after an EUA is issued, we regularly review that decision based on emerging information. We make any necessary changes as appropriate. This dynamic process is continually being informed by new data and evidence, and it always seeks to balance the risks with the benefits of every COVID-19 treatment. Take testing, for example. Since day one, tests have played a key role in the ability to understand and manage this disease. Good, accurate, and reliable tests can help reveal who has the disease, or by virtue of the antibodies in someone's system, who might have been affected with the virus.

We've worked with hundreds of test developers, many of whom have submitted emergency use authorization request to the FDA for tests that detect the virus or antibodies to it. In light of the circumstances, FDA's goal has always been to provide the necessary regulatory flexibility to support developers and to provide what patients and the public need quickly and as possible without compromising safety or scientific review. Early on in this pandemic, the FDA posted a policy that explained under certain circumstances FDA did not intend to object to the use of tests that were developed and validated by the laboratories themselves prior to the authorization of an EUA request. There was a national demand for such tests, and we thought it was an appropriate decision to exercise regulatory flexibility concerning the use of these validated tests.

It soon became evident that some of these self-validated tests were not reliable. And then FDA moved quickly to update its policy in response to available information. Today, we have nearly 200 reliable authorized tests, and we continue to monitor the performance of these tests and encourage the development of new and better tests that will enable us to understand the disease and help patients in the medical community address the challenges as we move forward. Now, as we have done from the beginning of the pandemic, we will continue to balance the pressing need for access to diagnostic and antibody tests and with our help to ensure that available tests are accurate and reliable. This is key. The same approach applies to potential treatments for COVID-19. We work closely with partners throughout the government, academia, and drug and vaccine developers to explore, expedite, and facilitate the development of products and to provide guidance and technical assistance to drug

manufacturers to expedite clinical trials.

Our Coronavirus Treatment Acceleration Program, or what we call CTAP, which we launched in March has helped to focus the scientific and technical expertise of the agency staff to review potential products according to their scientific merit. By providing enhanced regulatory support, FDA has been able to support the initiation of more than 200 trials for COVID-19 therapies over the past few months. It's really a staggering number. This work is essential, returning us to semblance of normalcy, after all, we do need treatments and cures. But there's a corresponding aspect of the FDA's work that is also essential. This role is to support you as physicians and medical providers to answer your patients' questions. And certainly explaining the process as complicated as it is, is an important piece of the response. To understand this, it may be instructive to look at some of the actions we've taken with several drugs, each of which were granted in EUA and that received significant public attention.

Back in March, the FDA granted an EUA to allow the drugs chloroquine phosphate and hydroxychloroquine sulfate to be used to treat certain hospitalized COVID-19 patients when a clinical trial was unavailable or when participation in a clinical trial was not feasible. Early, but very limited research indicated that the drugs which are approved to treat malaria and have a very well-understood safety profile might be safe and effective for treating COVID-19. After the EUA was issued, the FDA continued to monitor the emerging clinical evidence on the use of these drugs in COVID-19 patients.

And based on null results from randomized control trials and further analysis of clinical pharmacology information, the FDA determined that chloroquine and hydroxychloroquine are unlikely to be effective in treating COVID-19 patients who are hospitalized, those who are covered in this EUA, and that they no longer met the legal criteria for emergency use. As a result, we wrote that EUA in June. Separately, the FDA issued an EUA for the antiviral drug remdesivir in May. A randomized trial led by the NIAID found that remdesivir helped to reduce the length of hospitalization for COVID-19 patients. Additional trials have been completed or are planned to help us understand the appropriate role for remdesivir in this COVID crisis.

Because of the nature of this pandemic, there may be confusion or a lack of understanding about the actions we've taken on therapeutics. We rely on the medical community to answer patients' inevitable questions about treatments and vaccine development. Remembering of course that FDA does not regulate the practice of medicine, it is our responsibility at FDA to provide you with the information you need for your patients. The fundamental message that we need to communicate is that the FDA's decisions are based on science, that decisions sometimes change based on careful review of the most recent evidence, and that we are committed to ensuring that the drugs we approve are safe and effective based on the reliable data that we receive.

Physicians and other health care professionals have other important roles and responsibilities and we realize that. When they share with the FDA is to help ensure that the public gets the products they're being promised and to be aware of and avoid scams being perpetrated on them. The FDA regularly

warns consumers to be cautious of websites and stores selling products with unproven claims to prevent, treat, diagnose or cure COVID-19 or use unauthorized tests. The FDA has not evaluated these fraudulent products for safety and effectiveness and these products might actually be dangerous to patients.

To help tackle the issue of health fraud during the pandemic, the FDA has launched Operation Quack Hack, which monitors online marketplaces for fraudulent products and identifies misinformation about COVID-19. The agency has unfortunately (but fortunately) identified more than 700 fraudulent and unproven medical products related to COVID-19 and has collaborated with the Federal Trade Commission to issue warning letters to firms marketing products with misleading claims and sent more than 150 reports to online marketplaces and more than 250 abuse complaints to domain registrars to date. We make most of this information available on our website and encourage doctors to become familiar with this resource and share their information with patients. Physicians have an important role in this area because of your ability to identify and track patients who take illegitimate or black market drugs. Now, remember, there is currently no cure for the coronavirus, and it's important for doctors to help inform patients about dangerous products and unscrupulous marketers who may be selling products with false or misleading claims.

Now, six months into the pandemic, I believe we've made important progress. Yet with cases continuing to rise, it's evident that further action is needed for our country to chart a course for recovery. Our agency is launching something called the Pandemic Recovery and Preparedness plan, PREP, to help systematically review FDA's actions to date and identify lessons learned. We all know in medicine that a look back on our actions can help us be better health care providers. This is the important part of the PREP program for FDA. Our goal is to both make needed adjustments to the ongoing COVID-19 response as well as improve our capacity to respond to public health emergencies in the futures.

As doctors, we ensure that our treatment plans for our patients are adjusted according to the latest evidence. I believe the same principle applies to the FDA, which is a science-based agency, committed to the continuous improvement by examining the data and modernizing our approaches when needed. As we identify lessons learned and make subsequent changes, we are committed to proactively communicating any forthcoming regulatory changes to doctors and other health care professionals.

Though we don't have all the answers, what we do know is that COVID-19 virus will be with us for this foreseeable future. We are still far from understanding every aspect of this disease, but the FDA will continue to operate with patient safety and scientific integrity is our North Star. It is this approach that continues to guide the development of new technologies and necessary regulations for safeguarding public health for the present and the future. Our goal is to provide you with the information and understanding you need to ensure that patients receive the support and attention and treatment they

deserve. We had FDA look forward to working with you to achieve that goal. We very much want to engage you as an important stakeholder in the PREP process and have a bidirectional conversation. And I'm very pleased to have that start today. Thank you.

Dr. Bailey: Thank you, Dr. Hahn, for that very thorough review of FDA's actions during the pandemic. We've already got some great questions coming in. I have several questions about testing. Concerns about our struggle was supply chain and capacity issues for PCR diagnostic tests, delays and getting the results of these tests, shortages of reagents with overwhelming demand. What is the FDA's status looking at widely available screening tests? Can you tell us your perspective on some of the non-PCR screening tests? And are there any in the pipeline, should we see more of these coming available soon?

Dr. Hahn: Dr. Bailey, that is an excellent question. And as someone who was on the front lines nine months ago, I can only imagine the frustration of having to wait four to six days for a test to come back. I think we are making some progress there, but there are issues out there particularly with some of the commercial labs. And what FDA does is we are constantly looking at new flexibility around reagents, pooling strategies that allow us to spare reagents. But importantly, just as you described, some of the other tests beyond PCR tests that can be done to make a diagnosis. So as many of you know, we have authorized the use of an antigen test, which is a non-PCR-based test for COVID-19. Now, the good news is they're cheap, they're inexpensive, excuse me, and they can be scaled up very quickly so that to meet demand.

We have a number of those in the pipeline that we're expecting to receive authorization fairly soon. And my hope is that these authorizations with the subsequent scale up of the antigen test will allow the country to meet the demand. Now, we all know and this is a really important part of this I think for providers, we all know that no test is perfect. And some of the antigen tests don't have the same level of sensitivity that the PCR tests might have. Now, FDA's commitment to providers is that we will be transparent about the operating characteristics of the test. So that, for example, if I have someone in the office who I suspect has COVID-19, I do a rapid screen test and it's negative, I'll think about whether I need to confirm that negative test with a PCR test.

But knowing the operating characteristics, knowing that a test is highly specific and might have a very low false positive rate would give you some assurance, but a false negative rate that's higher, for example, might require a confirmation test. So my only comment about this is there are a lot of tests in the pipeline. We'll provide the information to health care providers so that they can understand what those operating characteristics are and they can develop an algorithm for taking care and diagnosing patients. But there's plenty in the pipeline, over 200 companies with us at this time.

Dr. Bailey: Great. Thank you very much. Here's another question, and of course, lots of questions about vaccines. You said in an interview with JAMA's editor-in-chief, Dr. Howard Bauchner, recently that the FDA would consider using an emergency use authorization for a vaccine if you felt that the

risks for the vaccine were lower than the risks of not having a vaccine. What type of evidence would you have to have in a phase three trial to be able to make an EUA?

Dr. Hahn: So we would need to see, we would have to be very secure about the safety of a vaccine. And I'll get to that in just a minute, Dr. Bailey, because it's a really important point. But we would need to see that as well as the evidence of clinical efficacy. We aren't going to back away from what we said we needed with respect to these data. We've set a floor of 50% for efficacy. Now, it may be that in a subpopulation where there's enough patients in the trial to make some conclusion, we see that there's a high level of efficacy and safety, and we may carve out an EUA for that population. I can't prejudge the data, but one could imagine a situation where we have very robust safety and efficacy data and could make an EUA determination.

Now, the EUA process by definition is streamlined. So that shortens it compared to the normal licensure process. But it doesn't mean that we won't require those data that we asked for in our guidance from end of June. And I just gave one example. It's almost impossible for me to prejudge what we're going to see in the data that come to us, but we will in fact look at both the safety and efficacy and insist upon meeting the objectives that we listed in our guidance. Now, let me give you another just really brief update on the safety side of things. Typically, during vaccine development, the number of patients that we have who vaccine has been given to is somewhere between 3,000 to 5,000 patients as the pool with respect to looking at safety.

You know from our guidance that we have asked for this floor of 50%, which means these clinical trials, these phase three clinical trials will have to enroll approximately 30,000 patients in our volunteers to actually look at the safety and efficacy. So the database of patients with respect to safety will be very robust with COVID-19 and we will look at that very carefully. And then one last point, Dr. Bailey, we do have a vaccine advisory committee. We are adding additional members to that vaccine advisory committee. And our decisions will be reviewed by that committee and they will give us their guidance on any decision that we make.

Dr. Bailey: Thank you. I have gotten a lot of questions myself in talks that I've done the last few weeks especially about how to volunteer for the vaccine trials. And I want everyone to know that though the website is up and running has been for a while now, coronaviruspreventionnetwork.org. [Coronaviruspreventionnetwork.org](https://coronaviruspreventionnetwork.org) is where you and your patients can go to consider joining a trial. There's a map of the United States in there that shows locations all over the country. The sooner we get the volunteers, the sooner we'll have the data. And so along those lines, Dr. Hahn, do you have any idea if scientific precedence holds, will a COVID vaccine have differential efficacy among different subpopulations like elderly versus non-elderly? This may be one of those I can't tell you till I see the data kind of questions, but I'm going to ask anyway. And will the phase three trials underway be able to break these groups out?

Dr. Hahn: So it is our sincerest hope based upon our guidance that we'll have sufficient and a diverse patient population to actually understand the questions that you're asking. Now, we all as scientists and clinicians know the hazards of subset analysis. And again, I can't prejudge the data. So to speculate would be without information at this point. But we also know that the elderly, which is why it's so important they need to be in these trials, have a less robust immune response. So making sure that we have enough of the elderly in these trials so that we understand what that immune response is is really important.

The other thing, Dr. Bailey, I think that's really important is that we're asking for clinical endpoints, not immunological endpoints from the vaccine trials. And everybody on this call would understand why that's important. We don't have a complete data set showing that the development of antibodies is yet protective of someone from getting reinfection. Now, that may emerge over the next several months and that would be great. But in the absence of those data, we can't use the immunologic response, either the antibody or a T cell response to a vaccine as a surrogate for prevention. So we've insisted upon the fact that what we want to see is this 50% reduction in either prevention of someone getting COVID-19 who's been exposed, or in converting COVID-19 to a very benign disease, something like the common cold.

Those two endpoints would be really important. And we want to see that in every subgroup to order to make the results generalizable. It's why it's so important that the diversity is there, but also that we have very robust volunteer numbers in the trials so that we can actually look at those data. So the big answer to that is, yes, we will probably look at the subset, whether that actually guides our decision is a complete unknown at this point because we don't have the data in front of us.

Dr. Bailey: Thanks. Here's another question about the prioritization of vaccines. What about the prison population?

Dr. Hahn: Dr. Bailey, do you mean in terms of clinical trials or in terms of administration?

Dr. Bailey: I think this question is more in terms of administration.

Dr. Hahn: Right. Because there's obviously Code of Federal Regulation around the prisoners in clinical trials, it's a very special situation and that has not particularly been addressed in the clinical trials that I'm aware of. But the bottom line is that the prioritization administration of a vaccine is being run through CDC in partnership with Operation Warp Speed. We've drawn a very bright line at FDA between us and Operation Warp Speed because we're the independent regulator. We can't make those decisions about which vaccine to put forward, etc. We can only provide technical assistance.

Now that being said, when we see the data at FDA, when our scientists review those data and we make a determination either about licensure authorization, the way we put that authorization together might in fact lead to some decision-making around prioritization. And one could imagine a situation,

and again I don't want to prejudge this, where our highest risk citizens in the U.S. as well as front-line health care workers, meat packing workers, etc., would be first in line to receive the vaccine. Now, again, that's not a decision FDA is going to make. CDC will be doing that in concert with both inside government and outside government groups. But it may be that some of the data that we see and the way we construct our authorization will help guide that prioritization as it moves forward. But again, we won't know that until we have the data.

Dr. Bailey: You mentioned there being a very bright line between FDA and Operation Warp Speed, can you expand on that a little bit because I think there are a lot of us out there that tend to blend all of the federal agencies together and aren't sure where one starts and the next one stops?

Dr. Hahn: Well, sometimes I have that problem too. Dr. Bailey, I completely agree with all of you. And FDA has a statutory authority to provide independent regulatory assessment. We're going to call the balls and strikes on the vaccine. What we can't be and what we aren't are the folks who are deciding who gets to develop moving forward. So we provide technical assistance to the developers and the manufacturers. We provide technical and development assistance to Operation Warp Speed, but the manufacturers decide if they're going to go forward or not. And Operation Warp Speed uses federal dollars to actually decide which of the manufacturers of vaccine and therapeutics they're going to choose to support. Those are federal tax dollars that go out.

So they have a role and we provide them with technical support, but we do not participate in that decision-making because you can imagine the inherent conflict of interest of being someone who's deciding who moves forward with a vaccine with the regulatory authority that's needed to determine whether a vaccine is safe and effective. So we have drawn that bright line, we've completely stayed on the other side of it, and we will continue to do that. So it's really important that everyone understand that FDA retains its independence from those decisions. And we will provide equal amounts of technical assistance and guidance to all developers of therapeutics and vaccines.

Dr. Bailey: Thanks for that explanation. Here's a question about therapeutics. What types of therapeutics are in the pipeline? We know there are antivirals, we know that there are other types of medications that are out there, monoclonal antibodies, etc., what's in the pipeline and which ones do you think we'll see first?

Dr. Hahn: So really good news on this front, it's been a great summer of development with therapeutics. As I mentioned in my opening remarks, over 200 clinical trials are in our auspices of therapeutics. More than 400 developers are in the queue looking to get INDs or Investigational New Drug applications filed with us, and they're in various stages of development. So a lot of therapeutics are being evaluated around the country. Of course, we know about remdesivir that was shown to reduce hospital stay in sick hospitalized patients. There's dexamethasone, which has also been shown to reduce mortality of sick hospitalized patients by 30%.

Just one quick plug about that, it's important that when providers use dexamethasone or a corresponding critical steroid that they do that in the inpatient setting. There's some evidence that if you treat too early with corticosteroids, that that could be detrimental to someone with COVID-19. So just a little plug there. We also have convalescent plasma. And as you know, there are a number of randomized clinical trials, but the Mayo Clinic is conducting an expanded access program, where over 50,000 patients has received this.

Now, I've gone around the country a few times to talk to front-line providers. And what I'm told by many of the infectious disease experts is that when someone hits the door, they've been writing an order for convalescent plasma because convalescent plasma has been used over 100 years to fight infectious disease. And we have very good evidence early on from the Mayo Clinic that it's safe. But we don't actually have the robust yet, efficacy data. So we wanted to provide a mechanism whereby we could have this access for doctors to write those orders and administer to their patients, but at the same time, collect data to understand the effect. So Mayo Clinic has been doing that. We're in the process of analyzing their data now before we make a determination about whether plasma is or is not effective in treating COVID-19 patients.

So that's the next therapeutic that we're looking at. After that, we go to what's called monoclonal antibodies. And as everybody knows on this call, monoclonal antibodies have been used to treat other infectious diseases, for example, Ebola. And we have great hope that they might be effective against treating COVID-19. Now, again, we cannot prejudge the data and there are a number of later stage trials that are ongoing now with monoclonal antibody cocktails. That is synthetic antibodies that are being developed against the active part of the virus.

In general, in the past, monoclonal antibodies have been more potent than convalescent plasma. So, again, they're in clinical trial and we're expecting the readout from those studies in the next couple of months. And they could act as a very good bridge to vaccine because monoclonal antibodies can be administered not only therapeutically to someone who is sick, but prophylactically to someone who's been exposed. And so you can imagine a situation where a front-line health care worker, someone in a nursing home, etc., could receive a prophylactic dose of these antibodies if at the end of the day we determine that they're safe and effective.

There are a number of antivirals that are now out in the clinic that are being studied. There are a number of cellular therapies that are being looked at to prevent the cytokine storm that we're seeing in sick, hospitalized ICU patients. And we're also as you probably are aware of NIH is initiating a phase three trial to look at the effect of heparin. Because of the vascular effects of this virus, there is a hypothesis out there that the use of heparin in sick hospitalized patients may actually benefit them. So all those trials are ongoing. And then of course, we have vaccines trials which are ongoing, two and phase three clinical trials, one that's planned very soon, probably within the next week or two also to be in phase three clinical trials.

Dr. Bailey: Oh, that's wonderful. I'm sure that's very exciting to follow up close and personal. Back to testing, I've had some questions about the role of pharmacists and pharmacies and all of this. What about the role of pharmacists in terms of being able to order to administer COVID-19 testing as well as being in the federal distribution for vaccines?

Dr. Hahn: So in terms of the federal distribution for vaccines, that will be ultimately determined by the plan that CDC and their federal partners with, by the way, external stakeholder input. That will be determined by that group, and that should be forthcoming. With respect to the issue of pharmacists and tests, our emergency use authorizations outlines that health care providers can order this test for suspected COVID-19 in-patients. In some states, that includes pharmacists and some that it doesn't. So that's a state issue with respect to who's considered a provider. Now, we have absolutely no objection and we don't regulate the practice of medicine. So that would really be a state issue, but our emergency use authorization would allow that if a state allows it.

Dr. Bailey: Several questions about flu vaccines for overlap of COVID-19 and of flu season, where my office is in the process of making sure we've got our flu vaccine ready for fall. And my understanding is that there's going to be plenty of flu vaccine available. But there's a lot of concern about vaccine hesitancy. If the uptake on flu vaccine is poor, how are we going to expect any better with COVID-19 vaccine? And just general comments and your thoughts about how to overcome some skepticism in our country today about the efficacy of these vaccines.

Dr. Hahn: Yes, Dr. Bailey, is so important the question that you're asking. I think we overcome hesitancy by providing information and being transparent. And with respect to the flu vaccine, we've been working since the early days of the epidemic understanding that fall and winter were coming to make sure that we had adequate supplies of the flu vaccine. And we have been working with the manufacturers on that, as well as drugs that are made to treat flu. We encourage everyone that is eligible to receive the flu vaccine. And we will, of course, authorize them or license them as being safe and effective. And we want everyone to know that it's critical as we move forward in COVID-19 because it will be very difficult at times to determine whether someone has flu or COVID-19. And if we can get a preventative out there like a vaccine, that will go a long way toward reducing the burden of sickness in the country.

Now that being said, our reason for being so transparent about our vaccine guidelines and then also about the process we're going to use for approval is to help in that conversation to get people more confident about what's going to be out there moving forward. And so we really need the partnership, Dr. Bailey, with the AMA and health care providers to communicate this with the patients around the country, to encourage the use of the flu vaccine. And if a COVID-19 vaccine has been determined to be safe and effective by the FDA, to receive that as well.

And then one last point about flu, we've been working with a number of test developers to develop tests that test for both flu and COVID-19. You can imagine, as a doctor, someone comes in with you

with a respiratory illness, your differential diagnosis this winter is going to include COVID-19 as well as flu. So having a test that helps differentiate and diagnose either or both will be really important. So the CDC has already developed one of those tests. It's a good test and others are in line to actually also develop those tests as well. And we're hopeful that they'll be available in time for flu season.

Dr. Bailey: Oh, that is really good news because if a febrile patient with a respiratory illness presents to our offices this fall, we're probably going to assume it's COVID-19 until proven otherwise. And being able to test both of them at the same time would be... Oh, boy, that would really be wonderful. And it's been interesting the meetings that I've participated in virtually. There's a lot of confusion among the public. Well, will flu vaccine keep you from getting COVID-19? Well, no, it'll help keep you from getting the flu. If I get my flu vaccine early, do I need to get another one? Well, no, get it in September, October and you should be fine. A lot of the flu vaccine questions that we hear every year, but this year they're being looked at through a completely different lens, which I think makes it more urgent than ever.

And I've told patients that you may need to be a little bit more diligent in your search for a flu vaccine. My understanding is there's going to be plenty available. But if you work at home, your workplace might not offer it like you've gotten in the past. And your physician's office may take appointments instead of walk-ins. So it may look and feel a little bit different, but there's plenty of flu vaccine out there and we certainly want everybody to get it. The AMA is going to be starting a flu vaccine awareness campaign soon. So stay tuned about that. We're encouraging everyone over the age of six months to get a flu vaccine and discouraging medical exemptions.

Dr. Hahn: So, Dr. Bailey, that's so terrific to hear. Thank you for your incredible leadership and efforts on this. That's a huge public health effort. Every year, many flu vaccines are not used because people don't get it. Let's hope this year that more people will step in line and receive the vaccine.

Dr. Bailey: And I wouldn't think there would be any reason that if you got a flu vaccine when a COVID-19 vaccine becomes available that you won't be able to get that right away. There shouldn't be any time lag or anything like that between the two different vaccines.

Dr. Hahn: Yeah, I think we'll have to judge that when we get there. But I would agree with you, that would be my initial premise as well.

Dr. Bailey: Good. I would hope not because we don't interfere with people's ability to get the vaccine. So one last question before we wrap it up. And I love questions like this. What keeps you up at night when you're thinking about the course of the pandemic?

Dr. Hahn: I love those questions too actually. And it's a really good one here. Let me just start with one thing. What gives me great reassurance and hope is the incredible providers we have in this country. The progress that doctors have made in terms of treating COVID-19 and the incredible

clinical research machine we have in this country and the development of therapeutics and that robust pipeline, that just gives me such great hope for what's going on. What keeps me up at night, that's a superb question. And it really relates to our being able to get out the public health message to fellow Americans about the need to wear masks, socially distance, avoid large crowds, stay away from indoor places where there's going to be a lot of crowds, and protect the most vulnerable.

If we do those very simple, common sense approaches in public health, we will go a long way toward mitigating the increased number of cases that we've seen in this country. And it's a constant message that I've been giving when I go to the media. I think every doctor has a role to play here to reinforce that message. We have seen in the Sun Belt states improvement in Arizona, Florida and Texas. And it seems to be directly linked to the institution of these common sense measures. So my hope for all of us so that we all get good sleep because we need that to function is that we encourage all of our patients and fellow Americans to follow those common sense measures.

Dr. Bailey: Well, amen to that. And thank you again to Dr. Hahn and to everyone on this call for joining us today. Thanks for your wonderful questions. The AMA is a tremendous source for news, research and clinical information on COVID-19 at [ama-assn.org](https://www.ama-assn.org) and on our JAMA Network online. We also have a number of free tools and resources for physicians found in our COVID-19 resource guide, which can also be found on our website. I encourage you to check them out and please put them to good use. Thank you again all of you for your extraordinary work in this very challenging time. Know that you are not alone in this fight. And through the tireless work of scientists, researchers and everyone on the front lines of this pandemic, we will turn the tide against this deadly virus. Thank you and stay safe.

The AMA has developed a [COVID-19 resource center](https://www.ama-assn.org/delivering-care/public-health/ama-fda-video-update-critical-role-health-care-professionals-during-covid-19) as well as a [physician's guide to COVID-19](https://www.ama-assn.org/delivering-care/public-health/ama-fda-video-update-critical-role-health-care-professionals-during-covid-19) to provide a comprehensive place to find the latest resources and updates.