



The Economic Club of New York

113<sup>th</sup> Year  
559<sup>th</sup> Meeting

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Kenneth C. Frazier  
Chairman and Chief Executive Officer  
Merck & Co., Inc.

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Webinar

Moderator: John C. Williams  
Chairman, The Economic Club of New York  
President and Chief Executive Officer  
Federal Reserve Bank of New York

## Introduction

Welcome everyone to The Economic Club of New York. This is Barbara Van Allen, the President. And I'm pleased to say that we will get started in exactly four minutes. Thank you.

## Chairman John C. Williams

I'd like to welcome everyone to the 559<sup>th</sup> meeting of The Economic Club of New York and it is our 113<sup>th</sup> year of the Club. So I'm John Williams. I'm the Chairman of The Economic Club of New York and I'm President and CEO of the Federal Reserve Bank of New York. With a distinguished history since 1907, The Economic Club of New York is the premier nonpartisan forum for timely discussions on a wide range of issues facing New York, 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 the sharing of ideas from all points of view.

Particularly during these challenging times, The Economic Club of New York proudly stands with all communities seeking inclusion and mutual understanding. And to put those words into action, the Club kicked off its Focus on Racial Equity Series last week and today's event is the second in the series. During the fall and going forward, we will be leveraging our platform to bring together prominent thought leaders to help us

explore and better understand the various dimensions of racial inequity and highlight strategies, best practices and resources that the business community can use to be a force of change. We'll be cataloguing, publishing and sharing these insights broadly. And we're not doing this work alone and we'd like to give special thanks to our corporate partners – Bloomberg, MasterCard, PayPal and Taconic Capital – as well as the many members, speakers and subject matter experts we are now and will be engaging in this work.

Now before moving to today's program, I'd like to take a moment to recognize those of our 312 members of the Centennial Society that are attending today as their contributions continue to be the financial backbone of support for the Club and help enable us to offer our wonderful diverse programming now and in the future. We'd also like to welcome our next generation of diverse business thought leaders in attendance and that includes members of The Economic Club of New York 2020 Class of Fellows as well as graduate students from Fordham University, Zicklin School of Business at Baruch College, NYU Stern School of Business and Rutgers University.

Now it's an honor for me to introduce our special guest today, Kenneth Frazier. Ken has served as the Chairman of the Board and Chief Executive Officer of Merck & Company since 2011. Under Ken's leadership, Merck is delivering innovative lifesaving medicines and vaccines as well as long-term and sustainable value to its multiple stakeholders.

Ken has substantially increased Merck's investment in research, including early research, while refocusing the organization on the launch and growth of key products that will provide benefit to society. He has also led the formation of philanthropic and other initiatives that build on Merck's 125-year plus legacy.

Prior to joining Merck, Ken was a partner with the Philadelphia law firm of Drinker Biddle & Reath and Ken's contributions, especially in the legal, business and humanitarian fields, have been widely recognized. He sits on numerous boards and he's also a member of the American Academy of Arts and Sciences, the American Philosophical Society, The Business Council, the Council of the American Law Institute, the American Bar Association. I need to take a breath with this long list, Ken. And he's co-chair of the Legal Services Corporation's Leaders Council.

Ken received his bachelor's degree from The Pennsylvania State University and holds a J.D. from Harvard Law School.

And the format today is a conversation that I'm very pleased and fortunate to be able to lead. And it will end promptly at noon and the questions that people sent in, we've collected and will be included in our conversation.

Conversation with Kenneth C. Frazier

JOHN C. WILLIAMS: So let's, Ken, we've got a lot of things I'm sure our audience is really interested in hearing your perspectives on. So again, thank you, welcome to the Club. Welcome back, and let's get rolling.

KENNETH C. FRAZIER: Thanks for having me back.

JOHN C. WILLIAMS: So, as I mentioned in my opening remarks, obviously racial equity and the role of the business sector is an area of very strong focus for the Club right now and obviously a focus across the country for businesses and business leaders. So could you share your perspectives as to really what is the role of the American business community and leaders in tackling these very difficult issues?

KENNETH C. FRAZIER: So let me take it up to a very high level of elevation before I get down to some brass tacks. You know, I used to teach law school in South Africa during apartheid. I taught there five semesters. And South Africa had obviously challenges around racial disparities, economic inequality, a huge amount of hopelessness in the society, civil unrest, but I always thought the two major differences between that society and the American society were, first of all, our commitment to a set of stated creeds that our nation was founded on, including the concept that all people

were created equal.

And the second one, and an important one, is the role of the private sector in our country. The great thing about our country is that we've shown over the ages the ability to reinvent ourselves. And a lot of that has been led by the business community. So the private sector's talent, the private sector's resources, its infrastructure are incredibly important in this country. And so I always thought that the great thing about the United States was, as we like to say, we're a land of opportunity. Unlike certain other countries around the world where there are cast systems or class systems, where you're either born into poverty or you're born into privilege, in the United States we like to believe that people can rise based upon their own merit. The challenge in our society is that we have historical vestiges of a time when frankly African Americans were treated as second-class human beings. And those historical vestiges still have sort of structural and systemic issues that we have today.

So let's focus, you know, on the economic challenges that Black Americans face. And the economic gap, as you know, for Black Americans is large and it's unfortunately growing. According to the Bureau of Labor Statistics, the median family wealth for the average White family in this country is \$147,000. For the average Black family, it's \$4,000 by comparison. The income gap between Blacks and Whites continues to grow such that today the median African American employee is the same gap relative to the

median White employee that existed in 1953. So we've fallen backwards. And the results of some of these structural barriers is that there has been downward mobility for many African Americans over the past 20 years. And we can talk about why that opportunity gap exists.

You know I have the privilege of being in this conversation because I overcame some of the opportunity gaps that are structural gaps in our society. And I'll just start – and I don't want to be too autobiographical – but I'm the eighth of my father's nine children. My younger sister and I came along in the birth order at a time when the social engineers in Philadelphia were engaged in what they call, the experiment called School Desegregation. And what that meant was that a handful of Black children would be bussed from my neighborhood in the inner city to the best schools in Philadelphia. And when I look at my life, I realize the extent to which my success is to some degree incidental. It goes back to having to ride those buses 90 minutes, which I hated at the time, to go to a neighborhood where I felt like a stranger in a strange land. But the education that I got was different from the educations that my neighbors and my siblings got in the neighborhood that I grew up in.

And across the country, it's unfortunate that our educational system is – to some degree – more segregated today than it was 20 years ago. You know in this society we tend to allocate the quality of public education based on the parent or guardian's ability to afford

real estate proximate to where the best schools are located. And so if you think about that, frankly the economic outcomes for one generation become the economic opportunities for the subsequent generation.

So the challenge that we face is we have a broken education system which leads to a broken employment system in this country. So young Black Americans who have experienced some of the longest and highest unemployment rates in America, it all stems back to a lack of education and a lack of training. And I'll take a breath here before I go on to talk about what I think it is that business can do to help alleviate this connection between economic inequality and racial justice.

JOHN C. WILLIAMS: Yes, thank you, Ken. And, you know, we've done a lot of research ourselves in the Federal Reserve along with other agencies you mentioned, highlighting these statistics. And the fact that Covid-19 has revealed that things, obviously communities of color have been hit, you know, even harder because of the health disparities, the lack of wealth and income to deal with any kind of situation like that. So it's definitely something that has, like you said, it has gotten in a way worse and has been revealed to be, you know, just very challenging for many communities and many families.

KENNETH C. FRAZIER: Right. So what do we do about it? Right? So there are a lot of

things we can do. I think, first of all, business has a role in advocating for better education. And I think the business community in New York City has been notable in some ways in supporting, for example, academies of higher achievement in the Black community. I know that there are a number of charter schools in New York that are highly supported by the business community that give underprivileged African American and other children an opportunity to get a rigorous education. So we can play a role in trying to eliminate the educational opportunity gap.

But I think the single most important thing that business can do at this time is in the area of employment. You know it's great for us to be focused on inequities in law enforcement, in health care, in education – I strongly support those things. But what's in our wheelhouse – so to speak – is employment. And specifically I would say that there are about 1.8 million African Americans between the age of 18 and the age of 30 who have a high school degree, no college degree, and no job. And what I think we need to do, as a community, is to be very focused on how do we address that huge education gap.

So what I'm proposing and what I've been talking to about 30 other companies about is creating a coalition of the country's leading employers who will commit to an action-oriented, results-focused approach to increasing the representation and percentage of African-Americans that they hire, retain, and advance in their organizations. The

backbone of that will be various talent-management organizations that will help organize and supply diverse, skilled and semi-skilled talent to these organizations. And we need to create a community of practice that transparently measures and shares and reports on the progress and learning over time.

So let me give you one example of what I'm talking about because we're engaged in this inside Merck. We looked at our job requisitions a little while ago and we were able to discover that a number of jobs we require baccalaureate credentials for but the skill sets didn't require a four-year education at all. So as we started to focus on skills and not academic credentials, we realized, for example, entry level IT jobs, jobs in our patent filing organization, these were jobs that people who were given a certain level of training could very well do. And we find that those people, these are the best jobs that those people could aspire to right now and they're happy to have these jobs. Frankly, when we hired college graduates into the company to do those jobs, they saw that as their first job and they were quickly looking for their second job inside the company. They weren't at all happy to have some of these entry level jobs. So what we found is that we had a series of practices inside Merck – policies and practices – that on their face were racially neutral, but in fact, operated in a way to systemically disadvantage African Americans.

And the challenge we face in America right now, you know, this is a moment where we'll

all having this conversation because of the most overtly racist, brutal situation that existed with respect to George Floyd. But I think it's harder for us as a society to step up to these things that are unconscious, that are almost invisible, that are systemic that we've always sort of taken for granted, but actually advantaged certain people and disadvantaged other people when it comes to the competition in our companies for hiring and advancement.

JOHN C. WILLIAMS: Yes, I completely agree with that. And re-examining all of your practices or even, you know, the job specifications that we write down, you find a lot of things that make, quite honestly don't make any sense, and you gave some great examples of that. The other thing I heard you say, and I guess for a businessperson I'm not surprised, it's about investment. It's about investment in education. It's about investment in your people and developing them and you mentioned retain and advance. Can you talk a little bit more of kind of how you, you know you mentioned the retain and advance, anything else that you've learned from others or from your own organization?

KENNETH C. FRAZIER: Well, so first of all we don't claim to have solved all these problems at Merck, so I'm not holding Merck up as an example of a company that does everything right. But I do think that a lot of companies, including Merck, do a fairly good job of bringing people in but it's sort of a leaky bucket situation where people come in and they leave and new people come in and then they leave. So we're not able to make

progress in terms of improving representation.

I think a number of things are important. We've invested substantially in development programs. We've invested, you know, in manager development. It's important for managers to understand how to develop. It's important for people to focus on the unconscious bias that exists in the organization. And it's interesting because often people will think these are programs aimed at Black Americans. You will find that when you train managers, when you have an organization that thinks about the policies and practices, when you think about eliminating some of these unspoken barriers, it actually helps everybody in the organization. It doesn't just help African Americans.

We focused particularly a few years ago in Merck on women. We looked around and we realized that we did not have women in operating jobs. And so we were very intentional about developing talented women to go into those jobs. And what was fascinating is when we started to have women operators in key jobs, amazingly underneath them another generation of women operators who were terrific came up underneath them. So it's really important to be intentional about investing in your people.

JOHN C. WILLIAMS: I think that's it; it's about investing in your people. You said it very well. I think that we also, the other point you made is we all, you know, need to learn from each other. And this is again, I think, why The Economic Club of New York, we can

play that role in helping business leaders get together along with the work that you and your colleagues are doing. Because like you said, nobody's got all the answers and we definitely learn a lot from each other in all the dimensions of this.

You know in terms of, I know we've got only so much time, I know, I'm sure our audience would like to hear about some of the work you're doing around, and what's happening around the world of healthcare. So, should we turn to that?

KENNETH C. FRAZIER: Sure.

JOHN C. WILLIAMS: Okay, so I have on my notes the word vaccines. So everyone is talking about vaccines obviously because of coronavirus. Every one of us, you know, is trying to understand what's happening in terms of vaccine developments in the news constantly. Honestly, I don't really, I think many of us don't really understand what all these phases of the trials are and what all these things mean. Could you maybe help us and our audience today to understand what a normal vaccine process looks like and then we'll turn to specifics around Covid?

KENNETH C. FRAZIER: So the first thing, let me start with a statement of real optimism. I have never seen a situation where so many smart people across so many different organizations began to focus on contributing their scientific expertise to find

solutions to SARS-CoV-2 and Covid-19. And there's many, many, many vaccine programs using different approaches that are in the middle of clinical trials and that makes me feel extremely optimistic.

But the reality of the world is vaccine development is very hard. Just as an indicator, there have only been seven new vaccines introduced into clinical practice in the last 25 years. And vaccines need to be developed with a significant amount of rigor because unlike therapeutics, which are given to people who are already sick, we want to give vaccines to millions, and in this case billions of people who seem to be healthy. So in order to do that we have to be extremely careful in studying these vaccines to understand their safety, their efficacy as well as the duration of their efficacy.

So going back to your specific question about the studies and the phases, generally there are three phases of clinical studies that we do. In Phase 1, we have a very small number of healthy volunteers and we give it to them to make sure that the vaccine doesn't cause any sort of immediate untoward problem and it also helps us to assess, you know, a little bit of information about what the right dose is.

Then you usually move on to Phase 2 studies where you start investigating the right doses and regimens in a large and more diverse population. Generally you probably have a few hundred subjects at that stage. And if things pass that, and in the case of

this, that's where you're hearing a lot of information about early signs of immunogenicity for example.

If you then go past that stage, you get to Phase 3 studies. And there are four companies in Phase 3 studies. Those are what we call pivotal studies where you try to really determine efficacy and safety going forward. You try to design and evaluate the final dose that you will actually use in the real world. And usually those studies will be 30,000 to 60,000 people. And during that trial you closely monitor patients at regular intervals for signs of disease, side effects, in order to generate the necessary clinical evidence to support regulatory approvals. Now normally Phase 3 trials would require, you know, as many as four years to complete depending on the disease and the length of the study and the number of people in the studies, but obviously Covid-19 is a different situation and we're trying to collapse that time period by doing things in parity.

JOHN C. WILLIAMS: So one issue that comes up, you know, as a natural follow-up is that there is a sense that we need to move faster than usual and get vaccines to people sooner rather than waiting many years. There are vaccines being announced or progress on these vaccine trials being announced. Around the world there's a lot of discussion about we could have it sooner or later. And one of the things that comes up is it's hard for a regular person to really understand, you know, is it safe? Does it work? Should I get the vaccine or not? So how do you help people have confidence in

vaccines? And how do you think about this broader issue of how the regular people are thinking about these issues?

KENNETH C. FRAZIER: Well, I have to say that there was already a growing amount of vaccine hesitancy in our society with respect to well-established vaccines. For example, measles vaccines. There's already a huge amount of concern. We've tried to debunk the concept that measles vaccine, for example, is linked to autism, but that persists out there and the social media makes it much, much worse than it was before.

But to answer your central question, how do we give people confidence? The answer is data. You know somebody said, in God we trust, everyone else must bring data. And what we need is good data. And in these Phase 3 studies, they should produce some data that gives us some sense of efficacy and safety. Why do I say some sense? If these vaccines pass the Phase 3 studies that we have underway, what we will know is something about efficacy within the limitations of the time period that you actually studied, right? So you'll see, you might be able to see hopefully that these vaccines are effective in preventing the endpoints which are moderate to severe illness. But the question then remains how durable is that efficacy? And you won't know the answer to that because obviously if you want to understand if a vaccine is durable over a multi-year period, you have to study the subjects for multiple years. There's no way to shortcut that.

The same with safety. What we'll be able to determine is that the vaccine appears to be safe within the limitation of the number of people studied in the study. The worry sometimes of people is what about the rare side effect that emerges? And it may emerge when you look at more people. And so what I think the public needs to know is how much do we really know in these Phase 3 studies and in fairness, how much don't we know in these Phase 3 studies? And so the challenge will be making sure that we communicate openly. And I think this industry, we've taken a pledge to make sure that the public knows that we won't even submit our vaccines for approval until we have that Phase 3 data.

JOHN C. WILLIAMS: So, first of all, as an economist, I totally agree, more data is better. You want to have that information. It sounds like, though, that industry is also, as you've mentioned, pushing for greater transparency than in the past because of the reasons you've said.

KENNETH C. FRAZIER: Yes, I think transparency is incredibly important in this situation. Again, with respect to vaccines, and we can talk about therapeutics later. But with respect to vaccines, you're giving it to healthy people. And people need to understand what the risks are. And so starting, you see a lot of these companies producing the actual study protocols which is unprecedented so that people can see essentially what the rules are for conducting the studies, when they might be stopped

early, how many subjects will be in the placebo arm, how many will be in the vaccinated arm in terms of efficacy and those kinds of things. I think this is really important to create public confidence.

And I do have to say I do believe that a part of this is that the public has watched what appears to be political interference in some of the institutions of our government that we rely on, like the Centers for Disease Control, the Food and Drug Administration. I think all of that causes people to worry when one day the CDC says something about Covid and the next day it withdraws it or you see news that says the FDA can't develop any rules and regulations around vaccines unless they're approved by the Secretary. I think those things cause real challenges around public trust.

JOHN C. WILLIAMS: You know, in listening to you, I just thought of a question. And maybe this question just shows my natural optimism about these kinds of things but there are a lot of different vaccines – I know we're going to talk about therapeutics too – there are a lot of vaccines under development, you know, in these various stages, I mean how do we, again thinking ahead where some of these show success and they seem safe and we get to that point, how should we think about the decisions about which treatments should be, or I'm saying vaccines in this case, should be, you know, the ones that we use versus other ones?

KENNETH C. FRAZIER: Well, that again comes down to the data. I think it's very likely that we're going to need more than one vaccine. There will be vaccines that work better in children, vaccines that work better in the elderly. They all have very different profiles and characteristics. So we're going to have to be able to compare the data from each one of those. I think if you look at some these vaccines already, you can see, for example, some of the early vaccines that are coming forward like the mRNA vaccines, they're not single-dose vaccines. They are multi-dose vaccines.

The vaccines that Merck is developing, which are behind those vaccines, frankly, are all going to be single-dose vaccines. They're vaccines that we think it's important to be able to store vaccines in refrigerator temperatures. Some of these other vaccines would have to be stored at minus-70 Centigrade or -100 Fahrenheit. So the characteristics of the vaccine will be different and the characteristics of their profile in humans will be different. And we'll be able, over time, to figure out, for example, the pneumococcal vaccine, we give different vaccines to adults versus vaccines that we give to children. With respect to flu vaccines, we give a higher dose to the elderly than we give to people at younger ages. And the only way to do that is to get substantial clinical experience with these vaccines.

JOHN C. WILLIAMS: So what I've learned from what you just said is I shouldn't use the word vaccine in the singular, it really should be in the plural in thinking about what it

could look like here.

KENNETH C. FRAZIER: We're going to need many vaccines. And the other thing is that this disease is not going away overnight. The natural history of these viral infections is that they stay around for a long time. And we're going to have hopefully vaccines that help us get past this pandemic phase and back to some sense of normalcy, but there will be an endemic phase. We still vaccinate people for measles. Tuberculosis is still in the world. Polio is still in the world.

JOHN C. WILLIAMS: Now, again, following what I think of as the more optimistic path, thinking about that future where vaccines are found to be successful and effective and safe and, you know, we're there, one of the issues that you already mentioned is, you know, we have over 300 million Americans, over 7 billion people on the planet, and this is a global pandemic. How is it possible to produce and, as you pointed out, safely distribute and get to the people across the globe that number of vaccines? I mean how is that even possible?

KENNETH C. FRAZIER: Unprecedented. There's never been a pandemic like this. We're being asked to, at Merck we will be producing, if our vaccine is one of the ones that is widely used – we'll be producing at a scale, you know, several hundred-fold larger than we've ever done anything else before. So, you know, people think about the

challenges, the scientific challenges of proving a vaccine is safe and effective. They haven't even thought for a minute about the manufacturing challenges associated with consistently producing vials of that vaccine that are essentially identical in the millions and billions of people. And vaccine manufacturing is a non-trivial exercise. I can tell you it's very hard.

We've been in this business for 100 years; it is very hard to make vaccines and to scale them up in a way. And then, of course, you talked about the distribution challenge, the last mile. We had the experience; we had the approved Ebola vaccine and so we know how hard it is to distribute that in the Democratic Republic of the Congo when you have an outbreak in a rural area. It's not like giving vaccines in Manhattan.

JOHN C. WILLIAMS: Why don't we jump back to the therapeutics question because I know that's something you brought up a few times and it's an important part of this whole discussion around Covid-19 and thinking ahead. So could you talk a little bit about how you see that and why that's such an important part of thinking about success in mitigating Covid-19?

KENNETH C. FRAZIER: Yes, so let me say, first of all, again this industry has swung into action as it's never done before. And all over the industry, people are working on therapeutics. A lot of them are working on antibody solutions that might be useful. Some

of them are working on oral, pills that could be used.

At Merck, we have in development an oral antibiotic...excuse me, antiviral product which we call MK4482. It's in Phase 2 studies now. Our hope is that this is a tablet, a pill, that could be administered to people when they are early in the viral stages of the disease, because obviously it's helpful, if it's a virus-mediated disease, it's helpful to find something that knocks down the viral load early in the disease process before the virus can cause harm. So what we want to be able to do is to give it in an outpatient context to people early in the disease process to prevent them from progressing to hospitalization or ICU or if they're already in the hospital, preventing them from progressing to the ICU. Because obviously the earlier you interdict the virus, the better off the person is going to be.

So I like those programs because unlike vaccines, which have to be given broadly in the community to create herd immunity, you can now treat people who are actually infected. And obviously if you're giving it to people who are already sick, the risk-benefit profile is a very different one than if you have to have something that clears the bar to give to billions of healthy people.

There's one more fact that I want to point out here. We know that this virus – I talked about Ebola – Ebola was in some ways a horrible disease but it was easier to study

because it was very contagious and it was almost inevitably fatal, and inevitably fatal in the Democratic Republic of Congo where there were no hospitals. This disease, 80% of the people who are infected are asymptomatic. So you've got to have something that's useful that clears a very high safety bar because most people who get the virus will clear it naturally with no health consequences.

JOHN C. WILLIAMS: That's a really interesting point. You know as an economist who obviously studies the effects of Covid on the economy, this issue about whether vaccines and therapeutics, I think, are just an absolutely critical component of how does the economy get back. You're focused on people's lives and health, of course, as we all are, but it's also this ability for people to get back into, back into the restaurants and go to events and things like that. And for the New York City economy obviously...

KENNETH C. FRAZIER: ...United Nations report that was published in the last few days that says the impact on economic output across the world would be \$8.5 trillion over the next couple of years.

JOHN C. WILLIAMS: So you've talked about, you know, all the efforts have gone into developing, creating new vaccines, therapeutics, all the research that's going into that around the world, these are areas where competition can perhaps get in the way of a successful use of a vaccine. We talked a little bit about competition between the

companies to win the race. But what about competition across countries in terms of, you know, one country may be developing a vaccine and thinking, well, we're going to use that for us and not for everybody else. How do you think about that? You're obviously – this is a global issue – a global company, how do you think about that?

KENNETH C. FRAZIER: Yes, that's a really important issue. That's another form of competition. And we saw it with PPE early on where countries were hoarding PPE and saying that the production inside their countries had to meet their own needs first. I think for us this is a big challenge. Merck has a long track record of making its vaccines and medicines accessible and affordable globally and we remain committed to doing the same with any vaccines or medicines we develop for Covid-19.

And so we want to work extensively with stakeholders across the global health community, but the challenge is that you do have some countries that are saying they want to have these vaccines committed to them before they go to any other place. And we are trying very hard to try to balance that – if I can call it nationalism in procurement – in a way that we don't commit to provide doses to any one country before any other country. We think the right way to do it is to strive for balance and equitable distribution across different economic tiers so that population health rather than socioeconomic status becomes the primary determinant for access to our vaccines. We'd like to get it to the, we'd like to prioritize the highest risk groups and provide it where it has the greatest

patient need.

For example, you might want to do it first with frontline healthcare workers. You might want to proceed to populations that are particularly vulnerable like the elderly. So we're working to scale up manufacturing for millions and millions of doses, hundreds of millions of doses, and we hope that we can distribute it in a fair and equitable way.

JOHN C. WILLIAMS: Okay, so, you know, we've talked a lot about Covid-19, the vaccines, the therapeutics, a lot of that, and that's exactly what you would hope people are focused on. But there is kind of a longer run set of issues that have also come up with this. If you think about more generally, how well prepared are we as a country, and maybe you could even say as a global community, how well prepared are we and how well prepared do we need to be for these kinds of events? And not just about Covid but more generally around having the resources and the planning and preparation to quickly get treatments developed and the production capacity to produce them quickly and get them out to everybody who needs them.

KENNETH C. FRAZIER: I would say that we're not where we need to be by any means. In the last two decades we've had outbreaks of SARS, of MERS, Ebola, Zika and others and they lead to temporary focus on investments in those diseases but they don't lead necessarily to lasting changes in how countries and organizations prepare to respond to

the next epidemic. The reality of the world is epidemics have shaped human history for millennia. Right? But the accelerating pace of climate change, ecosystem degradation, human mobility increased the probability that infectious diseases will be transmitted from animals to humans and that they'll be transmitted in localized outbreaks that will become a pandemic.

So from my perspective, it's important that we not just get alarmed and spring into action when we have a health crisis like the one that we have now. What we need to make sure is that when we take care of this, that we don't turn to complacency. And I think that means that we have to encourage a system that incentivizes sustained investment in the kinds of treatments that we are going to need, not just for viral infections but also for bacterial infections.

I will say right now we have not focused as a society on bacterial infections and we know that there's an evolutionary struggle between us and the viruses and the bacteria. It's not clear who is going to win that in the long run. But if you look at, for example, when H1N1 was killing people, a third to half of the people who actually died, died from super-bacterial infections. And we don't actually invest very much in bacterial, antibiotic research at all because testing and developing and getting approval for new antibiotics takes a lot of time, it costs a lot of money, and the return on investment for antibiotics is inherently low because we want to reserve the new antibiotics for use only after the

older antibiotics are used.

So the model in the industry of getting a lot of uptake is the exact opposite of what you need. And I want to just point out with respect to antibiotics, we see the growing antimicrobial resistance in the world and the U.N. tells us that in the year 2050, it could lead to 10 million people every year dying from a resistant form of bacteria. By comparison, cancer only kills 8.5 million people globally. So this is something that we really have to tackle. I remember after 911, when anthrax happened, our country got very concerned with these issues because they thought about these as sort of instruments of terrorism, bioterrorism. And then over time, the focus went away and the investment went away. I hope that we learn from this global pandemic that we want to be prepared for the next one.

JOHN C. WILLIAMS: And you've seen an enormous amount of government support for the research on Covid-19 treatments, vaccines and things, so how does that realization in the moment that you need the government and the private sector – all parts of society quite honestly – working together to deal with this? How do we turn that into a sustained model of support for these kinds of issues? Because as you said, the way I'm interpreting what you said, we're talking about planning for decades into the future, not just for months or a year in the future. And, you know, we know that shareholders aren't as patient as perhaps we always want them to be and it's harder to have a long-run

perspective on these issues. How do we get to that, both in terms of our, you know, society's and government's planning, but also for the incentives for the private sector to be kind of doing this long-term investment?

KENNETH C. FRAZIER: Well, I think those two things come together. I think you're absolutely right about, there's not a lot of patient capital in the world these days. And, you know, our business was one that we, it takes us ten to twelve years on average to develop a drug and 90% of the time we fail. And the 10% that succeed, only one in three drugs actually returns its cost of capital. So if you think about that model, it's really hard for us to invest substantially in things like antimicrobial resistance where we know that the marketplace out there does not have marketplace incentives.

And I think the challenge, as economists would say, is that we tend to underinvest in what are public goods and overinvest in things that can create value in the private marketplace. And so I don't have a simplistic answer, but I would say that I hope that this, the impact that Covid-19 has had on the world economy will cause people to think about it. Because if we go back to Ebola, we were worried for 15 minutes about Ebola when a few cases came to the United States and very quickly it became a sub-Saharan African problem. Zika is not, there are a lot of diseases that are diseases of the neglected world that we don't worry about. This one reminds us that, as Todd Freeman says, the world is getting smaller. We're closer to each other and we need to be

prepared to offset both the health and economic consequences of the next outbreak, whether it's a viral one or a bacterial one. I hope that this changes how societies and countries work with the private sector to protect us against the next thing, but I can't say for sure I know it will.

JOHN C. WILLIAMS: Well, as you pointed out, the human and economic costs of this pandemic globally have been just enormous.

KENNETH C. FRAZIER: ...estimate \$8.5 trillion in economic carnage. I mean in this country, look at what's happening to small businesses. The majority of people in this country work for small businesses and you look what's happening to those small businesses, many of them are gone and they won't come back. We have to really focus on how do we mitigate these kinds of things going forward.

JOHN C. WILLIAMS: And, you know, one question that obviously comes up in this context is the cost. As you mentioned, you know, this is a very expensive R&D-intensive activity. How do we make sure that when the treatments are available, and also not just now but in the future, that the pricing is affordable for medical care, more generally in the pharmaceutical business?

KENNETH C. FRAZIER: So that is the single biggest challenge I think we face in our

business model right now. And, in particular, you know the issue in the United States is that people in the United States tend to pay substantially more than people outside the United States and so they're in effect subsidizing the cost of R&D for the entire world and that becomes a bigger and bigger challenge. I think the responsibility of this industry is to demonstrate the value of these medicines going forward, but I also think it's important for us to think about how much we're going to invest in the health of our populations around the world.

So, again, not a simple answer to the question, but, you know, I sometimes, I'm mildly amused when people say to me, I hope you're going to give away whatever vaccine you develop. And we're talking about \$8.5 trillion in economic damage, I want to make sure that our medicines are affordable, but I also have to make sure that Merck has an economically sustainable model so that we can continue to do the research for the next generation of products.

We're one of the few large companies left doing antibiotic research. We do that even though we know there's no real market for that. And we can only do that if we can attract capital to continue to support R&D. I often say, you know, it's unfortunate that the capital markets don't go to church on Sunday or synagogue on Saturday, they just want their return on invested capital. And the challenge for us is to make sure our medicines are affordable to as many people as possible but to be economically sustainable. So I

always say it's optimizing affordability and access with a reasonable return to shareholders. Easier said than done.

JOHN C. WILLIAMS: Well, all these topics we're talking about today, and quite honestly at The Economic Club of New York, usually are the hard ones. They're the big challenges. But let's try to take this conversation maybe headed back to where we started and I think that's some of the things you were just mentioning. How do we make sure, not just in terms of the pandemic, but more generally, that we're investing and supporting all of our communities and really addressing the inequality, the lack of economic mobility that we're seeing that you talked about at the beginning? And one of the issues that comes up with the pandemic specifically is around the education of younger people and how they're being affected and what that means for the next generation. Could you talk some about that?

KENNETH C. FRAZIER: I have to say, so I'm on Governor Murphy's Commission for Restarting and Reopening New Jersey along with Shirley Tillman, the former President of Princeton University. We co-chair that. The single biggest thing that makes me worry is we already had substantial educational inequality in our country. And when we go to remote learning, lots of families don't have access to broadband. They don't have access to the kinds of devices that are necessary in order to have their children learn at home. I am extremely worried that this pandemic is going to create an even bigger gap

between young African Americans, their educational levels, and those of others. I think it's not just a race issue, I think it's a socioeconomic issue. But it's one that we really, really have to worry about in our country. Again, no simple answers. We are wrestling with this in New Jersey right now trying to get as many Chromebooks to kids in areas where their parents can't afford them as we can, trying to get broadband services to those people. But I really worry.

I have to come back to this issue, I started by giving that autobiographical thing about, you know, being bussed to better schools. I think the single biggest challenge we have in the United States is the educational system. We're going into a world where the basis of competition, the basis of wealth creation is knowledge and I don't think we can afford to have a world in which a substantial subset of our population doesn't get access to the kind of education, because we know that leads to the wrong health outcomes. You know in this country your zip code is more determinant of your health than your genetic code. We know that it leads to different outcomes in terms of law enforcement and the criminal justice system. We know that it leads to very different outcomes in terms of employment.

And we don't want to live in a country – I talked about being in South Africa, and it was interesting because when I would talk to young White South Africans when I was teaching there, what they would almost inevitably say to me is they wanted to leave

South Africa because they knew they were being forced to be sort of the guardians of the majority Black population in the country. And they didn't want to do that, they didn't want to spend their whole lives as, in effect, prison guards. And I don't want to see the United States result in a situation where, and you hear it in our political discourse right now, we hear it where people are being told, you know, let's worry about keeping our suburbs safe. I don't want to be too political; I don't want to live in a country where a substantial proportion of our population can't contribute as citizenry.

JOHN C. WILLIAMS: You know we often talk at the Federal Reserve about our economic potential, the potential of our economy, and what it's really about is the potential of every individual.

KENNETH C. FRAZIER: Right, of every individual in this country.

JOHN C. WILLIAMS: To achieve their goals. And, you know, I think, you know, you mentioned this already, but you have so much research, so much evidence has accumulated over the years around high social rate of return to early childhood education, the highest social rate of return to K-12 and for everything. I mean a lot of the debate is, you know, about college and things, but really, we know that those dollars spent, whether it's on education or quite honestly around having a healthy community and housing and other factors, those are the things that really drive people's longer-

term experiences.

KENNETH C. FRAZIER: Right. And I started off talking about employment, I think one of the greatest indicators of what's going to happen to a child is, is that child's mother and father employed? If the parents are not employed, we know there's a whole host of pathologies that are associated with the lifestyles of people who are not employed. And by contrast, and again, you know, I don't want to be too autobiographical but my dad had a third-grade education. He was a janitor. But every morning when I would get up to go to school, and I got up very early because I was bussed to school, my enduring childhood memory was hearing my father go down the stairs every day and go out to work. And I would follow him into the bathroom to get ready because I had to leave early to go to school. The other enduring childhood memory is literally, and I've said this many times, is the smell of my father's shaving cream is what I remember. And that taught me, as a young person, what a man did. I don't mean to be sexist, but that was what I thought when I grew up, that people got up, they went to work, they took care of their families.

And I really believe that for most of us as human beings, we have a tape recorder in the back of our heads that's constantly running. And if you happen to have been raised in an environment where what's on that tape is empowering, that's one thing. And if you were raised in an environment where what's on that tape is disempowering, that's quite

another thing.

JOHN C. WILLIAMS: So I see that we've only got a few more minutes and we've covered a lot of really important ground and, as you pointed out, a lot of very difficult issues that we know what the problems are and what we need to do. We need to work hard on the answers and so that's an ongoing conversation. The one question that everybody is asking, though, when it comes to the pandemic, and you talked about this a little bit, is this what our lives are going to be like in the future? Is this the new normal that, was this a once in a hundred-year thing or is this something that we just have to think of as part of the world we live in and we have to be prepared for that?

KENNETH C. FRAZIER: I'm an optimist. I believe that in the long run we will have medical solutions that will allow us to go back to a normal lifestyle. But I believe it is not something that's going to happen in the short run. So let's talk about, for example, vaccines. We know that the bar that the FDA has established is 50% efficacy. But even if we got vaccines that are 75% effective, that means one in four people who get vaccinated will still be eligible to become sick, are likely to become sick at some point. Also, it's important to realize that the other three people who are protected from the downstream consequences of infection, it doesn't mean that they're not contagious.

So the fact of the matter is for the near term, and I think CDC Director Dr. Redfield said

this, is for the short-term hygienic measures are still going to be the biggest way that we can protect ourselves even with a vaccine – wearing masks, social distancing, washing our hands. It's going to be with us for a while. I think one of the things I worry about is that people think as soon as we have a vaccine it's a magic bullet and we'll all be back at the Super Bowl and we'll all be watching the ball drop on New Year's Eve. I don't think that's going to happen. Mardi Gras parades are not going to be safe immediately. We're going to have to get to the point where we have herd immunity in our community and that's not something that happens overnight.

JOHN C. WILLIAMS: Well, and it gets back to this issue of patience and being willing to persevere in this. I mean I think that's the word that I think all of us are experiencing in our families, work, and everything. This gets old quickly and you have to, I guess we have to be more patient than people are used to on these kinds of things.

KENNETH C. FRAZIER: I think we have to be patient and we have to be sensible. I think we want to make sure that we protect people's health, but at the same time we want to make sure that all of these small businesses don't go out of business, that people are not, that children can go back to school. We've got to think about, we've got to balance those two things.

JOHN C. WILLIAMS: Well, Ken, this has been a terrific conversation. I really appreciate

you sharing your perspectives on these issues with us today. It's been really informative. Quite honestly, I would love to talk for another hour, but I am given very strict orders that we must end at the time. So again thank you so much for joining us again today. This was a terrific conversation.

KENNETH C. FRAZIER: Thank you all for having me.

JOHN C. WILLIAMS: So I'll finish out now. So after today, we've still got a number of great speakers lined up the rest of the year, and we invite you to attend and invite your guests to come join us too. So we have – I'm going to quickly go through the list – so we have Henry Kissinger on October 7<sup>th</sup> and we'll be honoring him with The Economic Club of New York Leadership Excellence Award. Then going further, we have 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. We have my colleague, Tom Barkin, who is the President and CEO of the Richmond Fed. We have Charlie Cook, the Editor and Publisher of The Cook Political Report. Deanna Mulligan, the Chief Executive Officer of The Guardian Life Insurance Company. We have James Gorman, CEO of Morgan Stanley, Mark Zandi, the Chief Economist at S&P I believe, if I have that right. And we have Jay Clayton, Chairman of the SEC.

We have a long list of people coming up, really great list of events coming up. So please

check the calendar, check your emails and see what you can attend. And we'll be continuing to update our list over time. So again I would like to thank, first of all, thank Ken again for a terrific conversation and thank you all for attending. We're looking forward to seeing you at our future events. Have a great day and stay well.