



The Economic Club of New York

113<sup>th</sup> Year  
553<sup>rd</sup> Meeting

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John Barry  
*New York Times*  
Best-Selling Author

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Webinar

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President, The Economic Club of New York  
President and CEO  
Federal Reserve Bank of New York

Barbara Van Allen, President: Good afternoon everyone. This is Barbara Van Allen, President of the Economic Club of New York. Thank you for joining us and we will get started in exactly one minute.

## Introduction

Chairman John Williams

Welcome to the 553<sup>rd</sup> meeting of the Economic Club of New York in our 113<sup>th</sup> year. I'm John Williams, I'm the Chair of the Economic Club of New York and the President and CEO of the Federal Reserve Bank of New York.

With a distinguished history since 1907, the Economic Club of New York is a premier forum for discussion of a wide range of issue facing New York City, the United States, and the world. Our mission is as important today as ever, as we continue to bring people together as a catalyst for conversation and innovation.

We proudly stand with all communities seeking inclusion and mutual understanding. For our efforts in connecting with, and encouraging the next generation of business leaders, we welcome members of the Economic Club of New York 2020 Class of Fellows, as well as graduate students from New York University, Baruch College and Columbia.

It's an honor for me today to introduce our guest, award-winning author, John Barry. The National Academy of Sciences names John 2004 book – "*The Great Influenza: The Story of the Deadliest Pandemic in History*, a study of the 1918 pandemic – the year's outstanding book on science or medicine. And it's been a number one *New York Times's* bestseller.

John is the only non-scientist ever to give the National Academy of Sciences Abel Wolman distinguished lecture, and he was the only non-scientist on a federal government infectious disease board of experts.

He was an advisor to the Bush and Obama administrations on pandemic preparedness and response, and he served on the original team which recommended public health measures to mitigate a pandemic.

John's worked with the private sector, with government bodies, with the United Nations, World Health Organization, officials on pandemics, water-related disasters and risk communication.

He serves on numerous advisory boards as a professor of the Tulane University School of Public Health and Tropical Medicine.

The format today is a conversation that I'm very happy to be moderating. We will end promptly at 2:45. I did receive questions that were sent to the Club from members in advance and I'll include those in the questions I ask John.

As a reminder, this conversation is on the record. And we do have media on the line.

Conversation with John Barry

JOHN WILLIAMS: With that, John, first of all welcome to our conversation today. I've been looking forward to this, given the obviously important topic, and to hear your insights. So, I'll just dive in with the first question.

I noticed you've had a really good track record around the Covid pandemic. Back in January of this year you predicted that the virus wouldn't be contained, and in April you predicted the summer would not provide relief.

I'm curious, your prediction for us today, around Covid going forward?

JOHN BARRY: First, thanks for having me. I'm flattered to be speaking at this august club. Everything depends on behavior. It's very simple. Making a prediction based on human behavior is pretty difficult. Yeah, worse case, if it had not been in today's times,

and quoting a Morgan Stanley projection of their baseline of 150,000 new cases a day, later this year, and that was not their worse case. That was based on current policies and adherence. That may be a little dated. Things have improved. That was July 20<sup>th</sup>. Things have improved since then. If it's maintained...you know the virus is not going to go away.

If the improvement is maintained we would probably be in a place similar to where we are today, which is not a good place. It is not a good place. There is no hint of – throughout the country there may be a few isolated places – of taking a kind of more aggressive measures that would truly get the virus contained.

The point of the op-ed today to plagiarize myself, I guess, this administration viewed the public health and the economy as antagonistic and, in the piece, I said, they're actually dance partners and public health is taking the lead.

If you look at what's happened elsewhere around the world, where they have been much more aggressive in attempting to contain the virus, their economies are doing much better. The German unemployment number, 6.4%, we're over 10%.

Open table, services Germany as well as the United States, according to their data, German restaurants are actually up, year over year. They're doing better today than

they were at this time last year. In the United States, they're still down well over 50%, it varies day-to-day.

China is the only major economy in the world that had an increase in their GDP in the second quarter. They contained the virus. Germany has done very well containing the virus. If you want the economy to come back, contain the virus.

I quoted a study by a colleague of yours on the Federal Reserve, with an MIT economist and a Fed economist that concluded only 7% of the economic collapse was attributable to government regulation. The rest was consumer confidence.

So, if you bring the consumers back, then the economy comes back. That's a long answer, and a diversion from your original question. It's easier to predict what the virus is going to do, it's not so easy to predict what people are going to do.

I just left Louisiana, I've been watching it right now, I live in New Orleans. Walking around Washington today, everybody's wearing a mask. I mean, everybody. Walking on the streets of New Orleans, you don't see that. And New Orleans is probably better than a lot of other southern states. It's got a democratic governor, who's pretty aggressive. And the mayor of New Orleans has been quite aggressive.

If you got everybody in the country doing what they're doing in Washington and in New York, then you can get some containment.

JOHN WILLIAMS: So this issue of behavior, which is something that a lot of our economists have been looking at. So, this is a situation where the epidemiologists, the economists, everybody else is trying to understand that, really is at the forefront of a lot of these kind of models and analysis.

When you go back to your study of the pandemic in 1918, influenza pandemic, and today, where do you see some of the common things around behavior, and where do you see things that are really different from back then?

JOHN BARRY: Well I can talk about similarities and dissimilarities of the virus. In terms of behavior, it was quite dissimilar. That's chiefly because the 1918 virus was much more virulent than this virus. So, even though you had public pronouncements trying to trivialize the virus, because we were at war and they thought anything else would hurt morale and hurt the war effort. You really didn't have anybody in the public paying any attention to that.

You could have deaths in 24 hours after the first symptoms, you could have symptoms as horrific as bleeding, not just from the nose, which was actually quite common, but

even from the eyes and ears. When you have symptoms like that, when you have deaths like that, plus in 1918 the peak age for death was 28. Probably two-thirds of the deaths were people between 18 and 45. In that context, everybody took the disease very, very seriously. Almost from the moment it arrived in a particular city.

This time around, it's quite different. So you had adherence to public health recommendations from the beginning in 1918. Whereas here you had a lot of resistance, obviously.

JOHN WILLIAMS: It's interesting, I was reading an historical account, though, that even then, there were people who were grumbling about face masks and some of those restrictions. But your point is well taken about how people actually behaved.

JOHN BARRY: There were instances of that, but honestly, I think it was overblown. I didn't systematically look at what happened in every single city. I focused on a few cities because it became very redundant.

There was an organized anti-masking effort in San Francisco for example, which has gotten a lot of publicity. But the reality is, that was not the first time around. That was after San Francisco had closed, great adherence, reopened, and then tried to re-close and reimpose the masking ordinance.

Even that, I think, was overblown. Much as the liberate Michigan demonstrators that we saw this time around did not represent even a small minority. They were a tiny minority.

JOHN WILLIAMS: So, we're months into the pandemic in the United States. The question I get asked by people, obviously that I talk to, and my employees, is when are we going to get back to normal? Also, what does normal mean? Are we in a new normal where pandemics become a regular part of our life? How should we think about that?

JOHN BARRY: That's another thing that's impossible to predict. It really depends on the efficacy of the vaccine, I think. And how soon we get it. It depends on habits. If the vaccine is really, really good, and it's widely distributed, say March or something like that, I actually think people have short memories.

Normal may return, the new normal may be a lot like the old normal. With the exception possibly of things like shaking hands. That may disappear, maybe not. If the vaccine is not tremendously effective, and we don't get therapeutic drugs and I would throw therapeutics in with what I said earlier, then there are going to be drastic changes to society, not only in the sense that we're going to get used to the social distancing. Which, incidentally, let me make this point, the most important thing is not a mask, the most important thing is social distancing. That's number one, number two, and number

three.

The masks are important, but they sometimes give a sense of over-confidence. In case I didn't get an opportunity to say it later, social distancing is the most important thing. To get back to your question. You could see massive restructuring in terms of office space. In terms of commuting. All those things could change dramatically. But again it depends on the vaccine.

It also depends on the virus. There are a minority of scientists, one I have respect for, a European, who thinks this virus will go the way of the common cold eventually. That, as our immune systems become more and more accustomed to it, it will become less lethal. That's a minority view. I am not a virologist, but it's not one that I share. The reason is pretty simple. That unlike the common cold, coronaviruses or other viruses that cause the cold, this virus can bind directly to cells deep in the lung. And that's what makes it really dangerous.

But that would be a best case. So again, impossible to predict. And I think totally dependent upon the speed and efficacy of the vaccine.

JOHN WILLIAMS: You know there's just so much information coming in about the vaccines and treatments. Every day I go on the computer in the morning and there's all

of these reports and initial studies, in Phase I, Phase II, Phase III. What's your advice to the people who are listening today or others? Where do you get your information? Or where should, more to the point, where should we be looking for good information? Do you have any suggestions on that?

JOHN BARRY: Well the CDC still is a pretty good place for information. So are the major newspapers. I think the *Times* and the *Washington Post* have done a tremendous job covering this. The *Atlantic* is a team of people who've been phenomenal. *The New Yorker*. All of the major mainstream, I think on CNN, Sanjay Gupta has done a terrific job keeping people informed, accurately.

All of the major media. In fact, whenever there's been a real crisis, that's when the major media has generally risen to meet the moment. I can go back to 9-11 and so forth. The media was terrific, immediately after that, getting information out. In other real crises, the media has performed pretty well, and I think it's doing a great job right now.

In terms of the actual issue with the vaccines, I do not know of any bad news that's really come out on any of the leading candidates. All we've heard is good news. And obviously I hope that continues. Everybody remains optimistic. The virus does mutate, but it doesn't mutate anywhere near as fast as influenza or a lot of other RNA viruses. It's one of the slowest mutating RNA viruses.

And the spike protein, which is the target for most of the vaccines – the overwhelming majority of the vaccines – that seems particularly a stable part of the virus, and that's very important.

JOHN WILLIAMS: So, switching gears a little bit, it's August, a lot of people are thinking about the school year starting. People with their kids either in schools or other situations, they're going to college. Going back to the history of 1918 and thinking about that, how do you think, again, asking for a prediction, how should we think about when schools will fully be reopened. How do you think about the decision about sending a child to school or college this fall? How are you thinking about these issues?

JOHN BARRY: You know that's one of the biggest differences between 1918 and today. In influenza, number one, kids are vulnerable. In 1918, children age 1 to 9 died at a rate equal to all-cause mortality today for more than a ten-year period. Just imagine that. Because the deaths were all compressed in a particular community in six to ten weeks usually. And you're talking about all-cause mortality today over a more than ten-year period, compressed into that short time frame for influenza. Even seasonal influenza is not that deadly, of course. But kids are vulnerable.

Number two, kids are super spreaders. They are well-known as super spreaders for

influenza. This virus is quite different. Number one, as everybody knows, kids don't get sick. They probably do transmit, but I haven't seen any evidence that they're actually super spreaders the way that they are in influenza. The way I think of schools are that they're like everything else, they're not special. It depends on community transmission.

In every influenza pandemic preparedness plan that I know of, one of the first moves, and even in a moderate pandemic, forget about a severe pandemic, is to close the schools. And it makes perfect sense for influenza. This is a different virus, and its behaving differently in kids. If I saw evidence, consistent evidence, that kids were super spreaders, that would be different.

As it is, I think it's entirely dependent on community transmission. If community transmission is low, there's every reason to send kids to school. If community transmission...you do have to make some adjustments, of course, in terms of distancing and things like that, you wouldn't just have 30 kids in a classroom, elbow to elbow. If community transmission is high, no, you keep the kids home, and have to do it remote learning.

JOHN WILLIAMS: You emphasize community transmission and understanding what's going on, one of the big questions is, and got a lot of attention, is around testing and tracings. You said, as long as we know this, then we can do that. Where are we in terms

of testing and tracing? In terms of being able to make those decisions.

JOHN BARRY: It's still a debacle in most of the country. I know what the targets were in Louisiana for example. Their original plan was to contact 75% of the positives within 24 hours and 75% of the contacts within another 24 hours. If they had done that, if they were able to do that, that would be effective. They are nowhere near that target. They are not doing too badly in terms of contacting people who are positive. But the responsiveness from people, from the contacts of people who were positive, that's not good. That tends to be the way it is in the rest of the country. There are a few places that are doing much better.

We are way behind. Part of it is simply the number of cases. In fact, most of it maybe, is simply the number of cases are just far too many for the number of people employed in this to be able to keep up with. It's one thing if you have a few hundred cases, it's another thing if you have 10,000.

So that is clearly the worst thing that...I mean, this late in the pandemic, it's incredible to me that, that, has not been worked out yet. It's absolutely incredible.

JOHN WILLIAMS: But when you look at other countries where you mentioned, you look at countries that either have this earlier than us or have brought down their cases to

much lower. I mean, how are they doing on the testing and tracing? Is that an important part?

JOHN BARRY: Oh yeah. That is key. That, and adherence to the public health guidelines, which are the same all over the world. Italy, the last time I looked had less than 200 cases a day. Even when you've got a surge in Europe lately and it has been a bit of a surge, you're still talking about over 500 million people in the European Union and the United Kingdom, and you're still talking about 8,000 cases a day. Obviously, we're 325, 330 million, and I guess our seven-day average is still over 50,000 cases a day. It's just out of sync. The amount of effort and infrastructure required has been built up in Europe, by and large, to do that. The UK certainly has had some problems. Although they initially treated the disease somewhat like the United States did, and then took it more seriously.

But we just haven't devoted the resources in the United States to do that. Hopefully with the rapid testing that is beginning to come online and things like that, things will be a lot better off, soon, I hope. This is August. This is something that should have been taken care of in January, planned for, prepared for. It's just crazy that we are where we are.

JOHN WILLIAMS: You just mentioned August, and I'm going to jump to a question that comes up a lot and that is the seasonality of coronavirus. And I know early on a lot of

people were talking about, well there's summer, there's winter, going back to the 1918 experience of influenza coming back. How should we think about that now in terms of what we're seeing across the globe? What we're seeing this summer in the US in terms of the seasonality?

JOHN BARRY: Well it's true that most respiratory viruses, including influenza and the common cold, hot temperatures and high humidity are not kind to those viruses. So, they do not survive as long outside of the body. In addition, there are epidemiological factors. People tend to be outdoors as opposed to indoors. And for those reasons influenza and common cold do not spread nearly as widely in summer as they do in winter.

But people have been exposed to those viruses. Their immune systems are prepared to deal with them. And that's why in April, including based on 1918 data, I wrote the piece in April, saying don't expect summer to provide any relief or much relief. The reality is, it would have been worse if the virus had hit in winter. Summer did actually provide relief. It may not seem it, but it could have been a lot worse.

The reason why I did not expect summer to provide relief was because at that time, probably 95% of the population was still susceptible to this highly transmissible virus. And susceptibility was much more important than the temperature or the

epidemiological factors.

Plus, going back to 1918 that virus came in waves, but they were quite different from what we experienced. The first wave in 1918 was very hit or miss. My own view is probably the virus wasn't really good at infecting people yet. I think it missed much of the United States and very possibly most of the United States. Los Angeles didn't record a single death in the spring of 1918. It did hit Western Europe pretty widespread.

But the first sign of the lethal second wave was in July and that was Switzerland. It's the middle of summer. And that wave ended in January in Australia, which is the middle of the summer in Australia. In Australia, 40% of the population got sick, in the middle of the summer. Because of that model, of what happened when you have the population susceptible, that's why I thought roughly the same thing would happen this time around. And unfortunately that's...I would have been happier being wrong on that one actually.

JOHN WILLIAMS: One of the things that I learned from these epidemiological models is that they have this mathematical kind of nature to them, and people tend to look at, are cases declining or rising. But in fact, I'm picking up on what you said, it's also important, how many people are out there carrying the virus at that time.

I'm curious how you think about the kind of the impatience people get. We saw this

earlier in the year. The cases were coming down, people were saying things are getting better, we are near the end. But the cases were still pretty high. That created a situation that allowed it to come back and maybe it's just a second part of the first wave.

But right now we're seeing cases come down. Things are looking better. Are we going to persevere this time and make sure that we get the cases low enough? How do you think about the risks in terms of where we are now?

JOHN BARRY: Well, I mean, the risk is certainly still there. It goes back to your first question; predicting behavior. There's more compliance now than there was. There's no question about it. I was talking about Louisiana compared to Washington DC, but Louisiana compared to Louisiana a few weeks ago, even, much less months ago, there was much more compliance on the street in New Orleans last week, than there was earlier.

The real trouble...one of the mistakes that was made early on in the messaging, including by public health people whom I have regard for, not just some political people in the White House who I think have completely mangled everything. They didn't make it clear that this was a long war. So, people's expectations including among those who were compliant, were a little bit different.

If the scene had been set that this thing is going to be with us for a long, long time, and personally I think the virus will probably be with us forever. Although it hopefully won't be a serious threat forever. If people were prepared mentally and recognized that this thing was going to be around for at least a year, we were going to have to deal with this, then, just get more ready to sustain compliance. It's difficult, including for me, I know what you need to do. And sometimes I get a little bit lax myself and have to remind myself that this is dangerous.

Predicting where we go in the future, if we get over confident, and if the messaging keeps being inconsistent, it is very, very possible, if we enter the fall and colder weather with a baseline of 30,000 cases or something like that, 25,000, 35,000 anywhere near that, if that's the baseline, then I would guess we would be in pretty serious trouble when the cold weather comes.

There has been some publicity lately, I guess in yesterday's *Times*, I think *The Journal* had something also, about possibly herd immunity would come as low as 45% or that nature. Even if that's true, herd immunity is not exactly immunity. It's not the same thing as immunity. The price that you would pay to get there, right now, I would think at most 10% of the population overall has been exposed to the virus. That's the upper limit. I think it's probably a little bit less than that.

So, we have 170,000 deaths. To get to 50%, that's five times that. It probably wouldn't be quite, because the medical care has improved dramatically from the early days. Even without great therapeutics, we've learned how to handle cases better. It still depends on behavior and hard to predict. What is Trump going to say from the White House? What is the rest of his team going to say? Does it continue to be politicized?

Are the democratic attacks on his performance, going to make him "double down" which he usually does? Or is he going to respond in some better way to get people who believe him to adhere to public health guidance, I don't know.

JOHN WILLIAMS: In your experience, something we've all been following and trying to understand, do you have a particular view on...you mentioned Korea and a few other countries and how they responded. I'm curious how you look at, well maybe Sweden or New Zealand or some of the other cases that took very different approaches. What did we learn from that?

JOHN BARRY: Well New Zealand case, of course, is a special case, because their an island and they isolated themselves. In fact, in 1918 that's why Australia wasn't hit by that second wave until January. They instituted a very rigid quarantine that did not leak until January. When it leaked, as I said earlier, 40% of the population got sick.

We can't do what New Zealand did. And I don't know if New Zealand could have sustained it because a lot of their economic activity comes from tourism.

Sweden remains something being debated by epidemiologists. I believe it was about a week ago, maybe two weeks now, several dozen Swedish experts attacked the government saying what they had done, had been a disaster. Their case numbers have come down a lot lately. But they are still nowhere near herd immunity.

Even if you think it's the lowest numbers for those models, around 45, 50%, they are not even there yet. Of course their deaths are very high on a per capita basis. Higher than the United States. Although people in Sweden are not dying anymore and people in the United States are, so our per capita death rate is going to continue to climb.

Personally, I think that was not a good experiment. But we will see in a few months when the final total is in.

JOHN WILLIAMS: I talked to Congress about this, of course, we talk a lot about incentives, that's how we think about things and behavior. A lot of the ideas that are out there is to try to get away from like this idea of the New Zealand example, maybe, the shutdown, versus the open. And think about more targeted restrictions and things. Have you seen that work in places?

JOHN BARRY: There have been some countries that have targeted, and I believe you can target those things. I don't think you have to have the absolute shut down. Europe did of course shut down a lot more than we did. We really only shut about half of the economy down. They were a much higher percentage, it varied country to country.

Let me return to Sweden for one second. I think your audience probably knows this, but I'll say it anyway. Sweden did not simply let everything go. They talked at great length about social distancing, and individual responsibility and things like that. They did not simply let the virus run free. That was not their plan. Even with that, they were one of the highest in the world on per capita deaths.

In terms of targeting, yes, I think you can be very successful if you target things. Any large gathering, this would include churches, not just bars and restaurants, and adherence to public health guidelines, I think you can accomplish a lot. I don't think you have to shut everything down. There are people who disagree with me, who think you need to be more extreme.

JOHN WILLIAMS: You talked a lot about a vaccine and you actually sounded pretty optimistic about that, maybe I'm wrong. So how will this end? I'm going back to the 1918 experience and some of the other pandemics that have happened.

Some of them, there's never been a vaccine. Talk a little bit about what the historical...

JOHN BARRY: In 1918, two things happened. Number one, I think the virus itself, again, one other fact, it's a mutating virus, as we know of, I think the virus just mutated in the direction of ordinary influenza viruses. It became milder. The other thing that happened is people's immune systems became able and incidentally the descendants of that 1918 virus continue to circulate today.

But people's immune systems also were able to recognize it and deal with it much better the second and third time around. Actually, I don't normally write scientific journal papers, but I did do one for the *Journal of Infectious Disease* with some coauthors at NIH. We concluded that first wave exposure in 1918 and remember the first wave was not widely disseminated. But first wave exposure produced anywhere to 89% protection against death, 94% protection against as illness, as high as.

You compare that to our modern influenza vaccines, the best vaccine we've ever produced is 62% protection. And the worse was 10% protection. So, in 1918, first wave exposure provided anywhere from 59% to 89% protection against death. Much better than our best modern vaccine.

That's an indication that the immune system was able to recognize the virus and deal

with it when it saw it again.

JOHN WILLIAMS: We've had a number of pandemics and we've been somewhat fortunate that they didn't get as bad as was feared. And this one obviously is much worse than people had I guess hoped. So, how do we think about the future? Is this the 100-year flood or like the other ones we managed to escape without greater problems like we've seen this time. How should we be thinking about the future? Is this going to be more a normal thing or ...?

JOHN BARRY: I'm laughing because you used the analogy of the 100-year flood and I know something about floods. Because I'm on the levee board after Katrina in New Orleans. In the average person's lifetime, they have a better than 60% chance of seeing at least one 100-year flood. So, 100-year flood could easily be two or three 100-year floods.

As people around the country in different areas have seen multiple 100-year floods, take Houston, for example. So, that's not a great level of protection. The viruses are out there. There are millions of them. They're in animals, many of them have the capacity of jumping species to humans. Humans are now settling in areas that were pretty wild in the past. There may well have been instances in the middle of the Amazonian or African jungle where a virus jumped to humans in an isolated area, killed a few people and died

out.

Now there's more movement and trade and so forth, interaction, and giving those viruses opportunities to spread to the wider population. I think the likelihood of other instances like this happening is pretty good. But, it's like a hurricane, you know it's going to happen, but you don't know how bad it will be, and you don't know when it's going to occur.

JOHN WILLIAMS: Once we get through this, and hopefully the vaccine comes, and it has a high effectiveness and things go well, but thinking about the lessons from 1918, thinking about the lessons from this year, where should we be as a society making the investments to be more resilient and better prepared? Both for the health side, but also the economic costs at this standpoint. What do we need to be doing?

JOHN BARRY: Well I think there are two areas and number one is public health. Which investment there has eroded over the last 20 years. Consistently over both parties, with the exception of the George W. Bush administration, \$7 billion piece of legislation to set up pandemic preparedness and so forth. That's important. That created the national stockpile, the major investment in vaccine manufacturing technologies and capacities, and things like that.

But since then, the public health investment has declined. So, number one we need more in public health, and number two, you need to pay a lot more attention to viruses. Of all of the funding that the government provides to health research, there is a tiny fraction, a tiny fraction, that actually goes to viruses.

Usually something needs press attention before you get any money. West Nile never killed more than 300 Americans in a year, and if you understand the virus you knew if were a horse it was pretty dangerous, but if you were a human, West Nile was never going to be a serious threat to human health.

And yet, West Nile was getting more research dollars than influenza was until H5N1, the so-called Bird Flu, surfaced. And that was just crazy. Because influenza was killing at least 20,000 Americans a year. We do not have a rational way to set priorities. It would be nice if we did. But we don't.

I'm concerned that given the incredible, fiscal pressure on every segment of government, that this pandemic has created, that once we get two or three years out past it, there won't be the investment in either public health or NIH and viruses and so forth. That, that will erode because of the fiscal pressure once our memory begins to fade. I hope not.

JOHN WILLIAMS: Well I will say that those preparations that you mentioned, both at the federal level but in organizations, I think were important. I know for our organization we had the pandemic planning. And thought through a lot of those issues based on other situations. This was not what people expected and it happened very quickly in terms of working from home. But that kind of planning definitely pays off.

I'm looking at the clock now and I realize we are now out of time, unfortunately. But you gave us some predictions, so next time we talk, we will see how things have evolved and hopefully for the better. Thanks again, John, for sharing your valuable time with us. This was very interesting, very informative.

I'll just close up here. We have a lot of other speakers lined up in the coming weeks and months and we encourage you all in the audience to invite your guests and attendees. We've got Larry Kudlow coming up. The Assistant to the President for Economic Policy and Director of National Economic Council. We have Ken Frazier, Chairman and CEO of an American company, Henry Kissinger, obviously, 56<sup>th</sup> Secretary of State, and Chairman of Kissinger Associates. And General H.R. McMaster, Chairman of the Board of Advisors at the Center on Military and Political Power at the Foundation for Defense of Democracies. And my colleague, Tom Barkin, who's the President and CEO of the Federal Reserve Bank of Richmond, will be speaking to this group as well.

Please, our calendar, we keep adding new speakers, new topics. Please keep monitoring our website and watching your email boxes. Because we will be having more announcements as we go.

So, again, thank you all for joining us today and stay safe.