



# Dr. Ivette Motola on the Gordon Center's Advanced Stroke Life Support Program

While progress has been made in stroke care and research, stroke remains one of the top five causes of death in the U.S. – taking a life nearly every four minutes. To better combat the life-altering disease, the Gordon Center for Research in Medical Education at the University of Miami Miller School of Medicine is partnering with the American Heart Association (AHA) to advance its global Advanced Stroke Life Support® (ASLS) program.

The program serves as a curriculum, offering health care providers the training to evaluate stroke quickly and stabilize and care for patients. In this interview, Ivette Motola, M.D., M.P.H., prehospital and emergency training division director and assistant director of the Gordon Center, gives an in-depth perspective on the program's development, success, and future.



Ivette Motola, M.D., M.P.H., prehospital and emergency training division director and assistant director of the Gordon Center

### **Dr. Motola, when and why was the ASLS program developed?**

The Advanced Stroke Life Support – ASLS for short – program was developed here at the Gordon Center in the late 1990s, on the heels of a groundbreaking National Institute of Neurological Disorders and Stroke NINDS trial, which showed that alteplase as a thrombolytic was effective for ischemic stroke. It was the first treatment that became widely available for ischemic stroke. Before alteplase, many patients ended up being disabled or, sadly, died. Therefore, having a



thrombolytic treatment option was a really big breakthrough. But it took a while to get things moving in the field of stroke education. Until the late 1990s, there was little we could do for stroke patients outside of supportive care and rehabilitation, so there were no widespread education initiatives.

Our initial program focused on EMS professionals to help them detect stroke, and then we expanded it to hospitals as well. That is the program that has existed since 1998. The eight-hour course we've had until now has been in-person and instructor-led. It combines didactics, video case scenarios with discussions, and hands-on skills simulation practice.

### **How do you measure the effectiveness of the program?**

The curriculum has a pre-course and post-course assessment. That's the main way we assess learning with the program. At the International Stroke Conference in 2018, we presented a study that looked at almost 10,000 learners. The pre-course mean on the exam was 64% and the post-course mean was 89%. That was a delta of 25%, which is an impressive improvement over the baseline knowledge they had prior to the course.

We now get our data from training centers all over the country and the world, and we've been able to start looking at this data on a big scale, not just from the learners we train directly. We're in the process of working on a larger study that includes 30,000 learners. In addition to the pre-course assessment, we sent out a survey to all the learners who participated in the program, with questions about the impact the program has had on the care of stroke patients. Once we have all that data, we are planning to put that together in a new publication.



## How has the program changed over the years?

We update the program every five years. There's been a lot going on in stroke management and care, particularly since 2015, when endovascular therapy for large vessel occlusion ischemic stroke was shown to be beneficial. There's so much research happening all the time. We regularly distill all of that updated knowledge and incorporate it into the program.

Back in 2008, when I started at the Gordon Center, I realized that we didn't have a comprehensive instructor training program or an instructor manual that fully supported our hundreds of instructors. We got to work on creating a new instructor course and instructor manual. Since 2008, to become an instructor you have to successfully complete a provider course, have a minimum passing score on the post-course exam, and then go through a one-day instructor training, which is done with a lot of deliberate practice and demonstrations. We also developed a comprehensive instructor manual that supports instructors through every single portion of the course.

The current ASLS program is a collaboration with the AHA. The AHA identified this as an area where they needed additional educational content. We decided that one of the best ways to grow the program is to partner with the AHA and do what's called a blended learning course format. In this format, the learners complete didactics on an e-learning platform and then come into a training center to only do the skills portion. The platform is an adaptive learning platform. Instead of going from beginning to end, this program is modular.

Within the module, the learners state how experienced they feel they are with the content, from novice all the way through expert. Based on that, they'll either get the content



first, followed by the assessment, or they'll start getting assessment questions right away if they rate themselves as advanced or an expert. If they get the questions correct, they don't have to review the content unless they want to.

This makes the program really individualized. For example, a novice learner who doesn't work a lot with stroke patients would get a lot more of the content than, say, a seasoned stroke neurologist or nurse who uses this information in daily practice. And what we were able to do with the skills components was incorporate the two hands-on sessions from the in-person course that we have now and add an additional simulation scenario for stroke patient management.

### **How did the partnership with the AHA come about?**

We've partnered with the AHA for many years on several initiatives and programs and always had a good relationship with them. The ASLS blended-learning collaboration, however, is new for both the AHA and the Gordon Center. We decided to do an initial collaboration to create an e-learning module focused on the care of stroke patients during the pandemic, "Stroke Care during the COVID-19 Pandemic." I led the content part of that and worked with our Gordon Center and AHA teams to develop it pretty quickly. It was made available free of charge to health care professionals. That is how the ASLS blended learning partnership began.

We're about a year into the project now. A big part of our focus has been on updating and developing the content for the e-learning platform based on our existing course. This was really an opportunity to partner with a respected and long-standing leader in health care education, with mission and vision aligned with ours, to increase the reach of ASLS using



innovative technology. We piloted the course in March.



The Advanced Stroke Life Support program initially focused on helping EMS professionals to detect stroke, then expanded to hospitals.

**How do you see this partnership grow and develop? Could you see this as a model for other partnerships?**

Our collaboration with the AHA has gone exceedingly well. One of the reasons we wanted to embark on a collaboration was that we understood the importance of this training and its impact on people's lives. As a center of excellence at the University of Miami, we had taken the program as far as we could and wanted to explore strategic partnerships to reach more health care professionals in the U.S. and beyond.

It's one of the things that I had been thinking of for quite a while, asking myself: How could we leverage, and partner with, other organizations? We already had partnered with the Angels Initiative in Europe on ASLS e-learning for EMS. The



opportunity to partner with the AHA, which is not only an advocacy organization but has over a thousand training centers that could help the program grow so much farther, was clearly a win-win.

Additionally, we know there is potential for additional stroke educational programs in the future. One of the curricula that we had developed and piloted before the pandemic was a shorter program called “Essential Stroke Life Support” (ESLS®) for health care professionals who work with patients at risk for stroke but do not require the advanced course, such as EMTs, home health aides, and staff working at nursing homes. ESLS is focused on detection of stroke in those first few minutes, because it is so important to get the patient to the right hospital as soon as possible.

**When you look back, what has been the most exciting part about the program?**

The most exciting thing to me is the overwhelmingly positive feedback we receive from health care professionals who participate in the training, and the impact on patients’ lives. What makes all of us involved in this program proudest is when we get testimonials from health care professionals who took the course and have detected a patient with a stroke – in particular, those who say they felt confident enough after the training to advocate for a patient who was likely having a stroke, even when it was not obvious to others, and to ensure that the patient was taken to the most appropriate stroke center, with the capabilities to take the best care of them. Those clinical testimonials are the most impactful to us.

**Who is the program made for? Has the audience changed over the**



years?

Our biggest audiences are nurses and paramedics. The target audience for ASLS was initially EMS, but this evolved over the years. When the program was first developed, we had more EMS participants; and then, when the stroke center designation system was launched, we developed a curriculum for hospital-based health care professionals. Hospitals and agencies realized the need for training, and built into most of the stroke center designations is an educational requirement that their health care providers need to be trained in stroke and that they have to do outreach education to EMS professionals.



With blended learning, the ASLS program hopes to reach even more health care professionals.

We have also had many other professionals who work with stroke patients participate, such as physicians, residents, medical students, physician assistants, physical therapists, occupational therapists, speech therapists, and respiratory therapists. We have also had pharmacists participate. With the new ASLS blended learning program, we hope to reach even more





health care professionals.

### **What is the program's international footprint?**

In the last decade, our reach has expanded far beyond the United States. We currently have training centers in Hong Kong, Mexico, and throughout Europe. We have done training in Saudi Arabia and mainland China as well. One of the hopes with the AHA partnership is that the program will continue to grow. With the European initiative with the Angels Foundation, our EMS eLearning curriculum has been translated into 17 languages, which is really impactful.

### **What do you think stroke care will look like 10, 20 years from now?**

It's been an interesting evolution in the field of stroke, because one of the things that came out of the treatment of heart attacks was the use of thrombolytics, which are clot-busting drugs. They work quite well, but they make the blood thinner and come with the risk of bleeding. For heart attack patients, doctors realized they could actually go in and physically remove the clots, so they wouldn't have to give a thrombolytic that could cause bleeding. That was revolutionary in the treatment of heart attacks.

When doctors started doing studies for the same thing in ischemic stroke patients, they weren't getting the outcomes that they would have expected or that were seen in heart attack patients. In 2015, we learned that in patients with a large vessel occlusion – clots in the bigger arteries that bring oxygenated blood to the brain – the clots were often not completely dissolved by thrombolytics. Because of that, the current standard of care is for a patient to receive a



thrombolytic, if they meet all the criteria, and then a subset of those patients are taken to the catheterization lab and have residual clots removed intra-arterially.

That approach has been revolutionary, and it's been a really big piece of stroke care in the last five years. If we could develop a primary thrombectomy treatment that is as effective, easy, and quick to do, with the same outcomes as for heart attack victims, that would be very impactful. But we already have really good treatment options for ischemic stroke. The issue is getting patients to the hospital in time to have those treatments. The later after symptom onset a patient presents, the fewer options they have available to them, and the higher likelihood that they will have permanent disability or a poor outcome.

And there's a whole other area of stroke, which affects between 13 to 20 percent of stroke patients, depending on where you are in the world. Those involve bleeding into the brain or around the brain. We have not made as much progress with the treatment options in those patients as we have with ischemic stroke patients. With technology and research moving as quickly as it is, I am hopeful that there will be options so that those patients can have the same kind of benefits that we now have for ischemic stroke patients.

One of the biggest changes we should make right now is getting the latest education to health care professionals and also the public. There's been some effort on this front, but there's still a ways to go until most people are able to look at a person or recognize symptoms within themselves and say they're likely having a stroke. Patients with stroke need to get to the hospital as soon as possible. The general population needs



to think of a stroke, or “brain attack,” similar to a heart attack and get help as quickly as possible by calling emergency medical services.

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