

Ruth Adewuya, MD (host):

Hello, you're listening to Stanford Medcast, Stanford CME's podcast where we bring you insights from the world's leading physicians and scientists. If you're new here, consider subscribing to listen to more free episodes coming your way. I am your host, Dr. Ruth Adewuya. This episode is part of the hot topics mini series. And today, we are talking about tele-guided pediatric point-of-care ultrasound. In today's conversation, I am joined by Dr. Marjan Askar. She is a clinical assistant professor of pediatric emergency medicine, part of the emergency ultrasound faculty, and the director of the tele-ultrasound services as part of the tele-health initiative started in the emergency department. Thank you for chatting with me today.

Zahra Ghazi-Askar, MD (speaker):

Thank you for having me, Ruth. Glad to be here.

Ruth Adewuya, MD (host):

To begin our conversation, I'd like to start with you defining what is point-of-care ultrasound?

Zahra Ghazi-Askar, MD (speaker):

So point-of-care ultrasound really has come to mean many different things to many different people that, initially, the scope of this was to make a clinical diagnosis at bedside right then and there. That's sort of the most classic definition of point-of-care ultrasound is performing an ultrasound while you're caring for the patient and using that information to make clinical decisions on your patients right then and there.

Ruth Adewuya, MD (host):

And is point-of-care ultrasound traditionally a procedure done by physicians or nurses?

Zahra Ghazi-Askar, MD (speaker):

Point-of-care ultrasound has been used by many different levels of people, but really traditionally this was started and it's been used for years and years than cardiology, where a cardiologist can look at an image and make a decision about their patients. That usually the operator of that ultrasound procedure is a technician. However, point-of-care ultrasound is now widely used by, I would say mainly emergency medicine physicians and it is definitely expanding its scope to other specialties performed by physicians on their patients.

Ruth Adewuya, MD (host):

Great. A lot of our listeners would be wondering why point-of-care ultrasound would be considered a hot topic given that you mentioned that it has been utilized for diagnosis for a long time. But we are specifically talking about tele-guided point-of-care ultrasound, or tele-ultrasound. Can you tell us what that means?

Zahra Ghazi-Askar, MD (speaker):

Yeah. I'm happy to. You'll have to stop me at some point because it's a very exciting topic. You are correct in saying that ultrasound has been used for years and years. It's technology that really allows visualization of pathology in a very non-invasive fashion, and it's proved itself very helpful in many specialties. So clinicians are very interested in the information that they can gain from this modality.

What's exciting about it is that when you are trained in point-of-care ultrasound as a physician, there's no really waiting involved. Somebody comes in, you have a question about the patient, you can visualize what you're thinking is on your screen at the bedside. You could even show it to the patient and you could make immediate decisions about their care, and it really is practice altering. Now, point-of-care ultrasound and tele-ultrasound in particular, as you were interested in, really democratizes healthcare.

Zahra Ghazi-Askar, MD (speaker):

And what I mean by that is we know that there is a very large inequity, inequality in care in even the United States, and that doesn't really mean that quality of care per se, it really is access to care. In America, this is as the very first month of this year, the health in equality access to healthcare is 20% in America. That's unbelievable to me. By looking at the ultrasound that a very novice provider is obtaining miles and miles away along with guiding that novice provider perform that scan, and it is literally as easy as having a Zoom meeting. So the biggest thing about tele-ultrasound is just that democratizing access to care. And I think that's what a lot of people are finding very interesting and very appealing to physicians which want to help.

Ruth Adewuya, MD (host):

It sounds like the benefits of tele-ultrasound are accessibility and being able to communicate with clinicians that may not be at some specialty centers or high level institutions. Is that correct?

Zahra Ghazi-Askar, MD (speaker):

That is correct. I will mention one caveat. I'll take it one step further is that the operator of the ultrasound, while being guided, doesn't even have to be a clinician. So this could be somebody that literally has access to a probe and has the capabilities of dialing into a user that knows the methodology and the technology and has the skills to interpret or guide the novice person, whoever that is, even a patient, to be able to perform this on a body part. And you could imagine what the consequences of that is. It's quicker diagnosis, triaging where the patients should go, whether or not they really need access to higher level of care, and they could be anywhere. And that's the beauty of tele-ultrasound.

Ruth Adewuya, MD (host):

It sounds really exciting. It sounds like it could impact the resources that you need to have in hospitals to be able to provide this service if it does not have to be a clinician or a trained technician to do this. Can you give some cases or some examples around how this has actually worked and that you have implemented this?

Zahra Ghazi-Askar, MD (speaker):

Yeah, I'm happy to. The very first time that this really resonated with what it can do is a good friend of mine, not in this country, in the same field, pediatrics, with no training to ultrasound called me when I got home from work. It was about 2:00 AM in the time zone that we are, and her time zone was sometime in the middle of the day. And she and I both had talked about this and purchased a couple of probes together. And she said, "You know what? I think that this little girl in my care might have a surgical issue. And I think I can see what I need to see, but I'm not sure. Can you help me?" And I sat in my garage because I didn't want to wake anybody up. She dialed into me and I was able to see her, her probe, her patient, and I was able to guide her thousands of miles away to making the correct diagnosis that really determined the fate of this child in terms of receiving care and what needed to happen.

Zahra Ghazi-Askar, MD (speaker):

So that's the very first inkling that we're onto something really big, because I felt that, my goodness, if I can do this at this hour with somebody multiple continents away, there's no limit to this. And then COVID came and there really was a silver lining. We were asked by a group of colleagues in a different institution to help virtually teach the medical students. And after our didactics, because we weren't able to live scan at that time. About a year ago exactly a couple of the students asked me if they would be able to learn how to scan a certain body part. And I sat down, they went through the process, they dialed in, and I was able to teach someone that's never performed an ultrasound ever to be able to successfully visualize an organ, a gallbladder, an elbow, you name it. And so this really started gaining momentum and that's how it started, Ruth. And I could go on, but that's a few examples. And that's how this idea got started.

Ruth Adewuya, MD (host):

Has COVID-19 impacted the adoption of tele-ultrasound?

Zahra Ghazi-Askar, MD (speaker):

I think that to be able to teach or guide somebody to perform a successful scan for the purposes of correct diagnosis was always an idea, which is why technologies have evolved. But I definitely think that COVID-19 has brought it to a head and they really feel that, wow, there may be a time where it is of the essence of exposing as little providers as possible to a certain group of population. And so imagine if you are a doctor that knew how to perform this or guide this and you were older or you had medical comorbidities and you were hoping that somebody can do this scan that the patient needed and you were trying to protect yourself. You could do that.

Zahra Ghazi-Askar, MD (speaker):

And that's really the beauty of this. I think COVID-19 really brought it into emphasis that, while we could never imagine that that day would come, it came, even in America. So you didn't even have to be far away to do this. Sometimes in our own emergency department we do want to expose as little providers as we can to certain patients during a pandemic, not only to protect ourselves, but just to have enough bodies to be able to take care of the people in need.

Ruth Adewuya, MD (host):

As an early adopter of this concept of tele-ultrasound, what are some challenges or limitations that you have seen or that you foresee around adopting this way of point-of-care ultrasound broadly?

Zahra Ghazi-Askar, MD (speaker):

The challenges are somewhat technological. So there have to have a good wi-fi connection because the way that you and I are connecting and the way that I would connect to somebody that I want to guide, I would need to have them be able to have a good wi-fi and we would need to connect. And we've always seen glitches with that, more people are online, bad weather, certain places do not have wi-fi. And unfortunately, that's something that is being worked out. But as of right now, that's the number one challenge. And number two is lack of trained people that are able to do this procedure successfully because you have to be fairly certain and fairly confident in your skills when you're utilizing point-of-care to really be able to convey that information in a format as a teacher. So you really have to master the skill yourself before you're able to pass it on.

Zahra Ghazi-Askar, MD (speaker):

And then every platform has its own learning curve. So you have to learn it, the learner has to learn it. And so the challenges I see are those in addition with time. So it takes a little bit of time at the beginning that once you have your application set up and you have done it a couple of times, it really becomes like riding a bicycle. You make a phone call, you get the person on the screen, you know what they have to see to be able to help you, and then it's pretty mainstream after that.

Ruth Adewuya, MD (host):

Thank you for pointing out those issues. What about insurance, billing? Does that come into play? HIPAA? What are your thoughts on those issues?

Zahra Ghazi-Askar, MD (speaker):

Yes, those are all issues that come into play. And as of right now, when we have piloted this, and I hope that we can talk a little bit about that, the purpose of doing this is educational. And as we iron out the details, we want to make sure that we are not violating any confidentiality rules and also with insurances, et cetera, all the things that you've correctly pointed out, but they can be ironed out. And I'll just give you an example is that right now we have other services that are tele, so we have tele-neurology, tele-stroke here at Stanford. And while we have not ironed out the details of how this will work, it will be very similar to providing care to a lower level of service areas to fulfill a need.

Zahra Ghazi-Askar, MD (speaker):

So yes, those are issues, but they're not something that are very large obstacles because our colleagues in different fields and specialties have done that, and we would probably follow a model that is very similar to them. And before doing this on a much more broad scale, we definitely will have all of those questions answered. Those are some of the important things that we have to really talk about that, as of right now, Stanford's role is really being a leader in providing this very unique education to other people that are out there and that are interested.

Ruth Adewuya, MD (host):

Great. Thank you for clarifying those points. Yeah, I'd love to segue to that pilot that you mentioned in the last question. Can you talk to me a little bit about that?

Zahra Ghazi-Askar, MD (speaker):

We have our very first group of providers. They are not emergency physicians. They are family practitioners that really deal with all ages and all types of pathologies. And they are in an area where COVID really hit hard and they identified that lack of knowing how to perform point-of-care ultrasound was a gap in the services that they could render. And they reached out, they wanted to have people that had a specific curriculum, guidelines, reputation to serve as teachers for them to master the skill.

Zahra Ghazi-Askar, MD (speaker):

And I will say that they had already purchased ultrasound equipment in hopes of being able to use the educational modules and self-teach themselves how to do this. And they felt that this alone was not enough and it would be helpful if we had a more formal didactic and then scanning shifts together. And obviously, geographically, I'm not where they are. So we talked about this and I'm very happy to tell you that we just finished our first month where we had our didactic session. One of the providers had

something in her arm that she wanted us to look at. So they don't have a lot of expertise with ultrasound at all. I will say that some of them have no expertise, they've never ultrasounded before. So I was sitting in my living room and they were in a conference room and this was our very initial session.

Zahra Ghazi-Askar, MD (speaker):

And they went ahead and they scanned each other and we were able to point out the different features of how we would be guiding. And there were a lot of ah, ooh, which I love as a teacher. I love hearing that light bulb going off. We have come to the decision that my colleagues and I in the ultrasound section will go ahead and train their super users, a couple of people that are very excited about this and want to learn it and take it to the group. And the way that works is we have didactic sessions. We will have tele-guidance ultrasound scanning sessions. Then they will scan the parts that we just discussed in the didactics, send them to me, and I will look at them and make sure that they meet the credentialing guidelines. And after they have met the credentialing guidelines of certain number of scans, they are then credentialled to be able to perform this on their own and teach their residents, teach their colleagues.

Zahra Ghazi-Askar, MD (speaker):

If you think about how this is going to impact not just their groups, but their residents, the people that the residents care for, the future upcoming residents, it's really endless and limitless. So this is the first, and we actually have an international request for us here at Stanford to use our digital health technologies and this tele-ultrasound possibility to even broader scope and internationally. So it is really exciting for me to be here and to introduce this. I think that we never really thought that this could be possible without doing years of training, without being in an academic center, that you would be able to have access to this technology and this level of patient care, and it's very exciting.

Ruth Adewuya, MD (host):

Absolutely. It sounds really exciting being able to provide your and your colleagues' expertise to people who may not have access to it just sounds like an exciting adventure. Kudos to you and your team and the success of the pilot already. As you reflect on the pilot and what's in front of you, what are some further considerations for tele-ultrasound that is top of mind right now?

Zahra Ghazi-Askar, MD (speaker):

I think that we started this really with the hopes that, here at Stanford, we could be the epicenter for virtual ultrasound training and teaching. And we paved the road of research, collaboration, education, and delivering patient care globally and as a hub. I would love to, and I do mean this, that my team echoes this, we are committed in advancing this idea and this pilot to many different subtopics of medicine. And this could be wilderness medicine, this could be rural medicine, this could be EMS, emergency medical services. This could be other specialties that have yet not really had an opportunity to be trained in point-of-care ultrasound.

Zahra Ghazi-Askar, MD (speaker):

My beloved specialty, pediatrics in particular, a lot of pediatricians are excited to hear about this, and I've talked to a lot of pediatricians in the country and they certainly don't have the expertise as somebody that can teach, somebody that could see the project through. So this tree has many, many branches, and I'm imagining a beautiful full tree with lots of leaves and it'll just sort of provide a nice shadow and it'll be great. I feel very optimistic about it.

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Ruth Adewuya, MD (host):

Fantastic. Thank you so much.

Zahra Ghazi-Askar, MD (speaker):

Thank you so much. It was great chatting with you.

Ruth Adewuya, MD (host):

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