

Do COVID-19 Vent Protocols Need a Second Look?

After treating patients with COVID-19, a New York city physician suggests ventilator protocols may need revisiting

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This transcript has been edited for clarity.

John Whyte, MD, MPH: Hello. I'm Dr John Whyte, chief medical officer at WebMD. Welcome to "Coronavirus in Context." Today we're going to talk about whether we're managing coronavirus correctly; do we need to think about a change in our treatment regiments? My guest is Dr Cameron Kyle-Sidell. He's a physician trained in emergency medicine and critical care, and he practices at Maimonides in Brooklyn, New York. Welcome, Dr Sidell.

Cameron Kyle-Sidell, MD: Thank you very much. Thank you for inviting me.

Whyte: You've been talking a lot about the number of patients, the percentage of patients dying on ventilators. When did you first notice this trend?

Kyle-Sidell: In preparation of opening what became a full COVID-positive intensive care unit, we scoured the data just to see what was out there—those who have experienced it before us, primarily the Chinese and the Italians; it was hard to find *exactly*, like the rate of what we call successful extubation—meaning, someone was put on a ventilator and taken off. And that data are still hard to find. I imagine there are a lot of people still on ventilators. But from the data we have available, it appears to be somewhere between 50% and 90%. Most published data puts it around 70%. So, that's a very, very high percentage in general, when one thinks of a medical disease.

Whyte: You've been talking on social media; you say you've seen things that you've never seen before. What are some of those things that you're seeing?

Kyle-Sidell: When I initially started treating patients, I was under the impression, as most people were, that I was going to be treating acute respiratory distress syndrome (ARDS), similar in substance to AIDS, which I saw as a fellow. And as I start to treat these patients, I witnessed things that are just unusual. And I'm sure doctors around the country are experiencing this. In the past, we haven't seen patients who are talking in full sentences and not complaining of overt shortness of breath, with saturations in the high 70s. It's just not something we typically see when we're intubating some of these patients. That is to say, when we're putting a breathing tube in, they tend to drop their saturations very quickly; we see saturations going down to 20 to 30. Typically, one would expect some kind of reflexive response from the heart rate, which is to say that usually we see tachycardia, and if patients go

too low, then we see bradycardia. These are things that we just weren't seeing. I've seen literally a saturation of zero on a monitor, which is not something we ever want and something we actively try to avoid. And yet we saw it, and many of my colleagues have similarly seen saturations of 10 and 20. We try to put breathing tubes in to avoid this very situation. Now, these patients tend to desaturate extremely quickly, so these situations have occurred. Still, what we're seeing—that there was no change in the heart rate—is just unusual. It's just something that we are not used to seeing.

Whyte: This is more like a high-altitude sickness. Is that right?

Kyle-Sidell: Yes. The patients in front of me are unlike any patients I've ever seen., and I've seen a great many patients and have treated many diseases. You get used to seeing certain patterns, and the patterns I was seeing did not make sense. This originally came to me when we had a patient who had hit what we call our trigger to put in a breathing tube, meaning she had displayed a level of hypoxia of low oxygen levels where we thought she would need a breathing tube. Most of the time, when patients hit that level of hypoxia, they're in distress and they can barely talk; they can't say complete sentences. She could do all of those and she did not want a breathing tube. So she asked that we put it in at the last minute possible. It was this perplexing clinical condition: When was I supposed to put the breathing tube in? When was the last minute possible? All the instincts as a physician—like looking to see if she tires out—none of those things occurred. It's extremely perplexing. But I came to realize that this condition is nothing I've ever seen before. And so I started to read to try to figure it out, leaving aside the exact mechanism of how this disease is causing havoc on the body, but instead trying to figure out what the clinical syndrome looked like.

Whyte: You talked a little about the data from Italy.

Kyle-Sidell: Yes.

Whyte: [From Luciano] Gattinoni. Were you aware of what was going on in Italy before you noticed these observations or did that come after the fact?

Kyle-Sidell: That came a little bit after. And I wasn't aware. I can't even remember the exact timeline. But in my reading, I came upon decompression, pulmonary sickness, which is essentially the bends—when divers dive and come up too quickly—which seemed to mirror the clinical picture of these patients. And in discussions of other people, it came up that they do appear similar clinically. This is not to say that the pathophysiology underlying it is similar, but clinically they look a lot more like high-altitude sickness than they do pneumonia. Regarding, Gattinoni, he [published something on March 20th](#), which was about 2 days before I opened the ICU. I don't know that I read it then, but somehow it got passed around. In my mind, by the time I read what he was saying, I'd come under the impression that this just wasn't what we were used to seeing. It was a high-compliance disease, which every pulmonologist had. Anyone managing a ventilator can see. That's not a question. So when I read his stuff, where he is suggesting that the management strategy that we use is essentially somewhat flipped, at least in these high-compliant patients, it just became more clear that that if we operate under a paradigm whereby we are treating ARDS in these high-compliant patients, we may not be operating under the right paradigm.

Whyte: Have you changed your protocols, then?

Kyle-Sidell: To be honest, I've run into a great deal of resistance within my institution, which is not to say that anyone is trying to stymie the progress at all. These are the protocols that are in every major (and minor) hospital.

Whyte: You talked about in your [videos](#).

Kyle-Sidell: Yeah.

Whyte: Against a long-standing dogma. So what's been the response from your clinical colleagues as well as hospital administrators?

Kyle-Sidell: I started to try to not my own protocols, but to treat patients as I would have treated my family, with different goals—which is to say, ventilation. However, these didn't fit the protocol, and the protocol is what the hospital runs on with the respiratory therapist, with the nurses; everyone is part of the team. We ran into an impasse where I could not morally, in a patient-doctor relationship, continue the current protocols which, again, are the protocols of the top hospitals in the country. I could not continue those. You can't have one doctor just doing their own protocol. So I had to step down from my position in the ICU, and now I'm back in the ER where we are setting up slightly different ventilation strategies. Fortunately, we've been boosted by recent work by Gattinoni, which was formally published today and which does outline the best evidence, based on at least expert recommendations, for [changes in our overall protocols](#). *[Editor's note: Dr Kyle-Sidell is referring to an unedited proof, soon to be published formally in Intensive Care Medicine.]*

Whyte: Can you tell us what some of those changes are that you're going to make?

Kyle-Sidell: First, I'll describe what Gattinoni was saying, which is that really what we're seeing in ARDS are two different phenotypes: one in which the lungs display what you call high compliance, low elastance; and one in which they have low compliance and high elastance. To say it simply for people who are not pulmonologists, if you think of the lungs as a balloon, typically when people have ARDS or pneumonia, the balloon gets thicker. So not only do you lack oxygen, but the pressure and the work to blow up the balloon becomes greater. So one's respiratory muscles become tired as they struggle to breathe. And patients need pressure. What Gattinoni is saying is that there are essentially two different phenotypes, one in which the balloon is thicker, which is a low-compliance disease. But in the beginning they display high compliance. Imagine if the balloon is not actually thicker but thinner, so they'd suffer from a lack of oxygen. But it is not that they suffer from too much work to blow up the balloon. As far as how we're going to switch, we're going to take our approach differently from the traditional ARDSnet protocol in that we are going to do an oxygen-first strategy: We're going to leave the oxygen levels as high as possible and we're going to try to use the lowest pressures possible to try to keep the oxygen levels high. That's the approach we're going to do, so long as the patients continue to display the physiology of a low elastance, high-compliance disease.

Whyte: Do you feel that somewhere the world made a wrong turn in treating COVID-19?

Kyle-Sidell: I don't know that they made a wrong turn. I mean, it came so fast. I think that one thing we benefit from is that the Chinese and the Italians were hit first and they were hit hard. New York is being hit so hard. It's hard to switch tracks when the train is going a million miles an hour. In that sense, we'd benefit from their shared experience. And I think it's

important that we listen to that experience. But I do think that it starts out with knowing, or at least accepting the idea, that this may be an entirely new disease. Because once you do that, then you can accept the idea that perhaps all the studies on ARDS in the 2000s and 2010s, which were large, randomized, well-performed, well-funded studies, perhaps none of those patients in those studies had COVID-19 or something resembling it. It allows you to move away from a paradigm in which this disease may fit and, unfortunately, walk somewhat into the unknown.

Whyte: You're advocating something a little different. What are the consequences of you being wrong, albeit well intentioned?

Kyle-Sidell: Right now we have some of the greatest experts in the world giving their opinions. By that, I mean the Italians and Dr Gattinoni. I certainly could be wrong. What I'm asking for is not even not an immediate change in the ventilation strategy, because I'm critical care trained, I'm not pulmonary trained and I'm not as experienced as many around the country and many in my own hospital. But what I would like to see is all of these great minds get together. If they can accept this notion that perhaps we need to switch paradigms, and they're able to better create a path forward that fits the disease. I would gladly follow them. Really, what I'm asking and what I'm requesting is that all of the experts in the field get together and perhaps come up with some fresh recommendations.

Whyte: You've been active on social media, as I mentioned. Are you a whistleblower?

Kyle-Sidell: This is sort of my first foray into social media. I don't know that I'm a whistleblower. I don't know that anyone was trying to purposely do any harm. I think that, all of the physicians involved and all of the nurses and everyone writing protocols—everyone is working as fast and as hard as they can with good faith and pure intention. For me, I saw something clinically that didn't make sense. And seeing that New York is about 10 days ahead of the rest of country, I just felt compelled to get that information out.

Whyte: Has speaking up impacted your professional career?

Kyle-Sidell: I don't know yet. In one sense, I have not felt qualms about it. For whatever reason, I trained in critical care and I was an ER doctor, and I think part of that allowed me to see it a little bit better. Because if you just received these patients in the ICU on breathing tubes, it's very hard to see this physiology. I was running around the hospital from the ER to the floors to the ICU, and I saw them in all stages of this disease. When you see them in all those different stages, you're able to see that something physiologically doesn't make sense. So, in a way, I do feel that somehow my training and my position, being in New York City, allowed me to see this. I have not felt any conflict about coming forward, per se. And I don't know what it will do for my career, but I hope that people know that I'm not doing this with any kind of—I'm not trying to stymie anything. It's really that I'm doing what I think is right.

Whyte: What are the two things that we need to be doing right now to really address the mortality?

Kyle-Sidell: That goes back to your question of "if I am wrong." We are desperate now in the sense that everything we are doing does not seem to be working. So we've reached a point that most other diseases have not reached, where many physicians are willing to try anything that may help because so little seems to be helping. One of the reasons I speak up, and I hope

people at the bedside speak up, is that I think there may be a disconnect between those who are seeing these patients directly, who are sensing that something is not quite right, and those brilliant people and researchers and administrators who are writing the protocols and working on finding answers. The first thing to do is see if we can admit that this is something new. I think it all starts from there. I think we have the kind of scientific technology and the human capital in this country to solve this or at least have a very good shot at it. I think the second thing is that whatever collaboration we can do with those who came before us—and by that, I mean the Chinese and the Italians and the Egyptians and whoever else has experienced this—if there's anything we can learn from them, I think we need to open up and be ready to receive their help.

Whyte: Dr Kyle-Sidell, I want to thank you for speaking up and sharing your story with us.

Kyle-Sidell: Thank you very much. I appreciate you allowing me to speak.

Whyte: I want to thank you for watching "Coronavirus in Context." I'm Dr John Whyte.