



American Heart Association | American Stroke Association®

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INTERNATIONAL **STROKE** CONFERENCE **2017**
strokeconference.org



Stroke News

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Wednesday, February 22, 2017



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Neurologists, cardiologists debate interventional stroke care



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.

Care for caregivers an essential strategy

Caregivers play a key role in stroke outcomes. Caregivers who are actively involved, emotionally positive and physically healthy can have a positive impact on patient recovery and rehabilitation.

"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."

Supporting the health and well-being of caregivers and improving communication are two viable strategies for improving patient outcomes, said Bakas, professor and Jane E. Procter Endowed Chair at the University of Cincinnati College of Nursing.

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

see **CAREGIVERS**, page 13

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.

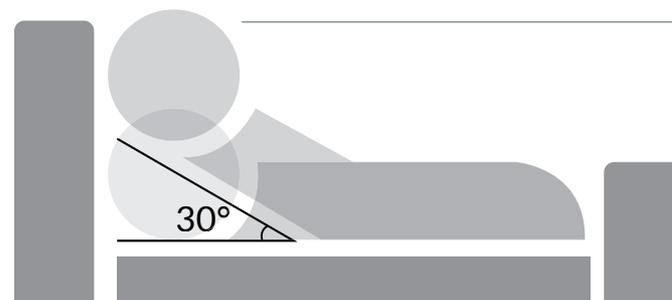
"Cardiologists understand stroke because many of our patients are at risk for stroke. Cardiologists understand the need for urgent revascularization, and cardiologists are used to taking care of patients who need urgent procedures," he said. With more than 8,000 currently practicing interventional cardiologists 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 interventional

see **DEBATE**, page 13

HEAD POSITION IN STROKE TRIAL



During the first 24 hours following a stroke, which is better: 30-degree incline or lying flat?

Studies using transcranial Doppler show changes in the blood flow to the brains of stroke patients lying flat compared to reclining at a 30-degree angle for the first 24 hours after they suffered a stroke. "The big question is whether that is enough to reduce the damage that occurs at the time of a blockage in the brain for acute ischemic stroke," said lead author Craig S. Anderson, MD. He will present the *Head Position in Stroke Trial* results during the **Opening Main Event I on Wednesday**.



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.

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

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Limited space remains.

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 WSO president and senior professor of neurology at the University of Heidelberg in Heidelberg, Germany.

Treatment effectiveness often varies by geography, how quickly patients are identified and how soon 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.

“We’ve had a lot of success using tPA for the treatment of acute ischemic stroke, but access to acute therapies remains a problem, even in high-income countries,” said Sacco, who is professor and chairman of the

Department of Neurology at the University of Miami Leonard M. Miller School of Medicine in Miami, Florida. “This session features a great panel of international speakers to discuss approaches to care.”

Developing acute stroke care protocols across the economic spectrum is important. M. Patrice

Lindsay, PhD, Institute of Health Policy, Management and Evaluation at the University of Toronto in Canada, will explain the use of the WSO Tool Kit, a resource that’s helping countries at all income levels develop evidence-based stroke care protocols with available resources.

Sheila Martins, MD, neurologist at the Hospital de Clínicas de Porto Alegre, Porto Alegre, Brazil, will discuss her treatment approach. Although levels of stroke treatment in South America vary greatly, Brazil can be a model of care for other nations.

“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



Ralph L. Sacco, MS, MD



Werner Hacke, MD, PhD

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 it leaves many people behind,” Hacke said, adding that most regions of the world lack access to basic technology, such as CT scanners. “This session addresses these challenges in stroke care, as well as progress around the world. It will be valuable to practitioners, policymakers, nurses and anybody interested in improving the treatment of acute stroke.” ■

UPCOMING SESSION

Implementation of Acute Stroke Therapies Worldwide: Status, Possibilities and Obstacles

An AHA/ASA and World Stroke Organization Joint Session

Thursday, 8:45-10:15 a.m.
Grand Ballroom A

Hearty Humor by Jonny Hawkins



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

QUESTION OF THE DAY

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.



Gayenell Magwood
Charleston, South Carolina

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.



Alexa Desai
Chicago, Illinois

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.



Lisa Davis
Austin, Texas

‘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



Bruce Ovbiagele, MD, MSc

“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.” ■

UPCOMING SESSION

Game of Strokes
Thursday, 1:30-3 p.m.
Grand Ballroom C



Stroke News

Wednesday, Feb. 22, 2017

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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, professor and chairman of neurology at the Medical University of South

Carolina, Charleston. "We want to minimize obstruction in communication between the speaker and the audience."

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

8:45-9:07 a.m.
Exosomes as a Restorative Treatment for Stroke
Speaker: Michael Chopp, PhD

9:08-9:30 a.m.
Sex Differences in Stroke: From Molecules to Women
Speaker: Patricia D. Hurn, PhD, RN

9:31-9:53 a.m.
Rebuilding Function after Stroke
Speaker: Robert J. Adams, MD

9:54-10:15 a.m.
Penumbra Selection for Reperfusion Therapy: It's About Brain!
Speaker: Stephen M. Davis, MD



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 "Penumbra 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. ■

Follow ISC on Twitter



Use Twitter to tweet your questions/comments or talk about what is happening at ISC 2017. Use #ISC17.

UPCOMING SESSION

CED Talks
(Cerebrovascular Education and Discovery)

Thursday, 8:45-10:15 a.m.
Grand Ballroom C

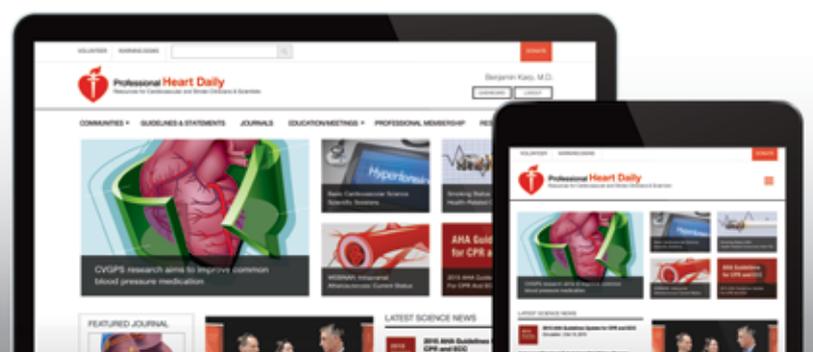
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Bridge Over Troubled Water: NIH guidelines help connect basic, translational research

New 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 supporting the proposed research.
- Detail robust experimental design to produce rigorous and unbiased results.
- Discuss relevant biologic variables.
- Authenticate key biological and/or chemical resources.

The new guidelines are intended to add levels of transparency to improve the quality



(From left to right) Francesca Bosetti, PharmD, PhD, Louise D. McCullough, MD, PhD, and Lauren H. Sansing, MD, MSTR, answer audience questions during “Bridge Over Troubled Water: Issues in Translational Stroke Research.”

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. ■

Poster tours, sessions kick off today

ISC 2017 offers two types of poster sessions: professor-led poster tours and one-on-one individual Q&A poster presentations.

Choose from 10 Professor-Led Poster Tours from 5:15 p.m. to 6:15 p.m. today in Hall E. Expert moderators will lead these tours, which are organized by category, and they will provide a short presentation and Q&A with each of the poster authors in that section. To take part, simply review the Poster Abstracts section of the Final Program (page 50) or view the Moderated Poster Sessions on the Mobile Meeting Guide app. Decide which section/category of posters you would like to attend. Then, at 5:10 p.m., arrive at the correspondingly numbered “Section” sign for your selected section/category. Headsets will be available for ease of listening to the presenters.

During the Regular Poster Sessions, poster 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 Tours. 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. ■

Professor-Led Poster Tours

5:15-6:15 p.m.

Posters WMP1–WMP120

- Acute Endovascular Treatment Moderated Poster Tour I
- Acute Neuroimaging Moderated Poster Tour
- Aneurysm and SAH and Other Neurocritical Management Moderated Poster Tour
- Basic and Preclinical Neuroscience of Stroke Recovery Moderated Poster Tour
- Community/Risk Factors Moderated Poster Tour I
- Diagnosis of Stroke Etiology Moderated Poster Tour
- Experimental Mechanisms and Models Moderated Poster Tour
- Health Services, Quality Improvement and Patient-Centered Outcomes Moderated Poster Tour I
- Intracerebral Hemorrhage Moderated Poster Tour
- Nursing and Pediatric Stroke Moderated Poster Tour

Regular Poster Sessions

6:15-6:45 p.m.

Posters WP1–WP451

These posters are not included in the 5:15 p.m. Professor-Led Poster Tour Session.

- Acute Endovascular Treatment Posters I
- Acute Neuroimaging Posters I
- Acute Nonendovascular Treatment Posters I
- Basic and Preclinical Neuroscience of Stroke Recovery Posters I
- Cerebral Large Artery Disease Posters I
- Clinical Rehabilitation and Recovery Posters I
- Community/Risk Factors Posters I
- Diagnosis of Stroke Etiology Posters I
- Experimental Mechanisms and Models Posters I
- Health Services, Quality Improvement and Patient-Centered Outcomes Posters I
- In-Hospital Treatment Posters I
- Intracerebral Hemorrhage Posters I
- Nursing Posters I
- Preventive Strategies Posters I
- Vascular Biology in Health and Disease Posters I
- Vascular Cognitive Impairment Posters I
- Late-Breaking Science Posters I

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 abstract 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 C. Cramer, MD

Irvine, CA



“A Phase 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. Sheth, 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

Yejie 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 hypothermic 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 Cognitive Impairment Oral Abstracts, Room 310 A-C

Wednesday, Feb. 22

4:06-4:18 p.m.

Vascular Cognitive Impairment Award

Jennifer L. Dearborn, MD

New Haven, CT



“Nutrition and Cognitive Decline Over 21-Years: Results From the Atherosclerosis Risk in Communities Study (ARIC)” (95)

This award encourages investigators to undertake or continue research or clinical work in the field of vascular cognitive impairment and submit an abstract to the International Stroke Conference.

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



“Pericytic Laminin 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. ■

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

memorialphysician.com

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.

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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.

CAUTION: Federal (USA) law restricts this device to sale, distribution and use by or on the order of a physician. Indications, contraindications, warnings and instructions for use can be found in the product labeling supplied with each device.

The Solitaire™ Revascularization Device is indicated for use to restore blood flow in the neurovasculature by removing thrombus for the treatment of acute ischemic stroke to reduce disability in patients with a persistent, proximal anterior circulation, large vessel occlusion, and smaller core infarcts who have first received intravenous tissue plasminogen activator (IV t-PA). Endovascular therapy with the device should be started within 6 hours of symptom onset.

The Solitaire™ Revascularization Device is indicated to restore blood flow by removing thrombus from a large intracranial vessel in patients experiencing ischemic stroke within 8 hours of symptom onset. Patients who are ineligible for IV t-PA or who fail IV t-PA therapy are candidates for treatment.

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¹ 510(k) K162539

² Powers WJ, Derdeyn CP, Biller J, et al. 2015 American Heart Association/American Stroke Association Focused Update of the 2013 Guidelines for the Early Management of Patients With Acute Ischemic Stroke Regarding Endovascular Treatment: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. *Stroke*. Oct 2015;46(10):3020-3035.

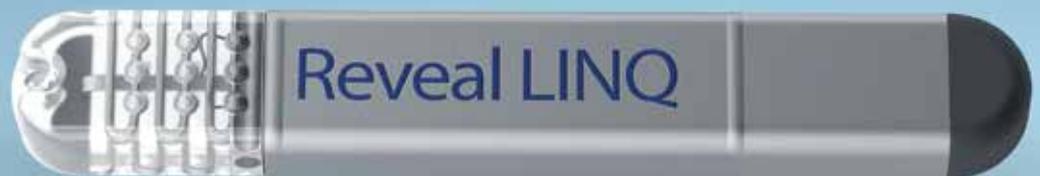
³ Kirchhof P, et al. *Eur Heart J*. 2016 Oct 7;37(38):2893-2962. Epub 2016 Aug 27.

⁴ Sanna T, Diener HC, Passman RS, et al. Cryptogenic stroke and underlying atrial fibrillation. *N Engl J Med*. June 26, 2014;370(26):2478-2486.



MAKE THE LINQ.

RAISE THE BAR.



Reveal LINQ™

Insertable Cardiac Monitoring System

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

RELY ON REVEAL LINQ ICM TO INFORM YOUR CLINICAL DECISIONS.

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 • 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 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.

WARNINGS/PRECAUTIONS: REVEAL LINQ™ LNQ11 Insertable Cardiac Monitor: Patients with the Reveal LINQ Insertable Cardiac Monitor should avoid sources of diathermy, high sources of radiation, electrosurgical cautery, external defibrillation, lithotripsy, therapeutic ultrasound and radiofrequency ablation to avoid electrical reset of the device, and/or inappropriate sensing as described in the Medical procedure and EMI precautions manual. MRI scans should be performed only in a specified MR 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 cellular 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/adverse events. For further information, please call Medtronic at 1-800-328-2518 and/or 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.

WE'RE TRANSFORMING STROKE CARE, TOGETHER.

Medtronic



Science & Technology Hall showcases must-see learning opportunities

Plan 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 lets you investigate 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 Heart 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.-12 p.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 Center Certification

Thursday, Feb. 23

10:15-10:45 a.m.
OSO PhD, Councils JP

12:45-1:15 p.m.
Stroke Systems of Care

2:15-2:45 p.m.
Credit Claiming for ISC 2017 and Other On Demand Education Opportunities

MORE CAN'T-MISS OPPORTUNITIES

Health Tech Pavilion: The Center for Health Technology & Innovation (ahahealthtech.org), a new Center of Excellence of AHA, is focused on building and harnessing health technologies and relationships in pursuit of innovative and scalable solutions across the health continuum. Through the center, the AHA will work to apply expertise in science, health education and its powerful brand to help the health technology market fulfill a basic promise: that applying technology solutions to health care can improve outcomes, lower cost and increase engagement.

Health tech companies with shared interests can join the Health Tech Collaborative, which helps companies align and integrate their technology with AHA resources to encourage development and adoption of digital healthcare solutions. These companies can participate in

market partnerships, forums and knowledge-sharing platforms to research, share and collaborate on exciting healthcare solutions with established companies and startups.

Three such technology companies will be showcasing their products and services in the Health Tech Pavilion. Stop by Booth 803 to learn more about Constant Therapy, TupeloLife and Wellth.

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, dialoguing, 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 renderings of brain tissue, blood vessels and tumors, realistic sounds and tactile feedback.

And **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.

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. | 2 p.m. | 3 p.m.

Apollo Moderated Sessions
1 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. | 2 p.m. | 3 p.m.

Apollo Moderated Sessions
1 p.m. | 2:30 p.m.

NeuroVR™ Moderated Sessions
12 p.m. | 1:30 p.m.

SCIENCE & TECHNOLOGY HALL HOURS

Wednesday, Feb. 22

10 a.m.-4 p.m.

Thursday, Feb. 23

10 a.m.-4 p.m.

POSTER HALL

Be sure to visit the Poster Hall, located adjacent to the Science & Technology Hall, in Hall E, Level 1, to see more than 500 posters each day.

EXPERT THEATER, BOOTH 541

The Expert Theater offers targeted educational programs and features products and therapeutic treatments from industry supporters. Enjoy a complimentary lunch provided by the American Heart Association/American Stroke Association.

SCHEDULE

Wednesday, Feb. 22

12:10-12:40 p.m.
Introduction to ENRICH: A Randomized Control Trial in ICH
Supporter Nico Corporation

Thursday, Feb. 23

12:10-12:40 p.m.
The Link Between Cryptogenic Stroke and Atrial Fibrillation
Supporter Medtronic, Inc.

*Provided to attendees by the AHA/ASA. These events are not part of the official ISC 2017 as planned by the AHA Committee on International Stroke Programming.

UNOFFICIAL SATELLITE EVENT*

The USE symposium is an additional opportunity for learning.*

Wednesday, Feb. 22
7 p.m.

PFO Closure: Addressing the Unmet Need for Reducing the Risk of Recurrent Ischemic Stroke
Four Seasons Hotel Houston
Sponsored and supported by St. Jude Medical

* This event is not part of the official International Stroke Conference 2017 as planned by the AHA Committee on International Stroke Programming.

2017 ISC EXHIBITORS

A

ACRM American Congress of Rehabilitation Medicine 702
acrm.org

ACRM | American Congress of Rehabilitation Medicine is an organization of rehabilitation professionals dedicated to serving people with disabling conditions by supporting research that promotes health, independence, productivity and quality of life, and meets the needs of rehabilitation clinicians and people with disabilities.

Advanced Cooling Therapy 824
Advanced Cooling Therapy develops innovative temperature management products. The ECD is a single use, fully enclosed triple lumen system that is inserted into the esophagus as quickly as an orogastric tube to warm or cool patients. Patient temperature is regulated by the chiller machine's Foley or rectal temperature probe.

AHA/ASA HeadQuarters 233
HeadQuarters is your comprehensive information and resource center for all things American Heart Association/American Stroke Association. Here, you can learn about the latest science and guidelines. You also can explore the association's many programs, causes and initiatives, which include Lifelong Learning, Research, Patient Education, Professional Membership and Scientific Publications.

AHC Media 611
AHC Media provides medical information, publications and continuing education to healthcare professionals in order to improve patient care and outcomes.

American Association of Neuroscience Nurses 204
AANN.org

The American Association of Neuroscience Nurses is committed to working for the highest standard of care for neuroscience patients by advancing the science and practice of neuroscience nursing. AANN accomplishes this through continuing education, information dissemination, standard setting and advocacy on behalf of neuroscience patients, families and nurses.

American Board of Neuroscience Nursing 202
ABNNCertification.org

The American Board of Neuroscience Nursing is the independent, not-for-profit corporation established to design, implement and evaluate a certification program for professional nurses involved in the specialty practice of neuroscience nursing and its subspecialties. The CNRN and SCRIN certification and recertification programs are overseen by ABNN.

Amgen 834
amgen.com

Amgen is committed to unlocking the potential of biology for patients suffering from serious illnesses by discovering, developing, manufacturing and delivering innovative human therapeutics. A biotechnology pioneer since 1980, Amgen has reached millions of patients around the world and is developing a pipeline of medicines with breakaway potential.

Apex Innovations 308
ApexInnovations.com

Improve stroke outcomes with Hemispheres® 2.0 Stroke Competency Series. The series provides current, consistent stroke basics to advanced, guideline-directed education to achieve/maintain accreditation for personal development, orientation or annual competency. Learn and retain more with amazing graphics, interactivity and quizzes. CE credit, reporting. Press NIHSS. Call and get ready to be impressed!

Asahi Intecc USA, Inc. 522

Asahi Intecc is a medical device company focused on delivering clinically unique devices used in vascular procedures by interventional cardiologists, interventional radiologists, vascular surgeons and neurovascular surgeons. Asahi will leverage its four core competencies to develop device-based solutions targeting specific niches where Asahi can achieve a market-leading position.

Avizia 608

Avizia is redefining healthcare by leading the telemedicine revolution with the only complete telehealth platform. Avizia offers everything needed to quickly and securely implement enterprise telehealth, including an integrated and scalable workflow software solution supporting 20+ service lines and award-winning point-of-care telemedicine carts and peripheral devices.

B

BioTelemetry Healthcare, CardioNet/Mednet 408
gobio.com

At BioTelemetry, we fuel the advancement of mobile health service by providing leading technology and services that help healthcare providers monitor and diagnose patients and clinical research subjects in a more efficient, accurate and cost-effective manner.

Blue Sky Neurology 802
blueskyneurology.com

Blue Sky Neurology is an innovative neurology private practice that provides the full spectrum of neurological services. BSN has physicians involved in all phases of neurological illness: acute neurological emergencies, neurological support for hospitalized patients, outpatient care for those with new or ongoing neurological conditions and teleneurology services.

Boehringer Ingelheim Pharmaceuticals, Inc. 823
us.boehringer-ingelheim.com

Boehringer Ingelheim is one of the world's 20 leading pharmaceutical companies. With headquarters in Germany, the company operates globally with more than 50,000 employees. The family-owned company has been committed to researching, developing, manufacturing and marketing novel treatments for human and veterinary medicine. Follow us on Twitter @BoehringerUS.

Bristol Myers Squibb / Pfizer 511

Pfizer and Bristol-Myers Squibb are partners in a worldwide collaboration. This global alliance combines both Bristol-Myers Squibb's and Pfizer's long-standing strengths in drug development and commercialization.

C

Centre for Neuro Skills 425
neuroskills.com

For over 35 years, Centre for Neuro Skills has been recognized as a world leader for providing intensive post-acute community-based brain injury rehabilitation. Our patient-centered programs maximize treatment effect, learning generalization and learning stability in real-world settings. For additional information about CNS, call 800-922-4994.

Chiesi 616
chiesiusa.com

Chiesi USA Inc., with headquarters in Cary, NC, is a specialty pharmaceutical company focused on commercializing products for the hospital and adjacent specialty markets. Chiesi USA Inc. is a wholly-owned subsidiary of Chiesi Farmaceutici S.p.A. For more information, please visit our website or call our customer service department at 888-466-6505.

Clinical Data Management 423
c-d-m.com

Clinical Data Management puts the right information into the hands of the right individuals at the right time. For over 30 years, CDM has designed and supported nationally and internationally acclaimed medical data software systems. Collect, sort, analyze and interpret data in ways that are important to your organization.

Codman Neuro 304

Codman Neuro is a global neurosurgery and neurovascular company that offers a broad portfolio of devices for hydrocephalus management, neuro intensive care and cranial surgery, as well as aneurysm coils, vascular reconstruction devices and other technologies used in the endovascular treatment of cerebral aneurysms and stroke.

Constant Therapy 803
constanttherapy.com

Constant Therapy provides science-based digital brain therapy to stroke survivors and the clinicians who treat them. We have served over 35 million brain exercises in the past 24 months and house the world's largest database of evidence for which cognitive and speech exercises work for stroke survivors.

Corazon, Inc 826
corazoninc.com

Corazon Inc. is a national leader in neurosciences, cardiovascular and orthopedic program development through consulting, patient management software, recruitment and interim management services. Corazon's CEREBROS™ Neurovascular Information System enhances stroke programs' ability to let clinicians truly focus on patient care.

CSL Behring 710
cslbehring.com

CSL Behring is a leading global biopharmaceutical company with a broad range of innovative plasma-derived and recombinant therapies. For over a century, we have been driven by our promise to save lives. Today, our therapies include those to treat hereditary angioedema, coagulation disorders and primary immune deficiencies, among others.

D

DNV GL - Healthcare 219
dnvglhealthcare.com

DNV GL - Healthcare is committed to supporting the development and continual improvement of healthcare quality and patient safety. Our team of specialists has an innovative, advanced approach to help healthcare providers achieve excellence through accreditation, management system certification and training.

DWL USA Inc 520
dwl.us

Currently, more than 8,000 DWL Transcranial Doppler Systems are installed in more than 120 countries. They perform reliable Neurosonology every day of the week for many specialists. If you have a need for TCD, stop by and see all we have to offer at DWL USA Inc.

E

Edge Therapeutics, Inc. 732
edgetherapeutics.com

Edge Therapeutics is a clinical stage biotechnology company. EG-1962, our lead product candidate, is being studied to potentially improve outcomes after aneurysmal subarachnoid hemorrhage. Edge's second candidate, EG-1964, is being developed to prevent recurrence of chronic subdural hematoma. Both products utilize Edge's Precisa™ technology enabling site-specific, sustained drug exposure.

Elsevier 211
elsevierhealth.com

Elsevier, a leading publisher of health science publications, advances medicine by delivering superior reference information and decision support tools to doctors, nurses, health practitioners and students. With an extensive media spectrum — print, online and handheld — we are able to supply the information you need in the most convenient format.

Join the OhioHealth Vascular Neurology Team



Join OhioHealth Riverside Methodist Hospital — Ohio's first Comprehensive Stroke Center certified by The Joint Commission

- + Physicians will support our new \$321-million OhioHealth Neuroscience Center, a world-class destination for patients with neurological conditions
- + Ranked as one of "America's Best Hospitals" for neurology and neurosurgery in 2016-17 by *U.S. News & World Report*
- + Riverside Methodist Hospital treats the most stroke patients in Ohio, and meets or exceeds national benchmarks and standards for stroke care
- + We are the first in Ohio and second in the nation to use Solitaire Clot Retriever™ and are active in many research clinical trials
- + OhioHealth Stroke Network was the first telemedicine program in the state
- + Located in Columbus, Ohio — the 15th largest city in the nation

Meet with OhioHealth Neuroscience recruiters at International Stroke Conference Booth #209, or contact Chad Miller, MD at (614) 905.2698 or chad.miller2@ohiohealth.com.

BELIEVE IN WE™  OhioHealth

For more information visit OhioHealth.com/Stroke

Providence St. Joseph Health 707
 Providence is affiliated with Swedish Health Services, Pacific Medical Centers and Kadlec, expanding each organization's ability to carry out its individual mission. The combined scope of services includes 35 hospitals and more than 600 medical clinics in diverse communities in Alaska, California, Montana, Oregon, and Washington.

Pulsara 719
 Who says an acute care management solution has to be complicated? Pulsara is a platform that performs like an app; providing dense data and motivating benchmarks. The easy-to-adopt, HIPAA-compliant platform links up the entire Emergency Response Team with a tap — eliminating unnecessary pagers, phone calls, operators, faxes and emails.

REACH Health Inc. 517
 reachhealth.com
 REACH Health's enterprise telemedicine software combines A/V with specialty-specific clinical workflow and documentation to recreate the bedside experience for the doctor and patient. REACH Health pioneered one of the first telestroke programs and continues to lead innovation, providing advanced clinical solutions that improve patient access and outcomes.

Rimed USA, Inc. 122
 rimed.com
 Rimed has been leading the Transcranial Doppler systems market for over 30 years. TCD is an invaluable examination and allows real-time monitoring of cerebral blood flow velocity changes. Our products help clinicians improve patient care in over 100 countries, with 5,000 installations in stroke departments, neurology, NICU, neurosurgery and more.

RosmanSearch, Inc. 203
 rosmansearch.com
 RosmanSearch, Inc. is a targeted physician recruitment firm that serves the needs of the neurosurgical and neurological communities. Our mission is to place quality physicians with quality practices, academic departments and hospitals nationwide.

Saint Luke's Marion Bloch Neuroscience Institute 1006
 Saint Luke's Marion Bloch Neuroscience Institute is located in Kansas City, MO, and is a part of the Saint Luke's Health System. The institute has a nationally ranked stroke team and employs some of the most accomplished neuroscience experts who help patients with the most complex brain and spine cases.

Samsung 633
 neurologica.com
 NeuroLogica, a subsidiary of Samsung, brings the power of innovative imaging to your patients. With an expertise in CT design, NeuroLogica transforms fixed CT technologies into portable platforms used in many different clinical applications. One of the newest and most exciting applications has been in mobile stroke units.

Siemens Healthineers 933
 usa.siemens.com/healthineers
 Siemens Healthineers is committed to becoming the trusted partner of healthcare providers worldwide, enabling them to improve patient outcomes while reducing costs. Driven by our legacy of engineering excellence and our pioneering approach, we are a global leader in medical imaging, laboratory diagnostics, clinical IT and services.

Simulation Zone 815
 Three activities will be offered in the Simulation Zone at ISC. Body Interact is a 3-D immersive screen based simulation training platform that provides attendees with realistic user experience with a virtual patient. Body Interact offers participants the opportunity to evaluate and manage a variety of acute stroke conditions. NeuroVR™ is an advanced virtual reality neurosurgery simulator that provides learners with an opportunity to practice open cranial and endoscopic brain surgery skills and procedures in a realistic training environment. Apollo is an advanced mannequin based high-fidelity simulator that uses preprogrammed Simulated Clinical Experiences and provides learners with the opportunity to experience a life-like clinical experience

Society of NeuroInterventional Surgery 107
 snisonline.org
 The Society of NeuroInterventional Surgery (SNIS) is a scientific and educational association dedicated to advancing the specialty of neurointerventional surgery through research, standard-setting and education, and advocacy in order to provide the highest quality of patient care in diagnosing and treating diseases of the brain, spine, head and neck.

Specialists On Call 318
 specialistsoncall.com
 SOC is the nation's most experienced provider of physician telemedicine consultations, offering 24x7 coverage and serving over 380 hospitals nationwide. Through its neurology, psychiatry and critical care services, SOC delivers board-certified, U.S.-trained specialty physicians directly to the patient's bedside.

Spectrum Health 615
 Spectrum Health is a not-for-profit health system in West Michigan and comprises 12 hospitals, 179 ambulatory sites, more than 3,400 physicians and APPs. Spectrum Health was named one of the nation's 15 Top Health Systems — and is in the top five among the largest health systems — by Truven Health Analytics™ for 2016.

St. John Health System 109
 stjohhealthsystem.com
 The St. John Heyman Stroke Center is Joint Commission-certified comprehensive stroke center in Oklahoma and is recognized by the American Heart Association and American Stroke Association Get With The Guidelines — Stroke program as northeastern Oklahoma's only Gold Plus performance award recipient for stroke care for the third consecutive year.

St. Jude Medical 527
 sjm.com
 St. Jude Medical is a leading global medical device manufacturer and is dedicated to transforming the treatment of some of the world's most expensive epidemic diseases. The company has five major areas of focus: heart failure, atrial fibrillation, neuromodulation, traditional cardiac rhythm management and cardiovascular diseases.

Stryker and Frazer 123
 Stryker, a world leader in medical technology, and Frazer, a recognized innovator in mobile health care, have come together to develop a complete mobile stroke program. Through this program, we're committed to helping you assemble a customized end-to-end Mobile Stroke Solution to meet your organization's needs.

Stryker Neurovascular 133
 Stryker Neurovascular is committed to Complete Stroke Care™ through innovative products, technologies and services for ischemic and hemorrhagic stroke. By advancing the practice of less-invasive medicine, providing healthcare professionals more endovascular solutions and promoting clinical education and support, Stryker Neurovascular is dedicated to helping deliver better patient outcomes.

TARDIS, TICH-2 and RIGHT-2 Trials 637
 The University of Nottingham Stroke Trials Team runs the phase III TARDIS (Triple Antiplatelets for Reducing Dependency after Ischaemic Stroke) TICH-2 (Tranexamic Acid for IntraCerebral Haemorrhage) and RIGHT-2 (Rapid Intervention with Glyceryl trinitrate in Hypertensive stroke Trial) trials in both the U.K. and internationally.

Telespecialists 503
 mytelemed.info
 TeleSpecialists provides a comprehensive consultation service that allows your facility the ability to initiate a telemedicine program from the ground up. TeleSpecialists will work with your organization to develop a blueprint for a first-rate telemedicine program and provide access to experienced, high quality specialists for your patients.

Tenet South Florida Advanced Neuroscience Network 727
 mytelemed.info
 Tenet Florida's Advanced Neuroscience Network includes 40 specialists in outpatient practices and 10 award-winning hospitals across Miami, Fort Lauderdale and Palm Beach. Our team provides comprehensive neurological and ancillary services from the leading neurologists in South Florida. We are seeking vascular and critical care trained neurologists for neurohospitalist opportunities.

The JAMA Network 427
 jamanetwork.com
 Building on a tradition of editorial excellence, The JAMA Network brings JAMA together with 11 specialty journals to offer enhanced access to the research, viewpoints and medical news shaping medicine today and into the future. JAMA Cardiology is a new peer-reviewed journal launched in 2016.

The Joint Commission 103
 jointcommission.org/DSC
 Joint Commission accredited organizations may pursue one of three levels of stroke care: Acute Stroke Ready Hospital, Primary Stroke Center and Comprehensive Stroke Center. Joint Commission Stroke Certifications were developed in collaboration with the American Stroke Association to provide the highest possible level of stroke care for your patients.

TupeloLife 803
 tupelolife.com
 TupeloLife is your partner in enabling connected health solutions. We strive to achieve the vision of precision medicine while providing population health management, telehealth and remote patient management. This is accomplished through our innovative software, apps, hardware, devices and services to improve the health of patients and your organization.

Twiage 605
 twiaged.com
 Twiage is a comprehensive prehospital notification platform that delivers real-time data from ambulances directly to hospitals with GPS-powered ETA. Powered by a proprietary decision support algorithm, paramedics and EMTs can use Twiage's HIPAA-compliant smartphone app to capture critical symptoms and demographics in photos, videos and voice memos.

UMiami Gordon Center for Research in Medical Ed. 523
 gcrme.miami.edu
 The University of Miami Gordon Center is the developer of Advanced Stroke Life Support®, a hands-on, 8-hour curriculum for EMS personnel, nurses and physicians that satisfies Joint Commission educational requirements for stroke centers. ASLS® and its unique neurologic assessment tool — the MEND Exam — are ideal for prehospital and hospital use.

United Biologics Inc 626
 unitedbiologics.com
 United Biologics Inc. produces physician-verified vasculature, simulating a clinical scenario for demonstration, training and marketing purposes. We specialize in all common pathologies, including neuro, cardiac and peripheral.

United Stroke Alliance 206
 strokecamp.org
 United Stroke Alliance is a new non-profit organization focusing on stroke prevention, awareness and recovery. Through an integrated model, United Stroke Alliance is building communities that support stroke prevention and awareness and support.

University of Florida Comprehensive Stroke Center 208
 stroke.uflhealth.org
 UF Health physicians and specialists are nationally renowned in the prevention, diagnosis and treatment of stroke. Our team includes highly trained vascular neurosurgeons and endovascular/cerebrovascular neurosurgeons who can care for people with all kinds of strokes from simple to the most complex.

University of Texas System 1008
 utsystem.edu/
 The University of Texas System is one of the largest public university systems in the U.S. (eight academic and six health institutions). A recent strategic plan identifies Brain Health including stroke as key research areas. Information on UT neuroscience, brain health and stroke at UT System will be available.

VasSol Inc. 832
 vassolinc.com
 VasSol develops and markets the NOVA® software for Quantitative Magnetic Resonance Angiography (qMRA®). Used in the VERITAS study, blood flow measurements with NOVA combine the anatomic visualization of MRA with key cerebral vessel hemodynamics, establishing a new standard to evaluate stroke risk and inform treatment decisions.

Virtual Medical Staff 311
 virtualmedstaff.com
 Virtual Medical Staff is a telemedicine solution providing physician staffing, telemedicine technology and the technical support needed to provide patients with specialty care and consults.

Wellth 803
 Wellth allows risk-bearing providers and payers to improve engagement, adherence and outcomes in their chronic condition patients with behavioral economics.

WellStar Medical Group 309
 wellstar.org
 WellStar Health System is the largest health system in Georgia and consists of WellStar Medical Group, 240 medical office locations, outpatient centers, health parks, pediatric center, nursing centers, hospice and homecare and 11 inpatient hospitals. With approximately 20,000 team members, WellStar remains committed to its Employer of Choice strategy.

Wolters Kluwer 402
 Wolters Kluwer Health is a leading global provider of information and point-of-care solutions for the health-care industry. Our solutions are designed to help professionals build clinical competency and improve practice so that healthcare organizations can succeed in value-based care delivery models. Product solutions include Lippincott, Ovid® and UpToDate®

World Stroke Organization 1004
 The World Stroke Organization is the world's leading organization in the fight against stroke. Today, WSO has more than 3,000 individual members and over 60 society members from 85 different countries.

Zoll Medical Corporation 507
 ZOLL® Medical Corporation, a leader in medical products and software solutions, offers the Thermogard XP® Temperature Management System, which provides healthcare professionals with the power and control needed to rapidly, safely and accurately manage the core body temperature of critically ill or surgical patients with warming and cooling applications.

Thanks to ISC 2017 supporters

- Avizia
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- CSL Behring
- Erlanger Neuroscience Institute
- FUJIFILM VisualSonics
- Houston Methodist DeBakey Heart & Vascular Center
- InTouch Health
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- Saint Luke's Marion Bloch Neuroscience Institute
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- Telespecialists
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- Wolters Kluwer

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



Body Interact (above) is one of three immersive training activities in the Simulation Zone in Booth 815. The other training activities are NeuroVR and Apollo.

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.

“While 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.

“Because 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. ■

DEBATE

continued from page 1

procedures for stroke and cardiovascular disease require different skills and knowledge.

“The heart is not equal to the brain,” he said. He also suggested that clinical trials validating endovascular interventions in stroke may not be broadly generalized.

There was greater consensus on the topic of patent foramen ovale closure.

“In 2017, it is no longer a question of whether we should close PFOs, but in whom,” said John Carroll, MD, a cardiologist at the Cleveland Clinic in Aurora, Colorado. Carroll presented 6-year follow-up data from the RESPECT trial of the AMPLATZER™ PFO occluder (approved in May 2016) showing that “in the intention-to-treat analysis, freedom from all ischemic strokes was significantly improved in all patients randomized to the device. This was clinically and statistically significant,” he said.

Steven R. Messe, MD, associate professor of neurology at the Hospital of the University of Pennsylvania in Philadelphia, was slated to argue against PFO closure, but he said his perspective has evolved over time. He cited some original skepticism about PFO closures, such as relatively low risk of recurrent stroke, the limited long-term data and the failed devices.

Ultimately, Messe concurred that PFO closure is no longer a question of “if” but “in whom.” Both Carroll and Messe concluded that neurologists and cardiologists should consult to identify patients who match those enrolled in the RESPECT trial, and in who all other stroke etiologies have been ruled out. ■

CAREGIVERS

continued from page 1

recovery and rehab, she said. Caregivers need immediate and ongoing support.

Family caregivers are notorious for neglecting their own needs while providing care, Bakas said. Up to half of family caregivers suffer from depressive symptoms, she said. Stroke victims whose caregivers show signs of depression are more likely to exhibit depression themselves.

“Family members are often not ready to assume the caregiving role,” said Barbara Lutz, PhD, RN, CRRN, APHN-BC, McNeil Distinguished Professor at the University of North Carolina School of Nursing. “We talk of providing patient-centered care, but I would ask you to provide family-centered care.”

Caregivers need long-term support, but the type of support they need changes over time, Lutz said. Most new caregivers cannot anticipate their needs over time.

Not only do caregivers need to be part of the care team, the team must develop a plan to assess and address gaps in caregivers’ knowledge and skills.

“Caregivers must learn to become care managers,” Lutz said. “We can help by providing anticipatory guidance. We have to be advocates for our caregivers as much as for our patients.”



Attendees posed questions about strategies for caring for caregivers during Tuesday’s Stroke Nursing Symposium.

Involving and supporting caregivers, family members and even friends can pay off in patient outcomes. An outpatient stroke rehab program in suburban Boston resulted in nearly half of stroke survivors returning to work.

“Stroke recovery is not just related to the stroke victim,” said neurologist Joan C. Breen, MD, of Whittier Rehabilitation Hospital in Westborough, Massachusetts. “It cannot be done alone. We try hard to involve the entire network of family and friends. We have to remember that stroke is a lifetime illness. We have to help patients and caregivers along the entire journey.” ■



Claim your CME/CE credit

You have two ways to complete your conference evaluation and claim your CME/CE credits for the conference, pre-conference symposium and/or nursing symposium.

1. Stop by the Communication Center, which is located in Registration in Hall D Concourse, Level 1, of the George R. Brown Convention Center.
2. Visit learn.heart.org from any computer with an Internet connection.

CME/CE credit will no longer be available to claim for this activity after **Aug. 24, 2017**.

International attendees may obtain an attendance verification form at one of the self-service terminals in Registration, located in Hall D Concourse, Level 1.

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

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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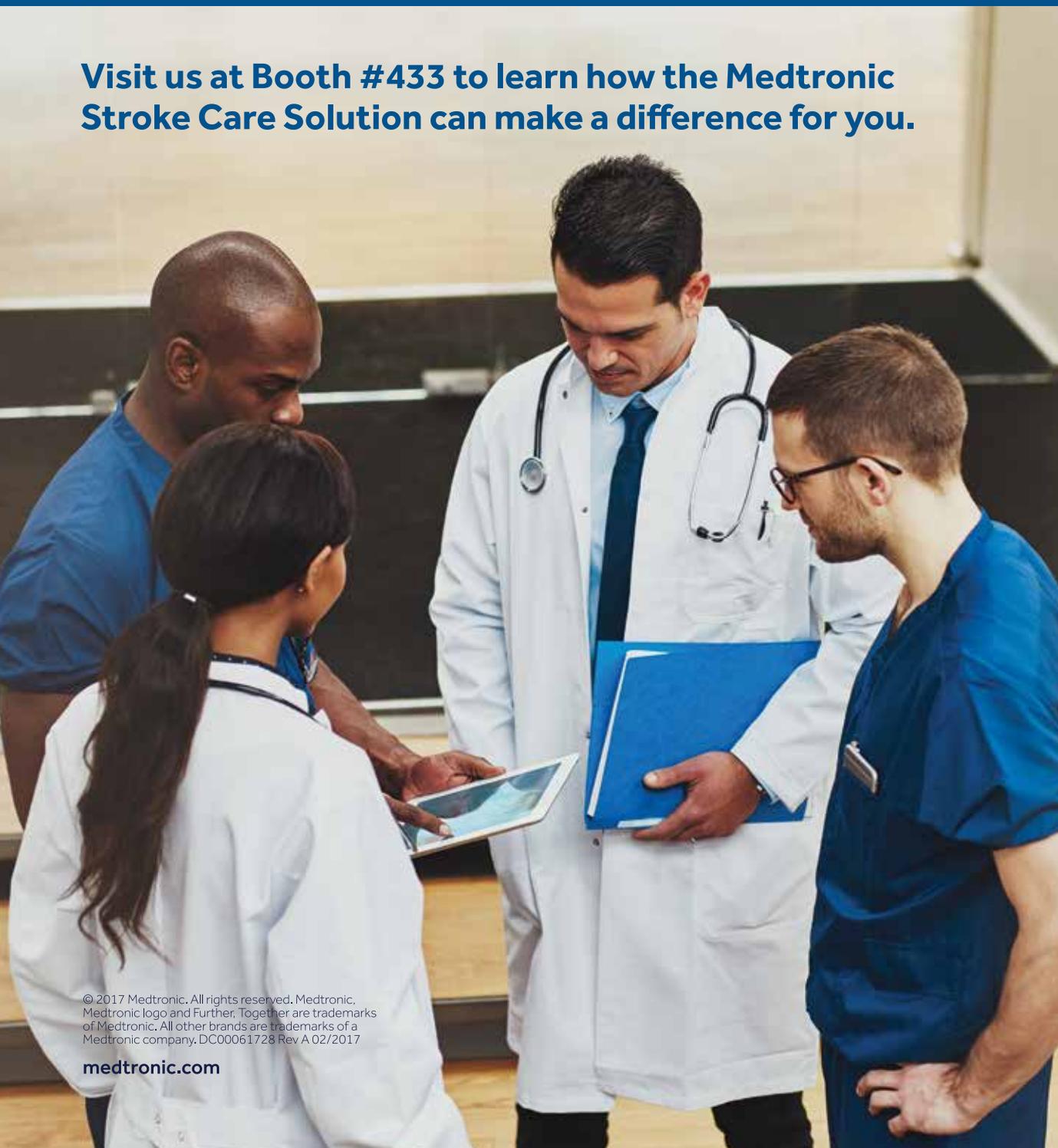
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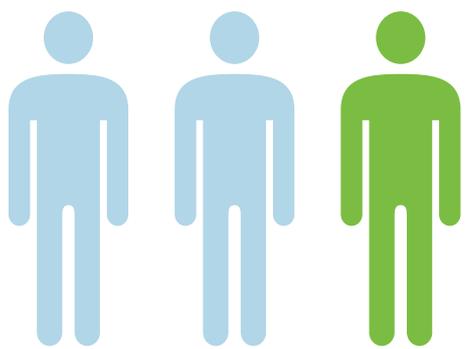
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New 2016 ESC AF Guidelines

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ONE-THIRD OF
ISCHEMIC STROKES
ARE CRYPTOGENIC
(UNEXPLAINED)²

AF
DETECTION
AND
TREATMENT
MATTERS

5-FOLD

increase in ischemic
stroke risk for AF
patients³



67%

decrease in AF patient
stroke risk with oral
anticoagulants⁴



30 DAYS OF
CARDIAC
MONITORING
IS NOT
ENOUGH

84 DAYS

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to AF detection in
cryptogenic stroke
patients⁵

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of patients who
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been missed if only
monitored for
30 days*⁵

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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; 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 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. **Warnings/Precautions: Reveal LINQ LNQ11 Insertable Cardiac Monitor.** Patients with the Reveal LINQ insertable cardiac monitor should avoid sources of

diathermy, high sources of radiation, electrosurgical cautery, external defibrillation, lithotripsy, therapeutic ultrasound, and radiofrequency ablation to avoid electrical reset of the device, and/or inappropriate sensing as described in the Medical procedure and EMI precautions manual. MRI scans should be performed only in a specified MR 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 cellular 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/adverse events. For further information, please call Medtronic at 1-800-328-2518 and/or consult the Medtronic website at medtronic.com. **Caution:** Federal law (USA) restricts this device to sale by or on the order of a physician.



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