Aurora launches sudden cardiac death prevention center

Sudden cardiac death affects more than 300,000 people in the United States each year. Cardiac channelopathies represent a growing class of inherited or acquired syndromes that are responsible for sudden cardiac death. These syndromes are treatable; most deaths are preventable with correct diagnosis and therapy.

Aurora Health Care on May 13 launched its Cardiac Channelopathy Center at Aurora St. Luke’s Medical Center, Milwaukee, to prevent sudden cardiac death in patients with cardiac channelopathies. The center is led by electrophysiologist Indrajit Choudhuri, MD.

“The awareness that prevalence of cardiac channelopathy is far underestimated and that a significant number of patients across the country may suffer from these diseases with dire consequences has led to the development of the Cardiac Channelopathy Center to offer a resource for providers across the system and the state,” Dr. Choudhuri said.

Cardiac channelopathies include long QT, short QT and Brugada syndromes as well as catecholaminergic polymorphic ventricular tachycardia (CPVT). They pose a unique diagnostic and management challenge because the abnormalities are molecular, consequences are severe and treatment may have significant physical and psychological impact. They also may affect family members and generations of family members.

Cardiovascular Aging Arshad Lahangir, MD, and his team are studying the molecular mechanisms that lead to cardiac channelopathies and developing interventions to reduce such susceptibilities.

Myocardial cells have pores or channels that penetrate the myocyte membrane and allow ions to pass in and out of the cell.

Continued on pg. 7

Examples of cardiac channelopathy manifestation by echocardiography in the four-chamber view (A), electrocardiogram (B), cardiac cell (C), action potential diagram (D), ion channel depiction (E), ion channel current patch clamp recording (F), gene sequence (G) and genetic sequencing (H).
Clinical trial:
Researchers study alternative option for coronary heart disease treatment

Aurora St. Luke’s Medical Center is the only site in Wisconsin where researchers are evaluating a bioresorbable vascular scaffold as an alternative to drug-eluting stents in the treatment of subjects with ischemic heart disease.

Principal investigator Suhail Allaqaiband, MD, and his team are participating in the ABSORB III clinical trial (clinicaltrials.gov identifier: NCT01751906), studying the first-of-its-kind Absorb Bioresorbable Vascular Scaffold in comparison to the XIENCE family of drug-eluting stents in the treatment of subjects with ischemic heart disease caused by up to two de novo native coronary artery lesions in separate epicardial vessels. Both devices are made by Abbott (Abbott Park, IL).

“In unlike a permanent metallic implant, a stent is not left behind in the body with the Absorb Bioresorbable Vascular Scaffold,” Dr. Allaqaiband said. “This technology could change the way patients with coronary heart disease are treated.”

Dr. Allaqaiband and his team are documenting target lesion failure at one year. The trial will include about 2,250 subjects nationwide.

Clinicians seeking information on alternative treatment options for ischemic coronary artery disease may contact clinical research coordinator Susan Oxborough, RN, CCRC, at 414-385-2475 or susan.oxborough@aurora.org.

2012 Vascular Volumes

2,041
peripheral vascular interventions
(noncoronary angioplasty and stent insertion)

816
other operations on vessels

465
other endovascular procedures on vessels

292
carotid endarterectomies

278
surgical occlusions of vessels

204
other endarterectomies

178
open bypasses - lower extremities

160
endovascular abdominal aortic aneurysm repairs

129
precerebral and intracranial/neurovascular percutaneous vascular interventions
(noncoronary angioplasty and stent insertion)

108
below-knee amputations

86
open thoracic aortic aneurysm repairs

54
above-knee amputations

42
open abdominal aortic aneurysm repairs

29
endovascular thoracic aortic aneurysm repairs

16
other resections or replacements of vessel with anastomosis
Clinical trial: SURTAVI open to intermediate surgical risk study participants

After reported success in a clinical trial studying the use of transcatheter aortic valve implantation (TAVI) in symptomatic subjects with severe aortic stenosis who were at high or very high risk for aortic valve surgery, researchers sought to test the method in a broader population.

Aurora St. Luke’s Medical Center has participated in this groundbreaking research, initially, as part of the Medtronic Inc. CoreValve (Minneapolis, Minn.) clinical trial and, now, as part of the Surgical Replacement and Transcatheter Aortic Valve Implantation (SURTAVI) clinical trial, which will expand the scope to intermediate surgical risk subjects with symptomatic severe aortic stenosis.

Interventional cardiologist Tanvir Bajwa, MD, and cardiovascular and thoracic surgeon Daniel O’Hair, MD, lead the multidisciplinary team studying the safety and efficacy of TAVI with the CoreValve System in this new population at Aurora St. Luke’s, Milwaukee.

Aurora St. Luke’s is the only hospital in Wisconsin participating in the SURTAVI study (clinicaltrials.gov identifier: NCT01589910), which will include about 2,500 subjects globally.

In the U.S., CoreValve is an investigational device, limited by federal law to investigational use. Subjects who enroll in this randomized study will either undergo TAVI with the CoreValve System or surgical aortic valve replacement.

During transcatheter aortic valve implantation via a transfemoral, subclavian or direct aortic access, an artificial aortic valve is attached to a wire frame and guided by catheter to the heart. Once in the proper position, the wire frame expands, allowing the new aortic valve to open and begin to pump blood.

Drs. Bajwa and O’Hair are documenting whether the CoreValve System is noninferior to surgical aortic valve replacement in the intermediate surgical risk population for treatment of symptomatic severe aortic stenosis based on the composite primary endpoint of all-cause mortality and disabling stroke at 24 months.

More than 300,000 people worldwide have severe aortic stenosis, which can be congenital or acquired due to buildup of calcium deposits on the aortic valve, radiation therapy, medications or a history of rheumatic fever. Symptoms include angina, syncope, heart failure, arrhythmias and cardiac arrest. The TAVI option provides a minimally invasive alternative to open heart surgery.

Clinicians seeking information on alternative treatment options for severe aortic stenosis may email christopher.koblosky@aurora.org or call 414-649-3929.

2012 Volumes
Invasive Cardiology
10,822 heart catheterizations and coronary angiographies
3,109 percutaneous coronary interventions
743 myocardial biopsies
110 patent foramen ovale/atrial septal defect closures
68 endovascular and transcatheter aortic valve replacements
45 percutaneous balloon valvuloplasties
7 percutaneous mitral valve repairs with mitral clip
Cardiovascular and Thoracic Surgery
794 coronary artery bypass grafts
510 valve repairs and replacements
101 valve annuloplasties
94 surgical MAZE procedures

Tanvir Bajwa, MD
Medical Director of the Cardiac/Peripheral Interventional Program, Clinical Director of the Vascular Center, Director of the Interventional and Advanced Interventional Fellowship Programs

Daniel O’Hair, MD
President of Cardiovascular and Thoracic Surgery, Director of Surgical Robotics, Director of Interventional Cardiac Surgery

Referrals and Consultations | 888-859-4433 | 414-649-3530 | 3
Third time’s the charm for cardiac bypass patient
California man finds Aurora researcher after running out of options back home

Bill Groechel, a Milwaukee transplant now living in the San Francisco Bay Area, had access to some of the best hospitals in the country, but when his second bypass began failing, West Coast surgeons said they could do no more.

Groechel was devastated.
“It’s amazing to think that I live in the hotbed of medical development in California,” he said. “But they couldn’t do anything.”

It was then that he sought out experts back home at Aurora St. Luke’s Medical Center.

Heart-stopping news
Groechel had his first bypass—a double bypass—in 2000. The results were good, but in 2010, he needed another surgery—this time a triple bypass.
Within months, his artery closed up. Groechel went back to the doctor, expecting to hear a treatment plan, but the doctors said there weren’t any options left.

“It ended pretty abruptly. They said there’s nothing left we can do for you,” Groechel said.

Groechel had always been a very active person—kayaking, sailing and jet-skiing are just a few of his hobbies. With his heart trouble though, going up a flight of stairs was difficult. As his heart function reduced quickly, the Groechels began rewriting their trusts.

But Groechel was not ready to give up.

He looked for options—and so did his family. His niece, Susan Rusch, MD, a Milwaukee-area pathologist, began researching doctors who were experts in cardiac care. Her search brought her to Imran Niazi, MD, an Aurora Health Care electrophysiologist.

Cutting-edge cardiac care
Dr. Rusch learned of Dr. Niazi while researching cardiac resynchronization therapy. His DIVA study on dual-site left ventricular pacing is listed in a national database maintained by the FDA (clinicaltrials.gov identifier: NCT00944125).

“She contacted me after checking around, and because I was an expert in this form of therapy,” Dr. Niazi said.

The methods Dr. Niazi pioneered, which are not used anywhere else in the world, would be vital to a successful surgery.

Using a multidisciplinary approach, Dr. Niazi’s team included imaging specialists Khawaja Afzal Ammar, MD, and Daniel Bloomgarden, MD, PhD. Dr. Ammar used three-dimensional echocardiography with speckle tracking to identify mechanical dyssynchrony and the site of latest mechanical activation in the heart.

Dr. Bloomgarden used cardiac magnetic resonance imaging to locate scarred areas in Groechel’s left ventricle. Dr. Niazi then implanted a biventricular implantable cardioverter-defibrillator with two left ventricular leads instead of one—a technique Dr. Niazi developed. He then used coronary venoplasty to deliver the leads to the appropriate veins.

“It was truly a group effort,” Dr. Niazi said. “There were multiple physicians each with cardiac subspecialties. We were brought together to focus on one problem to get the best result for the patient.”

The surgery was based on 10 years of comprehensive research. This groundbreaking research allowed Groechel a
Feeling ‘like a million bucks’

The surgery increased Groechel’s ejection fraction from 22% to 32% almost immediately.

“I’ve felt like a million bucks since!” he said.

Groechel traveled back to Milwaukee for his three-month follow-up with heart failure specialist T. Edward Hastings, DO. Groechel’s heart – and health – is still going strong. For continuing care, Dr. Niazi had selected a colleague in California who will work with Groechel.

“If Dr. Niazi trusts him, I trust him,” Groechel said.

Now back in California, Groechel is enjoying his favorite activities like sailing and kayaking.

“One of my first questions after surgery was, ‘can I get back on my jet skis now?’ and Dr. Niazi said yes,” Groechel said.

Though he calls the West Coast his home, Groechel is proud to come from Milwaukee – and proud to be an Aurora patient.

“I’ve spent an awful lot of time in different hospitals in the past 20 years,” he said. “I’ve seen the technology change a lot. But this, at St. Luke’s, has definitely been the best experience.

“St. Luke’s is truly on the forefront of medical care and heart care.”

---

**2012 Volumes**

**Cardiac Electrophysiology and Pacing**

- **1,259** atrial cardioversions
- **1,139** electrophysiology studies
- **1,091** percutaneous cardiac ablations
- **1,007** pacemaker implants (initial and replacement)
- **963** cardiac maps
- **856** implantable cardioverter-defibrillators (including cardiac resynchronization therapy devices)

**Ventricular Assist Device and Transplant**

- **713** tilt tests
- **145** biventricular pacemakers (initial and replacement)
- **50** lead extractions (performed in the operating room)

**Ventricular Assist Device and Transplant**

- **37** heart transplants
- **34** ventricular assist devices
- **2** artificial heart transplants

---

Imran Niazi, MD
Electrophysiologist

Khawaja Afzal Ammar, MD
Cardiologist, Associate Director of the Cardiovascular Disease Fellowship Program

T. Edward Hastings, DO
Co-director of Heart Failure and Transplant Cardiology

Daniel Bloomgarden, MD
Radiologist

---

Referrals and Consultations | 888-859-4433 | 414-649-3530 | 5
Recognition

Aurora St. Luke’s Medical Center in Milwaukee was the only hospital in Wisconsin to receive the American Heart Association/American Stroke Association’s Get With The Guidelines’ quality programs Gold Plus designation in both the heart failure and stroke categories.

Get With The Guidelines’ recognizes hospitals for using evidence-based guidelines to improve quality of care of patients with heart disease and stroke.

Gold hospitals follow treatment guidelines in certain key measures at least 85 percent of the time and have maintained this performance level for consecutive 12-month intervals. The Plus award represents an additional 75 percent compliance with module-specific quality measures for at least 12 consecutive months.

Nationwide, as of March 1, 2013, 61 hospitals received the Gold Plus designation in both the heart and stroke categories. A total of 925 hospitals were recognized with either the Gold or Silver designations, some with the additional Plus designations, in the heart or stroke categories, or both. Silver hospitals also follow treatment guidelines in certain key measures at least 85 percent of the time but have maintained the performance level for at least 12 months.

Aurora Memorial Hospital of Burlington and Aurora Lakeland and Aurora Sheboygan Memorial Medical Centers earned the Gold Plus designation in the stroke category and Silver designation in the heart failure category. Aurora Medical Center in Grafton and Aurora West Allis Medical Center earned the Silver Plus designation in both categories. Aurora BayCare Medical Center achieved Silver Plus for stroke and Silver for heart failure. Aurora Sinai Medical Center achieved Gold Plus for stroke; Aurora Medical Centers in Kenosha and Summit achieved Silver Plus for stroke; and Aurora Medical Center in Oshkosh achieved Silver for heart failure.

Faculty appointment

Warren M. Jackman, MD
George Lynn Cross Research Professor for the University of Oklahoma Health Sciences Center, Senior Scientific Advisor of Heart Rhythm Institute

Visiting Professor Warren M. Jackman, MD, provides one of the didactic components of the Aurora Health Care Clinical Cardiac Electrophysiology Fellowship Program. Once a month Dr. Jackman attends two to three live cases as well as lectures Aurora fellows who are pursuing advanced training in electrophysiology.

A preeminent electrophysiologist, Dr. Jackman performed the earliest accessory pathway (WPP) and slow pathway (atrioventricular nodal reentrant tachycardia) catheter ablation procedures in the world. He is a George Lynn Cross research professor for the University of Oklahoma Health Sciences Center and senior scientific advisor of Heart Rhythm Institute.

His research has resulted in many accolades including for his work in the development of catheter ablation techniques. He has published more than 300 abstracts, 40 invited reviews and 100 original research manuscripts.

For information about Cardiovascular Disease, Electrophysiology and Interventional Cardiology fellowship programs at Aurora, contact Jodie Ruffin at 414-219-7190 or jodie.ruffin@aurora.org or Julie Miller at 414-219-7187 or julie.miller@aurora.org.

Physician achievement

The Wisconsin Chapter of the American College of Cardiology elected Aurora Health Care interventional and preventive cardiologist Anthony C. DeFranco, MD, to the national organization’s Board of Governors. In this role Dr. DeFranco will serve as president of the state chapter, participate in lobbying on Capitol Hill and in the state legislature, and act as liaison between the state and national organizations.

Dr. DeFranco has served on the state chapter’s council as secretary-treasurer since 2007. He and other ACC-WC members have worked to improve quality and reduce costs for patients via the SMARTCare initiative, which would couple quality care with physician reimbursement for improved patient outcomes.

Anthony C. DeFranco, MD
Interventional and Preventive Cardiologist, Medical Director of Cardiovascular Quality, Wisconsin Chapter-American College of Cardiology Incoming Governor-Elect
The normal transmembrane movement of ions is critical to normal cardiac electrical and mechanical functions. Changes to ion channels at the molecular level alter ion channel function and, therefore, ion flux, which then modifies various physical properties of myocardial electrical conductance such as current flow, resistance and voltage. These abnormalities can result in abnormal myocardial electrical behavior that, in some situations, may directly or indirectly predispose patients to life-threatening arrhythmias and sudden cardiac death.

When these abnormalities are discovered in the absence of structural heart disease or other predisposing conditions (e.g., drug and/or electrolyte interactions), the abnormality is ascribed to a primary ion channel dysfunction (channelopathy).

In the new clinic, patients with a suspected diagnosis of a channelopathy will undergo comprehensive diagnostic and genetic testing. A genetic counselor will assist in test interpretation and family planning. In some cases, family members may be screened for the mutation.

"Genetic testing results require careful interpretation and have implications for family screening, planning and counseling," Dr. Jahangir said.

**Diagnosis and treatment**

Syncope may be the only warning sign of a heritable cardiac channelopathy. Physicians also should refer patients when there is a family history of unexplained syncope or sudden death. Other reasons include recognition of altered conduction pattern on an electrocardiogram in an otherwise healthy young person.

"As an electrophysiology nurse, I am thrilled to be part of the Cardiac Channelopathy Center," said Kristin Kubsch, RN, "It is another example of how Aurora St. Luke's Medical Center is providing exceptional cardiac services for patients and their families."

After a cardiac channelopathy diagnosis is confirmed, the physician will order appropriate treatment, which may include medications or cardiovascular implantable electronic devices.

For information, contact the Cardiac Channelopathy Center at 414-365-2400.

---

**Aurora Cardiovascular Services**

**Medical education events**

To request information or register, please contact Laurel Landis at laurel.landis@aurora.org or 414-219-7684, unless otherwise noted.

**Aug. 12, 2013 | Milwaukee, WI**
Greater Milwaukee Heart Failure Series 2013

**Aug. 17 to 18, 2013 | Milwaukee, WI**
Echo Milwaukee: The Pyramid of Success

**Oct. 11 to 13, 2013 | Lake Geneva, WI**
Cardiology Update: A Weekend Review at Lake Geneva

**Nov. 4, 2013 | Milwaukee, WI**
Greater Milwaukee Heart Failure Series 2013

**Dec. 5 to 8, 2013 | San Diego, CA**
ePIC: Excellence in the Practice of Cardiovascular Ultrasound – Denise Mezydlo
414-649-5616 | denise@medmeetingsetc.org

**Dec. 6 to 7, 2013 | Chicago, IL**
AF/VT/VF Summit

**Feb. 15, 2014 | Pewaukee, WI**
23nd Annual New Developments in Cardiology

**April 4 to 5, 2014 | Milwaukee, WI**
Valvular Heart Disease: Newer Management Strategies Case-Based Approach

**May 2014 | Pewaukee, WI**
Care of Patients With Arrhythmias: From Bedside to Clinic

**May 22 to 25 2014 | New York, NY**
Sights and Sounds of Echocardiography: In the Heart of the Big Apple – Denise Mezydlo
414-649-5616 | denise@medmeetingsetc.org
Advanced medical services are available at Aurora’s 15 hospitals and 155 clinics located throughout eastern Wisconsin and northern Illinois.

Contact us
Referrals and consultations
888-859-4433 | 414-649-3530
cardiovascular@aurora.org
AuroraHealthCare.org/Services/Cardiovascular

Clinical Editors
Anthony C. DeFranco, MD | Imran Niazi, MD

Advising Editors
Masood Akhtar, MD | Kelly Ellifson | Ankur Sharma | A. Jamil Tajik, MD

Managing Editor | Katie Klein
Associate Editor | Joe Grundle

The information provided in Cardiovascular News and Views is geared toward primary care physicians and cardiologists, and is provided for educational purposes only. Aurora has made every effort to ensure that the content of this newsletter is accurate, correct and current, and Aurora is not liable for any unintentional errors. References to websites and other resources have been chosen carefully, but those references do not imply endorsement, and Aurora is not responsible or liable for the information provided through those websites or other resources. Under no circumstances will Aurora be liable under any theory of recovery for damages arising out of or in any manner connected with the use of information from this newsletter.

The information presented in this newsletter is intended for general information and educational purposes. It is not intended to replace the advice of your own physician. Contact your physician if you believe you have a health problem.