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5 Keys to Using Point-of-Care Ultrasound During the COVID-19 Pandemic

Dr. Birnholz:

Coming to you from the ReachMD studios, this *COVID-19: On the Frontlines*. I'm Dr. Matt Birnholz. On this episode, we caught up with Dr. Bret Nelson, Professor of Emergency Medicine and the Chief of the Emergency Medicine Ultrasound Division at Mount Sinai Hospital. Dr. Nelson joined us to share five key considerations for using point-of-care ultrasound during the COVID-19 pandemic.

Here's Dr. Nelson now.

Dr. Nelson:

As people are increasingly using ultrasound at the point of care in the setting of COVID, there are a couple of special considerations that are important to consider. One of them is a resource management issue, and that has to do with why you would choose to bring ultrasound at the bedside when you may have access to CAT scan or chest x-ray or you're used to using those things, and the first consideration to address with that is the risk/benefit analysis between bringing ultrasound to the patient's bedside, if you are already examining the patient anyway, you already have appropriate personal protective equipment, you are already initiating some contact with the patient, and can you obtain images and look at things like A lines, which would be a sign of normal lung parenchyma, dry lungs, if you will, or B lines, which could be a sign of consolidation or interstitial edema, or some of the classic signs of COVID where we see interruptions in the pleural line or pleural thickening or even subpleural consolidations. So if this can bring useful information and obviate the need for portable chest x-ray and free that resource up for other patients. Also mitigate the risk of the x-ray technicians having to gown up and glove up and perform PPE, decontaminate their equipment whenever they're coming in and out of the room, and the risks of exposing the CT scan suite over in radiology, having to clean that area before and after the patient and risking contaminating that space as well. So the contamination of the patients, the cross-contamination, the iatrogenesis that can occur when our own desire to properly diagnose and treat the patients can potentially lead to infection control risks both to the providers them themselves as well as the patients.

The other thing to think about is how do we decrease the viral transmission of this potential vector, both for you as the clinician and the ultrasound machine itself. So, what many places are doing is really stripping down the ultrasound machine to its bare essentials. If you have baskets or shelves or anything hanging from the ultrasound machine, if there's any signage on the machine, just think about stripping it down to its bare bones, especially in so much as a lot of ultrasound machines are multipurpose. Just think of the increase in surface area for every little thing that hangs on that machine. It's another thing that has to be cleaned. It's another area that could potentially become contaminated. So we and a lot of my colleagues around the country have really stripped their machines down to as little as possible and taken off anything that would hang or be challenging to clean.

A lot of other folks have either placed disposable tarps or plastic bags over the top of the machine, both as a way to recognize that it is cleaned and also as a means to decrease the surface area. So opening up an aperture where you can see the screen of the ultrasound machine and having an area where the ultrasound transducer can come through a hole in the plastic, that's another way that people have tried to in the moment utilize their resources as efficiently as possible to keep the cross-contamination down.

Another really important thing to consider is leaving an ultrasound machine that's dedicated to the unit where there is a higher likelihood that patients are COVID-positive or they have been definitively determined to be COVID-positive. And that doesn't mean that you don't clean the machine in between each patient and you're not as diligent about it. That keeps your providers safe as well as your patients safe from cross-contamination. But once a machine has gone into the hot zone, so to speak, it should remain there until that zone is

cooled off or the entire place can be cleaned off, and you have to be really diligent about bringing machines back out of that area.

Another thing that I would consider really important to think about when you're thinking about special considerations for using point-of-care ultrasound in COVID is that if you don't already have a mechanism of storing your images somehow in the electronic health record so that other providers who are caring for the patient can see what it is that you looked at—they can see your images and they can also see your interpretations in the chart—that's really important. We really have to be careful about every potential patient contact, meaning that we could be a vector of disease transmission from patient to patient and that we put ourselves at risk of picking up this highly contagious virus when we interact with patients, so it's really a missed opportunity if you're performing ultrasound at the point of care and it's something that's helpful to you to not think about it being helpful to the future providers that are caring for that patient in the hospital or in subsequent stages of their care and making sure that they have access to the information that you have as well. That will decrease the unnecessary rate of repeat exams.

One final thing to think about is that there are certain times when patient care reminds us of some basic tenets of how we should approach medicine, and if you don't know how a test you're performing is going to impact the patient care, you should really think twice about how you're using it. It's important to be judicious about how we use any test, especially one that's going to put us in contact with infection risk and put other patients at risk of being infected by us.

So I hope that gives you some things to think about as you incorporate ultrasound into your point of care. Keep the machine clean. Think about how you're using the results of those studies. And stay safe out there.

Dr. Birnholz:

That was Dr. Bret Nelson from Mount Sinai Health System. To access more episodes from *COVID-19: On the Frontlines*, and to add *your* perspectives toward the fight against this global pandemic, visit us at ReachMD.com and become Part of the Knowledge. Thank you for listening.