Experts discuss ways student innovation drives solutions during the pandemic

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Featured topic and speakers

In today’s COVID-19 update, AMA Chief Experience Officer Todd Unger talks with experts about COVID-19 has spurred student innovation, driving solutions to clinical problems ranging from digital health to medical devices during COVID-19.

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Speakers

- Aadit Shah, president, Sling Health National Network
- Avik Som, MD, co-founder, CareSignal Health
- Vithika Nag, graduate student, Duke’s Pratt School of Engineering

Transcript

Unger: Hello, this is the American Medical Association's COVID-19 update. Today, we're talking about how student innovation is driving solutions during COVID-19. I'm joined today by Aadit Shah, president of the Sling Health National Network, and a student at the University of Cambridge, calling in from St. Louis, Missouri, Dr. Avik Som, co-founder of CareSignal Health, a Sling Health alumni company, and previous president and founder of Sling Health, and a resident physician at Massachusetts General Hospital in Boston, and Vithika Nag, a graduate student in biomedical engineering at Duke’s Pratt School of Engineering and a member of the Sling Health COVID-19 bootcamp team in Durham, North Carolina.

I'm Todd Unger, AMA's Chief Experience Officer in Chicago. As the preference of the group that we will be going by first names today. First question is for you, Avik. Can you tell us a little bit about what
Sling Health is and the work that’s happening even pre-COVID.

**Dr. Avik Som:** Yeah, of course. Sling Health is a student-led, at the medical student, engineering student level, innovation incubator that basically bridges the divide between clinicians, the clinical problems, and then often the engineering and student talent that exists within universities to actually solve those problems on a day-to-day basis. With the help of the AMA, it develops this infrastructure that enables problems to actually go from being something just to complain about to actually being something that we can devise a solution, bring the solution to patients and actually see patients get better, thanks to it.

**Unger:** Aadit?

**Aadit Shah:** Yeah. Since Sling Health was started in 2013 by Avik, we spread to about 11 institutions and 15 chapters where we support students at any stage of their academic career, from first semester undergrads to residents-in-training across any academic background, be that either engineering, medicine, public health, or design. These students were working in teams of three to six supported by both academia, industry mentors throughout our different chapters before COVID, solving clinical problems with solutions ranging anywhere from digital health to medical devices.

**Unger:** Vithika, how did you get involved with Sling Health?

**Vithika Nag:** So, it was around early May and I was considering, what am I going to do for the summer? Internships were going to be delayed because of COVID and everything. So in response to that, one of my friends who, herself, is an alum of Wash U., St. Louis, where Sling Health started, she just sent out some details about Sling Health and their bootcamp, and it seemed the perfect timing and everything, something for me to get involved with and keep on practicing my engineering skills, too. And I happened join a team and it all worked out.

**Unger:** Aadit, how has the pandemic caused you to pivot in terms of the work that Sling Health is doing?

**Aadit Shah:** Absolutely. So, as I mentioned, Sling Health really centers on bringing students together and allowing them to collaborate and use all the different technical expertise. Obviously, with COVID being an issue earlier this year, we needed to change our model to private, same opportunity to collaborate and work together. And so in response to that, we wanted to create a bootcamp. What we had seen in March and April was, many universities across the nation offering what we like to call hackathons or weekend-long design challenges that ask students from many different technical expertise to come together and evaluate on a problem.

But we saw that there really wasn't a way to follow through with that and actually help actualize some of those solutions and further develop their training. So we want to create a four-week long bootcamp
that would really allow both an opportunity to build on those ideas and give them meaningful training in health care innovation space. At the end of it all, we supported about 80 students and over a hundred students and mentors across 11 states and four countries, working across 17 teams to develop different solutions to COVID-19-related problems.

Unger: Vithika, what's the bootcamp experience like in the new virtual pandemic world?

Vithika Nag: It was definitely different from a full year at bootcamp, but this was constricted to four weeks. So we just spent the first few days forming teams and just speed-networking with team leaders and coming up with the perfect team, a mix of engineers and business students, medical students, that wanted to work on a similar concept. It was very fast paced, but I think the pressure kept us all on a really good timeline, kept us really productive, so it was just a very rewarding experience. At the end of every week, we had some design reviews as well that kept us on a really nice milestone, and just checking all the things off our list.

Unger: Avik, let's talk a little bit about CareSignal. What pivots have you had to make to address COVID-related issues?

Dr. Avik Som: Sure. So CareSignal is a digital health company that specifically focuses on deviceless remote patient monitoring. So prior to COVID, the company was primarily focused on how do we bring chronic disease management, such as managing anything from diabetes to depression, on a day-to-day basis for care managers, to basically bring health care proactively to all the patients without requiring a novel device, in this case, using text messages or phone calls.

When COVID really struck the United States, we rapidly saw that there was a immediate need among clinicians and hospital systems to get both information out there for patients that are potentially experiencing some variation of symptoms. And so, essentially, we generated effectively a text messaging support line, something we call the COVID Suite, and that we ended up giving for free to anyone that any provider that needed to use it. And so that actually has ended up being used by over 10,000 patients and providers.

And functionally splits into three groups, one being the COVID companion, which is really messaging this straight from the CDC and updated as such, as well as something called COVID Connect. So if you are in a quarantine, something to connect you between you and your doctor about if your symptoms are getting worse or better, and then a COVID staff support, because often what ended up happening, of course, for staff is questions about PPE as well as our own symptoms and making sure things are there. And so CareSignal developed a suite and wanted to provide that as a public service.
Unger: Now, you've got a pretty unique viewpoint, among the three of you, as a resident providing care during the pandemic. What are you seeing right now at your hospital and how can student innovation help support positions in this moment?

Dr. Avik Som: Absolutely. So I'm calling from Boston where we've been lucky that the total case volume has dropped recently. And I think what's nice about that is, of course, it gives us a little bit of breathing room. But at the same time, we start seeing other issues, other faults, that have happened from the COVID pandemic, including that for the very recent future, basically, the patients are sometimes unwilling to come into the hospital and that there is this fear of coming into a health care provider because of that. And so different technology solutions have arisen, including elements like telehealth, as well as even among chronic disease management, this entire conversion from going into a home, for instance, on a day-to-day basis to now doing everything telephonically.

I think student innovation is really critical for two reasons. One, it cuts across silos. Medicine has all of its specialties, each specialty has its own particular needs and wants and sees a small slice of the patient. And students have this broad view where they get to go from group to group and say, "How do I actually take care of the patient as a whole? How do I take care of society as a whole?" And so towards that, we started developing solutions that aren't necessarily the one specific problem, but actually helping the remainder of the population. So I think student innovation is so critical, because it bridges that divide. And often the students are the ones that are willing to put in the legwork, the sweat equity, so to speak, to really get something up and running when the rest of the system is bogged down by actually doing the day to day taking care of patients.

Unger: Vithika, have you learned anything in particular through your bootcamp? I mean, how you innovate during a pandemic and how that’s different from maybe some other time in our history?

Vithika Nag: So definitely with not being in the same location as your team, it turns out that it's a lot harder to be efficient in the way that you communicate abstract ideas. For my team, we started with sketches. Our project was surrounding this device that we were trying to make. And these sketches were done by myself, and it was actually really difficult to convey what they would look like in real life without having just a face-to-face communication with the rest of your team.

And that definitely was the first hurdle that we had to get out of the way. Coordinating timings across different time zones as well. And even scientific jargon; everyone had a different background. So it was really important to get everyone caught up with each other and be at that same playing field, so that everyone felt comfortable and was contributing something of their strength and felt like they were making a difference as part of the team.
**Unger:** Aadit, I know you mentioned up front that the AMA works closely with Sling Health. Can you tell us a little more about the partnership and the role that partners play in innovation?

**Aadit Shah:** Right, so the AMA has been critical in helping spread Sling's mission nationally. They've been a partner for several years, helping us both on the event to programmatic side. And what I mean by this is, they've supported our national demo day that brings together our top teams from all of our chapters annually, to helping us develop workshops in partnership with other biomedical incubators and giving us access to tools that allows our teams to better collect data on patient problems. The AMA's been really vital in helping us connect with the resources and industries that we really need to best provide these opportunities to innovate for our students.

And I think more broadly than that, just like how our students come from a variety of technical expertise, so do our partners. Our partners stand across academia, industry, across legal, health care, business, VC, because these are all the different players that are involved in medical technologies, all the different perspectives that go into deciding what goes into a hospital versus what doesn't. And by having all of these partners, partly due to the amazing work the AMA has been doing for us has been vital in allowing us to spread our mission of health care innovation and continue to educate students about the space.

**Unger:** Avik, any other comments about the collaboration with the AMA?

**Dr. Avik Som:** I think... AMA, starting from the beginning, it was the local chapters of the AMA that was very onboard. They provided, often, the clinical expertise, giving that outside of the ivory tower insight, as well as being able to... The collaboration with the AMA in part was because I was able to be a delegate to the House of Delegates at one point. And you hear this groundswell of knowing things that are missing on the clinical care side.

And so what was amazing for the AMA was, it was able to bridge both of these interests, and as well as actually say, "Well, we can solve this not only by policy changes, but also by doing innovation directly." And then being able to loop clinicians involved who may or may not have ever thought of that as something they themselves could participate in, was fantastic. And it was great to have that as a student, and even as a resident now, to be able to see that as a partnership and a role really makes our AMA feel much more active and exciting.

**Unger:** Well, last question one for each of you. You get one piece of advice that you would give to students who've got ideas and are lucky to get involved in health care innovation. Vithika, why don't you start.

**Vithika Nag:** Sure. So I would say reach out to Sling Health's executive board. I think Avik can definitely speak to that. And I, myself, I'm very happy to have been part of Sling Health, and so much
so that I'm working on creating a chapter at Duke as well. So look out for your campus chapters, maybe consider joining similar bootcamps that you see around. Definitely push yourself to test your application of your own skills, because everything that you do in class can be so much more when you put it to the real world.

Unger: Aadit?

Aadit Shah: I think, to echo Vithika's point that, of course, reach out to Sling Health, we’re happy to help you, but beyond that, I really think that innovation is as simple as looking at a problem and thinking about what's the better way to solve it. I think students often underestimate the ability they have to really participate in innovation, especially in a place as technical as health care. And so my suggestion is simple as have the confidence in yourself to take your problem and present it to someone else, even for five minutes, to get their perspective and get their idea, and further vet your idea and bring it forward.

Unger: Avik, what's your a piece of advice?

Dr. Avik Som: I think I would echo, and maybe just add, as a student, it can sometimes be very intimidating to go into clinic and make the claim or think that you can make it better. And I think the game is be proactive and don't ever be intimidated by titles. Don't be intimidated by all of the the venture capital firms versus the chief medical officers. I found out as a student that just asking questions and bringing it, people are so excited for the initiative and everybody wants to make it better for the patients. And so I think everyone's views are aligned and a lot can get done even as a student.

Unger: Aadit, if a student wants to get involved with Sling Health, how should they contact you?

Aadit Shah: I think the best place our website where on the main page you can get involved and indicate what city you're located in. If you don't have a chapter in your city, reach out to exec team location information is there, and just like Vithika, and we're happy to get you started and form a chapter in your local need space.

Unger: That's excellent. It's exciting to talk to you and think about the future of health that you'll be driving. Aadit, Avik, and Vithika, thank you for being with us here today and sharing your perspectives, and for all the work that you're doing. That's it for today's COVID-19 update.

All: Thank you.

Unger: You bet. We'll be back tomorrow with another segment. And for updated resources on COVID-19, visit ama-assn.org/covid-19. Thanks for joining us and please take care.
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