

Yale Talk: Conversations with Peter Salovey

Episode 26: Reflecting on Two Years of COVID-19

Guests: Dr. Stephanie Spangler, vice provost for health affairs and academic integrity and University COVID-19 Coordinator; Dr. Saad Omer, inaugural director of the Yale Institute for Global Health, Harvey and Kate Cushing Professor of Epidemiology of Microbial Diseases at Yale School of Public Health, and professor of medicine (infectious diseases) at Yale School of Medicine

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FULL TRANSCRIPT

Peter Salovey: Hello, everyone. I'm Peter Salovey. Thank you for joining me for Yale Talk. Today, we mark an anniversary. Two years ago, the WHO declared the coronavirus outbreak a pandemic. More than 900,000 Americans have since lost their lives to COVID-19, making it the deadliest disease event in our nation's history. And around the globe, the known case count recently surpassed a grim milestone of 400 million. As Yale works to protect the health of our community, we're also committed to creating and sharing knowledge that benefits the world. My guests today are bringing Yale's expertise to bear on COVID-19, both within New Haven and beyond. Dr. Stephanie Spangler is vice provost for health affairs and academic integrity, and in her capacity as COVID-19 coordinator, she advises Yale on its health and safety infrastructure. And my other guest is Dr. Saad Omer, inaugural director of the Yale Institute for Global Health. He is the Harvey and Kate Cushing Professor of Epidemiology of Microbial Diseases at Yale School of Public Health, and he's also a professor of medicine (infectious diseases) at the Yale School of Medicine. So, Stephanie and Saad, thank you so much for joining me today on Yale Talk. It's extraordinary, really, to look back on all we've accomplished at Yale despite this unprecedented challenge. And our actions have had three elements: a robust testing, contact tracing, quarantining effort; a tailored health and safety planning; and frequent, open, and interactive communication. Most recently, during the Omicron strain's surge, we modified our academic calendar for the spring semester—it's an example of a tailored safety plan. Overall, our strategies appear to be effective. In-person learning resumed last month. Our alert level has been downgraded from Orange to Yellow. Let's talk a little bit about how this all happened and how it worked. Stephanie, you've been a titan during the pandemic for Yale. Your council has been central to the decision-making process. How was it possible to get good advice, particularly early in the pandemic, when so little was known?

Stephanie Spangler: Thank you, Peter. Thank you for inviting me to this podcast and also my colleague, Saad. As you well know, this pandemic has been challenging on many, many levels. One very prominent challenge, especially early on, was that so little was known about COVID by anyone and anywhere. However, one of the real blessings of being part of Yale during this pandemic was not only is the wealth of expertise that exists among our faculty but also their long-standing spirit of collaboration within Yale and beyond our community. You, Peter, convened a group of public health advisors, including my colleague Saad Omer, from across the university. Colleagues who had broad and abundant expertise themselves, one of them is expert in COVID-19 variants and also helped to develop the SalivaDirect test, another an expert on vaccine hesitancy, another on contact tracing, another on wastewater tracking, and the list goes on and on and on. But they also have strong connections to researchers around the globe and to

national and international public health agencies such as WHO and CDC. This Public Health Advisory Committee, which I came to chair in April of 2020, has met nearly 400 times in the past two years, usually at seven o'clock in the morning—and I have to give them a lot of credit for being there bright and early almost every morning. As you know, one of the members of the committee produces a daily deck of slides summarizing and synthesizing a host of national, local, and campus measures to give to you and other university leaders so you have the information that you need to make decisions quickly. You and your colleagues have been rapidly, and at the same time, very thoughtfully, responsive to the data that you review and you receive. And finally, our faculty work tirelessly not only to gather knowledge, but also to generate it—another great blessing of Yale—through the traditional routes of laboratory and scholarly research, but also by working with our operational teams to aggregate, analyze and understand the data that we're actually producing on the ground in real-time through our testing, contact tracing, and vaccination programs. So, we are accessing data; we're also generating data through traditional and novel route.

Peter Salovey: It is incredibly impressive, and I will say those data have sometimes led us to be more cautious than some of our peers. That was true at the beginning of this semester when we delayed by a week and had two weeks of remote teaching before moving into the classroom. That was a bit more cautious than others. On the other hand, those data have sometimes led us to be more bold. So, in the fall of 2020, when we brought back more students to campus than many of our sister schools, because the data suggests that we could handle that level of density. So, I always like to say that our decision-making around COVID has neither been overly cautious nor overly bold, but rather has been driven by the data. So, let's look forward for just a moment. In some ways, things are as uncertain now as they were at the beginning of the pandemic, and decision-making is harder because people are tired of masking. They're tired of testing. They want to resume normal lives. Masking guidelines are changing it seems almost every day. Government agencies, the state, the city, they're changing their requirements. How do we navigate through the uncertainty of all of this and the uncertainty of the virus, which can mutate, now after two years?

Stephanie Spangler: That is a very big question, Peter. You're right that people are exhausted. The people who've been following our guidelines, the people who've been running our programs. People are wondering whether there ever will be an end to the pandemic and how to reframe their thinking about it. In addition, people are approaching information in very variable ways now. There are some that are so eager to throw off all the restrictions. Others are very fearful of throwing them off. So, it is a challenging time. I think, first of all, the only thing we are certain about in this pandemic is the uncertainty. And so, we must be poised to expect and adapt to changes, and we must make sure that we hold the goal of combating COVID. And this committee is also very valuable because not only is it expert, but it is of Yale and in Yale. And so, as we move forward, we must make sure that we hold the goal of combating COVID in proper relation to that of advancing the essential and valued academic missions of the university. And our committee is very, very focused on these competing missions of fighting COVID and keeping the academic mission moving forward and the academic aspirations of our community moving forward. So, our public health advisers will not let up on their surveillance. There are likely to be more variants. There are likely to be surges in the future. New information emerges daily, calling for us to rethink our protective measures. And also, as I said, by being in and of the

university, our advisers can also maintain and incorporate firsthand knowledge of the impacts of the recommendations they make on the lives of our community members and also on our academic progress and university aspirations. I think at this point, we're thinking about resetting our decision-making framework. The CDC has now advised that we have gone from trying to avoid every single infection to reactivating activities while focusing more on minimizing the impacts of severe disease. This shift in focus is because we have a highly vaccinated community and because we now have more effective therapeutics to treat those who become ill and might be at risk for severe disease. So, that is a shift in our focus, but we have not shifted the intensity of our surveillance and will continue to do so over time.

Peter Salovey: Very impressive what you've been able to accomplish over the last two years and the excellent advice that we get. So, let me turn to Saad. We have built, as we have been discussing, a very strong science based COVID planning infrastructure here on campus and we have built it around our experts. But these very same experts have been informing COVID-19 planning and response locally, around the country, and around the world. Saad, you are one of those people who has been part of the global conversation on COVID-19, the global conversation on vaccine and vaccine access, and we're quite proud of what Yale has been able to contribute to those conversations. So, maybe you could talk a little bit about what that process has been like and then address the question of how can we make sure that, at a global level, our pandemic response is equitable—that everybody has access to what many of us have access to?

Saad Omer: First of all, thanks for the opportunity to be a part of this conversation, and it is indeed a privilege to contribute to the global efforts around this pandemic. I've had the privilege of being part of several WHO communities on the pandemic, including committees that helped draft and formulate vaccine policies around the pandemic and have had the opportunity to engage with various governments directly around the world. But coming back to your core question: why should we care about vaccine equity? For several reasons. First of all, as a global community and as the cohort of people who are in charge collectively during this horrible pandemic, we will be judged poorly if we do not look out for the most vulnerable amongst us. So that's number one. The other thing is enlightened self-interest. So, we know that even the most resource-rich countries are vulnerable and their plans are threatened by, for example, new variants and their success depends on what happens overseas. So, it's both for reasons of being good citizens of the world, but also for self-preservation or enlightened self-interest that we should care about vaccine equity. So, what we have been doing around equity is finding the space where an academic entity can uniquely contribute. For example, in the summer of 2021, we gathered industry partners from around the world, former government officials, advocates, and so on and so forth with our internal Yale and external partners in a conversation that created a blueprint of how can we make sure that these vaccines are available around the world. They are available in especially low-income countries where the immunization coverage has been highly suboptimal. That report became the blueprint for a lot of advocacy domestically with the U.S. government. So, you can say that make the vaccine available, but you have to be able to advocate around specific steps. The other thing we should do is continue to innovate. So, my colleague, Akiko Iwasaki, is working on what we call a transmission-blocking vaccine through giving an intranasal booster so that you nip the infection in the bud where it enters the body, essentially. Those kinds of efforts are important. Leveraging our global relationships is important. And then one of the biggest inequities that is out there is the inequity of data. So, for example, a lot of the

listeners may not know that the Pfizer and Moderna vaccines that we hear about in the U.S. are not the most widely used vaccines around the world. On the other hand, most of the research on the effectiveness for various populations against various variants has focused on these mRNA vaccines. So, we are working with partners overseas to fill that data gap—that inequity in data. And the last thing is that as we address this pandemic and we face these huge inequities, we are proposing policy ideas. So, I paired up with another Yale colleague who's now in government to propose a pandemic trust fund around vaccines so that we are not caught flat-footed the next time there is a pandemic or even an ongoing basis where we will need boosters.

Peter Salovey: Let's stay with vaccines. So, as I think most people know, Yale requires students, faculty, staff trainees all to be fully vaccinated, to have obtained a booster shot and the levels of compliance are extremely high—over 99 percent of our students, for example. What do we think is going to happen with respect to vaccine requirements in the future? Is there going to be a fourth shot, another booster? Where do we think this is going?

Saad Omer: I have an unsatisfying answer, but I think it's the best answer possible, which is we don't know. So, the good news is that we will know soon and there is work going on. There are several studies, including some of the studies that my group is involved with and various groups around the world are looking at not only that how the protection in various groups goes down after the third dose—we know already that immunocompromised individuals need a fourth dose, so that recommendation is there, both by WHO and CDC. But coming back to the general population, there are studies going on looking at the response and the longevity of the response against not just infection, but also against disease, et cetera, after various groups have gotten their third dose. But also, we're trying to decide as a community whether, if there is a booster, whether it's best to give the same that is against the original strain but also to think about whether we have a strain-specific vaccine. And that's not an easy decision because we already have a lot of production now geared up towards the original strain. So, these studies are happening. My best guess is that if we need a fourth dose or an annual booster, it may start with a specific group and then we will see the data, et cetera. So, the answer is we don't know yet. It is a possibility. The likelihood of something being an annual booster is more than every few months, and we will find out in the next few months where things are going.

Peter Salovey: Do we think this is going to be a seasonal thing? We'll get our fall COVID vaccine just like we do each year for the flu?

Saad Omer: We know now that this virus will have a seasonal pattern like almost all respiratory viruses. But for the next couple of years, we may get a few summer shocks based on an emergence of new variants. So, eventually, it will settle down as a seasonal variant. I believe the seasonal peaks will be wider and higher than influenza, but not to the level now. So, we will settle down. The reason I'm saying that there will be wider and higher is because this virus is inherently more infectious, many more times infectious than influenza. So, these kinds of things spread wider, but it will not be at the current levels that we are talking about. So, mostly seasonal, but not like the influenza pattern, and maybe for a couple of years, some increases in the summer as well.

Peter Salovey: As a psychologist, I've been puzzled by vaccine resistance and people's willingness to seize on highly implausible information from dubious sources as somehow more likely to be true than the consensus of a scientific community might be. And I know you've been working with UNICEF and with Facebook around this issue of COVID misinformation. Maybe you could tell us a little bit about that.

Saad Omer: So, some of us who have been involved with previous large outbreaks, including pandemics. I did a lot of work around the H1N1 pandemic when that was around more than a decade ago. I'm a very optimistic kind of person, but we had seen these kinds of things so many times at a more recent level during the Ebola outbreak, et cetera, that we weren't of the perspective that the moment you release a vaccine, people will rush to the factories or the airport to get their shots and get their selfie taken with the vaccine. A lot of us, we have been on the record as early as March 2020 that we needed to absolutely be prepared for this—for a communication, education, and persuasion plan. Unfortunately, domestically and internationally, we didn't invest in this, and we all know what happened. But a lot of us were doing these efforts, so we paired up with UNICEF and the first thing we did was draft, based on the evidence that we had generated in the preceding decades on a misinformation and disinformation field guide that we worked with UNICEF to develop, and UNICEF pushed it out to their field offices. What people don't realize is that even for adult vaccination, UNICEF—in many countries, not just low-income countries, including middle-income countries—serves as the communications resource. That guide has been translated now into five other languages, so it's now available in six languages. Then we started a partnership with Facebook because we knew that things are moving fast. So, what we have been doing is we have been doing these randomized trials of messaging to change people's attitudes, and we can measure that. And we start with insights that we work with, all based on public data. So, we don't go into your private messages, et cetera—that's off bounds. But, based on public posts, et cetera, on the Facebook platform, we develop messages, push out those messages. Initially, we evaluated the attitude change in tens of millions of people, and we've got some lessons there. Now, we are doing mass randomized trials of these interventions of social media based messaging and looking at the actual vaccination rates on the ground. So, we did a country-level trial in Ukraine. Actually, we just wrapped it up. We are doing a 250-district trial in India—and those of you who are familiar with India, a district is huge. We're doing a twenty-city trial in Pakistan and so on and so forth. So, we're working in five, six countries right now to generate high-quality evidence of what works, both on social media and separately, in partnership with the Gates Foundation, we are synthesizing interventions that work outside the social media. So, that's in a nutshell what we have been doing at Yale on vaccine acceptance.

Peter Salovey: Very, very impressive, Saad. And it reminds me of the days when I was still running a lab. We did similar work in cancer prevention and in AIDS prevention and social media was in its early stages at that point and didn't have that kind of impact that quickly, as you can now, but really important work to be done. Stephanie let's go back to you. You, at one time, were the director of Yale Health and you know the benefits of a health organization that's multidisciplinary, that's offered to a whole community. Now, you are in the provost's office and have been for quite some time and you've become Yale's COVID coordinator. And so, you've seen how scholars and staff and students come together across a whole campus, just like they do in getting care at Yale Health. You've seen everyone come together to work on COVID, whether

it's developing, testing saliva or nasal swab, whether it's developing vaccines and vaccination programs, whether it's developing messaging, communications planning like Saad was describing. So, maybe you could talk a little bit about this culture. It's both multidisciplinary, but also multiple levels in the organization: staff, students, faculty all coming together around a public health issue. How do you coordinate it and is it more likely to yield better answers?

Stephanie Spangler: Well, first of all, let me say, listening to Saad reminds me why we get up at seven o'clock in the morning for 400 days in a row. And also, in partial answer to your question, I think after listening to what Saad does in a global arena, how valuable it is to have people like Saad advising us locally. So we, during our vaccination campaign, actually created a vaccine advisory committee. Our contact tracers nimbly shifted from contact tracing to be trained to be vaccine ambassadors, and they used the expertise and the real-time findings of people like Saad, Jason Schwartz, and others to craft the messages to our own community. But a simple answer to your question about how has Yale's culture of multidisciplinary collaboration helped us, the simple answer is immeasurably and invaluable. It has been simply breathtaking and really gratifying to see faculty come together with operational and administrative staff and with students to tackle problems that none had previously encountered with people they'd never met before to create processes and structures that no one ever had the reason to imagine before and did it in such a rapid time and so elegantly and in such a coordinated way. I call these creations collectively as our public health pop-up infrastructure that everyone created. It started with a field hospital in March of 2020, which thankfully we did not need. However, the structure that we created for the field hospital allowed us to quickly shift its use to a mass vaccination clinic in the winter of 2021. Other components of the public health pop-up structure included a central COVID resource line; a one-stop phone number where people could call for any question, health-related or work-related or study-related, that related to COVID; a contact tracing team; a procurement and distribution process for masks and other protective equipment; and a fleet of health and safety leaders taken from their usual day jobs and assigned to each school and unit to be public health advisers and ambassadors for their own particular Yale communities. All of these initiatives were staffed largely by our own staff, faculty, and students who quickly learned what they needed to learn to take on new roles. There are so many examples, but one great example is our asymptomatic testing program, which, at its height, performed close to 30,000 PCR COVID tests per week. It was conceived early in April of 2020—that's when tests were not abundant. They were very hard to find. But people predicted testing would be extremely important to allowing us to identify and isolate infections quickly and resume some of our academic activities. So, this was even before tests were easily available. It was conceived by one of our Yale Health physicians, Madeline Wilson, who consulted with School of Medicine, infectious disease, and testing experts, and also our School of Public Health and School of Management disease modeling experts. It was executed with the ingenuity of our Environmental Health and Safety and Facilities personnel who designed portable negative pressure testing booths that had never existed before, and it was also executed and implemented with the flexibility and ingenuity of our hospitality staff. So, that's one example of this multidisciplinary, collaborative activity that I hope we can perpetuate and apply to other goals that Yale has in the future.

Saad Omer: I want to emphasize one of the things that Stephanie mentioned that yes, we have been part of the Public Health Committee for a while. But equally important is the operational

competence and dedication of the operational staff that implements this. So, the facilities team, the Environmental Health Sciences team, the Yale Hospitality team. None of this would have been useful or effective, to be very honest, without the strong implementation of these teams within Yale. So, we are fortunate not just to have colleagues who are expert in these areas, but also colleagues who implement these things with a lot of dedication and professionalism.

Peter Salovey: There's expertise everywhere, and it's the amazing thing about being on a university campus. In this regard, Stephanie, I understand that you're collaborating with John Barden, who is our Chief Information Officer. That's the person in charge of I.T. on campus on something called the Yale Population Health Project. What's that all about?

Stephanie Spangler: Once again, it's going to call on cross-disciplinary teams of colleagues. We've been reflecting on things that we are pleased with that we put together during the pandemic. But there are also lessons to be learned and also good lessons that we want to apply to future endeavors. I do want to first underscore something that Saad said. It has been really impressive to see how much creative and innovative skill and energy there is among our administrative and operational staff, as well as among our faculty. And when you put the faculty creativity, when you partner it with that ingenuity on the operational side, the results are amazing. That is one of the lessons that John Barden and I are looking at much more operational technical issues, but I think that is something we don't want to lose.

Peter Salovey: Absolutely. And if COVID taught us one thing, that would be it, that people can work outside their job descriptions. People can collaborate across all kinds of boundaries. And we're one Yale.

Stephanie Spangler: Very, very true, Peter. So, John Barden oversees all of our information technology, procedures, processes, resources, infrastructure, and we could not have survived without the ingenuity of that group and really, the nimbleness in creating ways to track vaccination testing. One thing we learned during the pandemic was that we dealt with our individual populations separately, and the way we tracked information about them was fragmented and sometimes siloed. But when we were dealing with a pandemic, the virus didn't respect those boundaries or even know those boundaries so we had to look at our population as a whole. So, what we're doing right now is looking at the things we put together during the pandemic, both the pop-up public health infrastructure I talked about and also the information technology infrastructure that had to support it, to understand what was here and should be dismantled or maybe scaled back with the ability to scale it up again when we have those surges that Saad was talking about, which we fully do expect. COVID is in our midst. It has not gone away. We're just trying to take a different approach to being with it as we develop more measures to both protect and respond and to treat COVID. So, what do we scale back or diminish? What do we keep in place? How do we use what we learned to buff up that early 2000s pandemic preparedness plan, and how do we apply what we learned in a pandemic emergency to other emergencies? What's generalizable? What would make us be better prepared to respond to emergencies in the future? On a more general level, as I mentioned before, what we're hoping to do is reflect on our experience and work with university leaders to find new ways to use those close and generative collaborations that emerge, that we just talked about, to advance the university's core missions and aspirations. Are there ways we should be attending to

the health of our population during non-emergent times that we are not doing now? It could fall in the area of prevention, wellness, environmental enhancements, things like that. So, that's what we're looking at now. We're also looking at what resources we need going forward and what resources we can retire so that we can invest in moving forward. That's where we are right now. It's a work in progress and I'd be happy to update you soon.

Peter Salovey: Love it. As a health psychologist myself, I love that we're taking a population health approach to our own community. Taking a population health approach to the world is what Saad does and maybe a final question for you, Saad. We look at the data from 2020 on measles and 22 million children around the world missed their first measles vaccine. How do we make sure that doesn't happen with immunization systems built around COVID—that people actually get their shots?

Saad Omer: Well, measles is an epidemiologist's virus in the sense that it teaches you a lot about infectious disease epidemiology. And starting early in my career, that was one of the first viruses I focused on, both in terms of the virus itself and the vaccine around it. And what it taught me was the fact that it is a very unforgiving virus because it's one of the most infectious common viruses that we know of. And so, therefore, you can't have gaps in population protection, for example, through drop in immunization. It will find, like water on a pavement, those cracks and result in substantial disease and death. And one of the recent discoveries that one of my former post-docs, who was until recently at Harvard, discovered was that the virus itself creates an immune amnesia whereby your ability to respond to other infection goes down because of the earlier attack of this virus for a couple of years—at least two to four years, to some degree. So, that means it's a pretty consequential virus. And what happened was that during this pandemic, as you've said, that the rates dropped. So, how we build resilience is by, first of all, making sure that in the interpandemic period, we invest globally in surge capacity in immunization workforce so teachers can be trained to become immunizers around the world — and several low-income countries do that—so that when there is a need after an initial shock, you could quickly come back with an immunization campaign. Some countries have already done that around the world. In the U.S., we will need to do that. I have been nudging public health agencies to actually do catch-up initiatives around routine immunization, including measles because now the baseline rates of vaccination have come up again for the last year or so. But the kids who were missed in the initial dip domestically, a lot of them are still vulnerable. So, that's number one. Number two is to make sure that there is education out there, that the immunization system is working. So, one of my colleague from School of Public Health, Fauzia Malik, showed me some really interesting data from Pakistan. She showed that even when the immunization system was working, people thought it was unsafe to go to the vaccination clinic. People thought that was under lockdown. So, that basic information could have narrowed that gap. So, it's both the systems-level work, it's making the doses available as well. In these kinds of situations, there are no shortages, but also the shoe leather public health communication is important in these kinds of things to make these systems resilient. Otherwise, we'll have a situation like in West Africa, that people don't realize during the Ebola outbreak, the large, multi-country Ebola outbreak that happened a few years ago, more children, way more children died of measles than of Ebola because of these disruptions.

Peter Salovey: It does argue for a more holistic approach, rather than a disease-by-disease approach in guaranteeing the health of the population. No doubt about it. We could go on forever. This is such an interesting conversation. I'm speaking today with two of Yale's heroes during this COVID pandemic phase of our country's history, and I just wish we had unlimited time. But I want to thank you both Stephanie and Saad for speaking with me today. I appreciate the insights that you're providing all of us into these issues, and I appreciate your resolve to protect the health and safety of our community. Let me encourage those listening to take a look at our policies and data that we post and update all the time at covid19.yale.edu. Also, there's a weekly newsletter from Dr. Spangler, usually on Fridays, and it continues to be a great source of information and guidance about what's happening with Yale and COVID.

So, to friends and members of the Yale community, thank you for joining me for Yale Talk. And thank you for your diligence in following health guidelines like masking and testing. Your efforts help keep our campus safe, and we appreciate your community spirit. Until our next conversation, best wishes and take care.

The theme music, *Butterflies and Bees*, is composed by Yale professor of music and director of university bands Thomas C. Duffy and is performed by the Yale Concert Band.