

Speaker 1: [00:01](#) Quality Improvement in the Time of COVID-19 is brought to you by the American Heart Association with support from Novartis Pharmaceuticals. As physicians, scientists, and researchers worldwide struggle to understand the COVID-19 pandemic, the American Heart Association has developed its COVID-19 CVD registry powered by Get With The Guidelines, to aggregate data and aid research on the disease, treatment protocols and risk factors tied to adverse cardiovascular outcomes. For more information, visit us at heart.org/covidregistry.

Christina Razo: [00:33](#) Hi, I'm Christina Razo with the American Heart Association. I'm the director of health equity strategies, and I'm very privileged today to speak with Dr. Hendren, who's going to do a deep dive into the association of body mass index with death, mechanical ventilation and cardiovascular outcomes and COVID-19, findings from the AHA COVID-19 Cardiovascular Disease Registry. Thanks for joining us, Dr. Hendren. Can you tell us a little bit about the overall aim that you had in doing this particular study?

Dr. Hendren: [00:59](#) Absolutely. Well, thank you again for having me and a pleasure to be here. This is one of my favorite pieces of research that I've been involved with, and it really stemmed from the observations that we had as we were starting taking care of our patients with COVID-19. And I think a lot of people understood pretty quickly as the disease rolled out and the pandemic ensued that certainly older patients were at higher risk for bad outcomes with COVID-19. But one of the things that we were observing in our hospitals around Dallas was that there were still a fair number of young people who were getting in hospitalized with COVID-19 as well, people in their twenties, thirties, and forties.

And that really led to the observation that a lot of these younger individuals happen to be quite obese. And so we were fortunate enough to have collaboration from the American Heart Association and really use that database to leverage the question about, we know that younger people probably are at less overall risk, but for people that are obese is that warranty of youth, is that less effective if you're overweight or obese? And so that was really the catalyst by which we started to look at and try and answer this question to the American Heart Association.

Christina Razo: [02:08](#) So how does exactly severe obesity impact that COVID-19 risk?

Dr. Hendren: [02:13](#) That's a great question. And at first, we were weren't necessarily sure but I think as we've observed for people who

are heavier there's clearly a higher risk of ending up on the ventilator or needing a breathing machine. And there's probably a few different factors that play into that, one is that obese people are more likely to have things like hypertension, diabetes, conditions that might predispose them to more severe COVID-19. And then additionally, just that weight on the abdomen and chest in itself makes the respiratory mechanics harder for your body to do, and so then when your respiratory system is further compromised by COVID-19, you have less ability to... Less reserves, so to speak, to overcome that illness in addition to your obesity.

Christina Razo: [02:59](#) So I understand how that plays out in the acute setting and why you're caring for that patient. For those who recover, who happened to have issues around obesity, are we finding that they tend to be more the long haul patients? Is that something we should consider as well?

Dr. Hendren: [03:12](#) So we don't really have much data in that area. I think clearly that's an area of interest. We know that individuals who recover say from a bacterial pneumonia, many of those individuals take weeks if not a few months to recover and get back to normal. And certainly it's reasonable to speculate that those who are obese in general may take longer to recover from that only COVID but other illnesses, and so I certainly would expect this is going to be investigated moving forward.

Christina Razo: [03:39](#) So how does this play out in terms of vaccine rollout? We were privileged to have two upcoming, three vaccines that are going to be available. How are obese patients being prioritized or are they, in the vaccine roll-out?

Dr. Hendren: [03:53](#) With our building panel, our observations and the observations at both the CDC and other people who have replicated this observation is that obese people are at higher risk of dying in the hospital and ending up on the ventilator and just like diabetes and prior heart disease is considered a high-risk condition for COVID-19, obesity also needs to be considered a high-risk condition for COVID-19 regardless of age. So whether you're 30, if your BMI is 40 or greater, that should be considered a high-risk condition on par with something like coronary artery disease or COPD.

Christina Razo: [04:27](#) So in the actual treatment process, are there any different protocols for treating a patient who is obese when it comes to proning or body positioning, are there any limitations or

recommendations that might be different than for a patient who's not obese?

Dr. Hendren: [04:41](#) So I think certainly obese patients, particularly those that have a BMI greater than 40 carry their own challenges when you're managing these patients. Often, these patients are more difficult to ventilate, they may not be able to be proned or moved as easily. For patients who are severely... Their BMI is above 50, they oftentimes need special equipment just to help care for them, and it's not surprising that that comes with challenges and limitations to some of the things we know that work well. As you pointed out, proning is a wonderful way to help reduce the mortality and morbidity of this disease, but it comes particularly challenging the heavier patients get as you need larger and larger beds to accommodate that weight safely to pump patients.

Christina Razo: [05:21](#) Are you seeing any particular differences between racial, ethnic, socioeconomic status as it comes to two patients generally, but those specifically who may suffer from obesity?

Dr. Hendren: [05:30](#) Unfortunately, we have clearly observed that there are differences amongst the racial groups across the country, particularly those patients that are Hispanic or Latin American, and then black Americans as well are not only dying, but being hospitalized at a higher rate compared to white Americans. And looking at that a little bit more closely in our research, what we also noticed was that the chances or likelihood that someone would be obese if they were black was higher. So said differently, what we saw was that heavier patients, not only were they younger, but they were also more likely to be black and whether or not that drives some of the disparities that we're seeing in rates of death from COVID-19, certainly it's speculative but it is a concerning trend nonetheless.

Christina Razo: [06:17](#) We've heard a lot about the disproportionate impact on our tribal communities. Was your data able to ascertain anything in particular about tribal communities?

Dr. Hendren: [06:26](#) So unfortunately within the registry, we had a very small population that self identified as native American, we really were not able to ascertain much about that population in general.

Christina Razo: [06:37](#) Are there any other [carbobadded 00:06:38], you mentioned high blood pressure, you mentioned some other issues that may have been pre-existing conditions when someone presented.

Anything that particularly comes to mind aside from the BMI index that we need to pay attention to.

Dr. Hendren: [06:53](#) So as you mentioned Christie, we definitely know that diabetes, high blood pressure play a major role in that, certainly COPD plays a role as well. And then additionally, our patients who have pre-existing kidney disease or on dialysis, they also seem to be more likely to have serious adverse outcomes from COVID-19 both ending up in the hospital and dying from COVID-19.

Christina Razo: [07:15](#) Did your data indicate any differences in gender? Is it a male, female difference or is it really more once you hit a certain body mass index that these instances come to mind?

Dr. Hendren: [07:25](#) So certainly some research has suggested that there are differences between men and women in the likelihood, both for death in any given hospital. Our research, when we looked at by body mass index did not see any significant differences between men and women certainly doesn't mean that there aren't differences, but at least there doesn't appear to be differences and the risk based by body mass index.

Christina Razo: [07:46](#) So what particular messages would you like to send the providers that they should then send to their patients that relate to this increased risk in COVID-19 and having a high BMI? What do we need to know and what do we need to tell our patients?

Dr. Hendren: [07:59](#) I think the first one is that youth is not a warranty against COVID-19, just because you're young does not mean that you're going to do well with COVID-19. And that's particularly true for those who are young and have a BMI greater than 40, our research and others that have subsequently validated this, suggests that if your BMI's above 40, your risk of dying in the hospital is really increased compared to those of normal body weight. So for example, if your BMI is more than 40 and your chances of dying compared to a normal weight individual is 80% higher which is not truthful by any means.

In thinking about as we start to roll out the vaccine and hopefully exit this pandemic, certainly as we touched on earlier, recognizing that obesity is a high-risk feature is important, certainly youth again, is not a warranty against severe COVID. And so understanding that if you're young and obese, getting that vaccine is probably going to significantly reduce the chances of you having severe COVID-19 ending up in the

hospital or dying. And those that are young, even if you're hesitant otherwise take it, you should really strongly consider getting it as soon as possible.

Christina Razo: [09:04](#) What would you tell someone who is fearful of taking the vaccine for whatever reason, when we know there's been distrust in certain communities, young people may feel that they are indeed immune to having these side effects. What would you tell somebody who may be vaccine hesitant?

Dr. Hendren: [09:21](#) Obviously there's been a lot of thoughtfulness and concern about vaccines in general, much less with COVID-19 in the rapid manner it was developed. But I think whenever you're considering the cons of taking a vaccine, you also have to consider the cons of not having it. So I think unfortunately, realistically in this country, the chances that you get COVID-19 if you're not vaccinated are substantially high. And if you're someone who is young and obese, the chances that you have a bad outcome with COVID-19 are not low. And so you really have to balance the risks of having COVID-19 versus the risks of having a vaccine. I think a lot of people in their minds are balancing, Oh, if I don't get the vaccine, I won't get COVID, but I'm not sure that that is a fair comparison. I think the better comparison is probably what's more likely to happen if I get the vaccine versus what is likely to happen if I get COVID-19. I think reframing that amongst individuals' minds, particularly younger individuals, is helpful to help really clarify the risk benefit ratio for those folks.

Christina Razo: [10:25](#) So you explained how important this registry was to the work that you did, and then the results of the paper. Why would other researchers like to be participants in the registry and what can we gain from the datasets that they may bring?

Dr. Hendren: [10:37](#) So I think there are a few benefits to using this registry in particular. The first is that while many researchers may look at claims data and insurance data to make their observations, the granularity and the level of detail in that type of analysis is really limited by what you're able to ascertain or what is coded or built for. Within the registry, we have a number of patient-level factors, not only just their demographics and what they're coded as having a diagnosis but what days did they come to the hospital? What is the time? Did they have shock? When did that happen? You can correlate and drill down to the absolute time period in there, and then get further granular data such as lab data for the individual patients, you can look at what their x-ray looked like their EKG.

And so the level of detail and the refinement of the questions you're able to ask is much better and much more precise perhaps than a lot of other ways in which you might try to get at some of these questions. And then the second thing is really again, because it does capture so many things and capture so many patients across the country, you're not just looking at one hospital or five hospitals, you're really getting a real-time snapshot of what is happening across the country, across a very diverse background of patients, again, we touched on earlier how we have Latin Americans and people from Central America and then obviously white Americans too. And you can really look across many of the racial and ethnic groups in our country and look by men and women to try and refine that question. Look at some of the more granular questions that we have yet to answer about COVID-19.

Christina Razo: [12:07](#) I'm curious, as you were saying that you can get to that level of granularity. Do you think that you're seeing changes and treatments over time because when patients first started coming in March and April of last year, we've learned a lot in those 12 months. Are you seeing differences in treatment protocols over that time period as your registry should?

Dr. Hendren: [12:29](#) Absolutely. And so again, this is one of the benefits of using a registry rather than claims data. So claims data is always going to be lagging behind what is happening in the real world that we know of course, that COVID is rapidly extending and changing the paradigm motion practice. And so what the mortality was six months ago, may be completely different two weeks ago, and that's the benefit of having these hospitals across the country put their data into the registry within a few weeks of patients being admitted and discharged from the hospital. It really to keep us up to speed about what's going on, what are the real patterns in practices? And then we can leverage that and use that and compare it to say six months or 12 months ago, how were we doing then? What were the practice patterns? What are the practice patterns now and are patients actually doing better? So at the end of the day, while we have randomized studies showing benefit, if patients actually aren't receiving those medicines, they're not benefiting.

Christina Razo: [13:21](#) Thank you so much Dr. Hendren. What else would you like to tell us about your research or next steps in your research process?

Dr. Hendren: [13:28](#) Yeah, so I think the one thing that has been a blessing is having the American Heart Association helps support and run this

registry. So certainly registries can be challenging, particularly in a time sensitive manner to get up and running and really leveraging their Get With The Guidelines experience and expertise. It really has generated a wealth of information, a wealth of data. And I know that as this has rolled out, more hospitals have continued to input their data and their patients into this registry and has been tremendously helpful to understand and get a real-time snapshot of what is happening in COVID-19. And then additionally now, providers from all over the country in the world can access this data. They can put in a proposal, they can take those bedside observations that they had, translate that into data that might actually help providers around the world take newest approaches or answer questions that need answering to help better take better care of these patients.

Christina Razo: [14:21](#) Dr. Hendren, thank you so much for your time and the great work you're doing with COVID-19 treatments and for educating us on how we can do a better job in handling our patients.

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