

Alison Bailey:

Hello and welcome to the American Heart Association, Getting to the Heart of Stroke podcast series. My name's Alison Bailey. I'm a cardiologist at Centennial Heart at Parkridge in Chattanooga, Tennessee, and I'm so excited to be involved in this episode today. This is an episode of Innovations and Achievements, Real-World Success Stories and Best Practices. We're going to talk about all of the real-world experiences and insights we've learned from various institutions across this initiative. We're going to have experts from different disciplines talk about best practices, highlight successes and lessons learned during Getting to the Heart of Stroke initiative, as well as discussing their firsthand experiences in bringing those valuable takeaways to the rest of us so we can use this information to help improve the care of the stroke patient. So hopefully we'll all learn some innovative solutions as well as actionable strategies that will support the improved outcomes for our patients. I'm going to go ahead and have the rest of the panel that's here with me today, introduce themselves and tell you what they do. Russ, I'll kick it off to you and let you go next.

Russ Harper:

Awesome, thank you. Dr. Bailey. Russ Harper, AVP of Neuroscience with HCA Healthcare. And I work with our service line development for growth and quality across our 185 hospitals with HCA.

Alison Bailey:

Awesome. Debra, I'll let you go next.

Debra Philpot:

Hi, Dr. Bailey. I'm Debra Philpot, and I am the Vice President of Neuroscience and Telehealth for the TriStar Division of HCA. We cover middle Tennessee, the Chattanooga area, Nashville and the northern and the southern part of Kentucky.

Alison Bailey:

Excellent, thank you. And then Dr. Witt, I'll let you introduce yourself next.

John Witt:

Thank you, Dr. Bailey. I'm John Witt, I'm a stroke neurologist at TriStar Skyline Medical Center in Nashville, which is part of HCA Healthcare. I'm also the medical director there for the Stroke Program and direct the neurology residency.

Alison Bailey:

Excellent. And then last but certainly not least, Dr. Stahlman, I'll let you introduce yourself.

Matt Stahlman:

Hi, my name is Matt Stahlman, I'm a cardiologist in Austin, Texas where I serve as the director of the St. David's Cardiovascular Stroke Clinic.

Alison Bailey:

Excellent. Well this is great. So as you can see, we've got a nice rounding of disciplines that are going to be here today. So welcome to the show, all of you. Russ, I thought maybe you and I could sort of give a

high-level overview of Getting to the Heart Stroke to get us started out. We know that stroke patient... Stroke is such a common problem that we encounter in the world, one in four adults over the course of their lifetime will suffer a stroke. And so it becomes incredibly important that the etiology of stroke get diagnosed early on so that we can get the patient down the appropriate pathway to improve outcomes. So tell me a little bit more about Getting to the Heart of Stroke.

Russ Harper:

Sure, Dr. Bailey, you're right. And I think it's multifaceted, and this was an initiative that we did, it had four main pillars. And that first pillar was around quality improvement, what are we doing to optimize the identification of stroke? How are we connecting our neurologists and cardiologists help prevent and provide a health equity lens to it as well? And, if we can identify the etiology we can have better discharge planning for that patient. We know there's going to be some patients that are cryptogenic, so what are we doing on the back end of that as well? So there's a quality improvement side of things. Also, there's a piece around national professional education, what are we learning out of this? So as we can help educate the community as well as our physician partners and caregivers, what kind of difference can we make in this initiative to implement this in other places? So what can we learn from it is part of it as well.

Third pillar is around national consumer education, so how can we educate consumers, provide tools around AFib and secondary stroke risk factors that people can make a real difference in their lives to implement those? So there's a consumer education piece. And lastly, a community integration, how can we impact our overall health of our communities by involving, for example, being involved in blood pressure checks, education again around nutrition security? So there's a community integration as well. So those four pillars really to help us impact patients who have cryptogenic stroke and then to make a difference on let's find the cause.

Alison Bailey:

Thank you so much, that's great. I've been really excited to be involved and part of this initiative as you have, and a lot of my role has been in the education realm, and so for anybody that's watching this podcast that hasn't seen some of the others, we have great webinars and podcasts. They're both really good, I think some of them are even patient facing, so patients can look at it and their family, so I think we've been pretty excited about what we've been able to offer.

Well, I'm going to jump right into what we came here to talk about, what we've learned over this and Dr. Witt, I will probably ask you to be our first participant to talk about stroke. We've talked about how important it is that we recognize stroke and make an appropriate diagnosis when we're seeing a patient for the first time. Can you kind of walk us through what does that look like if I'm a patient or a caregiver, my family member ends up in the emergency room with a stroke, what happens next?

John Witt:

Well, there are a number of things that happen, certainly some strokes require very early treatment regardless of the specific cause of the stroke. But I think to the topic we're looking at today, it's important to know that as vascular neurologists, we believe that if we can identify the cause of a particular stroke, we have a better chance of preventing a recurrent stroke down the road. And recurrent stroke we know is a big problem, so even with optimal care, many patients that have one stroke will go on and have another. But part of what patients can expect then is a very diligent search for the cause or etiology of the stroke that they're presenting with. Again, in the hopes that we can

tailor treatment, secondary prevention going forward to reduce the likelihood of that next stroke. And I'm happy to talk about specifics of what that might look like if you'd like me to.

Alison Bailey:

Yeah, I think one of the things I know that this initiative is focused a lot on is that group of people where we're not entirely clear why they had a stroke after they've had this pretty thorough evaluation in the inpatient setting. Could you elaborate on that group a little more for us?

John Witt:

Sure. The group you're talking about, we call cryptogenic stroke and the concept is really straightforward. So there are a small number of broad categories of stroke causes. You think about things like large vessel atherothrombosis as a category, small vessel [inaudible 00:07:40] strokes as a category, cardioembolic strokes. Each of those comprise maybe 20 to 30% of the ischemic stroke patients that we see. And there's a small category for other causes that we could identify, things like arterial dissection, hypercoagulable states, air embolism, those sorts of things. But then there's a sizable category we label as cryptogenic because there's not a clear cause or there are potentially more than one plausible causes for stroke. And so that's the label that we use for patients in that category, and again, it's a substantial proportion, maybe 20 to 30% of strokes that we see. So it's important to identify that group because it may be that additional testing even after a hospital stay is important to try to pin down a cause if one is available, again so that we can effectively implement secondary prevention strategies for those people.

So you might say, well what are those tests and how do we do that? So typically recommendations include obviously brain imaging for patients, so they can expect CT scans and often MRI scans. MRI scans sometimes reveal a distribution of stroke injury that was not expected either clinically or from CT, and it gives us some clue about the potential cause. They can expect vascular imaging, so this is imaging of the blood vessels in the neck and in the head. This lets us look at atherosclerotic burden and other unique patterns like Moyamoya syndrome and so forth, so that's important. And then cardiac testing, we mentioned that a number of stroke patients have cardioembolic stroke. And so cardiac telemetry monitoring typically for at least 24 hours and preferably through the course of the hospital stay, mainly to look for atrial fibrillation, the largest subset of cardioembolic stroke. And then structural imaging of the heart usually with echo cardiology... I'm sorry, echocardiography, either transthoracic or transesophageal echoes.

So again, all those designed on first pass to identify a stroke etiology. And then sometimes hypercoagulability studies and other blood work is useful. After the hospital stay though, those patients with cryptogenic stroke can expect more intense or ongoing monitoring for paroxysmal atrial fibrillation, a very important cause of stroke that may not surface during the hospital stay. And so that's where using that cryptogenic label is extremely important because if we're not confident about a non-cardioembolic cause of stroke, then we need to do that additional monitoring in the... Or outside the hospital to identify those patients.

Alison Bailey:

Excellent, and what a great tie-in to the talk about the importance of really having a multidisciplinary team, whether that's inpatient or a combination of inpatient and outpatient and includes people like Dr. Stahlman. So Dr. Stahlman, I'll sort of turn my focus to you now and talk to you about, first of all, Dr. Witt has talked us through, we've got a patient in the hospital, they had a stroke, we've now determined

it's a cryptogenic stroke and we're going to be looking for atrial fibrillation in the outpatient space. Tell us how you got interested in this process and what that looks like at your place.

Matt Stahlman:

Yeah, so my interest started as an interventional cardiologist 20 years ago coming out of fellowship, and I happened to be the guy in town that closed the PFOs. And so I was getting a large referral base of post-hospitalization stroke patients. And I found very quickly that I could do so much more for these patients as a cardiologist than just look for their hole and close the hole. And specifically if you think about it, almost everything that causes a stroke happens to be cardiovascular related, so it makes a lot of sense to have a cardiologist involved. As my enlightenment grew in this field, I collaborated with neurologists and we've kind of developed our stroke clinic that we've used as kind of our success model in dealing with our stroke patients, particularly our cryptogenic stroke patients. And if we want to, I can go over a few slides to go over that with us and kind of go over what our protocols are.

Alison Bailey:

Yeah, no, that would be great, I hope one of the things that people take away from this podcast is that there is no one way to do this, right? Developing what works locally at your facility is going to require the input of a variety of people, just like any other time we have a multidisciplinary team and what works in Austin may not work in Chattanooga, and so we all have to get together and figure that out. So we'd love to hear what you do.

Matt Stahlman:

Well, I think the importance though is to have collaboration. I think that dealing with a stroke population requires multiple different subspecialties including and not limited to neurologists and cardiologists, but vascular surgeons and the social workers and case managers and all the people that are necessary to go into that. Can we just start with my first slide? My first slide talks about the heart-brain team as a complimentary collaboration of expertise. And working with people like Dr. Witt, the neurologists are the experts in the patient evaluation, they're the experts at neuroimaging and interpretation and they're really the people that kind of determine whether or not this was an embolic stroke or cryptogenic stroke, we don't really know why in that, we really would require further evaluation from a cardiologist, and they're kind of the experts at managing the initial stroke management.

From a cardiologist standpoint, we're more the experts in cardiac imaging and interpretation. The experts that's kind of looking for those PFOs, which is the other low-hanging fruit besides AFib and the experts at arrhythmia detection and management, so it makes sense for us to be involved. What we do at our institution is we have a stroke clinic, so when patients get discharged from the hospital, the goal is to see those patients in the cardiovascular stroke clinic within a week or two from discharge, and that's really to kind of act as a landing zone for our patients after discharge because when patients get discharged when they've had a stroke, they get a lot of information, they have this million-dollar workup that Dr. Witt kind of talked about with MRIs and CT scans and everything, but it's all gone for them really fast and they don't know a lot about what happened. So when we connect as a landing zone and our first appointment is a lot of education and going over all the loose ends that could have been left with the patient when they got discharged.

So our focus is on risk factor modification, education and making sure that patients get triaged where they need to be, such as the right carotid imaging, such as evaluation for arrhythmias. If we detect an arrhythmia, what's the best management strategy? Is it anticoagulation or is it maybe even left atrial appendage occlusion? And then PFO detection, ASD detection, and we also tend to work up in our clinic,

the hypercoagulable workup, it's not usually done in the hospital because of expense and delays in that. So we usually kind of do that workup if it hasn't been done in the right patient after discharge.

Alison Bailey:

That is really great because like you said, these patients fall across multiple domains and then they frequently have cognitive defects as well.

Matt Stahlman:

Correct.

Alison Bailey:

So not unlike the rest of our patients leaving the hospital that are overwhelmed, they may have additional reasons to be overwhelmed. So sounds like you are really the one-stop shop that makes sure all of the loose ends get tied up and then proceed forward to help with determining long-term strategies.

Matt Stahlman:

100%. And the [inaudible 00:16:02] still is, it may not be multidisciplinary at the point of care, but it is multidisciplinary as we meet monthly to kind of go over what our protocols are and how we might do best practice. And then with the collaboration that's been developed with I'm speed dialed with my vascular neurologist saying, "Hey, I looked at this and I didn't know if you thought this one stenosis was contributing to that patient's stroke? Or did you think this was more embolic and require additional evaluation?" So it really is a multidisciplinary team even though the point of care at that one point is with the cardiologist.

Alison Bailey:

Excellent. And I'm really glad you brought PFO up as well, we haven't spent quite as much time talking about that, but that is a really important topic in this area of cryptogenic stroke. Well, I'll probably turn to Russ next just to talk about a little bit what we're doing from a system standpoint and then I have some other questions for all of you at the end if we have time. But Russ, maybe you can tell us as a surface line director, you could tell us how do you make this entire system work?

Russ Harper:

It's a good question and I'm glad we started off the way that we did with physicians. Physicians, I think that's what makes the difference, so I'm going to go through a few E's here if that's okay. So I think first of all at HCA, I think leveraging scale is a part of what we do at 185 hospitals, we started this cohort with 10 hospitals with Getting to the Heart of Stroke initiative. It's 10 hospitals, but we started it with providing one, an example. I think we connected our leadership and some of those are on the phone and on the podcast right now with our neurologists and cardiologists to provide guidance on this initiative. So I think starting at that high level and then we also secondly engaged the physicians and executive leaders at our hospitals to say, how are we going to move this initiative forward at the hospital level?

And part of that was then thirdly, establishing consistent measures. So I think we established consistent measures to monitor and track our performance. Fourthly, I think ensuring and consistent engagement. So we have a process in place where we meet one-on-one with every hospital that is involved in a

monthly basis that is involved in the initiative. And then we also have expert forums that come together quarterly to share best practices, and that's been key. And then the last thing I would say, while we look at it from a system level, it's really about thinking about every patient. So that's the fifth E, when you think about every patient that we can impact through this initiative, it starts with that neurology, cardiology engagement, consistent measuring, protocols and process in place and then sharing best practices amongst the hospital. So keeping patients at the center of this has been the key as well.

Alison Bailey:

I love that because anyone who's worked at more than one hospital knows that if you've been to one hospital, you've been to one hospital. There are certain practices that happen in different places, but really saying, this is our goal, level set and this is what we're going to measure, you all figure out what is the best way to do it and we're going to give you the tools and resources you need.

Russ Harper:

That's right.

Alison Bailey:

Good. Well, the other thing that comes to mind is as a hospital and an outpatient world, because our patients are transitioning these areas, you start in the inpatient world, you're coming to the outpatient world. Any tips or things that you've learned about that process?

Russ Harper:

Yeah, and I'd say it's another great question, because it's what we do daily, right? It starts with a comprehensive approach at the hospital level and where we determine etiology, all the things Dr. Stahlman, Dr. Witt have talked about in providing a discharge plan. But as it transitions, I think maybe the best way, and I'll go through three quick examples to talk about this, is as we've improved the neurology-cardiology connection, I think that's impacting lives in the outpatient setting as we establish long-term cardiac monitoring. We moved that from a baseline of about 38% of cryptogenic patients that were receiving cardiac monitoring long-term to 57%, so that's made a significant difference as we've connected specialties across the board. And I think learning from our hospitals what works best in that setting, whether it's having it on the inpatient or providing it on the outpatient has been key as well.

And then secondly, we also know that as patients do discharge, there are other barriers. There are social needs, health needs and other barriers that come into play and think as they transition home, we obviously have a case management process in place, but we've gone a little bit deeper to understand what are social needs, what are some of the needs of the patient so we can provide uninterrupted stroke care to that patient. The last example would be that in some of our hospitals we've established the stroke follow-up clinics as Dr. Stahlman talked about for that follow-up care. And then also a 90-day... A lot of times we do a 90-day phone call to those that are on thrombolytic or have a thrombectomy procedure done, but we've implemented that in the cryptogenic stroke patient as well so that we can say, how's it going, from an education, from an adherence and follow-up measures as well to make sure the patient is getting the care that they need and getting the testing they need to impact their lives and prevent a secondary stroke.

Alison Bailey:

Excellent, such great information. I think it is really important, and we forgot to highlight that quite as... Or I haven't highlighted as much as we were talking, but really that social needs assessment I think has been key as well because everybody goes through an assessment and we start talking about what are the things that you need, things that we may not necessarily think about before we did that. I think this is a great transition to Debra and Debra, I know you're involved in all things stroke, inpatient, and outpatient. So I thought maybe what you and I could talk about or what you could help educate us about is as we're moving patients through the system, again, we've gotten the inpatient world, we've had our evaluation, we're a cryptogenic stroke patient, tell us what works to get that patient from discharge to the care that they need long-term in preventing another stroke.

Debra Philpot:

Yeah, so I want to comment on a couple key champions in the facility that haven't been mentioned. You've mentioned case management, so I want to highlight that a little bit more. Those nurses and social workers that are interacting with the patient and the family from day one, they're looking at the discharge plan from day one, and a part of that assessment is looking at social needs and educating on what's going to be required, what can be expected, they're an integral part of that piece of work. But another key role is our stroke professionals, our stroke coordinators, our data abstractors, our stroke managers, neuroscience directors, all those folks really are part of the glue that pulls it all together.

And so when you're thinking about that patient in the hospital, those stroke professionals are from the get-go ensuring that all the right medications, all the right therapies, all the right education is being done during that patient stay, but they're also the ones as a patient transitions from the inpatient to the outpatient, they're literally that navigator role that is staying connected to the patient and their family so that that discharge plan is in fact understood. A lot of times we'll call that patient at seven days after discharge, it's a quick check-in. We call it kind of that false check, did you get your education? Do you have your appointment? Have you established your medications? Have you got your prescriptions filled? And it gives them a chance to answer a lot of questions, you talked about being overwhelmed as a stroke patient and there is just a lot of things coming at you.

And so these navigators, these coordinators play a pivotal role in that transition from outpatient because it's a stopgap for things that could just get fallen off, oh, I didn't realize I was supposed to call and make an appointment. And so whether that's with the neurology team or whether that's with our cardiology team, and so they really pull that all together, I call them the glue. In addition, Russ mentioned all the data collection and all the reports that we've done, someone's got to collect that data and so they're that vigilant eyes that are looking at our charts with a fine-tooth comb, making sure that documentation is there and then recording it in our national registry because if the data is not there, there's nothing to report. So I just wanted to highlight the importance of that role in this entire process of Getting to the Heart of Stroke. They again, bridge an important gap for the patient, but also the program. So that's really some of the highlights of that inpatient to outpatient transition.

Alison Bailey:

Now, that's fabulous. And we all recognize when patients leave the hospital, it's kind of like takeoff and landing of an airplane, if you use those analogies. The discharge from the hospital is the landing, and there are so many things that have to be done correctly or the patient's going to end up either having an adverse event or ending up back in the hospital, so I think that's important. And then obviously collecting our data. If we don't know what we're... We need to know what we're trying to achieve, and if we don't measure it, we're never going to know if we got there or not. So I think these have all been



really good points, and I think we've gone over a lot of these issues individually in different webinars and podcasts. So if you haven't seen those, I'll ask you to get on there, again.

Also, there's a tool I want to mention, and I think this is a good point because I know Debra and her team have helped with this some, but the AHA has made an app called the Stroke Helper App, it's free for anyone to use and it's really got great educational journeys on there that the stroke patient and their family can use, as well as lots of tools that can be helpful in the post-stroke management, things like blood pressure, it's a place to put your labs in and again, it's free for all the patients and families or caregivers. So I'd advise everyone to check that out.

So I know we've learned a lot today and I'm going to invite all of our speakers to come back on, and I'm going to say each of you have been involved with Getting to the Heart Stroke initiative at your local facilities, I'm going to ask everyone, what have you learned that you think changed your practice the most? John, maybe I'll start with you, you're the neurologist and I like Matt's analogy, you're like the quarterback of the team here. What do you think you learned the most during this initiative?

John Witt:

I think one of the things I learned is that we'd all like the care of stroke to be very straightforward from guidelines and algorithms, but it's really not, there's a lot of nuance in it. And so I need my colleagues in cardiology to understand which PFOs need to be closed and how much atrial fibrillation is important to treat with anticoagulants, and we all need our neurologists to say, well, which small strokes are actually small vessel disease, lipohyalinosis, and which might actually be occult small embolic lesions. And so I think we need each other's expertise in ways that maybe we hadn't fully appreciated before getting into this collaborative project.

Alison Bailey:

Excellent. Russ, I'll ask you next. As a systems person, what have you found the most interesting takeaway?

Russ Harper:

Can I take two?

Alison Bailey:

Yes.

Russ Harper:

Okay, good.

Alison Bailey:

Go for it.

Russ Harper:

All right, because I think the first thing I've noticed is we can make an impact. We truly can through the work that's being done, through making the connection between neurology, cardiology, measuring the impact it has... We can see a difference in patient care. And I think that's the first thing I've seen, is that it is making a difference. Second thing I think is it takes a team, and Debra did a great job of mentioning



all the players that are involved from physicians to our leadership in the C-suite to the stroke coordinators and abstractors and don't want to leave anybody out, nursing, follow-up case management, it's a team approach to how we do this, and each part of that is critical. So it's teamwork and we can really make a difference.

Alison Bailey:

Excellent. Matt, I'll ask you to tell us what's your most important takeaway.

Matt Stahlman:

I don't want to sound like a broken record, but just increasing the awareness of the need for collaboration has been the best asset of this program. And I include administration in that, allowing for a forum with administration to open up the opportunities to collaborate with neurologists and cardiology has been the biggest asset. And I can't also diminish the need for evaluation of social determinants of healthcare, which was a big point of this initiative as well. I work in an inner city hospital where the needs are a little bit more, and that's also been something that I think has been helpful in this exercise.

Alison Bailey:

Excellent. And then Debra, I'm going to ask for your last take away.

Debra Philpot:

I think my biggest takeaway is very similar to what Russ commented and that's about it's making a difference for patients. I can tell you that I thought there were too many barriers to be able to get implanted loop recorders in patients during their hospital stay. And honestly, I thought we did a really good job and found that when we collected the data, it wasn't there. But we have really had a paradigm shift and let's get these loop recorders in while the patient is still with us, and then we have a stickiness to that patient to really help with the secondary prevention. And one of the things that we've noticed is that patients who might not otherwise had detected atrial fibrillation, they are getting detected, some of them are getting detected with just in a few days of being on that monitoring program. And then they [inaudible 00:30:38] get on anticoagulation and get that prevention that's needed going forward. So it really is more about that collaboration, making a difference for the patient, it's very rewarding.

Alison Bailey:

Excellent. Well, thank you all for your insights, I've been able to be involved with this initiative for a couple of years now, and it's really been, I think, very rewarding experience to see the huge differences we've made in the care of places that were already delivering really good care for the stroke patient. These are comprehensive stroke centers that had already been through certification. And what we see is that when we put the whole team together, we do a better job. And so I know I've learned a lot, I think these system that we've put together, this professional education hopefully has educated not only caregivers, like the physicians and the nurses and the rest of the care team, but also patients in the community about the importance of recognizing atrial fibrillation and some of these other causes of stroke. So I think it's been a very rewarding experience and I think a very successful experience.

I'll end with our last couple of sentences here, HCA Healthcare in the HCA Healthcare Foundation, our national sponsor of Getting to the Heart of Stroke. The views and opinions in this activity are those in the speakers and reflect the synthesis of science. Content should not be considered as the official policy

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