

## CCPU-EP06-2020-0327-Dr. Isolde Butler, MD, MPH and Dr. Jason Halperin MD, MPH.m4a

**Nicholas Van Sickels:** [00:00:01] All right. Hello, everyone, and good afternoon. We're so happy it's Friday here on the podcast. My name is Dr. Nicholas Van Sickels. I am the chief medical officer at CrescentCare, a Federally Qualified Health Center in New Orleans. And today on the podcast, we're going to have Science Friday, where we're gonna go through all the latest updates in medical literature around the coronavirus. And I've got two wonderful experts with me here today, Dr. Jason Halperin and Dr. Isolde Butler. Why don't you two guys introduce yourselves?

**Jason Halperin:** [00:00:29] Sure. Thank you, Nick, for having me come back onto your podcast. I'm Dr. Halperin and I work at CrescentCare. And currently I am the lead of our COVID-19 testing response. We have our mobile van and tents set up and we are seeing patients that are symptomatic. I'll hand it over to Dr. Isolde Butler.

**Isolde Butler:** [00:00:57] Hi, I'm Isolde Butler; I'm also a physician here at CrescentCare. I've been assisting and overseeing the COVID van, as well as a lot of our other clinical operations, as we continue to see patients on a telephonic basis, mostly now, but working with new platforms that we can continue to provide patient care.

**Nicholas Van Sickels:** [00:01:15] All right. And just to note, you're both infectious disease trained here in New Orleans for Dr. Butler and in New York for Dr. Halperin, correct?

**Jason Halperin:** [00:01:24] That is correct.

**Nicholas Van Sickels:** [00:01:25] Well, let's get started. So I think, you know, Dr. Halperin presented this idea to me to talk about maybe some cases and use that as a framework for how we can update people in the community about science around this this pandemic. Especially since it's evolving so rapidly. So why don't you walk me through, Jason ... what is your approach for somebody who is newly diagnosed with COVID-19, and kind of walk us through the whole process so we can understand how that diagnosis happens. And then what is your approach to talking to them once they you get the test result back. So I'll let you start there.

**Jason Halperin:** [00:02:01] All right. That's a large question. But thank you, Nick. So I'll do a walk through. But before I begin, I also want to point out that there was a really good grand rounds. Grand rounds is typically an hour platform at hospitals where they give updates. And Mass General Hospital in Boston that recently had a grand rounds by Dr. Rick Richterman and Dr. Meyerowitz. I might be screwing up those last names because I don't know them personally. And we could even put a link to that grand round. So a lot of the information that that we'll be discussing, it was really helpful to me and it framed a lot of the science. So to answer your question, what we have set up now at CrescentCare is kind of two streams. We have those that are coming to CrescentCare— they might be here to fill a prescription or they might have planned to come in to see a provider for another reason or even our staff. Everyone walking in the building is asked in the last two weeks, have you had fever, cough, shortness of breath or sore throat? The reason that I have it for two weeks is it's a really low bar. I want to protect our staff and I want to protect our patients in the best way possible. So if someone walks in and says yes to that, they are brought over to our COVID testing area and that's where we'll get a little bit more of a history. Most often we have a provider see the patient. If if they screen positive for that. So if they say yes, in the last two weeks, I haven't felt, well, then we'll register the patient and see the patient in one of our tents. A nurse will get more of a history and then a provider will come in and get vitals and take and perform the COVID test if appropriate.

**Jason Halperin:** [00:04:07] So let's talk about who would be appropriate for the COVID test. So the recommendation and the data really supports this: once someone is symptomatic and the symptoms that are most common for adults are fever, plus another symptom which is often shortness of breath, cough or sore throat. So fever, plus one of the others within the last 72 hours. We have a high potential for this to be COVID testing. I mean, that this would be a COVID case. So we should move forward with testing. And those are the people that we're testing. We also get a lot of individuals that say, you know what, I had a fever a week ago. I really didn't feel well. And for the last five days. I've been feeling much improved. The data is clear that if we tested that individual, their test would be negative. We are not able to test outside of the 72 hours around fever and feel confident with our results. So often I'm explaining to the patient. This might have been Cauvin. There's no way I could confirm. But we also have really good data that once someone is afebrile, I mean, they have not had a fever and they're

not taking medications to lower that fever for three days. And they've had symptoms for seven days. So they have to have both. No fever for three days. Symptoms for seven days. They really do not have risk of transmitting the virus. So they're my recommendations to them are no different than everyone else in the city. And we could go through some of the data of why this social distancing is essential for us to get a handle on this pandemic, especially here in New Orleans.

**Jason Halperin:** [00:06:08] If they have symptoms they have fever plus one of the others, we are performing the COVID test. It's a nasal pharyngeal swab and we swab both nostrils to have the highest yield. The difficulty right now is it's taking up to seven days to have the results return. And even longer, potentially. So after we perform the test, we explain to the patient that they must go home. They must isolate themselves as best as possible until they hear from us with the results of the test.

**Jason Halperin:** [00:06:46] And again, once I have the results back then I can call the patient and say either that they're positive; and if they're positive, to wait those three days without a fever, seven days from symptoms, and then they come back to being like the rest of us. If they are negative, they need to take all the social distancing precautions that we're recommending throughout the city so that that they don't later contract COVID-19. We know that there's community spread and the only way to really disrupt that community spread is to follow the important advice of social distancing, washing hands. And if one is not feeling well, to stay home or to go to a testing site like ours, but then to go home. So that's kind of the walk-through of how we're handling this. Of course, every single person coming through our testing site receives a phone call from a provider with the results of the test, either positive or negative. So that's essential for having a good program in place. And I'm really proud of the entire staff of CrescentCare. We've instituted this quite quickly. And I think we are making a really big impact by informing patients if their symptoms are due to COVID-19 or not.

**Nicholas Van Sickels:** [00:08:09] That's great, Jason. I think it's very helpful to kind of tell what the process is, especially as it has changed quite a bit since the last time when we talked to you on the podcast. One question—you mentioned a lot about symptoms—one question that we get a lot. Let me pose this to both of you: so you said that if people have symptoms, but they haven't had fever for a few days, that the test isn't very good. And that might be because they're not shedding it anymore. It might not

might because they don't have it. What about before they have symptoms? What is the risk of people spreading? Because that's the question that we get a lot, is that people always are worried about us. How much did I spread it before I didn't know. I went to the grocery store. I was with my family and I got sick two days later. So what did you all think about that? What are you telling people?

**Isolde Butler:** [00:08:59] Well, one of the things that we're seeing. It does appear that there is a significant amount of viral shed that occurs prior to development of symptoms, possibly as far out as five days before. But certainly in this in the day before or a couple days before. This is where the social distancing piece really does become a very important thing for all people, even if they're not having symptoms. And of course, we counsel our folks who are coming in with symptoms. Yes. You know, stay home, really try to isolate away and don't go to grocery stores and things of that nature, if not not absolutely necessary. And even then, really try not to. But the big challenge that we're facing, and part of what's made this disease a pandemic and part of what's allowed it to spread ... in the kind of wildfire way it has ... is, is that it appears that probably there is a fair amount of transmission that's happening before people even have their first symptom. And, you know, there's a question right now about how many—if they may be asymptomatic—that means people with no symptoms, who never get symptoms, who might be having it for a period of time and spreading it. It is a little unclear if that's happening or if those cases are people who will eventually get some degree of symptoms. But we're finding even in hospitals are finding people who are not having any breathing problems. But yet, when they get imaging on their CAT scans or chest x rays are actually seeing changes in their lungs that would be consistent with the COVID-19 infection. But the patient will tell them, you know, I'm not feeling short of breath. I don't have a fever. I don't have any cough. So it's a real concern, isn't it?

**Jason Halperin:** [00:10:35] Yeah. Yeah. I was going to say I couldn't agree more with what Dr. Butler just said. I think we have now some really strong data that we can look at both ways. On one hand, as I said, we have really good data that once one is afebrile without a fever for three days, seven days from symptoms, they cannot transmit the virus. That is very reassuring. We're able to test and confirm if one is when symptomatic. But if they come beyond that period, I can feel really confident. Well, Dr. Butler is saying is also the other side of that coin that we have really good data for, which is the shedding of virus in this pre-symptomatic time. And it just reinforces the

point of the impact of social distancing. I was just on the phone this morning with a good friend of mine in New York, and we're going to get some more data. They just instituted a new plan at their hospital, which is that they are testing everyone coming into the hospital for COVID-19. So every single person that walks in. So if someone comes in with a severe urinary tract infection, they're going to get a COVID-19 test. And I think we're going to get some more U.S.-based data from them on those that are coming in for other reasons, how many might have had the virus. And then they're also going to look at the ability to shed if they have the virus. So even more data. But Dr. Butler referenced, you know, the Chinese study, which was really important, what they did, which, you know, I don't know how easy would have been if we could do this in the States, but they took someone living in the home. So, you know, a mother is diagnosed with COVID-19. They then hospitalized everyone in the household. And then what they did is they tested them for COVID-19 every single day. They did a C.T. scan every single day. And then they followed them and they found that, you know, you start seeing these changes on C.T. scan. And yet the kids are running around. They feel great. The partner feels great. And then it took about five days. And that was the median time that people then started to feel symptomatic, even though even on day one they had the virus and they were able to shed. So this time of the pre-symptomatic time is really why we need to follow these guidelines of social distancing. Even for me, who's in infectious disease, that crystallized it. I said, OK, this is why following these recommendations is so essential.

[00:13:36] No, that's great. So I think that's really helpful to hear and it answers a lot of questions. That's a question I get.. "You're telling me that it's pretty asymptomatic when I'm asymptomatic. What do I do with that information? Do I constantly live in fear of getting this infection? No. You just follow the guidance of trying to socially distance trying to keep in your home until we get to a point where we've got a better handle on this in our community. So it's really helpful to hear some some data and information, I think will be more helpful. We hear some from some from the United States and in our population here.

**Nicholas Van Sickels:** [00:14:08] You mentioned your. We're getting these results back. Every person is getting a call from a provider. I agree. It's a wonderful system. And it's also reassuring to patients and/or reinforces the behaviors they should take. When you call them. Well, how do you handle it if they're doing better and they feel

great? Well, what do you tell them? What's kind of the general advice you're giving them? How do you deal with patients improving? And what if someone is not improving? What are your steps for that?

**Isolde Butler:** [00:14:37] Sure. I think, you know, kind of reinforcing what we've been saying in terms of risk for continued transmission. You know, again, by the time we get the test results back, which, you know, the times are varying from place to place ... but for us with the commercial labs that we're using, it's taking probably about seven days. So often by the time we get the labs back, when we called the patients, they may actually be significantly improving. But I go through exactly what we're talking about, this "three days without fever, seven days since the onset of symptoms," really making sure that their symptoms are improving the way that we would hope that they would for a mild or moderate case. And if all of those things are happening, I discuss with them, you know, going back to sort of our standard quarantine procedures that are happening right now and social distancing, but letting them know that the likelihood of transmitting the infection at that point points going is going to be much, much lower and probably negligible.

**Isolde Butler:** [00:15:34] In cases where somebody may be having worsening symptoms, obviously, that's going to be a more concerning situation. And what I always am counseling everybody who on testing, even at that point of testing, is that there are certain conditions and there certain symptoms that you probably do need to start seeking care for at an emergency room. And of course, the number one is going to be shortness of breath. If any of my patients who I speak with are feeling short winded, particularly if they're getting to a point where they're having difficulty speaking in sentences or if they walk a short distance and find that they're getting very winded by that, and that is not their normal baseline. Those folks I'm strongly encouraging to go to the emergency room because what we do know about this is that it can accelerate quickly. Once those kinds of symptoms have started. And it's very important to be someplace where you might have access to higher levels of care. And and, you know, luckily, it's a minority of people who are getting to that point. However, it's happening enough that people do need to be aware of it,.

**Nicholas Van Sickels:** [00:16:32] I think that echoes the point that Jason brought up: it's great that we have a provider calling people in and helping decide that, because it's

it's a gray area, right? Because you don't want to send people to the hospital that might not need to, because there's a lot of people who are really sick right now gathering in hospitals or we're trying to keep people from gathering. But also, you don't want them to not seek out the care that they might need in terms of supplemental oxygen, or things like that to care for for worsening disease. Jason, I don't know if you took anything you wanted to add.

[00:17:00] Yeah, I wanted to add one little thing, which was published recently in The Lancet, which was helpful for me because we keep hearing about this secondary wave ... Like someone will be feeling unwell, unwell and then maybe a little better and then they get really, really sick. And I think that that's potentially true. But what the data is showing is no one is going from or there's no data on people that feel unwell and then feel much, much better and then getting very unwell. So most of the people who have this kind of secondary—and we think it's this hyper inflammatory state—what happens is they have kind of ongoing fever, maybe fever for seven days in a row; especially some of the cases where they started feeling better during the day, but they were still getting 102-103 degree fevers at night. So these are not people that are back to baseline; and then they became sicker. So as I've been going through the data, when I call people and they always ask me, they say, "You know what? Now I have a positive test result. How can I be sure I'm not going to get sicker?" And I reinforce, just like Dr. Butler says, if they're feeling any of those symptoms, they have to go to the E.R. But we are not seeing people who have gone three days without a fever and then they get sicker. It's this case where people might feel a little better, but they're still having fever, they're still having a significant cough, and then they can get worse. So that for me in the data was reassuring that I could call patients and say, you know, if you haven't had symptoms for the last three days or you feel much improved, of course, be aware. But the data doesn't show that one should get sick again.

**Nicholas Van Sickels:** [00:19:02] That's really helpful. Advice, I think helps with some of the anxiety and fear that certainly in our community about about this infection that we just don't know a ton about; getting the data is really so important. We've heard a lot about treatment and treatments that might work, really, that they're all "that might work" now, right? So I know there's been a lot of debate in the last week or so about a couple of medicines that were used to treat malaria or certain rheumatoid conditions like lupus or rheumatoid arthritis, specifically chloroquine, hydroxy chloroquine, even arythromycin

with those ... what currently exists? You know, we're an outpatient clinic ... to treat people on an outpatient basis? Both of you, go.

**Isolde Butler:** [00:19:50] Well, unfortunately, the data has not been the most reassuring. Hydroxy Chloroquine, I think initially seemed like it had promise. But the more we're hearing about it, it doesn't sound like it's as effective as we had hoped in terms of shortening disease or really making a significant impact. It may cut back on shedding. And there's some evidence for folks who are having prolonged illness if they start it a little early. It may shorten their time on ventilators and things of that nature.

**Isolde Butler:** [00:20:22] And I think Jason actually has that data pulled up in front of him so he can probably tell you about it.

**Jason Halperin:** [00:20:29] Ok. So I was just pulling up again from this this nice Grand Rounds. I thought they did it well. Let's talk about ... almost all of the data comes from in-patients. So let's make that clear. I mean, we have I don't think we have any outpatient data at all. Hydroxy chloroquine is the only thing that's been used in an outpatient setting in the Chinese experience. And they really were trying to use it to lessen the time of viral shedding with with no data to show it helped impact anyone clinically. There was a medication that was really used to potentially lessen the time of a viral shedding.

**Jason Halperin:** [00:21:14] And I'd really look to the CDC on on more wide-scale recommendations in the United States, because from what I'm hearing, they don't think that it made, that there wasn't such a benefit in and that there's a cost there's a cost that their side effects to this medication. And there's a cost in that it's a necessary medication for other conditions. And we would not want to limit the supply. So that's, I think, been the conversation in the outpatient setting.

**Jason Halperin:** [00:21:44] In the inpatient setting, let's go over a few of the things that the first New England Journal of Medicine did a nice study on the use of Low panavir rotonavir written of your CO formulated as kaletra. Many of us know this medication well from our experience treating people living with HIV. It had no benefit at all, with one exception. For people living with HIV, which I think is interesting, is there was a few people living with HIV in this study. And how I know that is they were previously on



kaletra. So the only reason one would previously be on kaletra is if they were living with HIV, those people actually did a little better. So there's some thought that if you that anti-retroviral therapy, if it's been ongoing, might have some protection. But again, all of this is conjecture and we could definitely not say that for sure. Overall, kaletra did not work. There was no difference. Hydroxy chloroquine and azithromycin was looked at in a nice French study. They looked at 30 people and they controlled it with another 30 people in a different hospital. There was no difference in mortality, so no difference in if someone was going to pass away from from this infection; there was no difference in the subjective time. So what people felt, there was no difference. They felt the same if they took the medicine or not. There was a slightly shorter period of time in the ICU, and that might make a big difference. It's only 30 people. I know that some inpatient units are using this. They're using this right now and I think they're using it because we don't have much else. And the harm of a combination hydroxy chloroquine + azithromycin, is very minimal. But again, not really good data, definitely no data in the outpatient setting.

**Jason Halperin:** [00:23:53] And as good infectious disease doctors, we do know that azithromycin is a medication that should not be used unless necessary. There are side effects. And we should still be thinking about the overuse of antibiotics in general.

**Jason Halperin:** [00:24:09] When you look at the other things that exist, there's remdesivir, which is a medication that was actually developed for Ebola, wasn't shown effective for Ebola. That in test tubes look really good. And there is a very robust clinical trial right now. So we don't have the data, but we will have the data of remdesivir very soon. Again, not an oral medication only can be given as an infusion not to be used outside the hospital.

**Jason Halperin:** [00:24:37] I think the two things that that we have that are being used more frequently in lifesaving situations is the use of what's called "convalescent serum." So this is where someone has been exposed to COVID-19 and and overcame it and developed antibodies to it. And actually, there's actually this there's some really exciting data of looking at antibody testing as well, not just the PCR that we're using. It's a blood-based test, but it looks like we can probably see if someone developed an antibody within 10 days from symptoms. So, you know, if people say they had symptoms and they feel all better, this could be a good thing to test. Because you could

say you developed an antibody. We still don't know if that antibody protects them from re-infection. It might, but we don't know.

**Jason Halperin:** [00:25:35] But they can donate their serum, which has that antibody, and that can be used as an infusion called convalescent serum. So I know this is being looked at very seriously. My colleague in New York has already started a protocol there for her hospital. And I know that there's discussions here in New Orleans. I don't know how far it is. And it's not our decision. Clearly from CrescentCare in the outpatient.

**Jason Halperin:** [00:26:01] The other is tocilizumab. I had to like make sure I said that correctly. And if anyone listening out there, please correct me why I'm saying it incorrectly, but I do think it's tocilizumab. tocilizumab is an Aisle 6 inhibitor. We don't have to go too far in the weeds with this, but Aisle 6 is something that really gets ramped up in our body when we're really not feeling well when you develop something called sepsis. So you have this crazy immune response and tocilizumab is looking good. I mean it's but it is only used one. It's not easily accessible, two, it's incredibly expensive. It is being used in those situations where you really want to pull everything out that you have. And it it actually seems to show some benefit. So I think that's all we could really say for the treatment. Definitely nothing outpatient.

**Jason Halperin:** [00:27:03] Let me just say one thing about prophylaxis. This is getting a lot of discussion. I can tell you, because my parents keep asking me for it. So, let's just be honest. When my folks are asking me for things that I know it's getting out there. So it's a question of hydroxy chloroquine. Taking it daily to prevent COVID-19 infection. There is absolutely no data for this. I will tell you and there's a New York Times article around this about, physicians prescribing it for themselves, physician prescribing it to family members and then some VIP patients starting it. There is absolutely no data for this, even in the test-tube models, it was not protective. So it is not a medical recommendation for sure. Could that change? Yes. And I know that that there are folks actually looking at this and they're looking at animal models right now. But there might be another medication that's a way better. So, you know, we're going to learn more. But there is nothing right now recommended for prophylaxis besides really good hand hygiene and social distancing itself.

**Nicholas Van Sickels:** [00:28:33] Jason, any role for vitamins like vitamin C, vitamin D, zinc, anything like that? There's been some so a lot of questions that I've gotten about that I haven't seen a ton. I know they've given it in certain places. Zinc, vitamin D, I think has been talked about as a viral remedy in general. Any thoughts?

**Jason Halperin:** [00:28:53] You know, I think that there is there's some data for zinc. I think, if anything, that that zinc, there might be some some benefit. I think we know that zinc is an immuno-modulator.

[00:29:06] The issue with some of the earlier studies is that they were looking at the zinc levels in those who were living in China and they were quite low or some were quite low. So a lot of this might be on just a healthy diet overall is the best response. Vitamin C again, can work from, immuno-modulation, but that actually hasn't been looked at, and there was not any benefit specifically for COVID-19. There's a nice review on some of these other Chinese herbs that were used and some had some some benefit. And I think that they were all used in very small numbers of people. So there's no recommendation. But I would love... I think we really need to think. about everything. But we need data to help us make appropriate recommendations, and there's nothing yet that there's enough data that it would be a medical recommendation, though little harm.

**Nicholas Van Sickels:** [00:30:14] Vitamin-C especially, but yeah, you're right. If it's not going to help, you're just taking more stuff.

**Isolde Butler:** [00:30:20] And in general, I think it also comes back to the concept of taking care of your own self to make sure that your immune system's gonna be as robust as it can be. And I know I think we all suffer from this, particularly in times of stress. But getting enough sleep, eating a healthy diet that is nutrient rich, not skipping meals and things of that nature, you know and just being mindful of that kind of stress management and general health that helps prevent infections overall.

**Nicholas Van Sickels:** [00:30:47] Well, thank you all. We have a just a few minutes left. I kind of wanted to touch on some populations. We've been asked about a lot here at the agency just because of our history of serving people living with HIV. Our growing population of people seeking primary care services. Women's health services. People

living with HIV ... I get asked this one on the daily basis. Is that a specific risk factor in of itself for worse outcomes with COVID-19?

**Jason Halperin:** [00:31:14] The quick answer is we don't have enough data. Sure. The answer also is we do not believe that anyone who has a CD4 count within the normal range, which I always explain to my patients is 500 or or above, but even those with 350 or above, we really think that there is no concern in terms of immunosuppression. Also having an undetectable viral load, because even if you're CD4 account is in the 6-700s, but you have a positive viral load. It seems that those CD4 cells are not as active or they don't have the ability to do its job in the same way. So I would say undetectable viral load, good CD4 account, there's there is no demonstrated risk from any of the data.

**Jason Halperin:** [00:32:11] Where things get tricky is underlying lung disease is a is a known definitive risk factor. So my patients that have a history of PCP, maybe a prolonged hospitalization for PCP, you know—I'm definitely communicating that they might be at risk because of that history. The other and this is for everyone—not people living with HIV, this is for everyone—It's just people living with HIV have a higher rate of smoking tobacco products. We know that smoking is a risk factor. And that makes a lot of sense because this is a disease that really infects the lungs. And if you don't have the appropriate reserve, you're gonna be at higher risk. So, again, I do not think that people living with HIV are are a specific population right now. We don't have the data for it. And I mentioned previously there's a little bit of data that antiretroviral therapy and being on antiretroviral therapy might be a little protective. But again, that's that's not you know, we don't have enough data yet. I would say, no, it's not with a healthy immune system in contact with viral load. I have no concern.

**Nicholas Van Sickels:** [00:33:35] Yes. It sounds like what you're saying is really anything that could affect the lungs in general, whether it be from HIV with lung disease or somebody who smokes or vapes or somebody who's had other lung problems, those are people that might that might want to take extra precautions to to to quarantine while while this is going on. But I'm happy all you went over that.

**Nicholas Van Sickels:** [00:33:56] Pregnancy. Dr. Bell.

**Isolde Butler:** [00:33:58] Well, so far, tentatively, the data is looking good in terms of risk around perinatal, basically. You know, there have been some relatively small case reports looking at women who are infected with COVID-19 at the time of delivery. And I believe at this point we don't have any neonates that were infected. So none of the babies were infected thereafter. The pregnancies did not seem to have too much in the way of extra complications. So that's all very positive news. In addition, when they've taken a look, you know, one of the things that researchers have been doing is taking a look at what bodily fluids can we find COVID-19 in? So, you know, certainly saliva, for instance, you see a lot of COVID in saliva, which makes sense because it's in the nose and the mouth is in the throats and the lungs. They've looked at amniotic fluid. They did not see any COVID-19 when they looked at breast milk. They didn't see any COVID-19. So both of those are very reassuring for late stage pregnancy.

**Nicholas Van Sickels:** [00:35:02] That's very helpful; I know both these are tough questions that we don't have a lot of data and I've gotten a lot of questions on people with various chronic conditions and what constitutes a higher risk for COVID-19 outcomes or poor outcomes from COVID-19 and what doesn't. And it's just so hard to answer all that with the lack of information. But hopefully more will be coming. We kind of have to wrap up. We've had a great discussion. Anything you all want to add? Any final thoughts, anything you felt was left out of Science Friday?

**Isolde Butler:** [00:35:34] I think we've covered a lot of the big highlights. I think the take home, I'd want everyone to just be cognizant of. And again, just to reinforce the social distancing concept. I think the more data we get, the more we see that transmission is something that happens on the early end of symptoms and even before people have symptoms. And so just be mindful of keeping space from people, washing your hands, covering your mouth, all of the sort of things that we've been reinforcing over these last few weeks. And do what we can to limit the spread and limit the number of people who get sick enough to need hospitalization.

**Nicholas Van Sickels:** [00:36:08] And protect your lungs; if you want to quit smoking, this is a great time to do that. It's great time to do that. Reach out to us. We can help with that. You have a great team of health educators and we have products that can help.

**Nicholas Van Sickels:** [00:36:21] I will I will end there. Thank you all so much for coming on.

**Jason Halperin:** [00:36:24] Thanks, Nick.