Neurologists, cardiologists debate interventional stroke care

Recent trials and device approvals have thrust catheter-based procedures to the forefront of stroke treatment, but questions remain about access and the expertise needed to perform procedures.

With a limited number of stroke centers and neuro-interventionalists, access to catheter-based interventions for procedures is a concern, despite their proven efficacy and safety, said Salman A. Arain, MD, a cardiologist at Memorial Hermann – Texas Medical Center in Houston. He debated a controversial approach — tapping interventional cardiologists to perform neuro-interventions — with Raul G. Nogueira, MD, a neurologist at Emory Healthcare in Atlanta.

Arain argued in favor of interventional cardiologists, noting that catheter-based treatments are the standard for large-vessel occlusions. “Cardiologists understand stroke because many of our patients are at risk for stroke. Cardiologists understand the need for urgent revascularization, and cardiologists are used to taking care of patients who need urgent procedures,” he said. With more than 8,000 currently practicing interventional cardiologists and 2,000 catheterization laboratories in the United States, Arain noted that “cardiologists are everywhere.”

Nogueira said the goal should be “providing the best possible care, not the most abundant care.” He questioned the shortage of neuro-interventionalists, saying there are “more than 1,000 practicing neuro-interventionalists, about 80 new graduating fellows annually and more than 450 labs treating strokes and aneurysms in the country.”

Nogueira also argued that interventionalists have access to the latest technology and equipment necessary for successful procedures. “As providers, we must do a better job of including caregivers in the care team and being better advocates for caregivers,” he said.

Supporting the health and well-being of caregivers and improving communication are two viable strategies for improving patient outcomes, said Bakas. Nearly half (44 percent) of stroke survivors are discharged to their homes, 24 percent to inpatient rehabilitation and 31 percent to skilled nursing facilities, Bakas said. Most stroke survivors eventually return home under the care of family members who are often ill-prepared to deal with the complexities of stroke, she said. "If we don't take care of the caregiver, we are creating a new set of patients," she said. "As providers, we must do a better job of including caregivers in the care team and being better advocates for caregivers." Support for the health and well-being of caregivers and improving communication are two viable strategies for improving patient outcomes, said Tamilyn Bakas, PhD, RN, who opened the State-of-the-State Stroke Nursing Symposium on Tuesday. “If we don’t take care of the caregiver, we are creating a new set of patients,” said Tamilyn Bakas, PhD, RN, who opened the State-of-the-State Stroke Nursing Symposium on Tuesday. “As providers, we must do a better job of including caregivers in the care team and being better advocates for caregivers.”

Raul Nogueira, MD, (left) and Salman Arain, MD, debate the expertise and access of procedures required to best treat stroke patients during Tuesday’s Stroke in the Real World pre-conference symposium.
CONSENSUS AND CONTROVERSIES IN STROKE CARE

JOIN US TONIGHT for an evening dinner symposium about the latest advances in acute stroke intervention and cryptogenic stroke care.

FROM ACUTE INTERVENTION TO SECONDARY PREVENTION

THE CHALLENGE OF DEFINING CRYPTOGENIC STROKE: Approaches to Determining Stroke Etiology
Richard Bernstein, M.D.

WHAT’S AT THE HEART OF YOUR STROKE? Making the LINQ between Atrial Fibrillation + Stroke
Rod Passman, M.D.

TO BYPASS OR NOT TO BYPASS FOR INTERVENTION

SEER META-ANALYSIS: Patient Selection For Endovascular Thrombectomy
Andrew Demchuk, M.D.

STRATIS REGISTRY: Process Improvement for Patient Selection and Timely Treatment
Nils Mueller, M.D.

RACECAT STUDY: Direct Transfer to an Endovascular Center Compared to Transfer to the Closest Stroke Center in Acute Stroke Patients with Suspected LVO
Marc Ribó, M.D.

WE’re TRANSFORMING STROKE CARE, TOGETHER.

LEARN MORE + REGISTER: medtronic.com/stroke
Limited space remains.

Wednesday, Feb. 22, 2017
6:30–9:30 p.m.
Hilton Americas
Houston, Texas
(In conjunction with ISC)

PROGRAM MODERATOR:
LEE SCHWAMM, M.D.
Professor of Neurology, Harvard Medical School
C. Miller Fisher endowed Chair in Neurology
Massachusetts General Hospital
Boston, Massachusetts

This program is limited to licensed healthcare professionals only. This event is not part of the official International Stroke Conference 2017 as planned by the International Stroke Conference Program Committee.
Access to acute stroke care: focus of ASA/WSO joint session

The key to improved outcomes for stroke patients is better treatment access, but worldwide access to technologies and treatments for managing and preventing acute stroke is limited and inconsistent.

“Advances in stroke treatment and prevention are often expensive and available only to people living in special areas in high-income regions. Ninety percent of the world’s population has no access or only limited access to any of the advances in stroke care from the last 20 years,” said Werner Hacke, MD, PhD, the session’s co-moderator and former AHA president.

“Dr. Martins has had major success with acute stroke systems in Brazil, although other areas of South America have lagged behind,” Sacco said.

Stroke is particularly prevalent and rising in Eastern Europe, where the European Stroke Organization’s Eastern Europe Project is tackling the problem. Valerie Caso, MD, PhD, of the University of Perugia Stroke Unit in Perugia, Italy, and president of the European Stroke Organization, will discuss the goals.

Two other speakers will describe how stroke patients are treated in some Asian countries: Thang Nguyen, MD, Ho Chi Min City, Vietnam, and Jeyaraj D. Pandian, MD, Department of Neurology at Christian Medical College and Hospital Ludhiana, Punjab, India.

“Stroke is a rapidly advancing field, but access to basic technology, such as CT scanners, varies by geography, how urgent medical care is sought. Too few members of the public are capable of recognizing acute stroke symptoms and taking appropriate actions,” said Ralph L. Sacco, MS, MD, session co-moderator and former AHA president.

Hearty Humor

“Our patients have dropped off ever since we let the plants die in our office.”

The key to improved outcomes for stroke patients is better treatment access, but worldwide access to technologies and treatments for managing and preventing acute stroke is limited and inconsistent.

“Advances in stroke treatment and prevention are often expensive and available only to people living in special areas in high-income regions. Ninety percent of the world’s population has no access or only limited access to any of the advances in stroke care from the last 20 years,” said Werner Hacke, MD, PhD, the session’s co-moderator and former AHA president.

“Technological and treatment advancements, said Ralph L. Sacco, MS, MD, session co-moderator and former AHA president.

“How important are community re-integration programs post-stroke for patients?"

Oh, very important. We’ve gotten the acute part down. We need to work on supporting them when they go back to where they live, work, worship and play. They are dealing with a new normal, and we need to be there to help with the transition.

How important are community re-integration programs post-stroke for patients?

It has to be integrated. It starts at home. We need to make sure that we are treating them early and then offering community re-integration when they are ready.

We are not doing enough. We tend to work in silos – acute in one silo, hospital in another, and so on. We need to make sure we are viewing this as a long-term continuum focused on all of the patient needs.

‘Game of Strokes’ wages war on cerebrovascular disease

The leader of this year’s stroke programming is an admitted fan of “Game of Thrones,” so it’s no surprise the HBO drama series inspired the title of a 2017 session. But unlike the medieval fantasy world presented on television, competitors in “Game of Strokes” will clash quiz show-style over knowledge of the very real, disabling and deadly world of cerebrovascular disease.

“We aim to instill and reinforce stroke knowledge in a fun, yet playfully competitive way,” said ISC Program Committee Chair Bruce Ovbiagele, MD, MSc.

Three teams of stroke experts will vie for the Game of Strokes “Gold Brain” trophy. “We’ll have North America versus Europe versus Asia/Australia, with five stroke expert participants representing each region,” Ovbiagele said.

The contestants will face a barrage of questions from moderator Jose Biller, MD, professor and chairman of neurology at Loyola University in Chicago and editor-in-chief of the Journal of Stroke and Cerebrovascular Diseases. Questions will address more than 25 topics covering the natural history of stroke, stroke mechanisms, stroke syndromes, stroke diagnosis, stroke treatment and even the portrayal of stroke in pop culture, he said. “The questions will be posed to everybody, and the contestants will seek to answer them quickly and correctly.”

The fun is not limited to the 15 competitors. The audience can use the ISC 2017 Mobile Meeting App to play along and test their stroke knowledge.

The victorious team will receive free registration for each of the five team members to ISC 2018; the team name on the Gold Brain trophy, analogous to the Iron Throne of “Game of Thrones” fame; and “friendly bragging rights for the winning region for one year,” Ovbiagele said.

Like “Game of Thrones,” Game of Strokes will return next year for more adventure, he said. “In successive years, we’ll rotate, and we’ll bring in Africa, we’ll bring in South America. We’ll have different combinations and permutations of teams representing all regions of the world.”
Experts will enlighten at CED talks

The ISC’s CED Talks are designed to deliver useful information in a digestible way. These short, powerful talks of “ideas worth spreading” will focus on cerebrovascular education and discovery.

The Thursday session will present four talks from eminent experts in basic, translational and clinical science in stroke. Each talk will last about 18 minutes, followed by four minutes of audience questions.

The goal is to stimulate conversation and inform in a compelling manner, according to Bruce Ovbiagele, MD, MSc, ISC program committee chair and the CED Talks moderator. “We don’t want the traditional way of presenting information, and that’s why we are limiting the speakers to no more than three to four slides,” said Ovbiagele.

With limited time and props, the talks rely on the speakers’ knowledge and insights. Each of the four speakers has been previously recognized with major ISC awards.

First to speak is Michael Chopp, PhD, who will present “Exosomes as a Restorative Treatment for Stroke” from 8:45 a.m. to 9:07 a.m. He is the 2015 recipient of the Willis Award and scientific director of the Neuroscience Institute at Henry Ford Hospital, Detroit. Chopp has published on the potential of exosomes — small, complex lipid membrane structures that encapsulate and transport proteins — and non-coding microRNAs for the treatment of neurological injury.

From 9:08 a.m. to 9:30 a.m., Patricia D. Hurn, PhD, RN, who won the 2014 Thomas Willis Award recognizing contributions to the investigation and management of stroke basic science, will present “Sex Differences in Stroke: From Molecules to Women.” Hurn, dean of the University of Michigan School of Nursing, Ann Arbor, is internationally known for her work in understanding the cellular and molecular basis of gender differences in response to experimental brain injury.

Robert J. Adams, MD, professor and director of the South Carolina Center of Economic Excellence for Stroke, Medical University of South Carolina, Charleston, will speak on “Rebuilding Function after Stroke” from 9:31 a.m. to 9:53 a.m. Adams was the 2013 recipient of the David G. Sherman Award, recognizing lifetime contributions to investigation, management, mentorship and community service in the stroke field. He is known for his work in stroke prevention and novel delivery programs of stroke care, including the STOP and STOP II clinical trials, which were the first randomized clinical trials of stroke prevention in sickle cell disease.

The final speaker, Stephen M. Davis, MD, will present “Penumbral Selection for Reperfusion Therapy: It’s About Brain!” from 9:54 a.m. to 10:15 a.m. Davis is professor of medicine at the University of Melbourne in Australia and the 2011 recipient of the William M. Feinberg Award for Excellence in Clinical Stroke. He recently published a comprehensive analysis that assessed metabolite profiles in penumbral tissue and correlated them with early and late clinical recovery in ischemic stroke patients.
At Houston Methodist, we’re developing a revolutionary device to one day help patients recover from a stroke once traditional therapy ends. Using magnetic stimulation, our physicians are able to activate cells around damaged areas of the brain with the goal of improving motor function affected by the stroke. By pushing new boundaries, we’re bringing life-changing solutions to our patients.

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Visit us at booth #524 to see how magnetic stimulation is changing the way we approach patient care.
Bridge Over Troubled Water: NIH guidelines help connect basic, translational research

ew National Institutes of Health grant proposal guidelines can improve the rigor and reproducibility of findings, a speaker said Tuesday in the ISC Pre-Conference Symposium.

“Humans are a poor replication of experimental animal models,” said Patrick D. Lyden, MD, chair of neurology and the Louis and Carmen Warschaw Chair in Neurological Research at Cedars-Sinai Hospital in Los Angeles. “Among other shortcomings, we have higher cortical function, and you cannot replicate higher cortical functions in animal models.”

Lyden opened the symposium — “Bridge Over Troubled Water: Issues in Translational Stroke Research” — by exploring some of the models commonly used in stroke research. The reality that animal models don’t always translate well into clinical research is seldom mentioned in grant proposals or in published research, he said. Greater transparency is coming.

“Lack of rigor and reproducibility are not unique to stroke research,” said Francesca Bosetti, PharmD, PhD, stroke program director at the National Institute of Neurological Disorders and Stroke in Bethesda, Maryland. “NINDS called for more transparent reporting to optimize the predictive value of preclinical research in 2012. Now the National Institutes of Health is acting to enhance rigor and transparency in research.”

In the new guidelines, proposals must:
• Explicitly review the scientific premise
• Detail robust experimental design to produce rigorous and unbiased results.
• Discuss relevant biologic variables.
• Authenticate key biological and/or chemical resources.
• Add levels of transparency to improve the quality of NIH grants, the resulting research and the ultimate findings — positive or negative, Bosetti said.

One of the biggest issues is experimental bias, Bosetti said. The reliability of a study is determined in large part by the investigators’ choices in research design. In stroke research, selecting which clinical model or models to use is one of those key choices.

The majority of strokes are occlusions in the middle cerebral artery; occlusions or thrombi in small vessels, or lacunes; intraparenchymal hemorrhages; or subarachnoid hemorrhages. Although existing animal models map to each type of stroke, none of the models are perfect.

Inserting nylon filament into the middle cerebral artery is a good model for large-vessel strokes, Lyden said, but there are significant differences between biologically active occlusions blocking a vessel and an inert nylon filament blocking the same vessel. At the same time, the nylon filament model maps well to MCA occlusions treated with thrombectomy.

Carotid injury models using laser or chemical injection can model numerous lacune strokes. Intraparenchymal hemorrhage can be modeled by injecting autologous blood or collagenase. Subarachnoid hemorrhages can be modeled by injecting blood or poking holes in the MCA with a nylon filament.

Oxygen glucose deprivation in cell culture or slices is particularly useful to investigate questions of fundamental biology. And human tissue samples can provide excellent experimental models.

“There are profound differences between rodents and humans,” said Lauren Sansing, MD, MSTR, assistant professor of neurology at the Yale School of Medicine in New Haven, Connecticut. “Our animal models lack many aspects of fundamental human neuropathology.”

Sansing’s solution is to work with murine and human models. Human models also help identify novel mechanisms not seen in animal models. And adding human tissue models to the experimental mix helps researchers confirm the human utility of animal findings.

During the Regular Poster Sessions, the presenters will be at their posters for informal Q&As with attendees from 6:15 p.m. to 6:45 p.m. today in Hall E. These one-on-one posters are not a part of the earlier Professor-Led Poster Presentations. To see the posters featured in today’s Regular Poster Sessions, go to page 57 of the Poster Abstracts section of the Final Program or view the Poster Sessions on the Mobile Meeting Guide app. Posters also will be available for viewing in the Poster Hall (Hall E) from 8 a.m. to 6:45 p.m. today and Thursday. See Thursday’s Stroke News for details on Thursday’s Professor-Led Poster Tours and Regular Poster Sessions.

Please see page 49 of the Final Program for the Poster Hall map.
ISC honors awardees

The ISC Plenary Sessions will feature lectures by the Feinberg, Sherman and Willis Award recipients. The new ISC Stroke Research Mentor Award will be presented during the Junior Investigator Grant Proposal Mentoring Session. Six ISC abstract-based awards will be presented to the award recipients in the concurrent oral session in which their abstract is being presented. These ISC awards honor investigators for their stroke-related research. Abstract-based awards also provide opportunities for funding to attend ISC for junior investigators.

Junior Investigator Grant Proposal Mentoring Session
Room 310 A-C
Wednesday, Feb. 22
8:45-8:50 a.m.
Stroke Research Mentor Award
Louise McCullough, MD, PhD
University of Texas Houston
Health Science Center
Houston
This annual award recognizes the outstanding achievements in the mentoring of future generations of researchers in the field of cerebrovascular disease.

Opening Main Event, Hall C
Wednesday, Feb. 22
11:11-20 a.m.
David G. Sherman Lecture
E. Clarke Haley, Jr, MD
UVA Health System
Charlottesville, VA
“With a Little Help From My Friends: Seeking Consistent and Persuasive Evidence”

This award recognizes lifetime contributions to investigation, management, mentorship and community service in the stroke field.

Main Event, Hall C
Thursday, Feb. 23
10:35-11:00 a.m.
Thomas Willis Lecture
Jaroslaw Aronowski, PhD
University of Texas HSC-Houston
Houston
“Brain Damage and Repair After Intracerebral Hemorrhage”

This award recognizes contributions to the investigation and management of stroke — basic science.

Closing Main Event, Hall C
Friday, Feb. 24
11:33-11:53 a.m.
William M. Feinberg Award for Excellence in Clinical Stroke
Steven M. Greenberg, MD, PhD
Massachusetts General Hospital
Boston
“Big Pictures and Small Vessels”

This award honors contributions to the investigation and management of stroke — clinical science.

ISC ABSTRACT-BASED AWARDS
Clinical Rehabilitation and Recovery Oral Abstracts I, General Assembly C
Wednesday, Feb. 22
7-7:12 a.m.
Stroke Rehabilitation Award
Steven G. Cramer, MD
Irvine, CA
“A Phase Ib/IIb Double-Blind, Randomized, Placebo Controlled Study of GSK249320 for Stroke Recovery” (8)

This award encourages investigators to undertake or continue research and/or clinical work in the field of stroke rehabilitation and submit an abstract to the International Stroke Conference.

Emergency Care/Systems Oral Abstracts I, Grand Ballroom B
Wednesday, Feb. 22
7-7:12 a.m.
Stroke Care in Emergency Medicine Award
Kevin N. Sheehy, MD
New Haven, CT
“Long-Term Outcomes of Intravenous Glyburide in Patients 70 Years of Age or Under: Subgroup Analysis From the Phase II GAMES-RP Study of Patients With Large Hemispheric Infarction” (15)

This award encourages investigators to undertake or continue research in the emergent phase of acute stroke treatment and submit an abstract to the International Stroke Conference.

Basic and Preclinical Neuroscience of Stroke Recovery Oral Abstracts I
General Assembly B
Wednesday, Feb. 22
9:57-10:09 a.m.
Mordecai Y. T. Globus New Investigator Award in Stroke
Yejo Shi, MD, PhD
Pittsburgh, PA
“Endothelial-Targeted Overexpression of Heat Shock Protein 27 Ameliorates Rapid Blood Brain Barrier Impairment and Improves Long Term Outcomes After Ischemia and Reperfusion” (49)

This award recognizes Dr. Mordecai Y. T. Globus’ major contributions to research in cerebrovascular disease and his outstanding contributions to the elucidation of the role of neurotransmitters in ischemia and trauma; the interactions among multiple neurotransmitters; mechanisms of hypothemic neuroprotection; and the role of oxygen radical mechanisms and nitric oxide in brain injury.

Community/Risk Factors Oral Abstracts I, General Assembly B
Wednesday, Feb. 22
2:18-2:30 p.m.
Robert G. Siekert New Investigator Award in Stroke
Alessandro Biffi, MD
Boston
“APoE Genotype Modifies the Effect of Blood Pressure on Long Term Clinical Deterioration Following Intracerebral Hemorrhage” (54)

In recognition of Dr. Robert G. Siekert, founding chairman of the American Heart Association’s International Conference on Stroke and Cerebral Circulation, this award encourages new investigators to undertake or continue stroke-related research.

Vascular Biology in Health and Disease Oral Abstracts, General Assembly C
Friday, Feb. 24
8:45-8:57 a.m.
Stroke Basic Science Award
Yao Yao, PhD, Duluth, MN
“Periventricular Laminar Regulates Blood-Brain Barrier Integrity in an Age-Dependent Manner” (218)

This award encourages investigators to undertake or continue stroke research in basic or translational science, and it must be laboratory-based.

ISC 2018 AWARD NOMINATIONS

AHA Members: Submit your nominations for the ISC 2018 Feinberg, Sherman, Willis and Research Mentor Awards.
Nomination Period Opened: Wednesday, Feb. 22, 2017
Nomination Period Closes: Wednesday, June 21, 2017
Go to strokeconference.org/awardsandlectures for more information.

Wednesday, February 22, 2017 | Stroke News

Physician Career Opportunities in South Florida

Visit us at booth #837 for additional information

Memorial Healthcare System is expanding and seeking to fill several positions within the Memorial Cardiac and Vascular Institute, Memorial Neuroscience Center and Joe DiMaggio Children’s Hospital.

To see all open positions and full job descriptions and to submit your CV for consideration, please visit memorialphysician.com.

About Memorial Healthcare System
Memorial Healthcare System is one of the largest public healthcare systems in the United States. A national leader in quality care and patient satisfaction, Memorial has ranked 11 times since 2008 on nationally recognized lists of great places to work.
Memorial’s work environment has been rated by employers and physicians alike as an open-door, inclusive culture that is committed to safety, transparency, and above all, outstanding service to patients and families.

About South Florida
South Florida offers an urban/suburban lifestyle with an abundance of cultural and recreational amenities. With its miles of beautiful beaches, top-rated golf courses, museums and world-class dining, South Florida offers an excellent quality of life. In addition, Florida has no state income tax.

Additional information about Memorial Healthcare System can be found at mhs.net.

VISIT US AT BOOTH #837 FOR ADDITIONAL INFORMATION
THE POWER TO TREAT, BEAT AND PREVENT STROKE.

INCREASE VISIBILITY. + REDUCE DISABILITY.¹


PROVEN TO REDUCE DISABILITY¹
The Solitaire™ device is now indicated, following IV t-PA, to reduce stroke-related disability caused by Acute Ischemic Stroke (AIS).

BETTER BY DESIGN
The Solitaire™ Platinum device features true meaningful visualization with a unique parametric design to assist in the removal of clot from intracranial vessels.

STANDARD OF CARE
The 2015 AHA/ASA guidelines² recommend the use of endovascular treatment with stent retrievers, like the Solitaire™ device, following IV t-PA for eligible patients experiencing AIS.

VISIT MEDTRONIC BOOTH #433.

¹ S3064-K162539
Evolve the standard of care for cryptogenic stroke.

**Supported by Guidelines**
New 2016 ESC Atrial Fibrillation (AF) Guidelines now recommend long-term cardiac monitoring with Reveal LINQ ICM for cryptogenic stroke patients.³

**Monitor Longer, Detect More AF**
84 days is the median time to AF detection in cryptogenic stroke patients; continuous monitoring with Reveal™ ICM found 7 times more AF than standard monitoring.⁴

**Relay on Reveal LINQ ICM to Inform Your Clinical Decisions.**

**Brief Statement:** REVEAL LINQ™ LINQ11 Insertable Cardiac Monitor and Patient Assistant

**Indications:** REVEAL LINQ™ LINQ11 Insertable Cardiac Monitor
The Reveal LINQ Insertable Cardiac Monitor is an implantable, patient-activated and automatically-activated monitoring system that records subcutaneous ECG and is indicated in the following cases:
- Patients with clinical syndromes or situations at increased risk of cardiac arrhythmias
- Patients who experience transient symptoms such as dizziness, palpitation, syncope, and chest pain that may suggest a cardiac arrhythmia. This device has not been specifically tested for pediatric use.

**Patient Assistant:** The Patient Assistant is intended for unsupervised patient use away from a hospital or clinic. The Patient Assistant activates the data management feature in the Reveal Insertable Cardiac Monitor to initiate recording of cardiac event data in the implanted device memory.

**Contraindications:** There are no known contraindications for the implantation of the Reveal LINQ Insertable Cardiac Monitor. However, the patient’s medical condition may dictate whether or not a subcutaneous, chronically implanted device can be tolerated.

**Warnings/Precautions:** REVEAL LINQ™ LINQ11 Insertable Cardiac Monitor should avoid sources of electrotherapy. High sources of radiation, electrotherapeutic cautery, external defibrillation, phototherapy, therapeutic ultrasound and radio frequency addition to avoid electrical arrest of the device, and inappropriate sensing as described in the Medical Procedures and EMT Precautions Manual. MH Scans should be performed only in a specified MRI environment, under specified conditions as described in the Reveal LINQ MRI Technical Manual.

**Patient Assistant:** Operation of the Patient Assistant near sources of electromagnetic interference, such as cell phones, computer monitors, etc., may adversely affect the performance of this device.

**Potential Complications:** Potential complications include, but are not limited to, device rejection phenomena (including local tissue reaction), device migration, infection, and erosion through the skin. See the device manual for detailed information regarding the implant procedure, indications, contraindications, warnings, precautions, and potential complications/detrimental events. For further information, please call Medtronic at 1-800-628-2578 and for consult Medtronic’s website at www.medtronic.com.

**Caution:** Federal law (USA) restricts this device to sale by or on the order of a physician.
Dian a visit to the Science & Technology Hall to extend your clinical and professional education with interactive learning, new products and services and networking opportunities.

Showcasing more than 100 companies from 10 a.m. to 4 p.m. on Wednesday and Thursday, the hall will lead you diagnostic and monitoring equipment, clinical reporting and support services, new technology, staffing support services, education and more.

Also, be sure to stop by the American Association/American Stroke Association’s HeadQuarters in Booth 233. There, you can learn more about AHA/ASA initiatives, education, membership and publications.

HEADQUARTERS THEATER SCHEDULE

Wednesday, Feb. 22
10:15-10:45 a.m.
Meet the Managing Editors From Stroke and the International Journal of Stroke
11 a.m.-11:25 a.m.
CPC: A Case of Asymptomatic Carotid Stenosis in a Hypertensive Patient
12:45-1:15 p.m.
Stroke Center Stars: The Tiered System of Stroke Care
Thursday, Feb. 23
10:15-10:45 a.m.
OSO PhD, Councils JP
10:45-11:15 a.m.
Apollo Moderated Sessions
12:15-1:30 p.m.
The Simulation Zone, Booth 815, features three interactive displays: Body Interact, NeuroVR™ and Apollo.

SIMULATION ZONE

The Simulation Zone, Booth 815, features three interactive displays: Body Interact, NeuroVR™ and Apollo.

Body Interact is a 3-D immersive training platform that virtualizes acute and chronic neurovascular disorders. Participants evaluate lifelike virtual patients and “treat” a variety of conditions in a clinical environment with dynamic monitoring, dialoging, diagnostic testing, imaging, drugs, intervention options and performance debriefing.

NeuroVR™ is a virtual reality neurosurgery simulator allowing attendees to practice open cranial and endoscopic brain surgery procedures in a realistic training environment. Options range from essential skills to advanced procedures. The program technology provides lifelike procedures. The program technology provides lifelike scenarios that include acute stroke and other neuromotor conditions.

For more details about the Simulation Zone, see “Simulation Zone expands to feature three programs” on page 13 of this issue.

SIMULATION ZONE SCHEDULE

Wednesday, Feb. 22
Body Interact Moderated Sessions
12:30 p.m. - 1:2 p.m.
Apollo Moderated Sessions
1:30 p.m. - 2:30 p.m.
NeuroVR™ Moderated Sessions
12 p.m. - 1:30 p.m.
Thursday, Feb. 23
Body Interact Moderated Sessions
12:30 p.m. - 1:2 p.m.
Apollo Moderated Sessions
1:30 p.m. - 2:30 p.m.
NeuroVR™ Moderated Sessions
12 p.m. - 1:30 p.m.
Science & Technology Hall

AHA/ASA HeadQuarters

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Hospital — Ohio's first Comprehensive Stroke Center certified by The Joint Commission

Hospital is also ranked as one of "America's Best Hospitals" for neurology and neurosurgery in 2016-17 by U.S. News & World Report.

OhioHealth Stroke Network was the first telemedicine program to provide access to expert professionals for neurohospitalist opportunities.

Saint Luke's Marion Bloch Neuroscience Institute is a pioneering approach, we are a global leader in medical imaging, laboratory diagnostics, clinical applications. One of the newest and most complex brain and spine cases.

Tenet South Florida Advanced Neuroscience Network includes 40 specialists in outpatient practices and 10 award-winning hospitals across Miami, Fort Lauderdale and Palm Beach. Our teams provide comprehensive neuroscience management services and inpatient rehabilitation for patients recovering from acute stroke, traumatic brain injury and spinal cord injury. We help stroke units.

The St. John Heyman Stroke Center is Joint Commission-certified as one of northeastern Oklahoma’s three stroke centers. ASLS® and its unique neurologic support algorithm, paramedics and EMTs powered ETA. Powered by a proprietary decision platform that delivers real-time data from triage to the patient, empowering paramedics to make critical decisions earlier and more accurately.

The University of Nottingham Stroke Trials Team has a new standard to evaluate stroke risk and inform key cerebral vessel hemodynamics, establishing a new model to evaluate stroke risk and inform patient care.

The University of Miami Gordon Center is the largest university system in the U.S. with 12 academic medical centers, 16 community hospitals, 11 hospital-affiliated clinics, 2000 physicians, more than 300,000 hospital discharges every year and 100,000 patient visits every month. With a disease management program, we're committed to helping you assemble the best medical team for your patients.

The University of Texas System is one of the largest public university systems in the U.S. with eight academic and health science institutions, 25 medical schools, 80,000 students, more than 350,000 unique patient visits every year and more than 3.5 million community health care visits annually.

Virtual Medical Staff is a comprehensive suite providing physician staffing, telemedicine technology and the technical support needed to improve patient care with specialty care and consultants.

World Stroke Organization is an independent, non-governmental, international organization in the fight against stroke. Today, the World Stroke Organization is the world’s largest, most active and fastest-growing advocate for stroke prevention, awareness and care.

Worldclass Medical Group (309) 346-2843

Worldclass Medical Group is the largest health system in the world, serving 4.5 million patients every year through 250 hospitals and 4,700 care centers. Worldclass Medical Group is a leader in healthcare quality and safety, offering over 300,000 procedures every day.

Virtual Medical Staff provides a customized end-to-end Mobile Stroke Program, we’re committed to helping you assemble the best medical team for your patients.

Visa Inc. (832) 580-5805

Visa develops and markets the MIVI software for Quantitative Magnetic Resonance Angiography (QMRA). Used in the OVDI study, this four-minute test with VASI has a customized end-to-end Mobile Stroke Program, we’re committed to helping you assemble the best medical team for your patients.

WellStar Medical Group is an integrated system providing physician staffing, telemedicine technology and the technical support needed to improve patient care with specialty care and consultants.

WellStar Medical Group (404) 639-8888

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Simulation Zone expands to feature three programs

Three Simulation Zone programs are helping attendees learn new skills or hone the ones they already have in managing a range of complex neurovascular disorders. Learners can practice neurosurgical techniques, advance their clinical decision-making skills and provide evidence-based care to acute stroke patients.

The expanded Simulation Zone includes two new activities, with a total of 14 interactive sessions. Some sessions will introduce clinical scenarios developed by AHA/ASA stroke professionals, which can be purchased for use on personal computers after the conference.

“Simulation is an important tool that is helping our providers gain skills and expertise that would not be possible without simulation,” said Paul St. Laurent, DNP, APRN, AHA science and medicine specialist, lifelong learning. “We are seeing simulation growth in medical schools, nursing programs and as a tool for continuing education. This is good experience for established providers who need to learn new skills or improve their skills.”

Body Interact is a 3-D immersive training platform that virtualizes acute and chronic neurovascular disorders. Participants evaluate lifelike virtual patients and “treat” a variety of conditions in a clinical environment with dynamic monitoring, dialoguing, diagnostic testing, imaging, drugs, intervention options and performance debriefing.

NeuroVR™ is a virtual reality neurosurgery simulator where attendees can practice open cranial and endoscopic brain surgery procedures in a realistic training environment. Options range from essential skills to advanced procedures. The program technology provides lifelike renderings of brain tissue, blood vessels and tumors, realistic sounds and tactile feedback.

Apollo is a technologically advanced, mannequin-based simulator that sets the standard in appearance, realism and physiology. It uses preprogrammed clinical experiences containing evidence-based training scenarios that include acute stroke and other neurovascular conditions.

“When NeuroVR allows for an individual to learn and refine neurosurgical skills, Body Interact and Apollo promote the development of team-based care. There is a lot of growth and research in the area of using a team to provide optimal care, so the scenarios engage members of the care team with various types of clinical expertise,” St. Laurent said. Professionals such as physicians, nurses and respiratory therapists all play a role in the team simulation.

“When the sessions are all moderated by stroke experts, attendees have the opportunity to learn and interact with the moderator. We want to generate good dialogue between experts and attendees,” he said.

All registered attendees can participate in the 30-minute programs, which will take place in the Science & Technology Hall, Booth 815. Body Interact will be presented three times each day, while NeuroVR™ and Apollo will be presented twice daily. No registration is required.

Call for Science ISC 2018 and Nursing Symposium

SESSION IDEAS
Suggested Session Submitter Opened: Monday, Feb. 20, 2017
Suggested Session Submitter Closes: Monday, March 20, 2017

ABSTRACTS
Submission Opens: Wednesday, May 10, 2017
Submission Closes: Tuesday, Aug. 1, 2017

LATE-BREAKING CLINICAL TRIALS, LATE-BREAKING BASIC SCIENCE AND ONGOING CLINICAL TRIALS ABSTRACTS SUBMISSIONS ARE NOW OPEN
Submission opens: Wednesday, Sept. 27, 2017
Submission Closes: Wednesday, Oct. 25, 2017

The link to submit abstracts and/or session ideas can be found at strokeconference.org/submitscience on the applicable date above. Start planning now for the International Stroke Conference 2018, Jan. 24–26 in Los Angeles.
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- Improve outcomes by decreasing time to appropriate treatment
- Improve patient access by helping patients receive the right therapy at the right time
- Enhance the patient experience by advancing a patient centered care continuum

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- Pinpoint gaps in processes
- Establish root causes
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- Identify solutions to optimize workflow

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Space is limited. Sign up today. medtronic.event.com/d/fvqlp1Q or visit the booth.

Medtronic
New 2016 ESC AF Guidelines now recommend cardiac monitoring with Reveal LINQ™ ICM in cryptogenic stroke patients.  
*Endorsed by the European Stroke Organisation

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**Medtronic.com/CryptogenicStroke**

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**References**


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**Brief Statement: Reveal LINQ™ LNQ11 Insertable Cardiac Monitor and Patient Assistant**

**Indications: Reveal LINQ LNQ11 Insertable Cardiac Monitor.** The Reveal LINQ insertable cardiac monitor is an implantable patient-activated and automatically-activated monitoring system that records subcutaneous ECG and is indicated in the following cases: Patients with clinical syndromes or situations at increased risk of cardiac arrhythmias.

**Patient Assistant:** The Patient Assistant is intended for unsupervised patient use away from a hospital or clinic. The Patient Assistant activates the data management feature in the Reveal™ insertable cardiac monitor to initiate recording of cardiac event data in the implanted device memory.

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**Contraindications:** There are no known contraindications for the implant of the Reveal LINQ insertable cardiac monitor. However, the patient’s particular medical condition may dictate whether or not a subcutaneous, chronically implanted device can be tolerated. Potential Complications: Potential complications include, but are not limited to, device rejection phenomena (including local tissue reaction, device migration, infection, and erosion through the skin). See the device manual for detailed information regarding the implant procedure, indications, contraindications, warnings, precautions, and potential complications/adverse events. For further information, please call Medtronic at 1-800-529-2514 and/or consult the Medtronic website at medtronic.com.

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**Caution:** Federal law (USA) restricts this device to sale by or on the order of a physician.
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