

CCPU-EP13-Science Monday with Dr. Jose.m4a

Dr. Nicholas Van Sickles: [00:00:00] Hello and welcome. This is Dr. Nicholas Van Sickles. I am the chief medical officer at CrescentCare, a federally qualified center health center here in New Orleans. We are coming to you for a Science Monday. We didn't do Science Friday and observation of various holidays. And so we are lucky to have Dr. Jo-Ann Jose here with us again today to discuss some of the updates in medical research, in science and in social science research that have come out over the last couple of weeks and catch us up a little bit on things and help everyone understand a little bit more about what's going on as we learn more through this pandemic. Dr. Jose, would you mind introducing yourself real quick?

Dr. Jo-Ann Jose: [00:00:37] My name is Jo-Ann Jose. I'm an infectious disease physician and I also have a degree in public health. I do HIV medicine here and other infectious disease medicine. And then I also teach at the School of Public Health at Tulane.

Dr. Nicholas Van Sickles: [00:00:49] Well, welcome and thank you so much for doing this. I really appreciate all the hard work you and so many others have put into helping educate the public about what is going on. Let me start with the simple question. You know, we've seen a decline in, or rather a slowing of the increase of hospitalizations in Louisiana. We've seen a decline in people ventilated. Is it over? Is it almost over? Where is the light at the end of the tunnel? That's the million dollar question. Answer it for us.

Dr. Jo-Ann Jose: [00:01:17] I think the way to think about this is not is it almost over, but is what we wanted to do at the beginning -which is flatten the curve- is that happening? And I think the answer to that question is yes, there is evidence of that. Our numbers here in Louisiana with fewer hospitalizations and fewer ventilator requirements, they would seem to dovetail nicely with this idea that we have flatten the curve a little bit. And if you think back to what we said, flattening the curve was for, it was to reduce the number of people accessing the health care system at the same time. So the important thing to consider, and this is like sort of math-y and I do apologize, but

the the way to think about this is that flattening the curve does not necessarily change the area under the curve. So you might still see the same number of people or perhaps slightly fewer people getting sick. They just would do so over a longer period of time, which means that we wouldn't run out of essential resources to help treat them.

Dr. Nicholas Van Sickles: [00:02:09] I think that's a good reminder because I think we've all been so focused on the flattening of the curve and so excited. A lot of people are excited that not as many people are being put on ventilators that we forget that the purpose of it wasn't to fix the epidemic; it was to preserve resources in hospitals and buy us a little bit of time to figure things out. What do we do now? What's the next phase? What's the next step for us if it's not over because of this flattening of the curve?

Dr. Jo-Ann Jose: [00:02:36] I think there's a lot of discussion about when do we reopen everything and go back to normal. And I think the answer to that is really complicated. No one knows the answer. There are pieces of information that we have from modeling, which we talked about the last time we did a science podcast. The IHME model, which is from the University of Washington, uses a kind of unusual methodology. "Unusual", I should mention, does not mean bad, it just means that it doesn't use the same methodology as a lot of the other modeling studies do. But that model revised its estimates to be more optimistic. And that's amazing. If we have all come together to flatten the curve and we have created a situation in which people can access care over a period of time so that we're not running out of resources, that's incredible. And we should all be really proud of that. But it doesn't necessarily follow that now is the time to open the floodgates and let everyone go back to normal, because the risk would be that if we stop our mitigation efforts, we will continue to have spikes in cases and then have a situation that's as bad or worse as what we were trying to prevent by doing this kind of community-wide effort at social distancing. The IHME model actually takes that into account and they assume that we will observe social distancing measures until June 1st. If you remember, we talked about modeling, we talked about what the assumptions are, and then what the purpose is. The IHME model actually assumes that we will continue to be very cautious and that we will continue all of our efforts at mitigation, because that's the way that we get that curve to be flatter.

Dr. Nicholas Van Sickles: [00:04:08] All right. It is a tough question, because I think a lot of people are not only wanting to go back to work for economic reasons, but also to go back and do the normal practices in their normal routines. I know we saw a lot of debate about this, especially for people who practice Christianity, over the Easter weekend who wanted to go to church. We saw a lot of debate over that. What is the risk if a lot of people went to church?

Dr. Jo-Ann Jose: [00:04:35] The risk is that in two weeks we'll have a spike of cases. If we don't observe the guidelines to stay away from each other and isolate in our homes as much as possible, then we come into contact with each other again. We know that up to a quarter of people who have this virus do not have symptoms that are easily evident to themselves or anyone else. So they're all walking around dropping virus into the environment without meaning to. This is not anybody's fault. And then if everyone is coming into contact with each other in a crowded church service, in a crowded grocery store, what have you, then you're going to have the virus jumping from person to person and making more people sick. Then all of our efforts to flatten the curve will not be for nothing, but will certainly not last as long as we would want them to.

Dr. Nicholas Van Sickles: [00:05:17] It's good to note, and I think that is a tough thing for a lot of people who are religious to grasp, because it's a very important holiday to many people. As is Passover and many other holidays. Trying to have that science aspect overrule that is a tough one, but is very important because we don't want people to die.

Dr. Jo-Ann Jose: [00:05:37] Yeah, exactly. I think the way that we're thinking about it is when can I go back to normal? And I think the question that we should be asking at this point is how can I maintain what is happening now, where we have enough resources to treat the people who are sick, and we're able to keep more and more people from getting infected? Maybe some of the data seems to show that. Really the bottom line is just to keep social distancing and hang tight.

Dr. Nicholas Van Sickles: [00:05:58] Okay. Well, thank you for that. Thank you for that explanation. I want to move on to something else that was in the news- I'm actually very

grateful that the state of Louisiana did this- talk a little bit about racial disparities in COVID-19. We've seen across the country that areas, cities or states that have minority African-American population -Louisiana, for example, is 32% African-American- have a majority of deaths from COVID-19 in African-American communities. I know you've done a lot of reading and studying on the disparities in this population. Tell me what you think about this and then what are some of the factors? I know that's a very big question, but I think it's important to really talk about more, because it is one that's not just really the COVID-19, right?

Dr. Jo-Ann Jose: [00:06:50] Yeah, I think for sure. Let's talk about what the data actually is and then we'll talk about how we interpret that information. There was an MMWR, which is the Morbidity and Mortality Weekly Report from the CDC, that came out last week, last Wednesday. It showed that rates of hospitalization increase with age, which we already knew about; it gives us kind of confirmation about that. Then it showed this interesting thing that 33% of people requiring hospitalization are African-American. But in this country, only about 13%, I think, of the population is African-American. So that's kind of a weird number to be seeing. I think the number among white people was 45% requiring hospitalization and that they are 76% of the population. Then among Hispanics, it was 8% of people requiring hospitalization, but 18% of the population. So 90% of the hospitalized had at least one medical condition that was underlying: 50% had high blood pressure, 48% had obesity, 35% had lung disease, and 28% had diabetes or cardiovascular disease.

Dr. Jo-Ann Jose: [00:07:51] Then there were a number of studies that came out in specific localities looking at that death rate and race. A Chicago study reported that 70% of COVID patients who died were black, and that the city of Chicago is about 30% African-American by population. Milwaukee County showed that 81% of their deaths were African-American and that's only 27% of the population, so that was a really startling number. I think the number in St. Louis says that 100% of the people who have died there of COVID are African-American. Then here in Louisiana, 70% of deaths were African-American and 32% of the population. So it should be noted that we need more data: only nine states have released race and ethnic data, including Louisiana and Illinois, but we don't have a lot of data from other places. We also know that New

Orleans, the city, is perhaps about 60% African-American population, but we don't have the numbers for the breakdown on who has gotten COVID and who has passed away of COVID. So there's a lot of missing data and we really need more data before we can make very strong conclusions about what's going on here.

Dr. Nicholas Van Sickles: [00:09:05] I think it's an important point to echo. I don't think it underscores the importance of discussing this issue more. But I do agree, if we had data from other states that showed lower mortality rates in African-Americans, well, I would want to know what those states were doing, or what those cities were doing on a public health level, on a health, education and health management level, all the levels to see how/why. So I think it's an important point and I am happy our state released this, but it would be interesting and nice. Hopefully soon we'll have some data on citywide level information just to see what's going on.

Dr. Jo-Ann Jose: [00:09:41] Then I think the other thing to think about is that we have to understand the context of this data when we're attempting to interpret it. What I do when I think about this kind of data is go back to the W.H.O. framework that was published in 2007. It's not young, but it's a framework for how to look at the determinants of health and equity. It looks at your really big macro-level things, like socioeconomic and political context, and governance and policy, stuff like that. And then it looks at things like social position, education, occupation, income, gender. And then at things like social-cohesion and psychosocial factors, behavioral issues, biological things. And then the distribution of how the health system works: how people can access the health system, whether or not it's easy for people to access it no matter what their socioeconomic position is. And it creates a framework for how all of those things come together to create health inequities.

Dr. Jo-Ann Jose: [00:10:39] The point that I take away from that model - the paper is like 150 pages, so it's a bit of an intense read- is that we cannot address the social determinants of health without thinking about the social determinants of health and equity. That's kind of the lens through which I approached this question. There's so much being written right now by really smart people who are really thinking through these issues, to try and provide the context that we need when we're looking at those

numbers. I think there are three broad categories of things that are contributing to these numbers. There are some things that are very easy to point out, and then there's the stuff that's behind all of that, the nuance, that we really have to get to and that we have to advocate for change for when we're done going through this emergent period. First, African-Americans are more likely to have underlying conditions that have been identified in people who have COVID, and it's really important to understand why. There's a medical bias situation going on and a lack of access to care, because in this country, employment and health insurance are very closely linked. So if you are working in a job where you don't have health insurance, which African-Americans are slightly more likely to do, then you don't have access to care. If you don't have a way to get to the hospital, African-Americans are more likely to use public transit than other racial groups in this country. If you're not able to easily get to where the hospital is or the clinic is, then you're not going to be able to access care. So there's all this systemic inequity that's built into health care access for minority populations, including African-American populations. The other question, too, is that there are some things that are going on economically that might contribute to perhaps a poor diet that results in a higher likelihood of having something like high blood pressure or diabetes. When you say that African-American populations are more likely to have these underlying conditions, that's not enough: you have to then also point out that there is systemic inequity and oppression and history of all these economic disadvantages that underlie why that is. It's really important to understand the nuance, because I think sometimes there's a tendency to be like, "Oh, well, those people are sicker", but that's not actually all that's happening. They're sicker because there's other stuff going on. So we have to think really carefully about the background of that to help understand the nuance, and in order to be able to fix that inequity.

Dr. Nicholas Van Sickles: [00:13:15] I'm so happy you brought all this up, Dr. Jose. I think it's very important, and I think you're right. There is a lot of medical bias that goes into our training in the U.S., to how we see people in the hospital and how we start to perceive things, that does not take into account all of these things in the background. Because you don't see them when you're in the hospital or the clinic necessarily, because you're seeing them as a direct provider. That's not anyone's fault, per se, but

it's important to understand, to check that bias, and then to move forward as a society to try to help figure it out.

Dr. Jo-Ann Jose: [00:13:51] Yeah. So let's talk about the economic bucket of things that are contributing to this. We know that African-American workers are more likely to be classified as essential because they're working in grocery stores and they're working in all of these other businesses that are classified as essential businesses. On top of that, 60% of African-Americans live in the South, and the political message from governors and people like that in the South has been very mixed, with some states classifying a bunch of people as essential, and some states really paring that down. That lack of cohesion from the federal level down to the state level has really confused things and made people confused about whether they're essential or not, and then not given them the tools to kind of advocate for "I should actually be sent home because this is not a safe place for me right now". That's important to think about. I think for years, about 50 years, the African-American unemployment rate has been about twice that of the white unemployment rate. African-Americans are less likely to have the option of working from home. They are more likely to be essential workers, as we talked about. They're more likely to be denied home and auto loans, even when you control for credit and employment history, which means that they are three times more likely to take public transit. And of course being on public transit right now is a pretty significant risk factor.

Dr. Jo-Ann Jose: [00:15:09] They're two times more likely to rent their homes rather than own them, and two times more likely to live in a multi-family unit as opposed to a single family home. That means more contact with other people in closer settings, where you don't necessarily control who lives in your apartment building or how much contact you have to have with them. The U.S. Partnership on Mobility from Poverty found that the typical white person lives in a neighborhood that's 75% white and 8% black, but the typical black person lives in a neighborhood that is 45% African-American. There's a lot of inequity in those numbers. Also African-American populations have higher rates of food insecurity, which means that the diets that are available to them might predispose to the medical conditions that people are seeing as underlying conditions. So if you are living in a food desert, for example, and you don't have access

to fresh fruits and vegetables, your desire to access that has nothing to do with whether or not you're able to access it; is just not there. There's a really great article -it's a series called Voices from the Pandemic- that interviewed a person who runs a grocery in the Lower Ninth Ward, and all of the things that he brought up were these inequities that exist in African-American communities that we as a society and as a government could work on, for sure.

Dr. Nicholas Van Sickles: [00:16:26] And we'll link that. I think that's a great article. You and I spoke about this over the weekend. We'll link that to this podcast, as well.

Dr. Jo-Ann Jose: [00:16:31] Yeah. Then I think there's also a disparity in health care access. There's such a thing as a "health care desert", as well, where you just don't have a clinic or a hospital that will accept your insurance, or will see you on a sliding scale, where you live. And that, of course, can be a really significant barrier in helping people to access care. It should be noted that the highest rates of COVID death in the country are in St. John the Baptist Parish, which is near here in Louisiana. And that area also has some of the country's highest rates per capita of cancer diagnoses and respiratory illnesses, because it's in an area where there's a lot of pollution going on. So less access to clean air and water also contributes to whether or not people have underlying medical conditions, especially respiratory medical conditions that might predispose to COVID. I think my point would be that when we're thinking about this, we can't think about just the easy things that immediately occur to you. We have to think about all the other stuff, all of the stuff that builds an inequitable society, and all of the things that are creating barriers in allowing people to access care.

Dr. Nicholas Van Sickles: [00:17:36] So what would President Jose do to fix all these problems?

Dr. Jo-Ann Jose: [00:17:40] I don't think there's an easy answer. I think that every piece of our government, every piece of our public health system, has to really talk about systemic inequity and how do we address that. The first thing that I do personally, because I'm able to do it, is I teach my classes about this framework for understanding health and equity, because I think when we say social determinants of health, it's often

really easy to hear that. Certainly this happened when I was a medical student. I just thought of it as this laundry list of things that make people more or less susceptible to disease. And I didn't really think about how big things -politics, government, economics- how those things play into creating health inequities. It almost seems, if you think about it very simplistically, it almost seems like this is just stuff that nobody can do anything about. But of course, that isn't true. If you think about it in a more detailed and nuanced framework, there's absolutely stuff that can be done: public policy can be changed to try and correct some of these inequities. We can try to give resources to programs in communities that are making a huge difference. I think of some of the programs that I've worked with here for my patients that promote access to fresh fruits and vegetables. For example, the Market Match with the farmers' market, where if you're shopping with SNAP benefits, you can go ahead and get a little bit more than you would be able to get, because the market will match the amount that you're spending with your food stamps. And then there are a lot of programs here in this city that focus on nutritional eating, and make themselves available to people who are in need of those services. Finding those community organizations and building them up, and then really educating across the board about why those things are important. What we're doing now to deal with the virus, this is the very tip of the iceberg. This is kind of the great pause, and our opportunity to think about what do we do when this is over to make sure that we have a more just and equitable world, instead of just what we had before.

Dr. Nicholas Van Sickles: [00:19:38] Yeah, it doesn't do this again. Maybe we'll have you on to talk about this again, which we're having you on every week, which I love. But I think the last step in the pandemic is to really plan for the next pandemic, right? It's not going away. We've seen these over the last 20 years, multiple times. And we had a few warning signs this was coming anyway way, especially H5N1, H1N1, things like that. I think all of what you've brought up is all the more reason to start planning for this, because you don't want a group of people, who are already disadvantaged because of society, to suffer again.

Dr. Jo-Ann Jose: [00:20:18] Yeah, exactly. Because it's so unfair. It's unfair that they are even in the position they find themselves in. But then to have this happen, it clearly

shows us all what the consequences are of ignoring issues of injustice. And so we cannot afford to ignore that. No, because this is what happens if we do.

Dr. Nicholas Van Sickles: [00:20:37] Exactly. Well, I want to switch topics a little bit to something that's also gotten a lot of attention in the media recently and it has for, I think, the last few weeks of the pandemic. Talk about antibody testing a little bit. There's been a lot of press about if you were to get antibody tests- and we've talked about this briefly in the podcast before- you get an antibody test that might allow you to go back to work, and if you test positive, that means you've had COVID-19 and your body's made antibodies, and therefore you might be safer to be around other people. Which in theory sounds great. I mean, I love the idea of it. There certainly some sociological things to think about with that. But what does that look like now? It's been a few weeks. We've had a little bit more science. We've had a little bit more time to to learn about this. What do you think about antibody testing for people to let them to go back to work, to let them open up the economy again, to put them on the front line to see patients?

Dr. Jo-Ann Jose: [00:21:40] I think we talked about this M.I.T. technology review article, which is unfortunately behind a paywall. They used this concept of an "immune passport" to explain this phenomenon. The idea would be that you would at some point get tested for COVID, and if you produced antibodies, they would let you go back to the normally scheduled programming. And then everyone who didn't test positive for those antibodies would stay at home. So that would be our way to reopen the economy: we would give people these immune passports and tell them to work if they're positive for the antibodies.

Dr. Nicholas Van Sickles: [00:22:16] And do we know yet that positive antibodies for COVID-19 are protective completely?

Dr. Jo-Ann Jose: [00:22:22] We don't. This is the problem, that we know very little about it. Let's talk about how the antibody tests work first, and then we'll talk about what all the problems are with them. Right now, when you go to get tested for COVID, you are getting a swab in your nose and then that is being tested, and that is a PCR test. So it's looking for bits and pieces of the virus that are hanging out way in the back of your

nasopharynx, where your nose connects to the throat area. That is completely separate from what an antibody test would do. In theory, this is how an antibody test would work: you would have a viral exposure, and then about 6-10 days later you would make this particular antibody called the IGM. The IGM would stick around for a few weeks and then it would disappear. Then a little time after that, perhaps 15 to 20 days, maybe around then, you would make IGA and IGG, which are durable antibodies that last for a very long time, months to years, depending on the infection in question. People who are very gung ho about this approach, they feel that SARS-COV II, which is the virus that causes COVID, is very similar to SARS-COV I. And SARS-COV I has studies showing that immunity lasts about three years if you are able to produce these IGM antibodies, or IGG antibodies. The way that you would do this is you would check someone's antibodies, and if they have an IGM, that means they are recovered as of a few weeks ago maybe. And then if they have IGG, that means they have more durable immunity. The problem is that this is, as we mentioned so many times before, a completely novel virus. It's only been here for four months, and we don't know enough about it to know whether or not these antibodies will actually predict- will produce immunity. And then if that means that people are not contagious and there's like a whole bunch of questions. The questions are we don't know enough about human immunity to SARS-COV II: we don't know how durable it is, we don't know if it prevents re-infection, we don't know what the thresholds are to say that people aren't contagious. Because you might produce an IGM, but still be contagious in some possible way. You have to think about that. A good way to think about that is that this might be like SARS-COV I, which the data shows has immunity for about three years. It might be like one of the coronaviruses that cause the human cold, in which you have a few weeks maybe of immunity, if that. It's very unclear because this hasn't been rigorously studied. That's one huge question: are the antibodies even showing that you have immunity? Immune responses vary among patients, as we know, and it's unclear why that is. It might be genetics, it might be something else. So an IGG that I produce might not give me as much protection as an IGG that someone else produces, depending on what else is going on with me and what my genetics are, which we have no way to know. So that's like a bit of a risky situation.

Dr. Jo-Ann Jose: [00:25:17] Then there's these issues with sensitivity and specificities. Let's talk about what these terms actually mean. Sensitivity, in this context, is the ability to detect what it's supposed to detect, which is this antibody to SARS-COV II. And then specificity is the ability to detect the specific antibody that it's looking for. Commercial tests that are available- there is a Chinese study looking at the sensitivity, which said it was about 87%. And then the specificity was 100%. All of the other commercially available tests have slightly different numbers for sensitivity and specificity. The thing to realize, though, is that your sensitivity and specificity mean something different in a really small group than they do in a really big group. The way that I think about sensitivity is the true-positive rate: sensitivity is the number of true-positives who are correctly identified as having the disease. If I have a relatively high sensitivity, that's great in small groups of people. But in larger groups of people, that potentially means a whole bunch of people who are testing positive, but they're not true-positives. And that could have some serious consequences for trying to reopen the economy with all of these people on a test that, over a population of 300 million people, that's millions of people who may be false-positive or false-negative, which really would be the more concerning situation. So that's something to really think about, is that when we use these tests, they're meant to be used in small settings and they're not really meant to be used in these huge kind of population-wide drives. And so we really need data from doing it that way. A good way to do it would be to actually test it in a larger population and see what we actually discover about the predictive values of these tests, and then use that to guide a strategy to open the economy or something similar. But that's not what's being proposed, right? We're proposing a population-level study to let people go back to work. And that's really quite dangerous if we think through it.

Dr. Jo-Ann Jose: [00:27:23] I think there's also some possible cross-reactivity with other coronaviruses. We don't know if it might test positive for a coronavirus antibody that came from one of the ones that cause a cold.

Dr. Nicholas Van Sickles: [00:27:34] A cold that you might have just had last week because of the end of cold season.

Dr. Jo-Ann Jose: [00:27:36] Yeah, exactly. So that's another possible complication. And then finally, there's this question of whether the antibodies being tested are neutralizing. Are they just showing you that you've been exposed to COVID, or are these antibodies actually able to neutralize the organism once it enters your system? We don't really know that yet either.

Dr. Nicholas Van Sickles: [00:27:56] A lot of unknowns.

Dr. Jo-Ann Jose: [00:27:58] Yeah, a lot of unknowns.

Dr. Nicholas Van Sickles: [00:27:58] But I think in theory, possibly a good idea.

Dr. Jo-Ann Jose: [00:28:03] I do think the antibody tests will be useful. My question is more, can we study it a little bit more before we deploy it on a population level to decide things about whether or not people will go back to work? Because I think it's a really intriguing idea, and we use several serologic tests in a bunch of other settings very successfully. I think the question is not is an antibody test okay to use. The question is more, how can we make sure that it's safe for us to use in the way that we're proposing to use it?

Dr. Nicholas Van Sickles: [00:28:33] I love it. It's a great way to say it. I do want to add- and I know you've said this before- one potential benefit of antibodies is that they can be used to help protect people who are severely ill, potentially with COVID-19. So that is another reason they're looking into it. This discussion that we're having is a little bit different from that one, which is a medical therapeutics approach, which is still important. Well, Dr. Jose, we're out of time.

Dr. Jo-Ann Jose: [00:28:58] Thank you very much for having me.

Dr. Nicholas Van Sickles: [00:28:59] As always, it is wonderful to have you. I look forward to having you on next week. We'll have more fun things to talk about. All right, take care. Thank you. Thank y'all.