NATIONAL PRESS CLUB LUNCHEON WITH ANTHONY FAUCI

SUBJECT: ANTHONY FAUCI, M.D., DIRECTOR OF THE NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES (NIAID), WILL FOCUS ON THE EBOLA OUTBREAK

MODERATOR: MYRON BELKIND, PRESIDENT, NATIONAL PRESS CLUB

LOCATION: NATIONAL PRESS CLUB BALLROOM, WASHINGTON, D.C.

TIME: 12:30 P.M. EDT

DATE: MONDAY, NOVEMBER 21, 2014

MYRON BELKIND: [Sounds gavel] Good afternoon and welcome. My name is Myron Belkind. I'm an adjunct professor at the George Washington University School of Media and Public Affairs a former international bureau chief for the Associated Press, and the 107th President of the National Press Club. The National Press Club is the world's leading professional organization for journalists, committed to our profession's future through our programming, with events such as this, while working to foster a free press worldwide.

For more information about the National Press Club, please go to our website at www.press.org. On behalf of our members worldwide, I'd like to welcome our speaker, and those of you attending today's event. Our head table includes guests of our speaker, as well as working journalists who are Club members. And so, if you hear applause in our audience, I would note that members of the general public are attending, so it's not necessarily evidence of a lack of journalistic objectivity. [Laughter]

I'd also like to welcome our C-SPAN and Public Radio audiences. You can follow the action today on Twitter, using the hash tag #NPCLUNCH. After our guest's speech concludes, we'll have a question and answer period. I'll ask as many questions as time permits.

Now it's time to introduce our head table guests. I would like each of you to stand briefly as I call your name. And then, I will begin by saying, from your right, Adam Spencer, Washington, D.C. correspondent for *NewsBeat Social* and a new National Press

Club member. Jared Rizzi, White House correspondent for Sirius XM Satellite Radio. Marilyn Thompson, Washington Bureau Chief for Thompson-Reuters. Paul Shinkman, National Security Reporter for U.S. News and World Report and a third generation member of the National Press Club. Virgil Dickson, reporter for Modern Healthcare and another new member of the National Press Club. David Evans, Executive Director of the National Science Teachers Association. Jerry Zremski, Washington Bureau Chief of Buffalo News Chair of the Speakers Committee, and a former National Press Club President.

Skipping over our speaker for a moment, Doris Margolis, President of Editorial Associates and the National Press Club member who arranged today's luncheon. Thank you, Doris. Dina Fine Maron, Editor of Health and Medicine, *Scientific American*. Todd Gillman, Washington Bureau Chief for the *Dallas Morning News*. Carolyn Bloch, Editor and Publisher, *Federal Telemedicine News*. Vince Tocce, former Communications Director for the American Chemical Society who was Combat News Chief for the U.S. Air Force in Saigon and the Pentagon media representative during the Vietnam War.

[applause]

Dr. Anthony Fauci is an authority on Ebola. The health crisis that has devastated parts of West Africa, sickened or killed many health workers, and called into question America's preparation for a virulent epidemic. Dr. Fauci is Director of the National Institute of Allergy and Infectious Diseases, a part of the National Institutes of Health, where he has spent his career. He became a public figure for his role in understanding HIV and AIDS and for his involvement in developing an HIV vaccine. He received the Presidential Medal of Freedom for his work on HIV.

Of late, Dr. Fauci has been swamped with requests from the medical community, media, legislators and the public for his guidance regarding the Ebola outbreak. Typically, he does not sugarcoat his assessment. Last week he said, "The war against Ebola is far from over," and cautioned that outbreaks can come in waves, receding and then surging.

The virus continues to make headlines, such as nurses strike to demand better training and safer clothing for dealing with Ebola patients. Congress is considering a multibillion dollar boost for Ebola prevention and treatment. Scientists and governments debate the development and testing of vaccines. Infected healthcare workers in Africa are being flown to the U.S. for treatment. Public disputes about mandatory isolation rules.

We've asked Dr. Fauci to address these and other issues of the Ebola outbreak. Ladies and gentlemen, please join me in a warm National Press Club welcome for Dr. Anthony Fauci, Director of the National Institute of Allergy and Infectious Diseases.

[applause]

DR. ANTHONY FAUCI: Thank you very much, Myron. It's really a great pleasure to be here with you this afternoon to discuss this extraordinarily important global health topic that has captured the imagination, fear, concern, and mobilization of people throughout the world.

I want to spend our time, and I'll be relatively brief, because I know one of the best things about all of this is giving you the opportunity to ask me questions. So I want to break up my remarks into four major areas. First of all, some background on Ebola. I know we've heard a lot about it. I just want to point out some salient features. The status of the current outbreak in West Africa, Ebola in the United States, and finally what we're doing in the form of countermeasures for the development of therapeutics and potentially and hopefully a vaccine.

So let's start off first with some background on Ebola. As some of you may know, Ebola was first isolated and recognized in 1976 in the former Zaire, current Democratic Republic of the Congo, and very soon thereafter, within days, from Sudan. Since 1976, there have been 24 outbreaks, not including the current outbreak. These have been of varying sizes with the totality of the outbreaks, put together, about 2,400 people. Which means that the current outbreak in West Africa is more than all of the other 24 outbreaks combined. And we can talk about why that's the case. These outbreaks have been anywhere from two people to several hundred people, all of whom have been contained and eliminated and suppressed by public health measures of identification, isolation and contact tracing. And I'll get back to that in a moment, and why the situation now in West Africa is very different from those previous outbreaks.

So, what is Ebola? Ebola is a virus member of a family called filo viruses, F-I-L-O. And the reason is, if you look at it in an electron microscope, it's a rather ugly looking virus. It's got these filaments that actually look rather intimidating from someone who's looked in the microscopes for viruses over so many years, it's one of the ugliest ones that I've ever seen.

The transmission cycle, we know what happens from human to human. But there are still some unanswered questions. It exists in fruit bats and certainly infects nonhuman primates like gorillas and chimpanzees and monkeys and others. And it kills off these nonhuman primates intermittently. It jumps species, as some, if not most of emerging microbes do. So it's fundamentally an animal virus. It's not fundamentally a human virus that stays in the human population. It leaps up in these outbreaks that I told you, 24 of them, and we're in the middle of a massive one right now.

And the way it gets there is really not clear. Eating animals, touching them, slaughtering them, preparing them for food. But, once it gets into a human, it's transmitted only by direct contact with the bodily fluids of an individual who is sick. And we're going to get back to this, because this is all the concern, the argument, the debate about who can and cannot transmit Ebola, and why healthcare workers are the people who are at the absolute most risk, as are people in a family who take care of an

individual, as are people who handle bodies, because the actual burial ceremonies, when people touch bodies, are one of the most important ways it's transmitted.

So we want to keep in mind, unlike influenza, which is transmitted across parts of rooms by aerosol that you can't even see, Ebola is transmitted by direct contact. When you say bodily fluids, it's a euphemism. We're talking about diarrhea, vomit, blood, when people cough up, that's what we talk about when we say bodily fluids.

Its incubation period is anywhere from two to 21 days. The mean is right around eight to ten days. And by incubation period, means that if I get infected now by working with a person, somewhere between two and 21 days, I'm going to get sick, very likely around eight to ten days. Once I get sick, I start to feel flu-like symptoms. At that point, it is unlikely that I am infected. 90-plus percent of the times, you get a fever. And then you start having diarrhea, vomiting, coughing, bleeding. And it's that that causes the transmissibility, very, very important point to put out. So that's a background of Ebola.

It's a very serious disease. The mortality, depending on the strain, there are five separate strains. The one we're dealing with now is Ebola Zaire. There are other names to them, Sudan, etcetera, etcetera. Not important for the purposes of our discussion. If you get infected with one, and you recover, the fact is that you are protected against that strain forever.

So let's focus in on the outbreak in West Africa. It started, likely, from contact with an infected animal. If you do molecular tracing, the first case was probably in a child in Guinea in late December of 2013. We started to notice it as an outbreak in March of 2014. Now the thing about this that makes it different, and why we had the explosion of cases-- I wrote a paper a few months ago in the New England -- actually, last month in the New England Journal of Medicine. And the title of the paper was "Ebola in 2014: A Perfect Storm and a Good Example of the Discrepancy and the Disparity of Healthcare Capability in These Countries."

You wouldn't get an outbreak in a country if you could do good contact tracing, if you could isolate people. So what happened is that somehow, this child infected people in a cluster of countries that was very different from the far out, geographically isolated areas of the previous 24 epidemics, where you could actually isolate very easily. If you look at the map of West Africa, Guinea wraps itself around Liberia and Sierra Leone. The tribal relationships are very close. So people go across the borders. The porous borders are very easy to go across, because people work in one country and live in another.

Also, it got into the big cities. And when that happens, you have a problem. So we had an explosion. There are about, now, about 14,000 cases, 5,700 deaths. That's probably an underestimate. When we were talking about the changing demography of it, the number of cases are going down in Liberia. But they may actually flare up in the outskirts, because Monrovia is where most of the cases were.

As that's happening, the cases are going up in Sierra Leone. So, when you look at the epidemic as a whole, one can say, without a doubt, the cases, particularly in Monrovia, are going down, likely because of the effort that has been put into that. However, I have said, and was quoted by Myron, is that the fact is, it is not over. And we should be very careful to think that we are going in the direction of it being over. There is still a long way to go. So that's where we are with that.

Something that comes up in questions, is this virus changing? All viruses that are RNA virus, tend to mutate. When they replicate a lot, they make mistakes. Most mutations have no functional relevance. It doesn't change anything about the virus. Potentially, however, there are rare mutations that do change the function, namely and make it a little bit more virulent, a little bit less virulent, a little bit more easy to transmit or not.

However, in the history of virology, it is unprecedented that a virus will mutate so much to completely change the way it's transmitted. Is it possible? Yes. Is it likely? Extremely unlikely. Yet, you've probably read in the papers about the concern that it's going to change into a respiratory virus, spread over and destroy the world. Now, as a scientist and as a physician, I cannot say that's impossible. But I can say it's very, very unlikely that that would happen. It may change a bit, but unlikely to change so much.

Now, when you talk about how it's transmitted and the proof of transmissibility, if you look at the history, again, we don't want to say we know everything about the virus. But, if you look at household contacts of people during outbreaks, for example a famous one in 1995 in Kikwik, in the Democratic Republic of the Congo, in the households of people who were infected. The only people who got secondarily infected were people who actually touched the person who was very sick. Everybody else in the household, they didn't get infected.

Now that is strong evidence that you don't get it by casual contact in the sense of being in the same room with someone without necessarily touching them and coming into contact. Now, is that 100 percent? Nothing is 100 percent in biology. But the evidence is pretty strong.

Okay. So now let's talk about Ebola in the United States. When you think about Ebola in the United States, you should think about it in five separate issues, because it gets very confused-- and I believe strongly that's the reason for the concern and what I have called the "epidemic of fear" in the United States. The first situation where you could have Ebola in the United States is when you deliberately air-evacuate someone to take care of them in the United States.

And we've done that, with Dr. Brantly, with Nancy Writebol, with Mr. Sacra, with Mukpo, with Salia[?], and an unidentified person. We put them on a plane and brought them to a hospital here. It was either at Emory, or it was at Nebraska, at other places. The second is the inadvertent importation of someone who gets sick someplace else, doesn't know they're sick, and comes here. And the illness is manifested here. We

have two examples of that, Thomas Duncan, who went to Dallas, and Craig Spencer, the New York physician from Columbia who got sick over there, came back here, and then when he realized he was sick, he got admitted to Bellevue.

The third is secondary spread from an inadvertent case. There isn't any. So Craig Spencer didn't spread it to anybody, so there's no cases. The other healthcare workers in the United States who have taken care of patients. And we have two of those, Nancy Pham, who I had the privilege of taking care of myself at the NIH, and Amber Vincent, who was also infected and then taken care of, first at Dallas and then at Emory.

And then, lastly is the secondary spread from those healthcare workers. And there's been none. Nancy Nina Pham did not spread it to anybody. Nor did Amber Vincent. So you've got to be careful when you talk about Ebola in the United States. You got to be talking about, do you bring it in? Or is it spreading insidiously? And it's not. And I'd be happy to discuss that in the questions that we have.

So, what about the issues of how do you protect America? Do you ban travel? Do you do airport screening? Do you quarantine people who are over there? Or do you quarantine all health workers who have come into contact? That is a debate that's going on, and as we've said, and I've said publicly, decisions are made based on scientific evidence and experience. So let me tell you what is going on.

There is both exit screening from West Africa. So if someone comes up to get on a plane in Liberia, Sierra Leone or Guinea, they are questioned as to whether or not they feel sick. Their temperature is taken. And then they are asked if they've come into contact with anyone who's had Ebola.

When they get on the plane, and they get off the plane at one of the five airports which are the only airports that people from that part of the country can come to, they have what's called entry screening. Same thing. Temperature taken. Questioned if they have any symptoms. If there's any question, they get put in a separate facility, watched if it's worth taking an Ebola test, one does that.

Let me give you an idea of some of the numbers. Is there a large influx of Ebola people infected with Ebola who are trying to get into the United States? And the answer is no. Because if you look at August and September of 2014, 36,000 people went to the airport in one of those three countries to get out. Of those, 77 were denied because of a health reason. Of those 77, none had Ebola. Most had malaria. So yes, Duncan got into the country. But that was a very rare event because of what we know now when we do screening.

So the question is, how do you balance the issue of keeping America safe at the same time as you don't do something that might be so draconian, for example, as to cut off a nation from help, namely isolate them, which we know from talking to the leaders in those countries, that to them would be devastating to do that. And what do you do about the many, many healthcare workers that we need to volunteer to go over there to help?

What do you do when they want to come back? Do you quarantine them? Or do you institute a system where, as we've discussed it publicly many times, where you stratify the risk of that person having gotten infected with the way you monitor and/or restrict their free movement?

So let me explain what we've done, we being the government in the sense of the CDC, NIH, FDA, the Department of Homeland Security, etcetera, all working together. You divide it into four levels of risk, high risk, some risk, low but not zero risk, or no risk. An example of a high risk healthcare worker is someone that accidentally sticks themselves with a needle that was contaminated. That's a high risk. Or someone who is working with an Ebola patient, didn't have the right equipment. That's a high risk. If you're a high risk, you are directly monitored. Someone will take your temperature every day for 21 days. Someone will question you how you feel. And your activity is restricted. You can't get on a plane. You can't get on a subway.

So we're already implementing some form of quarantine on certain people who are high risk. I don't think many people appreciate that. What happens if you have some risk, namely you took care of a person. You had the proper equipment. But, you know, you still can make some mistakes. The same thing, direct active monitoring. Someone takes your temperature, records it, questions you, and your restriction will be made on a case-by-case basis. Not everybody gets restricted.

The next one is a low but not zero risk. I used to be, now, but I'm past 21 days, a low but not zero risk, because I took care of Nancy Pham at the NIH with the proper protective equipment. My risk was not zero, but it was very low. So what did I do for 21 days? I took my temperature in front of someone. I showed them the thermometer. They recorded it. If I felt well, then I could go out into society, which is what I did. And then low risk is obviously, there's nothing there to do.

So let me now just move to the last part, and we'll open it up for questions, because I want to stay on time. What are we doing about it? There are no therapies that have been approved. And there are no vaccines for Ebola. The reasons for that are complicated, because we've been working on that for a long time. But we haven't had good industrial partners who'd be willing to invest in developing a vaccine or a drug for a disease that barely exists. Remember, from 1976 until this epidemic, there were less than 2,500 cases in the entire history. So there's not a lot of companies that want to invest hundreds of millions of dollars to develop a vaccine or a drug.

But we do have some important advances. What's happened is that we started a phase one trial with a vaccine at the NIH up in Bethesda on September the 2nd. We've enrolled the full component of people. It looks good. There aren't any adverse events. We've shown that the immune response looks good. And we are now planning that sometime, at the end of December/the beginning of January, we will expand that into what's called an efficacy trial in West Africa. In other words, to determine if it works. And that's in the process. I can't guarantee you it will work, because you never can

guarantee that a vaccine will work. But at least we have one that's ready to go into advanced trial.

And, in addition, finally, we have drugs that are still experimental. You've read about all these people that got these experimental drugs, there isn't a single drug among them that has been proven to be effective. I hope that one or more of them will turn out to be effective. But we don't know that yet unless you do the clinical trials. And that's, in fact, what we're doing.

So let me just close by saying, looking ahead, what do we need to do? What we need to do is first make sure we keep our eye on the problem. And the problem is West Africa. They are the ones that are suffering. They are the ones that have the disease. The best way to protect Americans, or anyone else throughout the world, is to completely suppress the epidemic in West Africa, so that there isn't any risk of it going anyplace else.

Secondly, prepare for future outbreaks. And there is a process called the Global Health Security Agenda, where we're trying to build up the infrastructure in other countries so that they can identify these outbreaks much earlier, before they wind up getting out of control. And then, again, the last is what I said I wrote about in the New England Journal of Medicine, where we spoke about the disparity of the healthcare systems in developing nations.

And, as a rich country, as one of many rich countries, I feel we have the responsibility as a global community to help those countries build sustainable infrastructures that not only are beneficial to their own health, but actually have an indirect benefit for the rest of the world, to prevent the outbreaks that then wind up having a dispersion throughout the world, and leading to the kinds of fear and the kinds of situations that Ebola has brought to the United States here.

So I'll close with that and be happy to answer any questions. Thank you.

[applause]

MYRON BELKIND: Thank you, Dr. Fauci. If containment of any communicable disease is isolation with the use of stringent medical treatment and protocols, why is a highly communicable disease like Ebola not contained and treated in the African locales?

ANTHONY FAUCI: When you say not contained and treated, do you mean-- It is contained and treated in the African--

MYRON BELKIND: Right. The question was, why is a highly communicable disease like Ebola not contained and treated in African locales?

ANTHONY FAUCI: I'm not sure what they were-- what point they were trying to make. I'll give you a couple of versions of that. I think they were trying to say, if you

wanted to leave Africa, why would you want to bring someone over here? Is that what they're saying?

MYRON BELKIND: I believe so.

ANTHONY FAUCI: Yeah. I think the reason is that the people we brought over, that if you are an American citizen, and you get sick in a foreign country, you have the right as an American citizen to return to your country of origin. And that's what we've done with those individuals.

MYRON BELKIND: Nigeria in particular was quickly able to put a halt to the spread of Ebola. Why was Nigeria so successful in its containment efforts when neighboring countries were not?

ANTHONY FAUCI: Very good question. And that really relates exactly what I told to you about the infrastructure to be able to handle an epidemic. And Nigeria, as a country, has a relatively good infrastructure to do that, much better than Guinea, Sierra Leone, and Liberia. So what happened in Nigeria, when a case accidentally-- Eric Sawyer, Mr. Sawyer went from Liberia to Nigeria, and inadvertently, unfortunately, infected a number of healthcare workers, several of whom died.

What they did in Nigeria was very effective, contact-tracing and isolation when someone was shown to have Ebola. So the hallmark of containment is identify, isolate, and contact trace. And when you do that, you can suppress an outbreak. Nigeria did it very well. Unfortunately, the other West African countries were unable because of their resources to do that.

MYRON BELKIND: What is your assessment of the weakest points in the U.S. healthcare infrastructure to deal with Ebola and to deal with other future outbreaks or biological weapons?

ANTHONY FAUCI: Well, what we've learned, first of all, is you need awareness. Remember, when Duncan first came, he was not recognized as being a person with Ebola, even though he was from Liberia and he was sick. That should not have happened. But what we do need is we have to have the capability of education, equipment and a healthcare system, which is actually pretty good, to be able to handle outbreaks. And that's the reason why, when we started this officially and in earnest, it was after the 9/11 attacks, followed by the anthrax attacks. We developed a system of trying to be able to have better surveillance and the better capability to respond to emerging microbes. That was to a deliberate attack.

But we expanded that to say nature itself is probably the worst bioterrorist, when you think about it, because of things like the emergence of influenza. So we expanded our capabilities to be able to respond in the United States to outbreaks of emerging infections. But, since we live in a global community, the weakest link, globally, is the weakest link that might be someplace else. And that's the reason why we need to build a

global health security agenda, so that almost-- or hopefully all of the other countries would have the capability of doing that.

MYRON BELKIND: You said that President Obama's response coordinator, Ron Klain, is an excellent manager and support this appointment at the White House. In what significant ways has he changed the all of government response fighting Ebola in the United States and in West Africa?

ANTHONY FAUCI: Okay. So Ron Klain is the official Ebola response coordinator. And he's terrific. I work with him daily. The reason it was important to have a coordinator is that there are multiple agencies involved in the Ebola response. There's HHS. There's the Department of Defense. There's Homeland Security. There's the State Department with USAID, among others. And, when you have multiple agencies involved, you need some sort of coordination at the White House level. Doing that prior to the appointment of Ron Klain was Lisa Monaco and, to some extent, Susan Rice, both of whom had very, very important day jobs to do in addition to that. So it was felt that you needed a person who was devoting their time to nothing else but coordinating the Ebola response. And that's exactly what Mr. Klain is doing an excellent job at right now.

MYRON BELKIND: The President is asking for $6.5 billion dollars for the fight with Ebola. What are the U.S. medical priorities? And what will this spending on Ebola do to those American medical priorities?

ANTHONY FAUCI: The President is asking for $6.18 billion, not $6.5. Just-- [laughter] Let's not get carried away here. So actually, I had the opportunity, with my colleagues from other agencies, to defend that budget before the full Senate Appropriations Committee, chaired by Senator McCulsky from Maryland. And it's divided, again, into multiple agencies. So the NIH-- and I just mentioned our work with vaccines and therapeutics-- our share of that was $238 million dollars. The CDC, which has a much broader role in surveillance and trying to get the hospitals up, they had a much larger.

The Defense Department was smaller. They moved money around. The Department of Homeland Security had some. And others had some. So it was a combination of multiple agencies, each of which had a line item request.

MYRON BELKIND: Now that the estimates for the potential number infected, loss of life, and financial burden have been revised downward by the World Bank, will the response effort from NIAID decrease as well? And if so, do you think this is a wise decision in trying to get the United States prepared for any type of biological outbreak?

ANTHONY FAUCI: Well this gets back to what I had said during my formal presentation, that just because numbers are going down in a particular country is no reason to think that we have won this battle. So we have not, nor has the CDC or any of the other agencies, lessened our efforts to try and contain this. We're going full speed ahead with our vaccine work and our work to develop therapeutics, even as the numbers

go down in Liberia, remember, they're going up in Sierra Leone. And it may be we'll see other waves. So the down-tick in numbers has not diminished at all our efforts.

MYRON BELKIND: A few weeks ago, there was a sense of fear bordering on panic about Ebola among some Americans. Why do you think that was? And was the fear justified?

ANTHONY FAUCI: Well, I always respect fear and concern on the part of the American public. I mean that's us, the American public, so you can't just disparage it and say, "Well, it was crazy to be afraid." But you could understand why. Because Ebola is a very dramatic, cataclysmic disease as it occurs. And when you look at what's happened in West Africa, and particularly not so much now, because things have toned down a little bit over the last couple of weeks, but remember, it was every single day that Ebola was on the front page of the major newspapers throughout the country. And what the American public saw, and what they saw on television, was this terrible situation as it existed in West Africa.

So, when we had the first case here with Duncan, and then we had our two nurses getting infected, there was this understandable, but not justified, extrapolation of, "This is what's going to happen in the United States exactly what happened in West Africa." It's an understandable extrapolation, but there's no evidence that that would or could happen, for the simple reason I get back to something I said just a few minutes ago. The reason you have an outbreak in the three countries where they did not have the medical or healthcare infrastructure to be able to do the identification isolation and contact tracing.

Someone asked the question about Nigeria. Nigeria did. There was no outbreak in Nigeria. So, even though you can think that this might happen in the United States, it is extremely unlikely that you'd have that outbreak. Yet the American public understandably made that extrapolation and connection. Now that we have a case in a hospital and two nurses got infected; therefore, we're going to be like West Africa. And that's just not the case.

You mentioned the media. And this is a media-related question. Liberal groups like Media Matters have criticized what they say has been overblown television news coverage of Ebola. But this week, this past Tuesday, President Obama noted that the news coverage has subsided, even though the epidemic rages on in parts of Africa, signaling, we believe, he thinks it's still a very important story. What's your assessment of the media coverage?

ANTHONY FAUCI: Well, you know, in general, I think the media coverage has been commensurate with the interest in the American people in this. And people get very interested in this, and they hear it. So the media cover it. I think the media coverage was actually quite good. There's sometimes when you have-- I think the problem is, as we all know, people interested in media know it as well or better than I do, when you have 24-hour news coverage, you can make something that looked like it's much bigger than it

really is. And that's what I think happened. So I wouldn't say that that's bad media coverage. I said that's just an effect of the 24-hour media coverage.

MYRON BELKIND: Thank you. What are your suggestions for education and training best practices for the U.S. healthcare system as a result of the Ebola outbreak? Many healthcare workers are required to take a basic PPE and blood-borne pathogen training as part of their employment. Beyond that, what do you suggest?

ANTHONY FAUCI: It's a very good question. And one of the, I think, positive things that'll come about of all of the attention that's been paid to Ebola in the United States, is that we really need to have regional capability of being able to handle outbreaks that require special kinds of medical attention, like PPEs. I mean PPE stands for personal protective equipment. You don't just put on PPE. You got to learn how to do it. And, importantly, you got to learn how to take it off. Because if you look at people getting infected, it is more likely that, when people take off PPEs, that if you get something on you with Ebola, that that's how you do it.

You inadvertently are very careful when you put it on. And you're taking care of a patient. You're doing it for about an hour, hour and a half, at the most two hours. You're very tired. When you walk out of the room, you say, "I got to get this stuff off. And you take it off, and you may not take it off properly. In fact, there is a terminology called a WatSan, named after water sanitation historical issue, that when I took off my material, I had a trained person watching me to make sure that I did it correctly. And they have the authority to stop you when you do it and say, "Oops. You're making a mistake. Stop."

So those are the kind of things you have to train. It isn't just, "Well let's just go ahead and take care of a patient." You got to be trained. Bottom line answer, you have to train people.

MYRON BELKIND: What can local laboratories, i.e. clinics, hospital labs, physician office labs do to prepare for processing any samples from suspected Ebola patients? The CDC revised guidelines say to send all suspected samples to CDC. But even in preparing samples for a transport to CDC, are there any suggestions from NIAID for the pre-analytic and post-analytic phases of testing for the local lab?

ANTHONY FAUCI: So that's a good question. And it isn't like suggestions that I have. There are clear protocols about how to do that. The CDC spells out very clearly how you have to handle specimens that you are suspected are infected and how you would handle that in the testing. There are preliminary tests that do not need, necessarily, to go to CDC. The first ones, and then the second level, when you really want to confirm it, have to be sent to the CDC.

MYRON BELKIND: There's been a good deal of public concern regarding risks associated with Ebola-related waste, including medical waste, as well as the belongings of the individuals afflicted. With high ranking officials across the country, stumping politically against this transport, and even taking legal action to stop it, is there

any merit in fearing infection from the treated medical waste? And how do we alleviate mass public concerns if not?

ANTHONY FAUCI: So I have to be careful on this answer. [laughter] And the reason is, I'm not making policy. I can just tell you, from a scientific standpoint, that when you do the kinds of contaminations that we do with waste, it kills the Ebola. If you do decontamination and then incinerate it, it kills Ebola. What you do with waste after that is obviously a matter of contention. But, from a scientific standpoint, the kinds of decontaminations that are done in hospitals like my own, and the kinds of things that you do when you autoclave, decontaminate or incinerate, are really enough to essentially kill all the Ebola.

MYRON BELKIND: You have had extensive experience in the research of AIDS. Has that experience been applicable to your work with the recent Ebola crisis?

ANTHONY FAUCI: Scientifically not, because they're different diseases. I mean you learn about virology and things. So there is some experience there. But I think the thing that's the real lesson is how to make sure that you make policy and you make recommendations based on the science. And to get the American public to understand the relationship and difference between probability and risk. The American public understandably, and this is not a criticism, really wants to live in a completely risk-free life. Yet every day, we live a life that's full of risks.

The issue is, the risks have been with us for so long, we don't pay attention to it very much. When a new risk comes in, no matter how small that risk is, it captures the attention of the public. And they worry more about a risk that's very, very, very low than they do about a risk they've been living with forever, that's much higher.

So I give an example that's out of the situation of Ebola. And I think you could understand it. So years and years ago, in the 1980s, I think it was on Ted Koppel's Nightline Show when he was on. And I was asked by someone who said, "We should ban gay waiters from waiting in Greenwich Village, because the infection rate is so high there. And what if a waiter has a cut on their finger, and brings to your table your dish of calamari, and you happen to have a cut on your finger, and pick up the plate that he puts in front of you. Is it possible that you could get HIV?"

And the answer is, biologically, yeah. It's possible. But what is the likelihood of it happening? Well I can say, with confidence, that the likelihood of it happening in that Greenwich Village restaurant is less than the likelihood of you walking out of the restaurant and getting hit by a bus. So it depends on probability and risk. And that's the thing that we need to keep educating people on. You can't be 100 percent risk-free.

MYRON BELKIND: Do you worry that the growing human population, combined with climate change, will create an environment where outbreaks of Ebola or other deadly pathogens will be more common in the future?

ANTHONY FAUCI: Theoretically, yes. Probably the only thing that significant climate change might impact is the range of certain mosquitoes. For example, there may be malaria. For example, if you take Kenya as a nation, there are parts of Kenya that have high elevations. And, when you get above a certain elevation, because of the temperature, you don't have mosquitoes. So you don't have malaria there. You could imagine that, if you get a one degree increase, the malaria range would increase so much.

But I don't think that that's that important. Because if you really have so much of a climate change, that would have mosquitoes be all over the place through every season, then there'll be enough melting of the ice caps that you probably won't even have any coastal cities anymore. So that's what you should really worry about.

MYRON BELKIND: Beyond the Ebola epidemic, there is growing concern among many scientists that the overuse of antibiotics in farm animals could lead to the development of infections that are immune to antibiotics, and therefore dangerous to humans. How do you feel about this issue? And what should the federal government do about it? I realize you are not the policymaker. But if you could elucidate on that?

ANTHONY FAUCI: No, no, no, I have no problem addressing that. Antibiotic resistance is a real and present danger as it gets worse and worse in the situation of having microbes that could be resistant to essentially all antibiotics. We have reasonably good examples of that right now. One of the things, there are about four or five major factors that are involved in the evolution of antibiotic resistance. One is our own inappropriate use of antibiotics among humans. When people take antibiotics when they don't need them, or they take antibiotics without the full course, giving the opportunity for emergence of resistance.

But another is, the inappropriate use of antibiotics in animals for the purpose of growth as opposed to the purpose of treating a sick animal. If you just empirically give it for growth, you absolutely have a danger-- I don't know exactly how that gets transmitted to the reality-- but there certainly is the danger there of propagating resistance when you do that. And the FDA has already taken steps to try and diminish that. They did that last year, actually.

MYRON BELKIND: Is the use of public health monitoring proving to be an effective way to track specific drug-resistant medical situations?

ANTHONY FAUCI: Well certainly, hospitals now have a much more sophisticated tracking system for resistance and sampling people who come in, particularly hospitals that have problems with things like MRSA or C. difficile and others. So, for example, I know in my hospital, we do tracking and isolation as soon as we have a patient that has a resistant microbe, we isolate them. And we have strict protocols about washing hands, putting on gowns, putting on gloves. I do it all the time when I make rounds on our patients.

MYRON BELKIND: Move away from Ebola for a second, and then I have more questions to come back to it. But peanut allergy, nobody had it when we were kids. Now it is very prevalent. Do you foresee a cure any time or even a turnaround in the spread of this allergy?

ANTHONY FAUCI: We are working on this very intensively. My institute is the National Institute of Allergy and Infectious Diseases. Infectious diseases are much more dramatic and cataclysmic, so you generally identify me with infectious diseases. But we do allergy too. And peanut allergy is an important situation that we have now. And you're right, it is growing in numbers.

We're doing a considerable amount of research on it. And one of the approaches is to try and essentially desensitize children before they develop the full allergy. And there is a big study going on, now, to see if you could actually prevent the emergence of peanut allergy in children, in which it's a relatively high percentage.

MYRON BELKIND: As I mentioned before we had lunch, we could go on for a couple of hours. But I'm trying to succinctly get the best questions. And more keep coming in. The Ebola outbreak has highlighted the danger of all sorts of infectious diseases. That being the case, what do you recommend as a regimen for every American to avoid common and dangerous infections?

ANTHONY FAUCI: Wash your hands. [laughter] [applause]

MYRON BELKIND: You touched on this and the questioner just wants clarification. Can Ebola be spread by cough or sneezes, both of which contain small particles?

ANTHONY FAUCI: That's a good question and a source of confusion. So Ebola is spread in bodily fluids when the level of virus is very high. In order for the virus to get into a cough, it has to replicate in the lungs. By the time Ebola replicates in the lung, a person is so sick-- and we know that. And that's the reason why, when you have someone who is very sick with Ebola, and they're in extremists, and you want to intubate them the way you do when someone can't breathe on your own, when you intubate someone-- I hate to say this after lunch-- but you intubate someone, and you stick a breathing tube in, a whole bunch of sputum and stuff comes out on you. And that's a very dangerous time if you don't have the personal protective equipment.

But that happens when someone has very advanced disease. Someone who might be infected with Ebola, that feels well enough to walk around town and goes [clears throat] like that, that's not Ebola in the sputum. Ebola gets in the sputum when you have it in the lung. And when you have it in the lung, you have advanced disease.

Now, is there the possibility that a one out of a million situation will occur when someone-- ? Of course. There's nothing that's 100 percent risk-free. But, from our

extensive experience with Ebola, it is not spread unless someone gets into direct contact with those body fluids.

MYRON BELKIND: How did the initial treatment of Eric Duncan go so wrong? Was it just lack of preparation and staff training at the hospital? Or was he too advanced to be treated? And what was learned about treating Ebola in the United States from that case?

ANTHONY FAUCI: Well the situation with Mr. Duncan was very unfortunate. Because, as we all know, since it was blasted over all of the media, and it was true, that he came to the emergency room on a certain day saying that he felt sick, and mentioned that he had come from Liberia. And mistakes happen. That was a tragic mistake, that it wasn't-- the dots were not connected. Sick African man just got back from Liberia where there's a major Ebola epidemic that, you know, you would think you would want to put the person in the hospital, at least isolate them. He went home for two days, and then came back to the hospital in an ambulance very, very sick. Could that have impacted his ultimate course? Of course. We know that the sooner you treat someone, and sooner you get them under care, the better. But again, those things happen. It's unfortunate. And perhaps hopefully, that would be a lesson learned right now.

We learned that in medical school, as part of your physical diagnosis course. One of the important things you ask somebody is a travel history. "Have you traveled out of the country lately?" Or, "Where have you been lately?" I mean it's just the natural part of asking them if they smoke or if they are on any medications. Travel history is a very important part of the physical diagnosis.

MYRON BELKIND: Japan has received inquiries about the influenza drug known under the brand name of Avignon[?]. Some scientists think that this drug could be helpful against Ebola. Do you think that the drug will prove to be helpful against Ebola? And if so, are there plans to move forward with testing the drug?

ANTHONY FAUCI: I have no idea whether it's going to be effective. It's put up as a potential Ebola drug. And, as I mentioned during my formal remarks, there are at least five, and maybe more, therapies that have been tested empirically under compassionate use by the FDA. We do not know if, (a) any of them are effective, or (b) if any of them are really quite toxic. So I can't tell you right now until we put it in the clinical trial and ask the question in an appropriate way.

MYRON BELKIND: Has the presence of U.S. military troops changed the atmosphere on the ground in West Africa?

ANTHONY FAUCI: Certainly. The Department of Defense has been extraordinarily helpful. They have sent over teams of engineers, logistics, command and control, engineering. And they have set up the plans of 17 100-bed hospitals. They have already put several of these up and have been very helpful in making available the

capability of taking care of patients in what's called “Ebola treatment units,” or ETUs. So the military has been extremely helpful.

MYRON BELKIND: We’re going to switch to malaria for one question. There are reports that genetic data can be obtained from bar codes. Can the data obtained be used to locate the geographical origins for malaria if a malaria is active in a number of countries and regions in the world?

ANTHONY FAUCI: A bar code for malaria? I'm sorry.

MYRON BELKIND: That’s what it says. [laughter]

ANTHONY FAUCI: Okay, all right. To locate the geographical origins. Well, I don’t know if it’s a bar-- I'm going to have to change the question. I've never done bar code with malaria.

MYRON BELKIND: Please rephrase the question.

ANTHONY FAUCI: Okay, let me. Can you track malaria’s location by genetic analysis of it if you want to make the metaphorical bar code be a genetic analysis? The answer is yes. We have capabilities right now that have been developed over the last several years of extraordinary ability to sequence microbes, even big parasites like malaria. Malaria is pretty big compared to a bacteria or a virus. And you can actually track the evolution and location of where things come by tracking the genetic evolution of a microbe. So, if that’s what the questioner was asking about, that’s what you can do.

MYRON BELKIND: A quick penultimate question. Where did you get your interest in science? Was it a chemistry gift early in your youth? Or was it some educational experience? I teach my students at GW, when they do profiles, to try to find that spark that led to a person’s profession. What was that spark for you?

ANTHONY FAUCI: I'm not sure I can pinpoint the actual spark, but I can tell you how I got interested in medicine and science. I was as interested in people and dealing with people as I was in science as an abstract discipline. I went to probably my first year in high school, I realized that I liked science, and I was good at it. But I didn’t want to divorce myself from a profession that, on a daily basis, interacted with people. So to me, the most natural thing was science in the form of people is medicine. So I went into medicine.

MYRON BELKIND: If you can just wait here for a moment, doctor. We are almost out of time. But before asking the last question, we have a couple of housekeeping matters to take care of. First of all, I’d like to remind you about two upcoming lunches. On Monday, December 1st, Teresa Sullivan, President of the University of Virginia, will discuss trends in higher education. On Friday, December 5th, Gary Bettman, Commissioner of the National Hockey League and Ted Leonsis, CEO of Monumental

Sports and Entertainment will discuss the growth of the NHL and the 2015 Winter Classic. And I believe, Jerry, they might even bring the Stanley Cup? That's the plan.

Next, I'd like to present our guest with the traditional National Press Club mug. Dr. Fauci, you might have some other ones. Please add this to the collection with our deep appreciation.

ANTHONY FAUCI: Thank you.

MYRON BELKIND: And for the last question, I'm just struck here. As you have dealt with so many crises over your outstanding professional life-- And I know in October, you must have gone weeks with minimal sleep. How do you remain so calm?

ANTHONY FAUCI: The alternative doesn't work. [laughter] Well, I learned a long time ago that, when you're dealing with a crisis, that if you be consistent in making your policies, your statements, how you deal with situations, based on facts, be consistent, don't be afraid of saying that you don't know something when you don't know something. Because otherwise, you get yourself into trouble. And all of that leads to, I think, a calm approach towards crisis situations.

MYRON BELKIND: Thank you so much.

[applause]

MYRON BELKIND: Thank you all for coming today. I'd also like to thank National Press Club staff, including its Journalism Institute and Broadcast Center for organizing today's event. Finally, a final thank you. [gavel] We are adjourned.

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