Jonathan Zittrain:

right. Well both to those live participants tuning in right now, whether here or on YouTube and to posterity, to whom we address ourselves presuming there is a posterity, we thought we would gather and talk about state of the COVID-19 pandemic and more specifically in what remains of this hour, the state of testing in the United States, where it's at, where it might be going and how to make it better. My name is Jonathan Zittrain. I'm a co-founder of the Berkman Klein Center For Internet & Society, Harvard university, And I'm so pleased to be joined by Margaret Bordeaux, Beth Cameron, and KJ Seung. We should introduce each of them and then dive right in. So Dr. Bordeaux, please tell us how you found yourself thinking so hard and working so hard on the state of the pandemic.

Margaret Bourdeaux:

Great to be here. Right, so long story short, I'm a physician by training. I work at Brigham and Women's Hospital and I am the research director for the program in global public policy at Harvard medical school. And in my role there I started working with all sorts of amazing people outside of health on policy issues around health security, and lo and behold, I started that job about a year ago and lo and behold the greatest health security emergency of our lifetimes and of many generations is upon us. So I'm thrilled to be here and talking a bit about it, and I also work with the other colleagues that we have with us today.

Jonathan Zittrain:

All right, well that's a good way to pass it over to Beth Cameron. Beth tell us how you came to be working on the pandemic, especially because your top line affiliation at the moment is with the nuclear threat initiative. And I realized that at some point everything is made of atoms, but how did you specifically get into COVID?

Beth Cameron:

Thanks Jonathan, and thanks for this opportunity. So I am the vice president for global biological policy and programs at the Nuclear Threat Initiative, but the Nuclear Threat Initiative was stood up in 2001 as an organization that focuses on nuclear and biological catastrophic risks. And so pre pandemic, my organization and my team we're working on preventing a future catastrophic biological risk including a pandemic like this one, but also potentially a worse pandemic that could emerge naturally or as the result of an accidental lab release or deliberate biological event. The future is becoming now and so my work has blended into working in a variety of ways looking at what we need to be prepared for the next pandemic, but also inevitably to be more prepared for the one that we're facing right now.

Beth Cameron:

Prior to working at NTI, I was the senior director for global health security and bio defense on the national security council staff and I helped stand up that office and transition it into the Trump administration from the Obama administration in 2017. And so at the moment I'm looking at what our country has done with this pandemic and I'm frustrated. That would be the word I would use to describe where we sit right now.

Jonathan Zittrain:

And is that the very office that ambassador Bolton dismantled?

Beth Cameron:

It is. I ran that office [crosstalk 00:04:13] in disaster management and public health, and then it was decommissioned, disbanded, closed, whatever word you want to use, a year later in May of 2018.

Jonathan Zittrain:

Got it. It seems singularly poor timing in retrospect. And KJ Seung, the chief strategy and policy at partners in health. Somebody I know who has been working on multi drug resistant TB across the world. How did you find your way to COVID?

KJ Seung:

I am a doctor and started working in Partners In Health which is a nonprofit global health organization based in Boston. That was 20 years ago and have been working mostly on the implementation side of things. So with a lot of infectious diseases like TB, HIV, I still have that viewpoint so somebody who actually is working within the program and maybe not so much seeing what the policy debates are about. Right now also within PIH has a project here in Massachusetts, it's focused mostly on [inaudible 00:05:36]. So again, I have that [inaudible 00:05:39] and involved in protocols, workflows, training, contact tracers, and seeing a lot of how the epidemic is appropriate here in our state.

Jonathan Zittrain:

Got it. Okay. Well to get us started, I would just love to canvas each of you and that's got us started with the word frustrated. I'd love, if there's just three words you could use any combination, and compound words count as a single word, that would describe your sense of the state or of testings specifically or our response to the pandemic as a country, the United States, generally, what words would you choose? Could someone lead us off?

KJ Seung:

How about confusion, confusion, confusion?

Jonathan Zittrain:

Three confusions. I can guess what the fourth word would be. Dr. Cameron?

Beth Cameron:

Well, I said frustrated, that describes me, but I guess I'd say for the response; frustrating, fragmented and maybe as someone who works on national issues and unified plans disenfranchised, and it's not a surprise that all three of those things have an F in them.

Jonathan Zittrain:

That's your grade so far as what I'm inferring. Dr. Bourdeaux, I don't know if you're going to continue with the alliteration, but your three words.

Margaret Bourdeaux:

Right. Well, I'll have a phrase and a word. With respect to testing, we sometimes in medicine use a phrase about how people say, "Oh, well, this isn't a huge on chronic problem that a patient is having. This is on acute problem." The testing crisis is hyper acute and the crisis overall is acute.

Jonathan Zittrain:

Medically speaking, when you say acute, you mean have to deal with it now or onset quickly?

Margaret Bourdeaux:

Onset quickly and rapid deterioration is what we need in medicine. And then the word I would describe for this time in general is reckoning. What we're seeing is really a reckoning on a number of fronts with issues that we haven't dealt with in the past for a long time including our public health system, being it really a very feeble poorly funded strafed of resources and trying to cobble together some type of response with very underfunded resources and institutions are reckoning because this has really been a profound moment where we're realizing how unequal access to health and resources are in our country and is being funded to start relief a reckoning around our current dominance, and the fact that it is not going well and it is not so capable of mounting a appropriate response to this threat.

Jonathan Zittrain:

So it would be great to describe as crisply as possible what you think an appropriate response would look like on earth prime, where somehow the US is doing something differently, what is happening that isn't right now, or what's not happening that shouldn't be happening and what difference is it making? That's a way of getting at how much is our current situation just sometimes the cards fall a bad way and things are tough versus with the right planning this could be very different? And I don't know who wants to start, Margaret?

Margaret Bourdeaux:

Well, actually I was going to have Beth start because I think Beth has so spent a long time thinking about what this country's capabilities should be with respect to a health crisis response. And then I think KJ also has got interesting perspectives around things we're seeing around the world going right that are not happening here.

Jonathan Zittrain:

Got it. All right. Well with that agenda, Beth.

Beth Cameron:

Yeah. Well, I definitely don't want to take away from KJ's response but I was going to start by saying, on earth crime, we would be fully capable of doing what South Korea, what Germany, what New Zealand, what other countries have done. And it might not look exactly the same way where a different country, where a larger and more dispersed country but when you look at the EU, the European Union taken in total, and you look at its current case load and how it's dealing with the coronavirus crisis, the EU is drafting the recovery plan. They've actually put out a recovery plan. And I think that's a really important word because they're recovering, they're viewing recovery from this crisis and we're still very much responding in the middle of it, we're not even able to focus on recovery.

Beth Cameron:

So on earth prime, we are fully capable of doing what they have done. And on earth prime I think way back in January, we would have been able to know that as soon as we knew there was an emerging pathogen and a pandemic potential that it was already here because we were so intensely connected to China, to Europe, to all the transit points that we should have known immediately that there were cases here. And we should have searched our public health response, our community health workers, our contact tracers, and ultimately our testing appropriately then and prepared for a 12 to 24 month period

of time where we need testing in a way that we still don't have it in this country. So those are just the opening things I would say.

Jonathan Zittrain:

So Beth, was there always going to be a lockdown? Is it going to have to be given just the size of the country, the porousness of the borders and the drama of a decision to shut everything down before you've got community spread, how momentous of decision that would be, were we pretty much headed for a lockdown period and it's just a question of getting out of it that we've messed up?

Beth Cameron:

I don't know the answer to that question. I'm interested in hearing from Margaret and KJ what they think. And I had asked a few people this question and I haven't gotten one. I've heard a lot of different answers. There are people who do believe it was inevitable to do a lap down of at least a short period of time with the country as dispersed as ours to level set, get testing and tracing into place and then reopen slowly with those capabilities in place the way that many countries in Europe did, but I'm not actually sure whether it was inevitable. We fumbled this so badly in January, February and March that it's really hard to know whether we would have had to do a lockdown or a lockdown as dramatically as we ultimately had to do in March. So I'm interested in Margaret and KJ's perspective on that from the clinical point of view and the epidemiological point of view.

Jonathan Zittrain:

So we should throw it over to KJ and get your impression on that question and also hear, is there something specific about testing as foundational to all of this that makes it at the moment the room of the house that is burning most brightly and the most requiring attention?

KJ Seung:

I want to just say that I don't know whether, this is an interesting first question. It's kind of like a retrospective is, I think this is maybe a difference between maybe a more policy aspect of the implementers aspect. We have the lockdown so does it really matter [inaudible 00:13:12] necessary?

Jonathan Zittrain:

So your answer to that question is coulda, woulda, shoulda got a patient in an acute state right now and I need to do something. So it's fine to gently redirect us to that.

KJ Seung:

I would just say that I see a lot of, in policy circles I do see a lot of South Korea MD. Like, "Wow, we could have been like South Korea." Yes. We could have been like South Korea but we are not. And the other thing though is that, it's not really fair. They had experience, right? So I think a lot of the Asian countries around China [inaudible 00:13:51], South Korea had completely bumbled [inaudible 00:13:56] in his role they were chopped off and this was years ago. So in some sense, they've been preparing for COVID for over 10 years and without having that experience as a country, I just don't think that it's possible to command this out. And clearly in January and February, even in March here, we just thought that this is no big deal that what South Korea was doing wasn't that complicated.

Jonathan Zittrain:

So it's interesting to see if KJ and Beth are already disagreeing, it might just be a disagreement about historical empathy and whether to-

Beth Cameron:

No, we might disagree. I don't with you about the premise that we could have done what South Korea did. I absolutely believe that, but we went through Ebola, it was not Mars, we had less cases but we behaved in such a way, and the American people were really worried about Ebola and researched hospital capacity across the country. But even more to the point, Mars was absolutely a crisis in South Korea, but we have so many deployed Americans and US forces in Korea sitting with soul working with soul on the Korean peninsula, but that wasn't only a South Korean crisis, that was a crisis for the United States and the United States government and potentially force readiness. So we should have learned a lesson from that too and I think we did learn a few lessons from that that we just didn't act on.

Jonathan Zittrain:

I'm really eager to get into the specifics, whether it's retrospectively in terms of preparation or prospectively with the acute patient in front of us right now, what are the specific things that would point the arrow in the right direction? Am I right in assuming? Maybe I should take this baseline first from everybody. Is the arrow in a very bad direction right now? If you're looking, just for the record, we were at the end of July, 2020 about to hit August, otherwise known as March 115th. And is your sense that things are leveling off even in the hard hit states and if we just hold on, everybody will be returning to New England, New York status, or do we need some massive change to the way this country is doing things in order for this to attenuate? I don't know who wants to take that.

Margaret Bourdeaux:

Well, I'll just say a couple of things. There's somebody who had South Korea envy, and still do. I think that the thing that I find remarkable, and this is true anywhere I've worked in the world, you're in a space where, we're a public health system, our health system just has a ton more assets, they're just more organized and yes, maybe they try to deploy one asset, it doesn't work, you know? Okay, fine. They put it back on the shelf, they get the another strategy in place. And that's the thing that's been hard to communicate with people here is how few assets we have to work with. And I think I've learned a lot from working with KJ and Partners In Health, as they try to just roll out testing to various communities in Massachusetts.

Margaret Bourdeaux:

And it's like, okay. So we have to design a testing system that people can access, that they have to access it through their employer based health insurance to get them to pay for it. And they have to schedule, they have a medical home, they have to go to the back, oh, they have to go to the hospital. It's just like this tremendous amount of administrative maneuvering [inaudible 00:17:54] not going to do the simplest thing that other [inaudible 00:17:59]. You just call in their community health workforce, their public health workforce stuff deployed. We don't have to think about where we're going to get them from. They [inaudible 00:18:08], just they have another partnership with this other lab. We can just get on that. They just have a lot more assets they can deploy and we don't have that and we need to get smart really fast about building that.

Jonathan Zittrain:

Margaret you're conveying so much frustration, understandably that saturating your bandwidth. It's actually in here fading out a little bit. I wanted to quickly ask to follow up, is our trajectory one that is about to moderate, whether regionally or nationally, if we just stay the course, it might be regrettable when you compare our curve to all those other curves to the other countries. But basically this thing is going to attenuate of its own accord, or are we in need of some signal change in the way we are handling this crisis? Do you have a sense of the answer to that question?

KJ Seung:

This thing does not attenuate of its own the board. In fact, this is one of the most ridiculous errors that were made by the public health people at the beginning of this epidemic is that they saw with the [inaudible 00:19:18] attenuating in Wuhan or Daegu in South Korea. They say, "Wow, there's a natural peak and decline." There's nothing natural about that. That's a coordinated, intense public health response that is pressing the transmission of the virus.

Jonathan Zittrain:

And you think there's a story in Texas, there's a story in Arizona right now which are hotspots at the moment that appear to be leveling off that involves a local public health response there that's helping people.

KJ Seung:

No, I think it's a confused public health response. Remember I said, confusion, confusion, confusion. There is panic. There are people who are individually socially distancing or wearing mass and shutting down their businesses. This is all part of the public health response. And I don't think that you'll have a sharp decline like you have had, that is possible when you have a very coordinated public health response. I think we'll be more like the Northeast, which was also very confused. And there are many, many other States that is virgin territory where the virus is going to explode. So in fact, it's going to get worse. I agree with our president, it's going to get worse before it gets better.

Beth Cameron:

And Jonathan, you asked about an arrow and the trajectory, and I would just ask, what arrow, who's shooting the arrow. What's the target. We don't have a national set of targets that have been communicated across states, we don't have a national plan or arrow going anywhere. What we have is a whole bunch of different targets and arrows and people are shooting them around the country and we're forgetting that we're a country where people are traveling in the middle of this and where not everybody is going to comply. So we need to have a percentage of the population getting the message in a coordinated fashion. So I would say it's chaotic and viruses thrive in chaotic environments. And so we are feeding the virus right now with our chaotic response. We're making it worse.

Margaret Bourdeaux:

There's a phrase, a joke in medical school where you're learning how to do surgery and you're learning how to control bleeding and all the surgeons will tell you when you're learning how to control bleeding, they'll say, "Oh, don't worry, all bleeding stops eventually." Right.

Jonathan Zittrain:

That's the counterpart to the economist in the long run rule that [inaudible 00:21:46].

Margaret Bourdeaux:

Right. So yes, this too shall pass. It just matters in terms of what we lose in the passing, whether it's lives, livelihoods. Really the stakes are just tremendous here. It's their economy, the geopolitical stakes in my opinion are very high. There's a lot to lose and so we do need a major, major redirect, and it needs to happen as absolutely soon as we can pull it off. I think we see a lot of sort of yes KJ's mentioning, "Oh, well, it's just muddle through, there's a vaccine on the horizon." Something is coming to say us. Nothing is coming to save us. We already do have the tools to control this. We just need to implement, and I can kind of walk through what those tools are but they're-

Jonathan Zittrain:

Yeah, I just hope the most foundational tool.

Margaret Bourdeaux:

Yeah. I would say there's sort of three, I describe it like a three legged stool. So you have your population based interventions where you ask people to do things like wear masks and wash their hands and stay socially distance and not go to parties where they're close together. So those are what you ask the population to do. And you have the other leg of the stool is your environmental modifications. So these are creating environments where the virus is less likely to transmit. So it's implementing ventilation standards and a lot of our buildings and setting up our workplaces so that people are just automatically distanced from each other.

Margaret Bourdeaux:

And then the third leg of the stool is contact tracing. And that's finding out who has been exposed to somebody who's been infected and helping them, monitoring them to see if they do in fact become sick and keeping them separate from other people and supporting them in that process of remaining apart from others. And those are the three things. If we do those things, we will get control of this, and we can do it basically without locking down or any very draconian giving up a tremendous amount of economically and socially. So if we do those things we can make it and we can certainly make it until we have better therapeutics and potentially a vaccine.

Jonathan Zittrain:

And is that assuming a certain low prevalence in the environment where you want to deploy the three legs? If it's running wild somewhere, do you just need a lockdown to cool it off before you start telling people they should eat outside instead of inside?

Margaret Bourdeaux:

I think that if you don't have those three things in place, then you lose control of it and you have to act with more and more severity and more quickly. So yes, I think there is a sense that lockdowns become inevitable when you don't have those three things in place and are unable to refine them.

KJ Seung:

Yeah. I would say that I remember when we were above 2,000 cases in a day in Massachusetts and it was just a total, doing contact tracing, it was just crazy. You're just calling people, tragically. People are infected by different people. And now I'm thinking about 10,000 cases a day. There is nothing that's

going on in terms of contact tracing except for practice. It's good practice because hopefully you're going to get to the point where-

Jonathan Zittrain:

Practice as in rehearsal?

KJ Seung:

Well practicing that you're doing contact tracing for the first time because you hired a lot of new people, you've got some very experienced [inaudible 00:25:38] but then you had to hire a lot more people. They need to get trained up and they need to work and the only way to really do this, learn how to do it correctly is to actually do it. So I think that's helpful, but [inaudible 00:25:53] last year lost control like that then you just need to shut it down, shut everything down and then once it's reset then you can start over.

Beth Cameron:

And I think there needs to be national agreement on when that reset happens. There had been some discussion about what's the metric for that, is it 25 cases per 100,000 that leads to the inability to control and even with the three legs of the stool in place. But there is an agreement across state lines that that's, what's going to happen. And so if New York does it that way, but Florida doesn't, we end up in a situation where we just continually are perpetuating spread. And so I do think there needs to be a reckoning, to use Margaret's word, on things like that on a shared understanding of what it means to lose control of the virus and what needs to happen. And also a really fact-based communication with the American people about what that means for how long it might be and what the government's going to do in the meantime to get back in control. And we lost our chance to do that in March, April and May, but we still need to do it.

Jonathan Zittrain:

And testing specifically again, let me just return to that, is the reason that testing is so important because it's a predicate to contact tracing. Once I know I've been exposed, the test will tell me whether I should stay quarantined or not, or are there other reasons to want to be doing sentinel testing? Tell me why is testing so important? If we couldn't test, how far up the creek would we be?

Margaret Bourdeaux:

I'll just say testing is basically the one way we have to study where this virus, who has it and where it's spreading. So I think it's more fundamental a problem than losing your contact tracing capability. You're losing your eyes on the epidemic. Whenever you were trained in disaster response, the first thing like disaster planning, the first thing, the very first thing that they'll say you need and they're right, is a map. You got to have a map, without a map nothing else can happen. And that's the testing capabilities are map. That's what's giving us situational awareness, it's what's leading planning, it's what's going to drive resource allocation, hopefully. And so without that, we're just dead in the water.

Jonathan Zittrain:

Reminds me of the aviators creed of, I think it's navigate, communicate in times of trouble. Make sure the plane is not pointing down and then, unless you're trying to get out of the stall, anyway, and then figure out your map and where you're trying to go. Yeah.

KJ Seung:

And there's many other purposes for testing like you said, for example, they're going to open it up. So all of the Massachusetts universities are talking about doing surveillance testing. So surveillance testing is okay, let's just test everybody in a certain population, whether or not they have symptoms or not. So for universities [inaudible 00:29:07] bringing back thousands and thousands of all the students and they're going to be tested regularly. And those plans are, there is a huge amount of activity. People are just running like crazy, trying to figure out how this is going to be done [inaudible 00:29:21] there on the part of the universities. That tells you people that are infected, it shows you where there are outbreaks. You can grow that into content tracing. I think that the availability of testing is break where community education. There's something that's very visceral about getting tested and then waiting for that result.

KJ Seung:

If you ever had any sort of test or infectious disease, I still remember when I stabbed myself and I had to get an HIV test, and I remember those days just were the longest days when I was just waiting for that. And it makes you think a lot about the disease and how it affects your family and it's a great teaching moment for when we're talking to people. And it changes also the understanding within the community of how COVID is transmitted. We've had multiple large clusters of largely asymptomatic young people, and those communities now are actually really fine because they know that this has happened before. So you get a better understanding of how the disease is transmitted is, like Margaret says, of course it's important to policy makers, it's actually very, very useful for community members too.

Jonathan Zittrain:

Well, thank you for broaching the question of the colleges reopening, which mid summer is on a lot of people's minds, including people asking questions in our Q&A queue. I'm curious on that front, you're phrasing it as a really good thing, because it's an example of a community being able to create the kind of map that Margaret's talking about. And on the other hand, to the extent that you see a lot of testing going on, which I think has been in effect privately managed even by a public university, it's for a particular community, they're driving the demand for tests.

Jonathan Zittrain:

And it sounds like it's not just one and done, they're going to be testing students, three times a week or something, everybody on campus. That's all a lot of testing to keep that community to some level of comfort does it get decided when there's only so many tests that can be turned around in three or four days, whether it goes to state U or whether it goes to a fish processing plant and their employees, or whether it goes to a community at large, how does that get figured out?

KJ Seung:

Well, I guess figured out in the typical American fashion, which is that-

Jonathan Zittrain:

An auction?

KJ Seung:

Well the person who pays for it gets it.

Jonathan Zittrain:

That's an auction.

KJ Seung:

Yeah. This is kind of the NBA style, right? So I think that the NBA bubble, universities are trying to create this on campus and some are going to succeed, some are going to fail, but the strategy is definitely one that is very much suited to American culture. We're going to try and make a bubble and we're going to try to keep the buyers out. So no, I don't think that there is a rational distribution of a scarce resource. People are working like crazy to try to protect their communities and there it is, the expectation. Well you have a global pandemic, it's kind of crazy.

Jonathan Zittrain:

And Beth, as somebody who was at the center of national policymaking and planning apparatus, is it basically like it's called the American way, let there be supply and demand and may the best college get the tests and hope that the basketball team doesn't get them first.

Beth Cameron:

No.

Jonathan Zittrain:

Is there some command and control kind of thing you want to do?

Beth Cameron:

There should be a unified plan. There should be a public health response that is led by the federal government. Obviously states have a lot of control and universities have capabilities that they can bring to bear and they're privately owned. But what we're missing is a consolidated plan and prioritization and honest communication about where we are in this movie and the fact that we do have this incredibly scarce resource of testing right now that we know that the two largest commercial companies for testing in America, LabCorp, Quest are not able to turn around and test quickly. So we're talking about unless you're in the hospital or an essential healthcare worker, and you're talking about a seven day a week and longer to get a test result back, which basically means the test itself is interesting from a research perspective, but it's useless in identifying where the disease is and how to control spread.

Jonathan Zittrain:

So how would you prioritize it? How would you start to order it?

Beth Cameron:

Well first I would say, we need to know where all the barriers to testing are. We know that we have a national prices, but we don't actually know from each state individually where the capabilities and gaps are, and we don't know how each state is currently prioritizing tests. And there should be a reckoning amongst governors ideally led by the federal government and the CDC to have that conversation. And we should have had it a long time ago, but if we vector in using KJ's good point, we are where we are. We're jumping in right now into this movie. The movie is bad.

Jonathan Zittrain:

If we're using the best science, is it pretty clear how you would reconcile that resource or is it so values laden as to who should get the benefit of a task?

Beth Cameron:

There may be differences of opinion on this webinar, but it's absolutely clear that people with symptoms and essential workers, so essential workers, people that have to be at work, healthcare workers, essential employees, people with symptoms-

Jonathan Zittrain:

Why shouldn't people with symptoms not get the test but just assume they've got it?

Beth Cameron:

So the second thing I would say, and Margaret raised supported isolation is that we don't have a really sophisticated, not even sophisticated. We don't have a clear way of telling people if you are a close contact of someone who has it, or if you think that you have it, you need to be quarantined and this is what you should do and we're going to support you to do that if you can't do it yourself.

Jonathan Zittrain:

Without sounding then like KJ's point about one of the reasons to do a test is to drive home the seriousness of the issue to a person who ideally would be self quarantining even if they're not sure they have it and you're just saying the test would really help persuade them they should do it.

Beth Cameron:

Well, I think the ideal situation is that we would have enough testing and support isolation and not so much circulating disease that we would be able to use those things together. Where we are now is that we do have a scarce commodity so I think it is an important strategy in places like Arizona and Texas and Florida that supported isolation in the absence of a quick test should absolutely be the more because even if they're tested, they're not getting the results quickly enough. But this shouldn't be a Texas only strategy, there should be a plan for how we're dealing with this when you get to a certain caseload.

Jonathan Zittrain:

Margaret I feel like you're wanting to jump in.

Margaret Bourdeaux:

There's a lot to say. Like I said, we're at an acute, unacute moment, right? Where a lot of things are happening to create a perfect storm in terms of driving needs for testing. And one of them is that we're having rising case loads and uncontrolled community spread in some of the most populous states in the country. And so they are trying to map out who has the disease and who does not and testing is an important part of that. You raised a nice point that you can actually kind of maybe sort of do things without real confirmation of testing, which is kind of what New England did. New England is never tested extensively to really understand, we just lock down and we told people if you're sick, we'll stay home.

Margaret Bourdeaux:

I just want to say, by the way, when you say, "Oh, you're sick, stay home." You're asking people to stay in a house, not go out ever for 14 days. So this is not a little ask, this is kind of a big ask for folks. But anyway, you had these tests, the needs for tests in these states are growing rapidly. On the other side of the seesaw, you have New England and place that want to open up and they want to do surveillance testing which is actually a pretty high demand. You want to test large portions of your population twice a week. That a little deal, that's a lot of testing. And so you have both of these situations, demand growing, and it turns out that we don't live our lives in one state.

Margaret Bourdeaux:

It turns out that we are reliant on national and global supply chains and we're reliant on commercial laboratory companies that process a lot of the States tests, even in New England, the same company quest or lab core processes tests from Massachusetts just like they do in Florida. So they are already prioritizing who is going to get their test and who the test result going to go to. I think from the hope would be that we would be able to come up with a national consensus on who should get some access to that testing to maximize our disease control efforts. And I think the first priority, and I don't think it's that controversial to say, is you want to be able to test so that you don't crash your health system and infect your health workforce. And so that's usually a priority and it is the priority for Quest and LabCorp. The second we can talk about who would be second in line, my vote would be testing to break community transmission, lines of community transmission, that would be really folks that you know have been exposed and folks that have-

Jonathan Zittrain:

That's part of contact tracing. When somebody gets [crosstalk 00:40:38] exposed for testing.

Margaret Bourdeaux:

Yeah, that's right. Testing to try to break up community, chains of community transmission would be the second. In my book that would be where I would go. There is some debate or should you reserve the testing for folks that are living in repair situations and routinely testing longterm care residents or people who are incarcerated. Those are some value judgments there. I think if we just had any, sometimes any plan is better than no plan and we need any plan, because once we have a plan, however flawed it is you know, we can start throwing our weight towards solving for that part of the equation. How do we make sure hospitals don't get overwhelmed? Do they have to use PCR testing? Maybe we could get by with some other diagnostics in that setting. How do we test folks that wanted to go to college campuses? Could we use these antigen tests that have gotten a lot of play recently? They're cheap and quick and maybe not as accurate.

Jonathan Zittrain:

As long as you just mentioned, you got your PCR molecular testing which is usually when somebody says a test, that's what they've been needing so far in the United States. And that's the one that takes a bit of turnaround and where there's bottlenecks on the reagents, the chemicals you use, then you mentioned antigen testing, which is the strip of paper and in 10 minutes it gives you a kind of reliable answer testing. Why aren't those everywhere right now?

Margaret Bourdeaux:

Yeah. So I'm going to pivot a little bit to KJ and Beth, you might have a better understanding, but they just didn't have the kind of uptake in this country that they should have. And I think that they're pretty

cheap thing. They were around back in January and February. I think people thought, "Well, we have a better task which is the PCR test and our systems are kind of, let's lean in on that." And so I think it sort of has become now like, "Oh, maybe this is a better idea now that we are in such a crunch."

Jonathan Zittrain:

Yeah. So should we ask KJ on the front lines and just to bracket it, the third type is the serological testing to look for antibodies that somebody might've produced, which maybe isn't as relevant and controlling things. But KJ for the antigen testing, were you're looking for a little protein that the virus would be throwing off and therefore could be detected, but isn't always, even if somebody got it. Why don't you have that in your arsenal right now?

KJ Seung:

It exists. There are a couple of FDA approved. I think there's two different ones now. Actually I know a couple of facilities in Massachusetts that are using them, but they've come out recently and they haven't been widely used yet. I think that they will be used more. I don't really, just pivoting back to your original question, I don't really think that this is, it's not really a capacity or technology problem or issue. The problem is that we just have an explosion of COVID [inaudible 00:43:50]. So you've got multiple states in the Sunbelt, they're just trying to diagnose people so they can put them in the right ward.

KJ Seung:

They don't have any sort of testing capacity to do anything else, any sort of public health intervention. They have to do hundreds of thousands of tests. So you can build up your testing capacity but this is exponential growth so you can have more unless you actually do something about it. So I do think that certainly we should build up our testing capacity because like you say, there's other things down the road like surveillance testing, testing college students, testing public school students K through 12, testing workloads is all of these things required more testing, but I don't think that the current problem right now can be solved until people actually get a handle on the epidemic.

KJ Seung:

There's another question you asked, which is part of the way to try to work towards a more equitable distribution of resources is, interestingly policy battles really take a top down view but we're a democracy. So why is it that Brockton public health, sorry, the Brockton school district, they got 16,000 students there, K through 12. They're not getting tested every three days like the [inaudible 00:45:23] students are. I guess it'd be nice if policy makers are thinking about that, but maybe community members, maybe parents need to start raising their voices and asking these questions and demanding the same type of resources that our Harvard students are going to get, our [inaudible 00:45:47] students are going to get, that NBA athletes get.

Beth Cameron:

Totally. A national plan doesn't mean that you don't set out priorities for kids going back to school and that the kids going back to school that should be the priority shouldn't be K through 12. I definitely think we should be talking about these issues. We should be [inaudible 00:46:08] the massive disparity in our country and where COVID is circulating among people of color in our society. So those are things that can, that tone does get set at the national level as well as the state, and I think rightly a lot of people put some comments into the chat, it's not just states, it's also cities and counties, but we are a federated

society but the tone gets set from the top. And what the tone is right now is that the States get to decide the County level.

Beth Cameron:

Everybody decides for themselves and we're not going to set out specific priorities. And when that happens, the people at the top, the wealthiest people in our country are the ones who are going to win, or the ones who, that's what's going to happen or it's more likely to happen. Certainly there are States and local communities that are doing a great job, but we're leaving it to them and not setting the tone at the top. So KJ, I take your point but I think policy makers job is to pay attention to those issues.

Jonathan Zittrain:

Well, this sounds like a little bit story of the water system in Flint at large and with something communicable. But I guess there's a political or policy question to say, how does Flint get the resources it needs that if that were to have happened in a different zip code, it would never have happened. If it did, it would be remediated much more quickly. And is that somehow a local community thing or is it trust the White House to fix it?

Margaret Bourdeaux:

I'll just say that the history of course of multidrug resistant, tuberculosis and activism is very much set by the fact that, or was very much influenced by the fact that it is a communicable disease issue. And one of the things well we have in our court, in our favor maybe if you want to look at it as a silver lining is the fact that communicable diseases transmit to other people and to rich people and to people with resources.

Jonathan Zittrain:

Which is to say a viral injustice anywhere truly is an injustice everywhere if you wait long enough.

Margaret Bourdeaux:

It's going to be hard to buy your way out is what [crosstalk 00:48:16].

Jonathan Zittrain:

Unless you just pursue such isolationism that you talk yourself into thinking that a problem somewhere else can be.

Margaret Bourdeaux:

It's hard to find the islands. It turns out this is going to be one of those stunning exercises in equity, because it's not just like, "Oh, we're all connected in kind of a spiritual way." We share a microbiome that is going to connect us. And so my thinking is that how the general play out is, yes, there'll be a mad rush where the strongest will be able to elbow their way to scarce resources. But they still can't go to Paris even if they are behind a wall and have a deep moat and get tested every day, there's still Americans that have to answer via and are influenced by the status of the epidemic everywhere. So I don't know whether you take it as a good thing or is a bad thing, but I think that COVID is not here to allow us maybe to get away with this kind of lack laws a fair or let's just see what happens approach.

Jonathan Zittrain:

We hit the top of the hour, but of course we started a little late due to technical difficulties so if I can indulge a little bit past the hour and maybe a kind of wrap up question this installment at least of each of you. And it would be a reminder to those watching and listening about what the name of the game is here in very basic terms. Is it making sure the healthcare system isn't overtaxed as people inevitably get sick from this until we have some rabbit out of a hat like a vaccine that is then well distributed? Or is it something else? What's the overall picture of where we're trying to go on that map we don't have yet.

Jonathan Zittrain:

And this is maybe a different way of asking the question, fast forward two years from now, July of 2022, what's the picture and how much is it still different from July of 2019? How much has the day to day of the life of various Americans been, even two years from now will still be different. If movie theaters are still around, can you walk in without a mask? I'm curious even two years from now what your vision is on that front. So either where are we going on the map or what's it going to look like in two years? I'm curious what people think. I don't know who wants to go first. Beth.

Beth Cameron:

I'll jump in. Look, we're guesstimating here so nobody watching this for posterity can say any of us are, well, they will be able to say whether we're wrong or not in two years.

Jonathan Zittrain:

They'll have historical empathy.

Beth Cameron:

They will. So I'll say this. So first you asked your questions. I think one was where do we want to go? What is the optimal and end point or [inaudible 00:51:28] end point here short of a vaccine and a safe, effective, equitably distributed vaccine. And I think we want to be Germany, we want to be South Korea. I want to have control of this disease such that it's not gone, it's still transmitting, there may still be hotspots, we still have to be vigilant, but we don't have 1,000 cases per day, we don't have the massive community spread that we have in many states right now. And I think that's totally achievable, but in order to achieve it, we have to get the three legs of the stool that Margaret so well describes. We have to use them and we have to use them in concert with other tools.

Jonathan Zittrain:

Behavior, environment, testing and tracing. Those are the three legs?

Beth Cameron:

Yes. Contact tracing, testing, supported isolation.

Jonathan Zittrain:

Yes.

Beth Cameron:

Testing, tracing, support isolation. What am I missing, Margaret? Sorry.

Margaret Bourdeaux:

Well, I sort of envisioned those three population environmental. That's a very robust third leg of testing, contact rates and support isolation, all that three.

Beth Cameron:

All in one leg.

Margaret Bourdeaux:

All in one leg.

Beth Cameron:

Sorry. We all have different legs of different stools [inaudible 00:52:40] different analogies throughout this crisis. Thank you. Yes. But where are we going to be in two years? I hope that where we are in two years is that we have a safe and effective vaccine for this disease that's been distributed. Will COVID-19 be gone in two years? I don't think that it will be. I think the history of vaccination programs around the world for other diseases tells us how hard it is to eradicate something. So I think COVID-19 is here to stay for the foreseeable future. I hope that it's a vaccination program that is not more rigorous than annually but we just don't know.

Beth Cameron:

We don't know what the vaccine is going to look like, and that will drive whether we go into a movie theater, especially in the winter with or without a mask. So I think that's on the table. I think it's on the table that movie theaters and shopping malls won't survive this crisis because of the economic downturn that we're all living in, but I think it's possible. And I think we should prepare for the world where that isn't what we end up with if we want a different world, but right now we're not behaving like we do as a country.

Margaret Bourdeaux:

KJ do you want to give your prediction?

KJ Seung:

No. I think we have vaccines and therapeutics, by that time it will make things a lot easier. And I think most people are confident that at that point, you'll still have to do all of these things that we're doing. I don't think anybody in the public health sphere is predicting. This is going to be around for years. But it's going to be a lot easier, we're going to have more tools. I think at that point we're pretty confident we'll be able to have much better control than we do now.

KJ Seung:

I think the harder issue is in the next six to 12 months where we don't have these things or these things are not, the problem where we don't have access or enough of these these tools, can we get to that point like other countries have? Can we have much better control? Can we have much stronger suppression? I think again, we're obviously feeling right now, but the playbook is there, the public health tools, they're centuries old, they're effective and I think that once things get a little worse than I think there was going to be more appetite to do things the right way.

Jonathan Zittrain:

I like your flavor of optimism.

Margaret Bourdeaux:

I'll say that just to say at the beginning of this crisis, I was really scared to say, make a prediction that was too dire and I'm a little scared to make a prediction that's too optimistic but, I don't know. I don't want to give up on eradication, I don't want to give up on elimination. And I think that if we can crack the governance of that right now we can come together and have some leadership and national plan that we execute on it with all of our resources and get behind it. I think we can do a really good job. And then I think we'll get a vaccine in here and we'll mop it up. Often, vaccines fail because they have an animal reservoir. In general that's why, and there's no evidence yet that that's the case here.

Jonathan Zittrain:

An animal reservoir is a place where [crosstalk 00:56:10].

Margaret Bourdeaux:

Where the virus circulates.

Jonathan Zittrain:

[crosstalk 00:56:10] over every so often.

Margaret Bourdeaux:

I remember when Ebola was raging in West Africa and it was so crazy that Jim Kim and the head of the World Bank was like, "We're driving it to zero, we're driving it to zero." Now they didn't eradicate Ebola absolutely but that's what we're going to go. That's where we're driving the bus, let's get to zero and then you can tell me how naive I am in two years and we can crawl through a mask.

Beth Cameron:

That was a great way to end.

Jonathan Zittrain:

We can check in perhaps in sooner than two years, many other topics to cover including complimenting centuries old public health techniques with ones that are months or near years old or just around the corner like low energy Bluetooth and things like that. But I thank you all so much for taking the time to share your thoughts and even disagree a little with one another, and I look forward to the prospect of reconvening. That's really good and thanks all to those who tuned in. All right. Catch you soon.

Beth Cameron:

Thanks very much.

Jonathan Zittrain:

Bye.