



# Stroke News

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Thursday, February 23, 2017



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## Battling stroke in Latin America



Myriam Fornage, MD, explores the association of specific FOXP2 variants with increased risk for lacunar stroke.

### Genetic discoveries driving translational research

Years of stroke research into genetics are coalescing into novel drug development and outlines of individualized risk assessment and treatments based on genomic profiles. Clinical research and application are still in the future, but multiple genomic programs are moving into translational research.

“We have learned much about the role that genetic variation plays, not only in the risk of stroke but also in the biology of many of the concomitant conditions that contribute to stroke, such as atherosclerosis, atrial fibrillation and coronary disease,” said Jonathan Rosand, MD, MSc, co-moderator of Wednesday’s presentation “Genetic Discoveries Are Finally Yielding Novel Treatments for Stroke: The Dawn of the Genomic Era for Stroke.”

“Genetics is a lens that is opening up the mystery of why we suffer a stroke and

see **GENETICS**, page 13



Lewis B. Morgenstern, MD, (left) and Francisco R. Klein, MD, discuss the roadmap for reducing stroke risk in Latin America.

Decreasing the growing burden of stroke-related death and disability in Central and South America was the focus of a symposium that explored the Declaration of Santiago, a 2015 call-to-action statement for improving stroke care.

In Latin America — made up of 21 countries and more than 600 million people — stroke causes 8.7 percent of all deaths, and is the sixth-leading cause of disability, said Pablo M. Lavados, MD, MPH, Facultad de Medicina at the Universidad de Chile in Santiago. Wednesday’s presentation was a joint session of the American Heart Association/American Stroke Association and the Pan American Health Organization.

“The developing world has imported stroke and other chronic diseases from the developed world,” said Lewis B. Morgenstern, MD, the session’s co-moderator. “The fundamental drive behind the Declaration of Santiago was to make physicians and others aware of this epidemiological transition from infection and trauma as the leading causes of death in Latin America to chronic diseases, like stroke.”

The declaration, developed by an international panel of experts, establishes goals and policies  
see **LATIN AMERICA**, page 3

## Hypertension and stroke risk: Is lower better?

The linear relationship between blood pressure and the risk of cardiovascular events, including stroke, has long been recognized. It is less clear at what point the risk of adverse events begins to outweigh the benefits of lowering blood pressure.

“From epidemiological evidence, we might be able to conclude that lower is better,” said Clive Rosendorff, MD, PhD, cardiologist at the Icahn School of Medicine at Mount Sinai in New York. “It is not that simple.”

Rosendorff opened a Wednesday symposium examining the implications of the SPRINT trial. SPRINT, the Systolic Blood Pressure Intervention Trial, showed positive benefits from intensive blood pressure control as low as 120/80 mmHg. Current U.S. guidelines call for blood pressure of 140/90 or lower for most people, but guidelines in other countries set goals as low as 120/70.

Multiple studies and meta-analyses suggest that a systolic blood pressure target of 130 seems beneficial, Rosendorff said. But SPRINT found no stroke benefit from reducing blood pressure.

The problem is that SPRINT was stopped early because of efficacy, he said. Multiple trials have demonstrated significant reductions in stroke, but the benefit becomes apparent after about 3.5 years of treatment. SPRINT was stopped after a median follow-up of 3.26 years.

“The 11 percent relative risk reduction for stroke in SPRINT might have increased to significant levels with more time,” he said.

Emerging data on the benefits of blood pressure reduction on stroke have been approached different ways by different countries, said Paul Whelton, MD, MSc, Show Chwan professor of Global Public Health at Tulane University in New Orleans.



It is not as simple as concluding that lower blood pressure is better, said Clive Rosendorff, MD, PhD, during Wednesday’s implications of SPRINT symposium.

Canadian guidelines established a 120 mmHg or lower systolic target in 2016 for high-risk patients, 140 or lower for moderate-risk

see **SPRINT**, page 7

# JOIN US TODAY!

Thursday, Feb. 23  
Expert Theater

12:10–12:40 p.m.  
Exhibit Hall Floor  
Booth #541

This event is not part of the official International Stroke Conference 2017 as planned by the International Stroke Conference Program Committee.



# THE LINK BETWEEN CRYPTOGENIC STROKE AND ATRIAL FIBRILLATION

## PROGRAM FACULTY

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## LATIN AMERICA

continued from page 1

to decrease the burden of stroke in each participating country, said Salvador Cruz-Flores, MD, a declaration author and a professor and chair of neurology at Texas Tech University Health Sciences Center in El Paso.

Reducing tobacco use and salt consumption, improving weight control and increasing physical activity are key.

“It establishes priorities for treating modifiable risk factors, such as hypertension, diabetes and high cholesterol,” Cruz-Flores said. “It also addresses important issues such as the lack of access to physicians in some regions and the unaffordability of some preventive medications in others, even though some medications are inexpensive.”

Fernando Góngora-Rivera, MD, MSc, president of the Mexican Stroke Society, said physicians in Mexico and many Latin American countries live between two economic worlds — public and private medical practice.

“In theory public health insurance covers stroke procedures, but in practice there are significant weaknesses and large variations,” he said.

In addition to issues of access and economics, education and training are needed, according to the speakers. This includes educating the public on stroke risk factors and symptoms, as well as educating healthcare and policy providers.

“In Latin America, governments do not provide financial support for stroke care, believing that stroke is a disease of the elderly,” Góngora-Rivera said. “We have to emphasize that stroke is a disease that also affects young people.”

Cruz-Flores noted the need to increase stroke awareness in order to improve acute treatment.

“Better access to acute care is, of course, needed, as is training for paramedics, nurses and physicians regarding if, when and how to provide acute stroke treatment,” he said.

Morgenstern, professor of neurology, emergency medicine and neurosurgery, and director of the stroke program at the University of Michigan Medical School in Ann Arbor, agreed that stroke education and awareness are the keys to better outcomes.

“Globally, there are very few stroke neurologists, so efforts to prevent stroke often fall to primary care physicians and general practitioners, governments, policy experts and community organizations,” he said. “The Declaration of Santiago is a major step in trying to bring attention to this very important disease that is an increasing burden in the developing world.” ■

# Researcher wins first Dan Adams Award grant for brain study

In helping lead the Henrietta B. and Frederick H. Bugher Foundation’s unprecedented support of stroke research, Dan Adams always pushed people to think beyond traditional boundaries. So it was only fitting that the foundation honored his passing by creating the Bugher-American Heart Association Dan Adams Thinking Outside the Box Award.

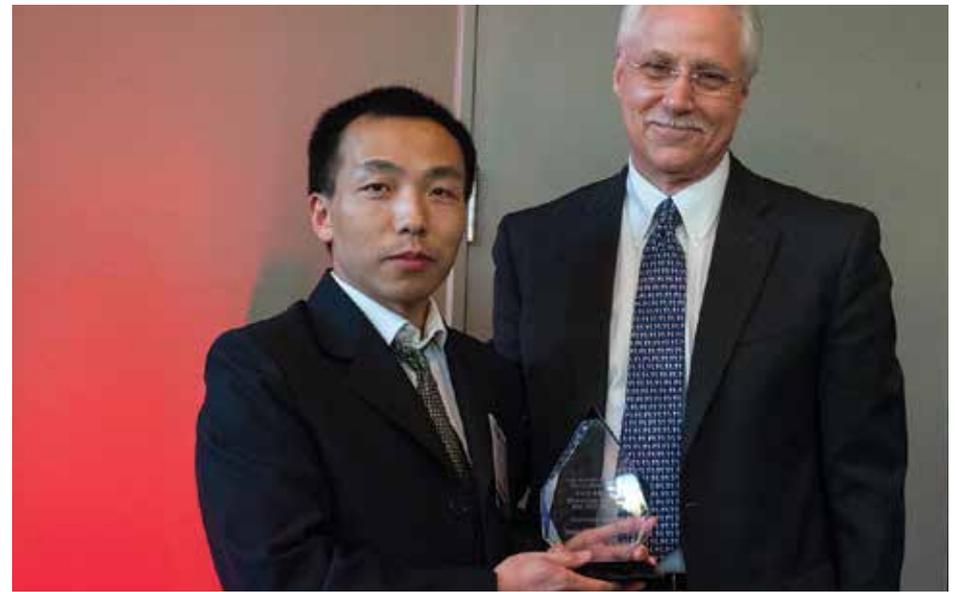
The initial awardee was honored at ISC last year and, on Wednesday, Woo-Ping Ge was named the first grant recipient. He is an assistant professor of pediatrics and neuroscience at the Children’s Medical Center Research Institute at UT Southwestern.

With the \$150,000 grant, part of the \$675,000 allocated for these awards, Ge will study the role of smooth-muscle cells in injured brains in the hope of learning more about the underlying molecular and cellular mechanisms. The project involves a novel approach to inducing a reversible clot using magnetic nanoparticles within a blood vessel.

“Our approach will allow the investigation of the disruption and repair of the neurovascular unit in vivo under ischemic stroke,” Ge wrote. “This technology will allow us ... to assess the involvement of smooth-muscle cells before occlusion, during occlusion and after reperfusion.”

By use of these micromagnets, blood vessels in the brain can be clotted to mimic ischemic stroke, then declotted. The model will be helpful to study the role of smooth muscle cells in the brain blood vessels prior to clotting, during and after clot removal.

The Bugher Foundation has funded over \$36 million in heart and stroke studies overseen by the American Heart Association/American Stroke Association, making the



Woo-Ping Ge (left) receives the Bugher-American Heart Association Dan Adams Thinking Outside the Box Award from James Weyhenmeyer, PhD, the inaugural awardee.

foundation among the AHA’s most generous research donors.

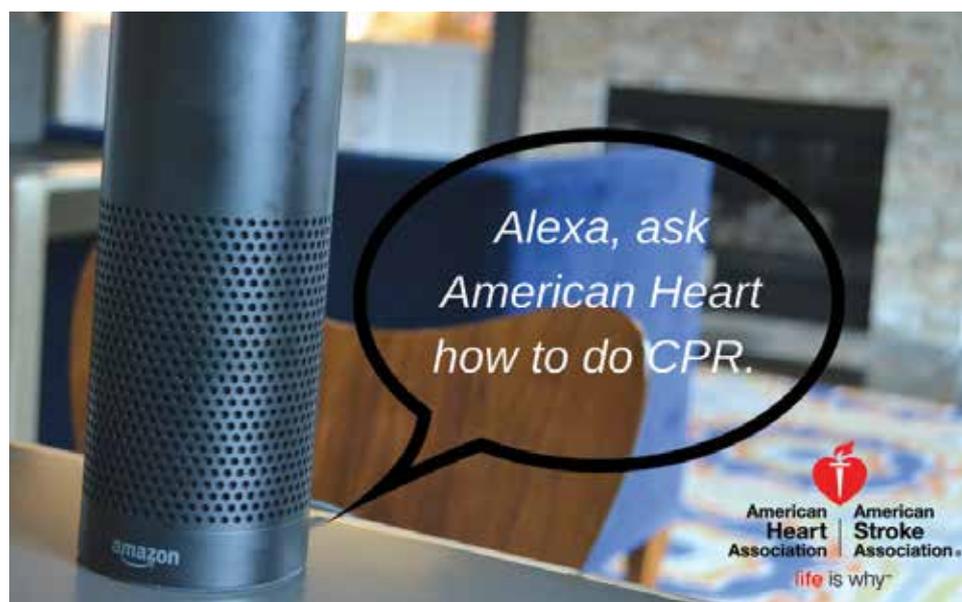
The Bugher Foundation began in 1961 under the leadership of Nelson Adams, Dan’s father. The foundation began working with the American Heart Association in the mid-1980s and a decade later Dan Adams joined his dad as a trustee.

Dan Adams, whose career was in advertising and branding, helped champion the foundation’s focus on funding stroke research. He blended his professional expertise and his stroke knowledge to help the AHA/ASA develop branding and focus for stroke campaigns.

Dan died in June 2015, and months later, the Bugher Foundation — led by the remaining trustees: his sons Bryan and Bruce, and long-time fellow trustee Gayllis Ward — donated

\$675,000 to the AHA to establish this award. Its aim is to both recognize an individual who represents Dan’s commitment to new ways of thinking and to ensure the awardee directs funds toward an innovative research project.

The inaugural awardee was James Weyhenmeyer, PhD, the vice president for research and economic development at Georgia State University and the chairman of the Oversight Advisory Group for the American Stroke Association-Bugher Foundation Stroke Centers of Excellence, a \$9.65 million, four-year project that involves teams of researchers at UCLA, the University of Colorado at Denver and the University of Miami. Weyhenmeyer held the same oversight role on the previous Bugher-ASA project. ■



Alexa, the friendly voice of the Amazon Echo device, now offers CPR instructions and describes the warning signs of heart attack and stroke on request.

The effort pairs the American Heart Association’s trusted scientific content with Amazon’s state-of-the-art technology, according to AHA CEO Nancy Brown.

“Alexa has now learned the warning signs of a stroke, of a heart attack and CPR skills. When asked, Alexa can bring this lifesaving information to consumers everywhere when

they need it most,” Brown said during the ISC Opening Main Event on Wednesday.

There are about 8.2 million Amazon Echo devices in the U.S., according to Consumer Intelligence Research Partners. This year, sales of the Amazon Echo line and newer Google Home devices are projected to reach 4.5 million, according to the Consumer Technology Association.

The voice-activated device is on display next to the Information Counter in Hall E Concourse. ■

## 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](http://strokeconference.org/submitscience) on the applicable date above. Start planning now for the International Stroke Conference 2018, **Jan. 24–26** in Los Angeles.



**Stroke News**

Thursday, Feb. 23, 2017

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# Closing Main Event introduces Crossfire Debates, breaking science

The Closing Main Event promises to end ISC 2017 with a bang, according to ISC Program Committee Chair Bruce Ovbiagele, MD, MSc. Three late-breaking science oral presentations and the inaugural “Crossfire Debates,” focusing on controversies in stroke treatment, will cap off the event.

“There is a lot of excitement upfront during the first two days of the meeting. We thought that rather than have the tempo of the conference slow down toward the end, we would maintain it at its high level by having a lively debate to cap it off,” said Ovbiagele, professor and chairman of neurology at Medical University of South Carolina, Charleston.

The debates will cover three topics, with each lasting about 20 minutes. Audience members will vote their perspectives on each debate question before and after the debate. “We’ll have a final vote to see what impact the debate had on the opinion of the audience about each particular question,” he said.

The first debate will address the treatment of unruptured brain AVMs, or arteriovenous malformations. “The question is what to do with patients with small, treatable unruptured brain AVMs — treat them or leave them alone,” Ovbiagele said.

It springs from the results of the ARUBA trial, which compared medical management alone to medical management plus prophylactic interventional therapy. ARUBA concluded that intervention for unruptured cerebral AVMs carries significantly greater morbidity than observation. The results remain controversial, because “many in the stroke community would still recommend treatment for small, accessible, unruptured brain AVMs given their adverse long-term natural history and some data indicating low risks of treatment,” Ovbiagele said.

The second debate explores medical therapy for the treatment of symptomatic carotid artery stenosis. The landmark NASCET trial, which established the therapeutic benefit of

carotid endarterectomy, was published 25 years ago.

“Over that time, there have been major advances in medical therapy, including use of statins, newer antiplatelet agents and more effective antihypertensive regimens, and promising lifestyle modification protocols,” Ovbiagele said. “The issue is whether it’s time for us to seriously assess the use of modern medical therapy as a treatment for symptomatic carotid artery stenosis.”

The third debate will examine whether tPA-eligible patients who have an emergent large occlusion should be treated directly with mechanical thrombectomy rather than giving them tPA followed by mechanical thrombectomy.

“We know that intravenous tPA is not as effective for these large vessel occlusions as mechanical thrombectomy can be, we know time is brain and that risk of systemic bleeding is higher with tPA, so should we just go ahead and directly administer mechanical thrombectomy in such patients?” Ovbiagele asked.

Following the Crossfire Debates, investigators of three late-breaking science oral abstracts will present data from their research.

David J. Gladstone, MD, PhD, associate professor of medicine at the University of Toronto, Canada, will present “Randomized

Trial of Hemostatic Therapy for ‘Spot Sign’ Positive Intracerebral Hemorrhage: Primary Results From the SPOTLIGHT/STOP-IT Study Collaboration.”

Shinichi Yoshimura, MD, clinical director of neurosurgery at Hyogo College of Medicine in Nishinomiya City, Japan, will examine “Randomized Controlled Trial of Early Versus Delayed Statin Therapy in Patients With Acute Ischemic Stroke.”

The final abstract presented will be “A Randomized Double-Blind Pilot Study Assessing Vagus Nerve Stimulation During Rehabilitation for Improved Upper Limb Motor Function After Stroke,” by Jesse Dawson, MD, of the Institute of Cardiovascular and Medical Sciences, University of Glasgow, United Kingdom.

Ovbiagele will co-moderate the session with Miguel A. Perez-Pinzon, PhD, director of the Cerebral Vascular Disease Research Center and professor of neurology/neuroscience at the University of Miami Health System. ■



Bruce Ovbiagele, MD, MSc

## 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](http://strokeconference.org/awardsandlectures) for more information.

### UPCOMING SESSION

Closing Main Event  
Friday, 10:30 a.m.-12:30 p.m.  
Hall C

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## Asian stroke patients may respond differently to antithrombotics

Although most medications are effective across populations, there are important differences to consider in the risks and benefits of antithrombotic medications in different populations.

Thursday's special joint session of the AHA/ASA and the Japan Stroke Society will focus on the differing responses to antithrombotic medications among Asian populations.

"There are many universal aspects of biology, and most medications are effective regardless of the region of the world. At the same time, we have increasing evidence that certain populations have

different responses to anti-thrombotic medications, and there are different risk-benefit profiles regarding bleeding versus stroke risk," said



Hooman Kamel, MD

session co-moderator Hooman Kamel, MD. "This session highlights the latest science on those differences so clinicians can be well-informed when treating their own specific patient population."

The session features an international panel with speakers from Japan, South Korea, Hong Kong and Germany. They will discuss differences in responses to prothrombotic therapy, antiplatelet therapy, novel oral anticoagulants and antidotes for bleeding complications.

Differing responses to warfarin among patients with atrial fibrillation is one topic, Kamel said. Several recent studies have demonstrated that North American and European patients with atrial fibrillation who suffer a major hemorrhage or intracranial hemorrhage benefit, in terms of stroke

prevention, from restarting warfarin. However, studies from Asia have had opposite findings, which suggests that restarting treatment may not be beneficial.

"These were observational studies, and there are many limitations to the data, but they give you a good idea of the types of considerations that go into selecting antithrombotic medications for individual patients," said Kamel, assistant professor at Weill Cornell Medical Center in New York.

see **ANTITHROMBOTICS**, page 13

### UPCOMING SESSION

**Antithrombotic Therapy Specific to Races/Regions (in the NOAC Era)**

*An AHA/ASA and Japan Stroke Society Joint Session*

Thursday, 1:30-3 p.m.  
General Assembly A

# Bugher Collaborative looks at ways to improve stroke recovery

An individualized regimen of intensive aerobic and cognitive exercise may help improve stroke recovery. Early results from both animal models and preliminary human studies on the effects of intensive physical and cognitive activity in improving recovery after stroke are a focus of the 2016 Bugher Collaborative report.

"We are bringing the three Bugher Centers together to update the ISC on interim results from some of our projects. We are seeing common threads across projects at the three centers," said Ralph Sacco, MD, MS. He is one of three moderators of "Clinical and Basic Perspective on the Role of Physical and Cognitive Activity and Neural Progenitors in Stroke Recovery," which will be presented Friday.

The session includes overviews of the three Bugher projects and a data blitz highlighting the latest results from each project. The Bugher Collaborative is a unique venture sponsored by the ASA and the Bugher Foundation. Each four-year collaborative focuses on specific topics within stroke and stroke recovery.

Sacco is the Bugher Collaborative director at the University of Miami and former AHA president. He also is professor and chairman of the Department of Neurology at the University of Miami Leonard M. Miller School of Medicine in Miami, Florida

Recovery has not matched the recent dramatic advances in stroke treatment, said S. Thomas Carmichael, MD, PhD, another

session moderator, who is the Bugher Collaborative director at the University of California, Los Angeles.

"Little has been done to remedy the disability that follows. Stroke is morphing into a chronic disease with lingering disability," said Carmichael, professor and chair of neurology and Frances Stark Endowed Chair at UCLA David Geffen School of Medicine. "The Bugher Collaborative represents the next wave of stroke research. The new phase in research relates to how one deals with the 7.1 million stroke patients out there who have disabilities. How do you repair the brain?"

The third moderator of the session is Richard J. Traystman, PhD, vice chancellor for research and professor of pharmacology at the University of Colorado in Denver. Traystman directs the Bugher Center at UCD.

The UCD project is focusing on pediatric stroke. It is perhaps under-recognized, but neonatal stroke is the second-highest stroke peak, outside of stroke in the elderly, Carmichael noted. Young brains tend to recover more quickly than adult brains, but virtually nothing is known about how pediatric stroke might later affect neurological development and functioning.

The Miami center is exploring the effects of intensive physical and cognitive activity on stroke recovery. A safety and feasibility study that combines aerobic and resistance training

### UPCOMING SESSION

**Clinical and Basic Perspectives on the Role of Physical and Cognitive Activity and Neural Progenitors in Stroke Recovery (the ASA-Bugher Collaborative Studies)**

Friday, 7-8:30 a.m.  
Grand Ballroom A



Ralph L. Sacco, MS, MD



S. Thomas Carmichael, MD, PhD

with intensive cognitive training in stroke patients is ongoing.

"Stroke survivors are randomized to a very intensive program," Sacco said. "This is similar to work at UCLA suggesting that behavioral activity may promote white matter repair. Two different centers using two different models are showing potentially beneficial effects from behavioral activity in exercise to promote stroke recovery."

The UCLA group has developed an array of remote activity monitors. These ankle and wrist bracelets automatically track patients' physical activity during the day and upload data to a central repository each night.

"Simply consistently improving the activity level in stroke patients through aerobic exercise improves recovery," Carmichael said. "Most stroke patients are not active. They over-report their physical activity, sometimes up to a hundredfold. We can use electronic monitoring to assess just how much physical activity stroke patients are doing at home and intervene accordingly to improve their recovery." ■

## Hospital-based stroke registries provide key data

Multicenter registries are emerging as useful resources in stroke research. Researchers are mining the internal registry systems maintained by large hospital systems to gain valuable insights into the overall quality of care, outcomes and the status of reperfusion therapy in real-world clinical practice. Comparisons across different populations and health systems are particularly valuable.



Ji Hoe Heo, MD

Stroke Center at Yonsei University College of Medicine in Seoul, South Korea. "We need to understand each other's care systems, care quality and care outcomes. Hospital-based

registries are a nice source to understand many aspects of stroke."

Heo is the president of the Korean Stroke Society and co-moderator of "Large Multicenter Hospital-Based Stroke Registry Study: What We Can Learn," the first joint session between the KSS and the AHA/ASA. The U.S.-based co-moderator is Lee H. Schwamm, MD, vice chair of neurology, director of stroke services and director of TeleStroke Service at Massachusetts General Hospital in Boston.

"While stroke is a global health issue as stroke is one of the leading causes of death and disability worldwide, stroke patterns are different between Westerners and Asians," Heo said. "This session will provide a good opportunity for stroke specialists from around the world to get some idea of the merits and weaknesses of different registry systems and different strategies to keep care quality high."

Four presenters will compare and contrast different registry systems used in South Korea and North America. South Korea has a uniform registry system that covers the population of

a single ethnicity from many hospitals in the country. U.S. and Canadian hospitals have a different registry system using the Get With The Guidelines-Stroke program and treat larger, more diverse populations.

Experience shows that different registry systems offer different advantages depending on populations, research needs and other factors. Beom Joon Kim, MD, assistant professor of neurology at the Cerebrovascular Center and Bundang Clinical Neuroscience Center in Seoul, will discuss population characteristics, quality

of care and outcomes in South Korea. Steven R. Messe, MD, associate professor of neurology and director of the Vascular Neurology Fellowship at the Hospital of the University of Pennsylvania in Philadelphia, will present U.S. populations, quality of care and outcomes.

Keun-Sik Hong, MD, professor of neurology at Inje University, Goyang, South Korea, will address the current status of reperfusion therapy in his country. Eric E. Smith, MD, MPH, associate professor of neurology and medical director of the Cognitive Neurosciences

see **REGISTRIES**, page 13

### UPCOMING SESSION

**Large Multicenter Hospital-Based Stroke Registry Study: What We Can Learn**

*An AHA/ASA and Korean Stroke Society Joint Session*  
Friday, 8:45-10:15 a.m.  
Grand Ballroom C

## Africans and African-Americans: Do they share stroke risks?

A first-time symposium, “Stroke Risk and Outcomes in People of African Ancestry,” will explore differences in stroke in African and African-American populations.

Thursday’s symposium, sponsored by the AHA/ASA and the Nigerian Stroke Society, will explore differences and similarities in stroke among populations on different continents that share common ancestry.

Presentations will explore the burden of stroke, vascular risk factors, knowledge and care gaps in Africa; recent insights into the epidemiology of stroke in African-Americans; the state of clinical stroke research in Africa; and developing interventions to improve stroke outcome in African-Americans.

“We need to learn more about what is happening in native African populations and begin to compare and contrast the findings with populations of African ancestry who are living elsewhere,” said Philip B. Gorelick, MD, MPH, symposium co-moderator and medical director of the Hauenstein Neuroscience Center at Mercy Health Saint Mary’s in Grand Rapids, Michigan. “This symposium gives us an opportunity to get a firsthand glimpse at some of the risk factors and outcomes in people of black African ancestry who are living in Africa and similar information on African-Americans who are generations away from living in Africa.”

The experience, treatment and outcome of stroke in developing nations can vary greatly based on geography as well as on the physical and genetic characteristics of stroke patients, said Yomi Ogun, MbChB, FWACP, FACP, president of the Nigerian Stroke Society.

“There are some important differences in stroke treatment in North America and in Africa,” said Ogun, professor of internal medicine at Lagos State University College of Medicine in Ikeja, Nigeria. “Clinicians

in America talk about time from door to thrombolysis in terms of minutes. Over 80 percent of our stroke patients in Nigeria do not present until more than 24 hours after their strokes. Even if our centers had the facilities to administer early treatment, few of our patients arrive early. The lack of availability and affordability of neuroimaging, such as CT and MRI, in most centers are contributory challenges.”

Risk factors appear to be similar among native Africans and African-Americans. Hypertension, diabetes, dyslipidemia and metabolic syndrome are leading contributors to stroke in Nigeria, Ogun said. The 2010 InterStroke Study found that risk factors for stroke appear to be consistent by

age, race, ethnic group and continent.

“One assumes that the risk factors are the same, although in a potentially more agrarian culture, we may be finding that there is less obesity because there is more physical activity and less caloric intake,” Gore-

lick said. “There may be dietary differences that could start to explain potential differences in stroke. And we know that major tobacco companies are moving into developing countries and providing easy access to tobacco, which increases stroke risk.”

Other potential differences include the availability of diagnostics, treatment or prevention modalities and interventional procedures, such as stenting and carotid endarterectomy. Differences in healthcare policy and healthcare delivery also may affect the delivery of stroke prevention and stroke care.

“There is a considerable amount to be learned about current trends and adapting/ applying them to local needs,” Ogun said. “We are hoping that the symposium serves as a catalyst to create publications making these comparisons and contrasts. We also hope that sharing lessons from both continents can help us all to improve stroke prevention as well as reduce disability, and improve the outcome of stroke in our patients.” ■

### UPCOMING SESSION

**Stroke Risk and Outcomes in People of African Ancestry**  
AHA/ASA and Nigerian Stroke Society Joint Session  
Thursday, 3:30-5 p.m.  
General Assembly A

## SPRINT

continued from page 1

cardiologist at the University of Virginia Health System in Charlottesville.

A significant portion of patients with hypertension never experience that benefit because they do not take medications appropriately.

“A quarter of patients newly initiated on antihypertensive therapy fail to fill their initial prescription,” Carey said. “Only one in five patients has sufficiently high adherence to achieve the benefits observed in clinical trials. Addressing drug non-adherence is something we need to pay far more attention to in our patients.” ■

Future studies may help clarify the role of blood pressure in stroke. It is not even clear that systolic blood pressure is the most appropriate treatment target, said Adriana Conforto, MD, PhD, chief of the stroke group at Hospital Das Clinicas at São Paulo University in Brazil.

Data from the United Kingdom found that increasing variability in blood pressure is linked to stroke risk independently of mean systolic blood pressure. Ambulatory blood pressure monitoring throughout the range of a normal 24-hour period may be a more useful measure than in-office monitoring.

There also is a significant opportunity to reduce the impact of hypertension on stroke through more effective treatment. Lowering blood pressure as little as 2 mmHg can produce clinically significant decreases in stroke risk at the population level, said Robert M. Carey, MD,

cardiologist at the University of Virginia Health System in Charlottesville.

A significant portion of patients with hypertension never experience that benefit because they do not take medications appropriately.

“A quarter of patients newly initiated on antihypertensive therapy fail to fill their initial prescription,” Carey said. “Only one in five patients has sufficiently high adherence to achieve the benefits observed in clinical trials. Addressing drug non-adherence is something we need to pay far more attention to in our patients.” ■

Future studies may help clarify the role of blood pressure in stroke. It is not even clear that systolic blood pressure is the most appropriate treatment target, said Adriana Conforto, MD, PhD, chief of the stroke group at Hospital Das Clinicas at São Paulo University in Brazil.

Data from the United Kingdom found that increasing variability in blood pressure is linked to stroke risk independently of mean systolic blood pressure. Ambulatory blood pressure monitoring throughout the range of a normal 24-hour period may be a more useful measure than in-office monitoring.

There also is a significant opportunity to reduce the impact of hypertension on stroke through more effective treatment. Lowering blood pressure as little as 2 mmHg can produce clinically significant decreases in stroke risk at the population level, said Robert M. Carey, MD,

## PRODUCTS & SHOWCASES

PAID ADVERTISEMENT



TeleSpecialists helps hospitals to provide state-of-the-art TeleStroke and TeleNeurology programs. Our experts will work with your hospital staff to develop a first-rate telemedicine program, and provide ongoing access to experienced neurologists.

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## 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](http://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 employees and physicians alike as an open-door, inclusive culture that is committed to safety, transparency and, above all, outstanding service to patients and families.

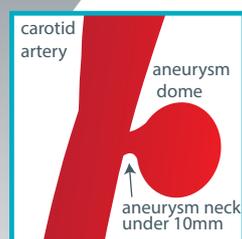
### About South Florida

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](http://mhs.net).**

[memorialphysician.com](http://memorialphysician.com)

## TREATING INTRACRANIAL ANEURYSMS



One-year results suggest flow diverter technology is safe and effective for treating unruptured, small/medium, wide-neck intracranial aneurysms. The Pipeline embolization device, which diverts blood flow around a brain aneurysm, is currently used to treat large wide-neck intracranial aneurysms. The PREMIER study enrolled 141 patients (average age 55, 88 percent female) at 22 centers from July 2014-November 2015. Technical success was achieved in 99 percent of patients. The 30-day rate of major stroke in the territory supplied by the treated artery or neurologic death was 1.4 percent.

# THE POWER TO TREAT, BEAT AND PREVENT STROKE.

INCREASE  
VISIBILITY.



REDUCE  
DISABILITY.<sup>1</sup>

## Solitaire™ Platinum Revascularization Device



The Solitaire™  
Platinum device.  
Evolving stroke  
treatment.

### PROVEN TO REDUCE DISABILITY<sup>1</sup>

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 guidelines<sup>2</sup> 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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<sup>1</sup> 510(k) K162539

<sup>2</sup> 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.

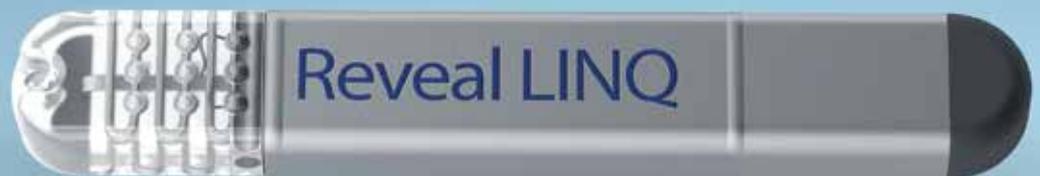
<sup>3</sup> Kirchhof P, et al. *Eur Heart J*. 2016 Oct 7;37(38):2893-2962. Epub 2016 Aug 27.

<sup>4</sup> 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.<sup>3</sup>

### 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.<sup>4</sup>

### 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](http://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 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

#### 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](http://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.

### SIMULATION ZONE SCHEDULE

#### 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

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.

### 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.

#### 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.

## Claim your CME/CE credit

1. Stop by the Communication Center, which is located in Registration in Hall D Concourse, Level 1, of the George R. Brown Convention Center. OR
2. Visit [learn.heart.org](http://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.

## 2017 ISC EXHIBITORS

### A

**ACRM American Congress of Rehabilitation Medicine** 702  
[acrm.org](http://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](http://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](http://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](http://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](http://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](http://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](http://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](http://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](http://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](http://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](http://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](http://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](http://corazoninc.com)

Corazon Inc. is a national leader in neurosurgery, 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](http://cslbehring.com)

CSL Behring is a leading global biotherapeutics 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](http://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](http://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](http://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](http://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.

**Erlanger Neuroscience Institute** 909  
erlanger.org  
Erlanger Consulting Services provides expert evaluation and process improvement assistance to Regional Stroke Centers. Whether primary or comprehensive, Erlanger Consulting Services can guide stroke centers in planning, finances and program upgrades drawing on a faculty of the highly successful Erlanger Southeast Regional Stroke Center located in Chattanooga, TN.

**Excellance, Inc.** 623  
excellance.com  
EXCELLANCE, INC. manufactures premium quality modular ambulances, rescue trucks and specialty vehicles. All vehicles feature a fully welded aluminum body and interior cabinetry built by craftsmen with AWS/ASE/EVT certifications. All vehicles are compliant with QVM, KKK-A-1882. Extensive warranties and an in-house remounting program provide a true long-term investment.

**Expert Theater** 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 Stroke Association as planned by the International Stroke Conference Program Committee.

**FUJIFILM VisualSonics** 602  
visualsonics.com  
FUJIFILM VisualSonics is the undisputed world leader in high-resolution, micro-ultrasound systems, specifically designed for cardiovascular research. Echocardiographic images are up to 30 micron resolution, five to 10 times higher than any other ultrasound system. Our platforms combine high-resolution, real-time in vivo imaging at a reasonable cost with ease-of-use and quantifiable results.

**Genentech** 225  
gene.com  
Genentech is a leading biotechnology company that discovers, develops, manufactures and commercializes medicines to treat patients with serious or life-threatening medical conditions. We are among the world's leading biotech companies, with multiple products on the market and a promising development pipeline.

**Genentech Medical** 302  
gene.com  
Genentech is a leading biotechnology company that discovers, develops, manufactures and commercializes medicines to treat patients with serious or life-threatening medical conditions. We are among the world's leading biotech companies, with multiple products on the market and a promising development pipeline.

**HCA** 319  
practicewithus.com  
HCA owns and operates over 160 hospitals across the United States, which makes us one of the nation's leading providers of healthcare services. We believe exceptional patient outcomes only come through a dedicated community of care, placing our physicians at the forefront.

**Health Tech Pavilion** 803  
Three technology companies will showcase their products and services: Constant Therapy, TupeloLife and Welth. These companies are part of AHA's Center for Health Technology & Innovation collaborative

**Houston Methodist Hospital** 524  
houstonmethodist.org  
At Houston Methodist, fostering innovations with the potential for clinical application is at the very heart of what we do. Our interdisciplinary teams of clinicians and researchers are committed to streamlining the process of translating discoveries into treatments and cures for our patients.

**Innovative Communications, LLC** 619  
track-ems.com  
Simply Put, TrackEMS® is the future of EMS communication. It is configurable and user-programmable to your demographic population.

**International Society on Thrombosis and Haemostasis** 911  
isth.org  
The International Society on Thrombosis and Haemostasis is the leading worldwide not-for-profit organization dedicated to advancing the understanding, prevention, diagnosis and treatment of thrombotic and bleeding disorders. ISTH is an international professional membership organization with clinicians, researchers and educators from more than 93 countries.

**InTouch Health** 403, B841  
InTouch Health is focused on enabling health-care providers to deliver care when and where it is needed. Our telehealth network and services can expand access and delivery of high-quality clinical care to any patient, at any time, while reducing overall costs of care.

**iRhythm Technologies, Inc.** 833  
irhythmtech.com  
ZIO by iRhythm continuous cardiac monitoring uniquely combines patient-friendly, beat-to-beat monitoring, a powerful analytical algorithm and

comprehensive yet simple reporting to deliver the right information in a single testing period. ZIO by iRhythm streamlines the monitoring process to accelerate definitive diagnosis and put patients on the path to correct care.

**Janssen Pharmaceuticals Inc.** 718  
janssenpharmaceuticalsinc.com  
Janssen Pharmaceuticals Inc., a pharmaceutical company of Johnson & Johnson, provides medicines for an array of health concerns in several therapeutic areas, including diabetes, mental health, pain management and cardiovascular disease.

**Krixix Corporation** 622  
http://www.krixixcare.com  
Krixix Care empowers physicians to remotely evaluate, diagnose and treat acute medical conditions such as stroke, from any internet-connected device. Designed by physicians for physicians, Krixix Care is a secure, scalable and customizable platform for comprehensive and profitable telemedicine and telestroke networks in the cloud.

**LifeWatch Services, Inc.** 704  
lifewatch.com  
Established in 1993, LifeWatch offers innovative remote patient monitoring services that help physicians detect patient symptoms before they turn into serious problems. Our advanced technologies, 24/7 services, clinical reporting and EMR integration capabilities can improve patient compliance and increase diagnostic yields.

**LocumTenens.com** 310  
locumtenens.com  
Since 1995, LocumTenens.com has been a leader in placing physicians and advanced practice professionals in short-staffed health-care facilities. LocumTenens.com also operates the largest job board in the industry, providing access to thousands of jobs, in all medical specialties, for free.

**Max Life** 221  
maxlifelive.com  
Max Life Ambulatory Telemedicine Systems — Mobile Stroke Unit offers live streaming video, audio and diagnostic devices from ambulance to hospital, with bonded connectivity. This allows doctors to gain access to the patient in the ambulance and remotely diagnose and treat the patient while in transit to the hospital.

**Medtronic** 433, B441, B940  
medtronic.com  
As a global leader in medical technology, services and solutions, Medtronic improves the lives and health of millions of people each year. We use our deep clinical, therapeutic and economic expertise to address the complex challenges faced by healthcare systems today. Let's take health care Further, Together.

**Mega Brain** 147  
medicalinflatables.com  
Medical Inflatables presents the MEGA Brain, the world's first portable, inflatable, walk-through brain exhibit. The MEGA Brain provides a highly interactive educational experience that increases people's awareness of the central nervous system's most critical organ. Visitors step inside the human brain, learn about brain structures and normal brain function and observe examples of brain trauma and disease.

**Memorial Healthcare System** 837  
memorialphysician.com  
Join a leading healthcare system in South Florida. Memorial Healthcare System's Neuroscience Institute is expanding and seeking multiple neurologists, including general neurologists, and those with fellowship training in stroke, movement disorder, neurointensive care, neuro oncology or behavioral neurology. Must be BE/BC in general neurology with fellowship training in subspecialties.

**MicroVention** 733, B741  
microvention.com  
MicroVention develops innovative neuroendovascular technologies for the treatment of vascular diseases in small vessels and is committed to developing and manufacturing the highest quality products for its customers and patients while maintaining a strong clinical research and R&D focus to quickly respond to customer needs and advance therapeutic modalities.

**Multigon Industries Inc.** 603  
multigon.com  
See Multigon's NextGeneration ROBOTOC2MD Transcranial Doppler with robotic headband. Its functions include monitoring, CO2 VMR, emboli, PFOs and does a complete cerebrovascular evaluation and autonomic testing. Innovative Robotic Probe Technology tracks vessels for hours without operator intervention.

**National Stroke Association** 1010  
Stroke.org  
National Stroke Association's mission is to reduce the incidence and impact of stroke. The organization offers the latest in multifactorial accredited professional education and Stroke Center Network, a membership for stroke centers and rehabilitation facilities that include free patient materials, including StrokeSmart® magazine.

**Natus Neurology Inc.** 305  
natus.com  
The Nicolet SONARA Transcranial Doppler system is used for non-invasive assessment of blood flow velocities in major brain arteries and offers diagnostic and advanced monitoring capabilities. Nicolet and XLTEK ICU monitors record physiological information, EEG and video. Real-time trend analysis, event detection and burst suppression allow efficient patient monitoring.

**Navicent** 806  
Navicent Health Physician group is an established multispecialty group of over 150 clinicians who provide medical services to the Medical Center Navicent Health. NHPG has seen phenomenal growth and expansion fostered by a cohesive Physician and Administrative team striving toward a common goal of excellence

**NEOFECT USA, Inc.** 205  
The Rapael Smart Glove is a rehabilitative device that monitors hand movements through playing game-like exercises. It is designed to promote brain re-learning for active hand movement and function. Patients practice goal-oriented and task-specific motor skills with increased repetition while being stimulated in an environment conducive to hand rehabilitation.

**NETSMART** 410  
learnstroke.com  
NETSMART provides neurovascular education and training to advanced practice providers and nurses. In operation since January 2008, NET SMART AP is the only post-graduate academic fellowship program of its kind in the world. NET SMART AP is meeting stroke nursing educational needs in North America, Europe, Australia and Asia.

**NeuroOptics** 714  
NeuroOptics.com  
NeuroOptics®—Pupillometry: Accurate, trendable, EMR-Ready NeuroOptics' NPI®-200 Pupilometer System provides trendable, accurate and objective measurement of pupil size and reactivity in the neurocritical care patient. The NPI®-200 is EMR-ready, saving valuable nursing time, eliminating potential charting errors and providing an important clinical assessment tool to remove subjectivity from the pupillary evaluation.

**NICO Corporation** 325  
niconeuro.com  
NICO Corporation is dedicated to developing technology for the field of corridor surgery, including cranial, ENT, spinal and otolaryngology where access to surgical site is limited. Our technology is designed to progress corridor surgery by creating instruments that allow for access through smaller openings and resection of soft tissue abnormalities.

**Nico-lab Ltd.** 703  
nico-lab.com  
Nico-lab offers algorithms for analysis of neurovascular images delivering quantified biomarkers for i.a. A-ASPECTS, Collaterals and Thrombus perviousness. Part of the leading Amsterdam Medical Stroke Centre, we completed various trials and are presently working on the successful MR.CLEAN trial. Our SAAS solution allows healthcare centers/patients to easily benefit.

**NINDS** 905  
ninds.nih.gov  
The National Institute of Neurological Disorders and Stroke provides International Stroke Conference members with information about available research support and funding mechanisms, as well as free publications for patients and their families on stroke and neurological disorders. NINDS staff will be available to assist you. Printed material is available.

**OhioHealth** 209  
OhioHealth is home to one of the nation's largest comprehensive neuroscience programs. Our recently completed \$321 million OhioHealth Neuroscience Center features an unmatched, complete range of neuroscience care such as inpatient and outpatient treatment, neurodiagnostics, interventional procedures, research clinical trials, surgery and education

**Olea Medical Solutions, Inc.** 932  
olea-medical.com  
Olea provides a fully automated software application for acute stroke diagnosis, including calculation of perfusion maps and mismatch without any human operation, from the modality (CT/MR) to the mailbox (reporting).

**OmegaBrite** 604  
omegabrite.com  
OmegaBrite is a 100 percent Natural Advanced Omega-3 formula delivering high EPA anti-inflammatory benefits for cognitive clarity and positive mood. Formulated over 15 years ago, OmegaBrite continues to set the gold standard for purity, concentration and scientific efficacy in omega-3s. OmegaBrite is available exclusively at 800-383-2030 or via our website.

**Ornim, Inc.** 624  
ornim.com  
Ornim is a biomedical high-technology company that specializes in clinical research, development and distribution of the highest quality medical devices in the field of tissue and cerebral blood flow and perfusion monitoring. c-FLOW™ is a bedside patient monitor based on the patented UTLight™ technology and provides unique monitoring solutions, individualized and personalized patient care.

**Parker Hannifin** 320  
indegopro.com  
Indego® is an exoskeleton that allows gait impaired individuals to stand up and walk again thanks to powered hip and knee joints in conjunction with sensor technology and sophisticated control strategies. Indego can be used as a therapy tool or as a mobility assistive device for individuals who can take the device home. Clinicians appreciate the possibility to conduct over ground, task-specific and intensive gait training with a wide array of partial mobility impaired individuals. Patients like the modular concept that allows for self-donning and doffing and an intuitive use of the device.

**Patronus Neurology** 421  
patronusneurology.com  
Patronus Neurology provides elite 24 x 7 x 365 comprehensive emergency teleneurology solutions to hospitals and stroke centers for any neurological emergency. Our industry-leading response times put patients in contact with vascular-trained neurologists — not a call center or staging clinician — in less than four minutes.

**Penumbra, Inc.** 923  
penumbrainc.com  
Penumbra is a specialty interventional therapies company that develops and markets innovative medical devices to treat challenging medical conditions with significant unmet clinical needs.

**Perimed Inc** 303  
perimed-instruments.com  
Perimed AB, established in 1981, provides instruments, software and expertise to enable assessment of the microcirculation. We use laser Doppler, laser speckle (LASC) and transcutaneous oxygen (tcpO2 TCOM). PeriFlux 6000 is our latest tcpO2 monitoring equipment.

**phenox GmbH** 734  
phenox.info  
Since its founding in 2005, phenox has been dedicated to developing innovative, breakthrough and clinically proven technologies and solutions for the treatment of neurovascular diseases. phenox's products are used by endovascular specialists to treat ischemic and hemorrhagic stroke.

**Portola Pharmaceuticals Inc.** 124  
portola.com  
Portola Pharmaceuticals Inc. is a biopharmaceutical company with compounds from our own research efforts representing significant advances in the fields of thrombosis and hematologic diseases. Our therapies have the potential to address a significant unmet need. We are advancing our candidates (Betrixaban, Andexanet alfa, Cerdulatinib) using novel biomarker approaches.

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▲ HALL D ENTRY ▲

# 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](mailto:chad.miller2@ohiohealth.com).

BELIEVE IN WE™  OhioHealth

For more information visit [OhioHealth.com/Stroke](http://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  
 mytelemid.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  
 mytelemid.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  
 twiagemed.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 neurologists 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

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- Houston Methodist DeBakey Heart & Vascular Center
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- Memorial Healthcare System
- NICO Corporation
- Nico-Lab Ltd.
- OhioHealth
- Saint Luke's Marion Bloch Neuroscience Institute
- St. John Health System
- St. Jude Medical
- Stryker Neurovascular
- Telespecialists
- Tenet Health System — Sunrise Neurology
- Wolters Kluwer

## ANTITHROMBOTICS

continued from page 6

Differences in responses to novel oral anticoagulants are not as clear, and the available data will be reviewed in “Differences in Impact of Novel Oral Anticoagulants Among Races/Regions,” by Lawrence Wong, MD, chief of Neurology at the Chinese University of Hong Kong.

“In terms of antiplatelet agents, discerning differences can be difficult given the large number of studies and sometimes conflicting findings,” Kamel said. “It can be a question of how to extrapolate North America-based data to Asian populations and, likewise, Asia-based trials, such as the CHANCE trial [Clopidogrel in High-Risk Patients With Acute Nondisabling Cerebrovascular Events], to North American populations.

“It is these types of challenges, which are routinely confronted by clinicians, that are the focus of this important session. The data presented will be useful to the broad community of providers who treat patients with stroke, including stroke neurologists and nurses, stroke team coordinators, emergency department physicians, and others,” he said. “Treating and preventing stroke is a multidisciplinary effort, and this session is for everybody taking care of stroke patients.”

The session’s other moderator, speakers and topics are:

- Co-moderator: Terry Hirano, Kyorin University, Mitaka, Japan
- Differences in Prothrombotic States Among Races/Regions, Toshiyuki Miyata, MD, PhD, National Cerebral and Cardiovascular Center, Osaka, Japan
- Differences in Antiplatelet Choice Among Races/Regions, Oh Young Bang, MD, PhD, Samsung Medical Center, Seoul, South Korea
- Differences in Bleeding Risk and Antidotes Among Races/Regions, Thorsten G. Steiner, MD, professor of neurology and neurointensive care, and vice director of the department of neurology, University of Heidelberg, Germany ■

## REGISTRIES

continued from page 6

Clinic, and Kathy Taylor, chair of vascular dementia at the University of Calgary, Canada, will examine the status of reperfusion in North America.

The symposium is a groundbreaking opportunity to explore the characteristics of existing registries and share outcomes, Heo said. The risk factors for stroke appear to be consistent around the world by age, race and ethnic group. But the ways those risk factors translate into patterns of stroke occurrence, treatment and outcome can vary greatly based on local factors, such as diet, physical activity, tobacco use, access to care and preferred treatment modalities. Large hospital-based registries are emerging as useful tools to explore those patterns and the effects on outcomes.

“We expect that this session will help to promote collaborative work and projects at the national or stroke society level to help us all understand more about the best ways to use registry systems,” Heo said. “Our common goal is to improve clinical practice and outcomes for our patients.” ■

## Poster tours, sessions continue today

SC 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 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 82) or view the Moderated Poster Sessions on the Mobile Meeting Guide app. Decide which section/category of posters you would like to attend. 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, 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 89 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.

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



### Professor-Led Poster tours

5:15-6:15 p.m.

#### Posters TMP1–TMP12

- Acute Endovascular Treatment Moderated Poster Tour II
- Acute Nonendovascular Treatment Moderated Poster Tour
- Cerebral Large Artery Disease Moderated Poster Tour
- Clinical Rehabilitation and Recovery Moderated Poster Tour
- Community/Risk Factors Moderated Poster Tour II
- Emergency Care/Systems Moderated Poster Tour
- Health Services, Quality Improvement and Patient-Centered Outcomes Moderated Poster Tour II
- In-Hospital Treatment and Vascular Cognitive Impairment Moderated Poster Tour
- Preventive Strategies Moderated Poster Tour
- Vascular Biology in Health and Disease and Vascular Malformations Moderated Poster Tour

### Regular Poster sessions

6:15-6:45 p.m.

#### Posters TP1–TP449

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

- Acute Endovascular Treatment Posters II
- Acute Neuroimaging Posters II
- Acute Nonendovascular Treatment Posters II
- Basic and Preclinical Neuroscience of Stroke Recovery Posters II
- Cerebral Large Artery Disease Posters II
- Clinical Rehabilitation and Recovery Posters II
- Community/Risk Factors Posters II
- Diagnosis of Stroke Etiology Posters II
- Emergency Care/Systems Posters II
- Experimental Mechanisms and Models Posters II
- Health Services, Quality Improvement and Patient-Centered Outcomes Posters II
- In-Hospital Treatment Posters II
- Intracerebral Hemorrhage Posters II
- Nursing Posters II
- Pediatric Stroke Posters II
- Preventive Strategies Posters II
- SAH and Other Neurocritical Management Posters II
- Vascular Cognitive Impairment Posters II
- Vascular Malformations Posters II
- Previously Published Science: Abstracts Previously Published or Presented After AHA Acceptance
- Ongoing Clinical Trials Posters II ■

## GENETICS

continued from page 1

how we can prevent and treat these strokes more effectively,” Rosand said.

The most exciting discoveries in the biology of stroke are happening in genetics precisely because these discoveries originate in the people who are affected, rather than in models designed to replicate human disease, said Rosand, a professor of neurology at Harvard Medical School and Massachusetts General Hospital in Boston. Genetic studies open a new window into the physiology and pathophysiology of the human cerebral circulatory system.

Gene variants are natural experiments in human populations. Genome-wide association studies, whole-exome sequencing studies, whole-genome sequencing studies and other genetic tools allow researchers to explore disease mechanisms in natural populations in ways that have not been possible before.

Every new mechanism and clue about the natural history of stroke that human genetics yields is an opportunity to develop a new treatment strategy.

Martin Dichgans, MD, professor of neurology and director of the Institute for Stroke and Dementia Research at Ludwig Maximilians University in Munich, discussed the transformation of research on

the histone deacetylase gene into a highly targeted search for pharmacologic agents to prevent stroke.

Variants of the HDAC gene are associated with ischemic stroke as well as other conditions. At least four HDAC inhibitors are being used for oncologic indications. HDAC inhibitors also are being studied in neurodegenerative diseases, psychiatric disorders, addiction and inflammatory disease states, and now, in stroke.

Research into the Forkhead Box F2 gene is moving toward therapeutic targets for cerebral small-vessel disease. Myriam Fornage, PhD, Laurence & Johanna Favrot Distinguished Professor in Cardiology at the University of Texas Health Science Center in Houston, discussed the association of specific FOXF2 variants with smooth muscle and pericyte maturation defects. These defects increase risk for lacunar stroke.

Douglas Gould, PhD, associate professor of ophthalmology and anatomy at the University of California School of Medicine in San Francisco, explored the role of hereditary small-vessel diseases in developing therapeutic strategies.

Gould focused on the COL4A1 and COL4A2 genes, which play major roles in the formation and function of basement membranes. These extracellular matrices act as dynamic and versatile signaling platforms that regulate tissue development, function

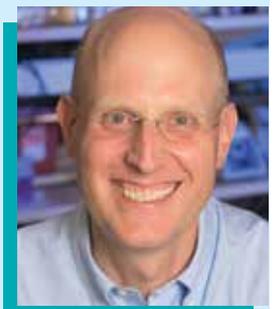
and repair. Rare variants in these genes cause hereditary stroke. More common but less potent variants contribute only slightly to stroke risk.

“Because these genes seem

to be involved both in the development of familial stroke and more common forms of stroke, what we learn in hereditary stroke might allow us to develop treatments for more common disease more quickly,” Rosand said.

The final presentation investigated the use of genetic testing for stroke survivors to assess their risk of recurrent stroke. Alessandro Biffi, MD, recipient of this year’s Robert G. Siekert New Investigator Award, discussed the latest findings linking specific variants of the APOE gene in stroke survivors at increased risk for a second stroke. Biffi is an instructor in neurology at Harvard Medical School and an assistant in neurology at Massachusetts General Hospital in Boston.

“We can now assign individual scores based on disease-related gene variants and consider treating them differently, perhaps more aggressively, because they are at higher risk for a recurrent stroke,” Rosand said. ■



Jonathan Rosand, MD, MSc

## Medtronic Stroke Care Solution

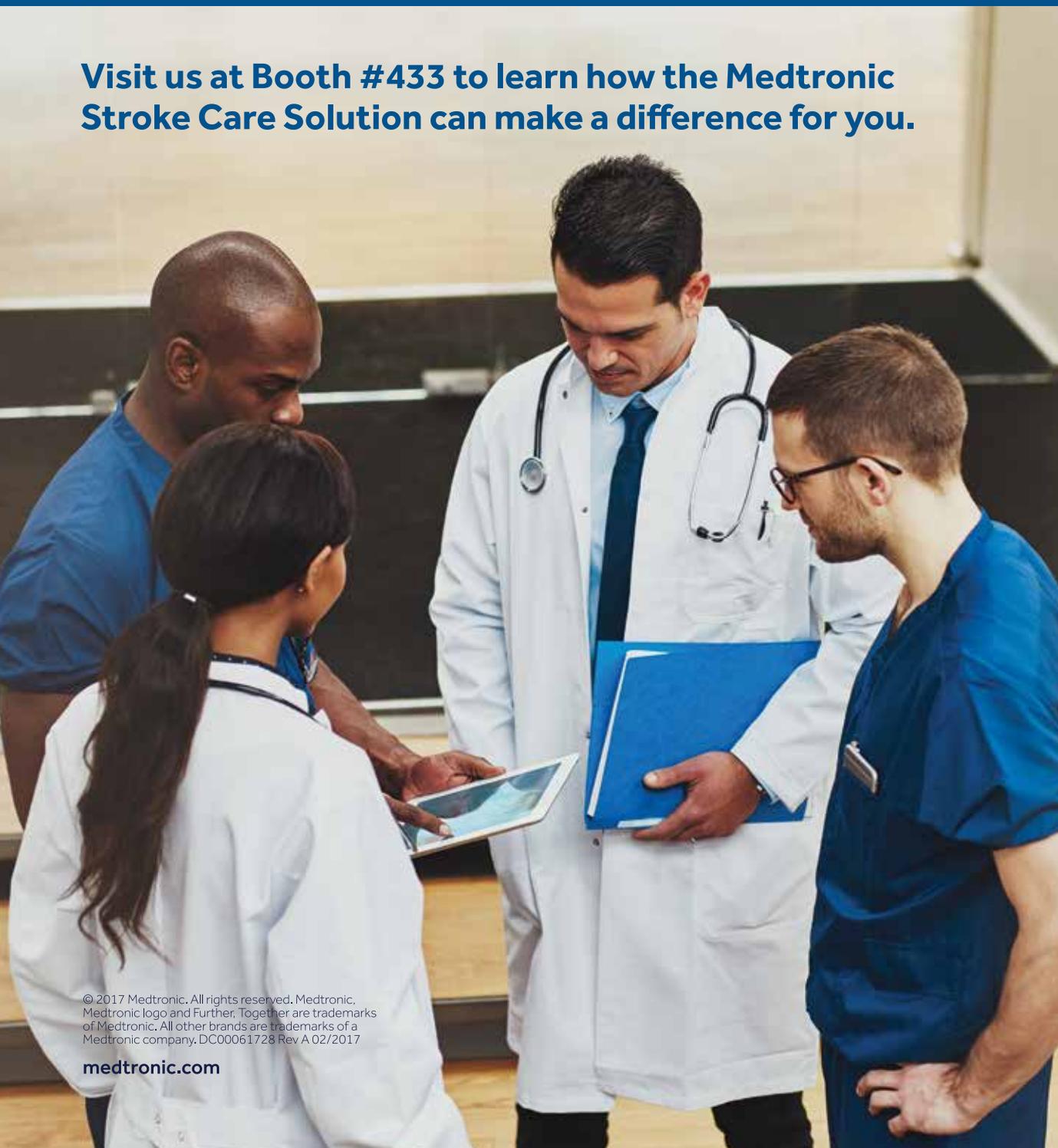
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# STRATIS STROKE REGISTRY

Systematic Evaluation of Patients  
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Come hear the results of this large, real-world system of care study – including transfer distances, referral patterns, times and location of stroke onset to ultimate interventional treatment.

**LIVE AT ISC: Thursday / 2:42 p.m.**  
GRAND BALLROOM B

FIND OUT  
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MEDTRONIC  
BOOTH #433.

## DON'T MISS:

Interhospital transfer prior to thrombectomy is associated with delayed treatment and worse outcome in the STRATIS registry

**THURSDAY**

**2:42 p.m. - 2:54 p.m.**

ABSTRACT PRESENTATION

Grand Ballroom B

Serial ASPECTS from Baseline to 24 hours: Impact of Endovascular Therapy in STRATIS

**THURSDAY**

**5:30 p.m. - 5:35 p.m.**

POSTER PRESENTATION

Hall E

Collateral Negate Time: Topography and Determinants of Baseline ASPECTS in STRATIS

**THURSDAY**

**6:15 p.m. - 6:45 p.m.**

POSTER PRESENTATION

Hall E



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