

# Cardiology

## The Heart & Vascular Center: Multidisciplinary Approach Offers Improved Patient Care

**W**ashington University cardiologists, cardiac surgeons and vascular surgeons have partnered with Barnes-Jewish Hospital to provide a new, fully integrated approach to heart and vascular patient care, education and research. The Washington University and Barnes-Jewish Heart & Vascular Center is a collaborative effort to provide seamless integration of heart and vascular care for patients. “As part of an academic health care center, we have always applied a team approach to the care of cardiovascular patients. This new initiative will only further enhance our abilities to collaborate to provide innovative treatment and clinical trial options, such as the PARTNER trial, to our patients. The educational experience for our fellows will also be enhanced as they participate in these multidisciplinary efforts,” says Douglas L. Mann, MD, chief of the Cardiovascular Division in the Department of Medicine.

Washington University cardiovascular physicians, ranked among the best in the nation by *U.S. News & World Report*, provide outpatient care to more than 5,000 cardiology patients each month. Through their efforts, they have advanced groundbreaking research in the areas of thrombolytics for acute myocardial infarction, biomarkers for cardiac injury, and cardiac imaging.

Heart and vascular care is available at the Center’s five locations throughout Missouri, including at the Center for Advanced Medicine on the campus of Washington University Medical Center, at Barnes-Jewish



More than 80 board-certified physicians provide patient care through the Heart & Vascular Center.

West County Hospital, as well as in Rolla, Farmington and South St. Louis County. Newly renovated patient care areas and

offices are planned for the Center’s locations at the Center for Advanced Medicine and in West County. ■

## Heart & Vascular Center



NATIONAL LEADERS IN MEDICINE

The mission of the Washington University and Barnes-Jewish Heart & Vascular Center is to achieve excellence in patient care, research and education through seamless integration of heart and vascular care. The Heart and Vascular Center is committed to promoting heart and vascular health through education, prevention and treatment of heart and vascular disease.

## Message from the Chief



We're very pleased to send you this inaugural issue of the **Washington University Cardiovascular Alumni Newsletter**.

Much has been happening in the Divisions of Cardiovascular, Cardiac Surgery and Vascular Surgery. Eleven years after launching the Washington University Heart Care Institute, leadership from the cardiovascular, cardiac surgery and thoracic surgery divisions have teamed with Barnes-Jewish to launch the Washington University and Barnes-Jewish Heart & Vascular Center. With five locations throughout the region and a commitment to growth, we look forward to accomplishing our

goal of ranking among the top five heart and vascular centers in the country. And we are well on our way, as we continue to select outstanding trainees for the fellowship program, as well as recruit new clinician-scientists to the faculty and develop new multidisciplinary programs.

As part of our role as national leaders in cardiovascular care, we recently hosted a symposium at the annual meeting of the American Heart Association to provide updates and disseminate information on the results of the PARTNER trial of transcatheter aortic valve implantation.

In addition to news and events, each issue will include one short feature on the latest innovations in cardiovascular patient care at the new Washington University and Barnes-Jewish Heart & Vascular Center, as well as a short feature on recent or ongoing research, which may be of interest to you in your current work. We've also made plans to include a routine column featuring an update on one of our alumni. This issue you can learn what is happening in the world of alumna Courtney Virgilio, MD.

It is our hope to make this newsletter meaningful for you. We invite each of you to let us know what is happening with you, both on professional and personal fronts. Feel free to contact the fellowship administrative offices with any updates, or become our fan on Facebook to find out the latest updates from the Cardiovascular Division, to share your own updates and to stay connected with colleagues and friends.

Best wishes for a safe and happy New Year,

**Douglas L. Mann, MD**

*Chief, Cardiovascular Division*

### The following new research awards were made to cardiology faculty during March - August 2010.\*

**Daniel S. Ory, MD:** NIH R01 HL103001: Regulation of cholesterol homeostasis by noncoding RNAs

**Brian R. Lindman, MD:** Washington University CTSA (Institute of Clinical and Translational Sciences pilot project): Medical therapy for aortic stenosis: role of PDE5 inhibition

**Brian R. Lindman, MD:** NIH KL2 (career award) from the Washington University ICTS

**Attila Kovacs, MD:** NIH Shared Instrumentation Grant: High-resolution ultrasound system for cardiovascular phenotyping in mice

**Peter A. Crawford, MD, PhD:** Diabetic Cardiovascular Disease Center: Nutritional therapy for diabetic cardiomyopathy

**Linda R. Peterson, MD:** Diabetic Cardiovascular Disease Center: Energetic effects of ketone metabolism in insulin resistance

In addition, **Douglas L. Mann, MD**, and **Victor G. Davila-Roman, MD**, have been chosen via an internal competition to submit an application to the NIH in response to RFA HL-12-001: Heart Failure Clinical Research Network Regional Clinical Centers. They will submit an application for a grant to fund a seven-year regional clinical center for heart failure research in December 2010.

\*Total number of applications submitted was 41, including noncompeting applications, during this same time period.

## CONTACT INFORMATION

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**South County:**  
314-362-1291

**Barnes-Jewish West County:**  
314-362-1291

**Toll-Free Appointment Line:**  
888-210-8375



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on Facebook!

Masthead image courtesy of Pamela Woodard, MD, Washington University Advanced Cardiac Imaging (CT/MR) Program.

# ALUMNI

## News & Awards



Andrew M. Kates, MD

### NEW DIRECTOR OF FELLOWSHIP PROGRAM

Andrew M. Kates, MD, has been appointed Program Director of the Washington University Cardiovascular Fellowship. Kates, who specializes in coronary artery disease, heart disease prevention, valvular heart disease and echocardiography, is an associate professor of medicine and an alumnus of both the Washington University Internal Medicine Residency Program and Cardiovascular Fellowship. To refer an applicant to our program, or for more information, please contact Andy Kates, MD, at 314-362-1297 or akates@dom.wustl.edu.

Many fellowship activities, including vital research to further innovations in cardiovascular care, are funded in whole or in part through the generosity of our alumni. If you are interested in giving back to Washington University and future cardiology fellows, please contact Doug Mann, MD, or Andy Kates, MD, at **314.747.3031**

### Alumni Update: Courtney Virgilio, MD

#### Currently:

Practicing non-invasive cardiology and imaging with Fox Valley Cardiovascular Consultants and the Women's Heart Center in Aurora, Ill., which will soon be integrating with Rush-Copley Medical Center, an affiliate of Rush University Medical Center; recently appointed the Medical Director of Noninvasive Cardiac Diagnostics; participating in clinical trials through Fox Valley Clinical Research Center

#### Favorite Ways to Spend Time Away from Work:

Courtney enjoys time playing baseball and soccer with her sons, Joey and Nicholas. She also still enjoys cooking and baking and notes her "... chocolate addiction has not lessened with time ... but it's heart healthy, right?"

#### In her words — Favorite fellowship memories:

1) Jas Singh telling the patient having an acute MI "You will be alright, my friend," as he proudly opened the artery with amazing precision; 2) The awe of deploying my first stent with Dr. Lasala during an acute MI as a new second year fellow at two o'clock in the morning; 3) Reading echos with Majesh and not only learning a ton about echocardiography but appreciating the genuine enthusiasm that he has for his work, as well as for life in general.

Contact Courtney at [cvirgilio@gmail.com](mailto:cvirgilio@gmail.com)



The Virgilio Family (left to right): **Top row:** Joe (husband), Courtney. **Bottom row:** Joey (4 years old), Nicholas (2 years old). **Very bottom row:** Lira (the family pet)

### Meet the Fellows

#### First Year Clinical:

Elisa Bradley, MD  
Jeremiah Depta, MD  
Derrick Fansler, MD  
Corey Foster, MD  
Jeffrey Lau, MD, PhD  
Kory Lavine, MD, PhD  
Sara Martinez, MD, PhD  
Shimoli Shah, MD  
Shivak Sharma, MD  
Justin Vader, MD

#### Second Year Clinical:

Alok Bachuwar, MD  
Risa Cohen, MD, PhD  
Chirayu Gor, MD  
Iliia Halatchev, MD, PhD  
Shane LaRue, MD  
William Nienaber, MD  
Ashwin Ravichandran, MD  
Mohammed Saghir, MD  
Jay Shah, MD

#### Second Year Research:

Veli Topkara, MD

#### Third Year Clinical:

Slava Epelman, MD, PhD  
Pei-Hsiu Huang, MD  
Jiafu Ou, MD  
Yogesh Patel, MD  
Anupama Rao, MD  
Kristin Scott-Tillery, MD  
Michael Yeung, MD

#### Third Year Research:

Suzanne Arnold, MD  
Jie Ren, MD, PhD  
John Verbsky, MD, PhD

#### Fourth Year Research:

Christopher Holley, MD, PhD  
Ajit Janardhan, MD, PhD  
Scott Marrus, MD, PhD  
Arun Thukkani, MD, PhD

#### Sixth Year Research:

Ari Cedars, MD

#### Electrophysiology Fellows:

Jefferson Lee, MD  
Daniel Cooper, MD  
Andrew Krainik, MD  
Thomas (Bobby) Kurian, MD

#### Interventional Fellows:

Sudeshna Banerjee, MD  
Chun (Huie) Lin, MD, PhD



# FACULTY

## News & Awards

### Partnering to Improve Management of Valvular Heart Disease

Specialists from the Washington University and Barnes-Jewish Heart & Vascular Center hosted a special satellite symposium in November as part of the American Heart Association's Annual Meeting in Chicago, Ill. The symposium Update on Management of Valvular Heart Disease featured presentations on the pathobiology, medical management, and percutaneous and traditional surgical management techniques of valvular disease from leading experts, including Peter C. Block, MD, Ralph J. Damiano Jr., MD, Gerald M. Lawrie, MD, Brian R. Lindman, MD, Douglas L. Mann, MD, Catherine M. Otto, MD, and Alan Zajarias, MD. The symposium provided more than 65 participants the opportunity to increase their knowledge of mitral and aortic valve disease as well as the use and efficacy of transcatheter aortic valve implantation (TAVI). Attendees were eligible for a maximum of two AMA PRA Category 1 credits.



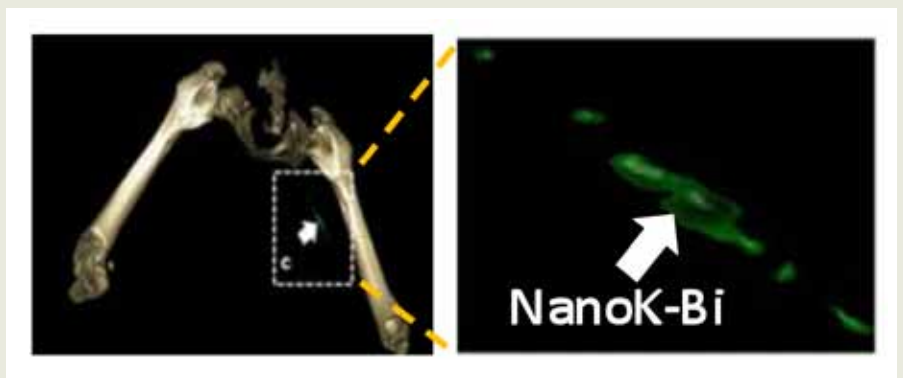
### At the Heart of Education

Dana R. Abendschein, PhD, associate professor of cell biology and physiology, received Distinguished Service Teaching Awards from the Class of 2013 for his work with the first-year organ systems physiology course in which he teaches ECG, auscultation and cardiac function, and from the Class of 2012 for his work as coursemaster and lecturer in the second-year cardiovascular diseases course.

### Diagnosing Acute Coronary Syndrome in Patients with Chest Pain Presenting to the Emergency Department

*D Pan, SC Caruthers, SA Wickline and GM Lanza*

More than 8 million patients come to emergency departments (ED) with complaints of chest pain and many require hospital admission and noninvasive stress testing to determine cardiac risk. Development Spectral (multicolor) CT and a novel fibrin-targeted agent, NanoK, may differentiate patients with acute coronary syndrome in the ED. Spectral CT with fibrin-specific nanoparticles extends traditional CT coronary imaging by offering the potential to detect ruptured plaque microthrombus without coronary calcium attenuation interference. NanoK bound to ruptured plaque thrombus in the coronary can be specifically seen by Spectral CT, allowing patients with chest pain due to coronary plaque rupture to be recognized and differentiated from others with non-coronary symptoms.



# Leveraging discovery and technology to improve clinical care

## Cardiovascular disease is the leading cause of complications and death in people with diabetes,

affecting two-thirds of the over 20 million diabetics in the United States. The Washington University Diabetic Cardiovascular Disease Center, led by **Jean E. Schaffer, MD**, and **Daniel S. Ory, MD**, is focusing on this important clinical problem.

The center brings together teams of scientists from eight departments within the Washington University School of Medicine to explore the interactions between derangements in blood sugar and lipids levels and the aggressive and unique forms of myocardial and vascular disease to which diabetics are particularly predisposed.

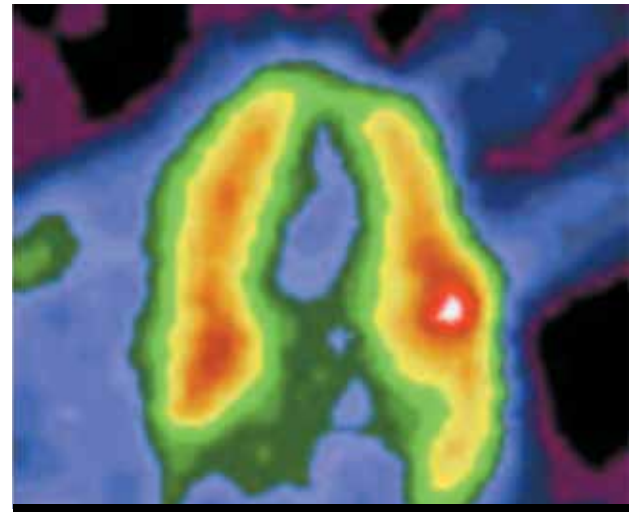
The center has two broad objectives. The first is to uncover the molecular basis of cardiovascular disease in diabetes, which is essential for the development of novel therapeutics.

A second objective is to discover and validate novel biomarkers that facilitate early diagnosis, management and prevention.

A team of imaging scientists, basic investigators and clinicians, led by radiologist **Robert J. Gropler, MD**, and cardiologist **Linda R. Peterson, MD**, are evaluating new, non-invasive imaging techniques in collaborative studies by building on expertise in positron emission tomography and ultrasonography.

In another approach, teams of basic and clinical investigators from the center are leveraging mass spectrometry methods for quantification of lipid metabolites pioneered by **Richard W. Gross, MD, PhD**, to identify specific metabolic products in the blood that can serve as early markers of diabetes complications.

As a catalyst for broad research exploration that connects laboratory findings to clinical innovations, the Diabetic Cardiovascular Disease Center is creating a new paradigm for translating basic discoveries into tangible advancements in patient care. Ory's and Schaffer's research on a development of



Positron emission tomography imagery of the heart of a pre-diabetic patient following injection of  $^{11}\text{C}$ -palmitate, a tracer used to quantify fatty acid metabolism.

molecular biomarkers for Niemann-Pick type C, a rare cholesterol storage disease was published in *Science Translational Medicine* in November 2010. The fatal genetic disorder, which frequently takes years to diagnose, may soon be detectable with a simple blood test.

Learn more about Niemann-Pick type C research at Washington University School of Medicine by visiting [medicine.wustl.edu/Niemann-Pick](http://medicine.wustl.edu/Niemann-Pick). ■

## Publications

Acute aortic dissection: clinician update. **Braverman, AC**. *Circulation*. 2010 Jul 13; 122 (2):184-8.

Noninvasive characterization of epicardial activation in humans with diverse atrial fibrillation patterns. **Cuculich PS, Wang Y, Lindsay BD, Faddis MN, Schuessler RB, Damiano RJ Jr., Li L, Rudy Y**. *Circulation*. 2010 Oct 5; 122(14):1364-72.

Heart failure guidelines, performance measures, and the practice of medicine: mind the gap. **Ghali JK, Massie BM, Mann DL, Rich MW**. *J Am Coll Cardiol*. 2010 Dec 14; 56(25):2077-80.

Bleeding avoidance strategies and percutaneous coronary intervention. **Huang PH, Zajarías A, Lasala JM**. *JAMA*. 2010 Sep 8;304(10):1068; author reply 1068-9.

Identification of CaMKII Phosphorylation Sites in Connexin43 by High Resolution Mass Spectrometry. **Huang RY, Laing JG,**

**Knater EM, Berthoud VM, Bao M, Rohrs HW, Townsend RR, Yamada KA**. *J Proteome Res*. 2010 Dec 15.

Molecular photoacoustic imaging of angiogenesis with integrin-targeted gold nanobeacons. **Pan D, Prmanik M, Senpan A, Allen JS, Zhang H, Wickline SA, Wang LV, Lanza GM**. *FASEB J*. 2010 Nov 19.

Gene-expression profiling for rejection surveillance after cardiac transplantation. **Pham MX, Teuteberg JJ, Kfoury AG, Starling RC, Deng, MC, Cappola T, Kao A, Anderson AS, Cotts WG, Ewald GA, Baran DA, Bogaev RC, Elashoff BK, Baron H, Yee J, Valentine HA: IMAGE Study Group**. *N Engl J Med*. 2010 May 20;362(20):1890-900.

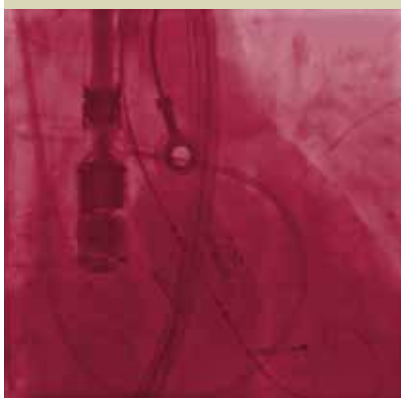
Adaptation of myocardial substrate metabolism to a ketogenic nutrient environment. **Wentz AE, d'Avignon DA, Weber ML, Cotter DG, Doherty JM, Kerns R, Nagarajan R, Reddy N, Sambandam N, Crawford PA**. *J Biol Chem*. 2010 Aug 6;285(32):24447-56.

## Transcatheter Aortic Valve Implantation — New Viable Treatment Option for Valvular Heart Disease

The results are in – In a population of 358 patients with severe aortic stenosis who were deemed unsuitable for surgery by at least two surgeon investigators, transfemoral transcatheter aortic valve implantation (TAVI) was found to be superior to standard, open-heart surgical therapy. One year later, the transcatheter valve replacement group had a lower morbidity rate.\*

The Washington University and Barnes-Jewish Heart & Vascular Center was among the 21 heart centers in the world selected to participate in the PARTNER (Placement of AoRTic traNscath-etER) trial. Ralph J. Damiano Jr., MD, chief of cardiac surgery at

the School of Medicine, and Washington University interventional cardiologist John M. Lasala, MD, PhD, medical director of the cardiac catheterization laboratory at Barnes-Jewish Hospital, co-lead the St. Louis portion of the study. Co-investigators at



Washington University include cardiac surgeon Hersh S. Maniar, MD, and interventional cardiologist Alan Zajarias, MD.


Since 2008, Washington University physicians have performed more than 70 TAVI procedures at Barnes-Jewish Hospital, the only hospital in the region to use the procedure. ■

### One year follow-up results


	Rate of Death	Survival Rate
Transcatheter Valve Replacement Group	30.7%	69.3%
Standard-Therapy Group	50.7%	49.3%

**To refer a patient for TAVI at the Heart & Vascular Center, please call the Doctors' Access Line at 800.252.3627.**

\*Results of the study appear online in the New England Journal of Medicine Sept. 22. More information about The PARTNER Trial (NCT00530894) may be obtained at [www.clinicaltrials.gov](http://www.clinicaltrials.gov).

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