University Hospitals
Case Medical Center

Cleveland | Ohio

# CARDIOLOGY AND HEART SURGERY

BEST HOSPITALS
U.S.News & WORLD REPORT
NATIONAL
CARDIOLOGY & HEART SURGERY
2014-15

# UH CASE MEDICAL CENTER

Among the nation's leading academic medical centers, UH Case Medical Center is the primary affiliate of Case Western Reserve University School of Medicine.

With more than 1,000 registered beds, UH Case Medical Center provides primary, specialty and subspecialty medical and surgical care. Located in the heart of Cleveland's University Circle on a beautiful 35-acre campus, UH Case Medical Center includes general medical, intensive care and surgical units as well as three major hospitals:

**UNIVERSITY HOSPITALS SEIDMAN CANCER CENTER**

**UNIVERSITY HOSPITALS MACDONALD WOMEN'S HOSPITAL**

**UNIVERSITY HOSPITALS RAINBOW BABIES & CHILDREN'S HOSPITAL**

Our physicians and researchers – who also serve as faculty at Case Western Reserve University School of Medicine – are leaders in their respective fields, and their ongoing clinical research programs push the boundaries of medical progress.

To learn more, **visit UHhospitals.org**

## HARRINGTON DISCOVERY INSTITUTE

### ACCELERATING BREAKTHROUGH DISCOVERIES INTO MEDICINES

The Harrington Discovery Institute at University Hospitals is the nonprofit arm of The Harrington Project for Discovery & Development, a national initiative supporting breakthrough research by physician-scientists. The Harrington Project is a new and powerful approach to address the challenges of advancing discoveries into medicines.

To learn more, visit **HarringtonDiscovery.org**



# HARRINGTON HEART & VASCULAR INSTITUTE

*Dr. Daniel Simon*

UH Harrington Heart & Vascular Institute at UH Case Medical Center, together with our primary affiliate Case Western Reserve University School of Medicine, is the focal point for clinical, research and educational activities related to heart and vascular disease. We are a nationally distinguished health care leader by innovating and pursuing new medical discoveries and providing the highest-quality patient care through personalized experiences.

Led by **Daniel I. Simon, MD**, *Chief, Division of Cardiovascular Medicine, UH Case Medical Center; President, UH Harrington Heart & Vascular Institute; Herman K. Hellerstein Chair in Cardiovascular Research, UH Case Medical Center and Case Western Reserve University School of Medicine; and Professor of Medicine, School of Medicine*, the institute's 11 centers comprise more than 120 physicians, surgeons, anesthesiologists, radiologists and researchers in cardiovascular medicine, cardiac and vascular surgery, electrophysiology, cardiovascular imaging, minimally invasive interventions, advanced heart failure and transplantation, atrial fibrillation and other arrhythmias, stem cell regeneration and prevention strategies.

We performed Ohio's first cardiovascular stem cell trial using bone marrow-derived adult stem cells, conducted the first clinically approved optical coherence tomography (OCT) coronary artery imaging procedure in the United States, serve as a Stereotaxis Center of Excellence for complex ablation, and are experts in leading-edge technologies including transcatheter aortic valve replacement (TAVR), MitraClip, percutaneous left ventricular restoration therapy, endovascular aortic repair (EVAR), thoracic endovascular aortic repair (TEVAR), and left atrial appendage occlusion.

*Visit **UHhospitals.org/CME** for the latest in live, webinar and on-demand Continuing Medical Education events.*

# DISRUPTIVE TECHNOLOGIES OFFER PATIENTS EFFECTIVE OPTIONS

*Drs. Alan Markowitz and Marco Costa*

## TRANSCATHETER AORTIC VALVE REPLACEMENT

For patients with aortic stenosis who are at high or extreme risk for surgical aortic valve replacement, transcatheter aortic valve replacement (TAVR) is an effective option. UH Harrington Heart & Vascular Institute cardiologists **Marco A. Costa, MD, PhD**, *Chief Innovation Officer, University Hospitals; Angela and James Hambrick Master Clinician of Cardiovascular Innovation, UH Case Medical Center; and Professor of Medicine, Case Western Reserve University School of Medicine*; and **Alan H. Markowitz, MD**, *Chief Surgical Officer, UH Harrington Heart & Vascular Institute; Marcella "Dolly" Haugh Chair in Valvular Surgery, UH Case Medical Center; and Assistant Clinical Professor of Surgery, School of Medicine*, and **Dr. Daniel Simon** are among the first in the country to use a fully percutaneous, conscious sedation approach for TAVR. What was previously major open-heart surgery is now being performed on an awake and talking patient with excellent results. The Interventional Cardiovascular Center of UH Harrington Heart & Vascular Institute is recognized as a high-volume Center of Excellence and is now a training center for the minimalist, percutaneous conscious sedation TAVR approach.

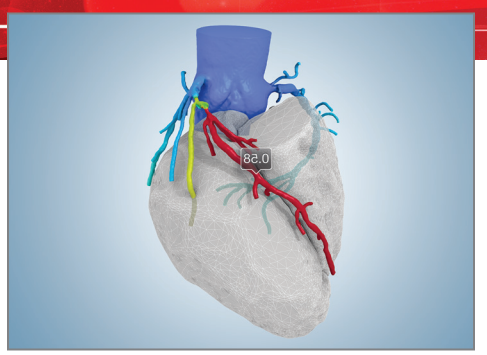
## LEFT VENTRICULAR PARACHUTE

Following anterior myocardial infarction (MI), some patients develop adverse left ventricular remodeling that results in left ventricular (LV) dilation, antero-apical aneurysm formation and heart failure. Patients with severe heart failure (Class III – IV) refractory to optimal medical therapy, including cardiac resynchronization therapy, may be candidates for the Parachute™ Ventricular Partitioning Device by CardioKinetix. The device partitions the antero-apical aneurysm, restoring optimal LV volume and geometry. **Dr. Marco Costa** is the first author on a three-year-long trial of European patients showing that the device reduces death, heart failure and hospitalizations, and improves quality of life. Dr. Costa is the national Co-Principal Investigator of the pivotal U.S. randomized trial. UH Harrington Heart & Vascular Institute at UH Case Medical Center is a leading enrolling center for the implantation of this investigational device percutaneously through the femoral artery.

## EDGE-TO-EDGE MITRAL REPAIR

Mitral valve surgery is the standard of care treatment for moderate-to-severe or severe mitral regurgitation (MR), but some patients are not appropriate candidates for surgery due to high risk. MitraClip, the first percutaneous mitral valve repair therapy, is a newly FDA-approved device for patients with severe (3 – 4+) degenerative MR who are high-risk for surgery. MitraClip is a permanent implant that attaches to the mitral valve leaflets, resulting in a double orifice mitral valve that mimics the Alfieri stitch surgical operation. The edge-to-edge clip repair reduces mitral regurgitation and improves quality of life.

**Guilherme Attizzani, MD**, *interventional cardiologist, UH Harrington Heart & Vascular Institute; and Clinical Assistant Professor of Medicine, School of Medicine*, joined the team in August from Italy's Ferrarotto Hospital at the University of Catania, where the first MitraClip device was implanted in 2008. Dr. Attizzani served as European proctor, training interventional cardiologists on this technology, and is also a pioneer in demonstrating potential expanded indications for this device.



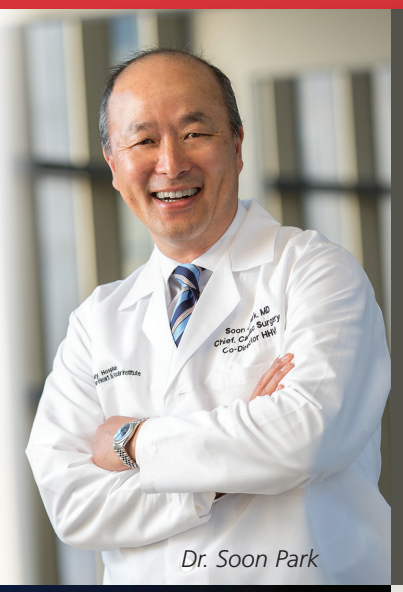

## CT-BASED FRACTIONAL FLOW RESERVE

CT-derived fractional flow reserve (FFR-CT) is the first and only noninvasive imaging technology and software package specifically designed to improve the accuracy of coronary artery disease diagnosis by combining anatomy with function. The FFR-CT platform combines CT coronary angiography with computational fluid dynamics to derive 3-vessel FFR measurements in a totally noninvasive manner. This technology, developed by HeartFlow, Inc., improves the sensitivity, specificity and positive and negative predictive values of traditional noninvasive tests while also reducing radiation exposure and costs. UH Harrington Heart & Vascular Institute physicians participated in the development of this technology and UH Case Medical Center is one of the early adopters of FFR-CT.

*All National Institutes of Health (NIH) funding for basic and clinical research is awarded to the School of Medicine at Case Western Reserve University.*

# CLINICAL ADVANCES

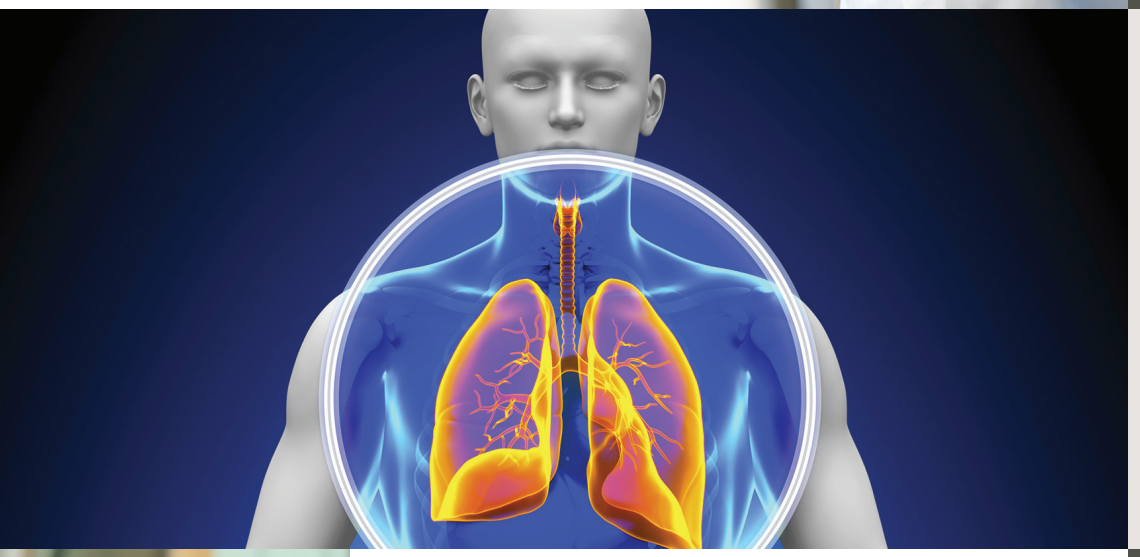
**HEART SURGERY CENTER:** Led by renowned surgeon, **Soon J. Park, MD**, *Chief, Division of Cardiac Surgery, UH Case Medical Center; Co-Chair, Clinical Executive Committee, UH Harrington Heart & Vascular Institute*; *and Jay L. Akeney, MD, Chair, Professorship in Cardiothoracic Surgery, and Professor of Surgery, Case Western Reserve University School of Medicine*, this center provides a full scope of cardiac surgery procedures, including single and multivalve repair/replacement, coronary revascularization – both on and off pump, adult congenital repair, end-stage heart disease surgical options such as mechanical assist devices (LVAD or TAH) and heart transplantation. Our team has internationally recognized expertise in treating those with advanced heart failure who may require multiple complex procedures or reoperation.



*Dr. Soon Park*

**CENTER OF EXCELLENCE FOR ROBOTIC ABLATION:** UH Case Medical Center is a national and international referral center for complex atrial fibrillation and ventricular tachycardia ablations. Overseen by **Mauricio Arruda, MD**, *Director, Electrophysiology Center and Atrial Fibrillation Center, UH Harrington Heart & Vascular Institute; and Associate Professor of Medicine, School of Medicine*, it is also one of only a few medical centers worldwide utilizing percutaneous left ventricular hemodynamic support to facilitate the treatment of complex arrhythmias.

*Dr. Mauricio Arruda*



**DYSPNEA CENTER:** To respond to the unmet needs of patients and referral centers, the institute offers specialized treatment for cryptogenic and refractory dyspnea led by **Trevor L. Jenkins, MD**, *Co-Director, Dyspnea Center, UH Harrington Heart & Vascular Institute; and Assistant Professor of Medicine, School of Medicine*, and **Robert Schilz, DO, PhD**, *Co-Director, Dyspnea Center, UH Harrington Heart & Vascular Institute; Interim Chief, Division of Pulmonary, Critical Care and Sleep Medicine, UH Case Medical Center; and Associate Professor of Medicine, School of Medicine*. A team of cardiologists, pulmonologists and experts in sleep apnea, obesity and otolaryngology evaluate patients and together establish a management plan. Invasive cardiopulmonary exercise testing, which assesses physiology and hemodynamics at rest and with exercise, is a cornerstone of this program. UH Case Medical Center is one of very few medical centers to offer this type of specialized, collaborative treatment.

*Dr. Guilherme Oliveira*

**ONCO-CARDIOLOGY PROGRAM:** The Onco-Cardiology Program is a collaborative effort between UH Harrington Heart & Vascular Institute and UH Seidman Cancer Center. The program, directed by **Guilherme Oliveira, MD**, *Director, Advanced Heart Failure & Transplant Center, UH Harrington Heart & Vascular Institute; and Clinical Assistant Professor of Medicine, School of Medicine*, provides comprehensive screening of cancer patients, pre-emptive cardioprotective treatment to those at high risk for cardiovascular complications as a result of cardiotoxic chemotherapy or chest radiation, and intensive monitoring during cancer therapy. Working closely with oncologists, the program is designed to address all cardiovascular aspects of patients undergoing cancer treatment in order to minimize cardiovascular morbidity and mortality and improve outcomes of cancer patients and survivors.

## QUALITY RECOGNITION:

In recognition of its high-quality care according to evidence-based national guidelines, UH Case Medical Center has received the following awards and accreditations:

BEST HOSPITALS U.S.News & WORLD REPORT NATIONAL CARDIOLOGY & HEART SURGERY 2014-15

MAGNET RECOGNIZED AMERICAN NURSES CREDENTIALING CENTER

BEACON AWARD FOR CRITICAL CARE EXCELLENCE

2014 GET WITH THE GUIDELINES. HEART FAILURE GOLD PLUS American Heart Association.

THE JOINT COMMISSION NATIONAL QUALITY APPROVAL

ACCREDITED FACILITY IAC INTERSOCIETAL ACCREDITATION COMMISSION ECHOCARDIOGRAPHY

ACCREDITED FACILITY IAC INTERSOCIETAL ACCREDITATION COMMISSION VASCULAR TESTING

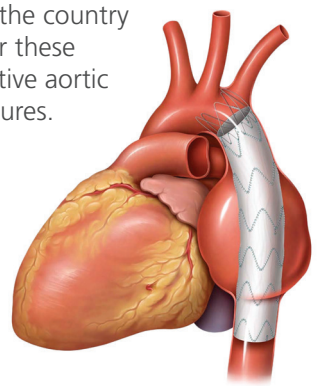
SOCIETY OF CHEST PAIN CENTERS CPC ACCREDITED Chest Pain Center with PCI

AACVPR CERTIFIED PROGRAM

*UH Case Medical Center's physicians, surgeons and scientists – all members of the faculty of Case Western Reserve University School of Medicine – are leaders in their respective fields, and their ongoing research programs are at the leading edge of medical progress. A strong emphasis on translational, or "bench-to-bedside," research means that new and innovative treatments and technologies transfer more rapidly from the research laboratory to actual patient care.*

# TOMORROW'S CURES TODAY.

**VASCULAR CENTER** – Under the leadership of **Vikram S. Kashyap, MD**, *Chief, Division of Vascular Surgery and Endovascular Therapy, UH Case Medical Center; Co-Chair, Clinical Executive Committee, UH Harrington Heart & Vascular Institute; and Professor of Surgery, School of Medicine*, the center offers leading minimally invasive therapies for aortic disease, including endovascular aortic repair (EVAR) and thoracic endovascular aortic repair (TEVAR), techniques shown to reduce mortality significantly compared with traditional open surgical techniques. The center is one of a select number of institutions across the country to offer these innovative aortic procedures.



The Research & Innovation Center of UH Harrington Heart & Vascular Institute works in concert with clinicians and surgeons to bring investigational drug, device and regenerative medicine/adult stem cell therapies to patients at the earliest stages of their development.

Our team currently manages 85 trials and follows more than 2,500 patients. The trials represent first-in-human and Phase I to IV studies in interventional cardiology, electrophysiology, peripheral vascular disease, heart failure, cardiac surgery and anesthesiology, cardiovascular imaging and general cardiovascular medicine.

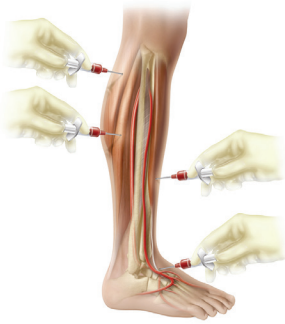
*All National Institutes of Health (NIH) funding for basic and clinical research is awarded to the School of Medicine at Case Western Reserve University.*

*Dr. Vikram Kashyap*

**RENAL DENERVATION FOR RESISTANT HYPERTENSION** – Physician-scientists at UH Case Medical Center are currently investigating renal denervation for patients with treatment resistant hypertension. **Sahil A. Parikh, MD**, *Director, Research & Innovation Center, UH Harrington Heart & Vascular Institute; and Assistant Professor of Medicine, Case Western Reserve University School of Medicine*, and **Jackson T. Wright Jr., MD, PhD**, *Director, Clinical Hypertension Program, and Director, Dahms Clinical Research Unit, UH Case Medical Center; and Professor of Medicine, School of Medicine*, are leading studies of multiple catheter-based experimental techniques that alter the sympathetic nervous system to significantly reduce blood pressure. Pivotal clinical trials, such as SYMPLICITY HTN-3, have been completed and trials of novel devices incorporating new ablation technologies will be enrolling patients in the coming year.

**REGENERATIVE MEDICINE APPROACHES FOR HEART AND VASCULAR DISEASE** – Researchers are investigating the use of adult stem cell transplantation for patients with severe coronary artery disease (CAD), heart failure with reduced ejection fraction (HFrEF) or advanced peripheral arterial disease (PAD). Two trials, Revive CLI and MarrowStim™ PAD Kit IDE, involve the use of autologous adult stem cells to help the body enhance blood flow in the legs. Results from these trials may provide a promising alternative for patients who are facing amputation and have no other options. UH Harrington Heart & Vascular Institute is also participating in an adult stem cell trial for heart failure using adipose-derived stems obtained from a liposuction procedure to enhance myocardial performance.

MarrowStim trial: The patient's own bone marrow aspirate will be concentrated in the investigational device.



The concentrated bone marrow aspirate will be injected at several locations along the affected leg in an attempt to improve blood flow.

University Hospitals Case Medical Center

SCHOOL OF MEDICINE
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The commitment to exceptional patient care begins with revolutionary discovery. University Hospitals Case Medical Center is the primary affiliate of Case Western Reserve University School of Medicine, a national leader in medical research and education and consistently ranked among the top research medical schools in the country by U.S. News & World Report. Through their faculty appointments at Case Western Reserve University School of Medicine, physicians at UH Case Medical Center are advancing medical care through innovative research and discovery that bring the latest treatment options to patients.

# CLINICIANS AND SCIENTISTS

at UH Case Medical Center and
Case Western Reserve University School of Medicine

## CARDIOVASCULAR MEDICINE AND SURGERY

### LEADERSHIP

**Daniel I. Simon, MD**
*Chief, Division of Cardiovascular Medicine*
*President, UH Harrington Heart & Vascular Institute*
*Herman K. Hellerstein Chair in Cardiovascular Research*
*Professor*

**Soon J. Park, MD**
*Chief, Division of Cardiac Surgery*
*Co-Chair, Clinical Executive Committee, UH Harrington Heart & Vascular Institute*
*Director, Heart Surgery Center*
*Jay L. Ankeney, MD Chair, Professorship in Cardiothoracic Surgery*
*Professor*

**Vikram S. Kashyap, MD**
*Chief, Division of Vascular Surgery and Endovascular Therapy*
*Co-Chair, Clinical Executive Committee, UH Harrington Heart & Vascular Institute*
*Director, Vascular Center*
*Professor*

**Marco A. Costa, MD, PhD**
*Chief Innovation Officer, University Hospitals*
*Director, Interventional Cardiovascular Center*
*Co-Director, Valve & Structural Heart Disease Center*
*Angela and James Hambrick Master Clinician of Cardiovascular Innovation*
*Professor*

**Alan H. Markowitz, MD**
*Chief Surgical Officer, UH Harrington Heart & Vascular Institute*
*Co-Director, Valve & Structural Heart Disease Center*
*Marcella "Dolly" Haugh Chair in Valvular Surgery*
*Clinical Assistant Professor*

**Edwin G. Avery, MD**
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*Chief Anesthesia Officer, UH Harrington Heart & Vascular Institute*
*Associate Professor*

**Mukesh Jain, MD**
*Chief Research Officer, UH Harrington Heart & Vascular Institute*
*Ellery Sedgwick Jr. Chair and Distinguished Scientist in Cardiovascular Research*
*Scientific Director, Harrington Discovery Institute*
*Director, Case Cardiovascular Research Institute*
*Professor*

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*Figgie Family Chair in Clinical Cardiovascular Excellence*
*Associate Professor*

**Robert Gilkeson, MD**
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*Professor*

**Richard Josephson, MD**
*Director, Cardiovascular Pulmonary Rehabilitation Center*
*Director, Edna & Thomas F. Zenty Cardiac Intensive Care Unit*
*Professor*

**Peter C. Kouretas, MD, PhD**
*Co-Director, Congenital Heart Disease Center (Adult)*
*Associate Professor*

**Guilherme H. Oliveira, MD**
*Director, Advanced Heart Failure & Transplant Center*
*Director, Onco-Cardiology Program*
*Clinical Associate Professor*

**Sahil A. Parikh, MD**
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*Assistant Professor*

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*Co-Director, Congenital Heart Disease Center (Adult)*
*Associate Clinical Professor*

**Christine Zirafi, MD**
*Director, Women's Cardiovascular Center*

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*Assistant Professor*

**Nadim Al-Mubarak, MD**
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**Ravi Ashwath, MD**
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**G. Brandon Atkins, MD, PhD**
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**Guilherme F. Attizzani, MD**
*Assistant Professor*

**Henry R. Baele, MD**
*Assistant Professor*

**Manish Bansal, MD**
*Assistant Professor*

**Hiram G. Bezerra, MD, PhD**
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**Ivan Cakulev, MD**
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*Irving B. and Virginia Spitz Master Clinician in Cardiology*
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*Interim Chief, Division of Pulmonary, Critical Care and Sleep Medicine*
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*Assistant Professor*

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*Assistant Professor*

**Dina Sparano, MD**
*Clinical Assistant Professor*

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*Director, Harrington Discovery Institute*
*Director, Institute for Transformative Molecular Medicine*
*Professor of Medicine and Professor of Biochemistry*

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*Professor*

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**Barbara Williams, MD**
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**William Wolf, MD**
*Assistant Professor*

**Virginia Wong, MD**
*Assistant Professor*

**David Zidar, MD**
*Assistant Professor*

**Arthur Zinn, MD, PhD**
*Associate Professor*

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**Ademola K. Abiose, MD**

**Richard S. Ader, MD**

**Ismail S. Ahmed, MD**
*Clinical Assistant Professor*

**Mahi L. Ashwath, MD**
*Clinical Instructor*

**Augustus Beck, MD**
*Clinical Assistant Professor*

**Daniel Blankenship, MD**

**Robert Botti, MD**
*Clinical Professor*

**Gerald M. Burma, MD, PhD**

**Ryan Christofferson, MD**

**Manisha Das, MD**
*Clinical Instructor*

**Neelesh R. Desai, MD**

**Rahul Dhingra, MD**

**Alberto Diaz, MD**
*Assistant Professor*

**Wassim Eid, DO**

**Naim Z. Farhat, MD**
*Clinical Assistant Professor*

**Bartolomeo Giannattasio, MD**
*Clinical Assistant Professor*

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**Hassan Ibrahim, MD**

**Osama Ibrahim, MD**
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*Clinical Instructor*

**Keith L. Kruithoff, MD**
*Clinical Instructor*

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**Michael Lyster, DO**

**John S. Mansour, MD**

**Scott McCallister, MD**

**William McGuinn, MD**

**Paul E. Miller, MD**
*Clinical Instructor*

**Raju Modi, MD**

**Geetha Mohan, MD**

**Andrew Nara, MD**

**Charles O'Shaughnessy, MD**

**Theodore Pacheco, MD**

**Ferdinand Plecha, MD**

**Kara Quan, MD**
*Adjunct Associate Professor*

**James C. Ramicone, DO**

**Mona Reed, MD**
*Clinical Assistant Professor*

**Gregory Rogers, MD**

**Lori Rusterholtz, MD**

**John Schaeffer, MD**

**James L. Sechler, MD**

**Trilok Sharma, MD**
*Clinical Assistant Professor*

**William Sheldon, DO**

**David G. Smith, MD**
*Clinical Assistant Professor*

**Robert Steele, MD**

**Krishnan Sundararajan, MD**
*Clinical Assistant Professor*

**Mourhaf Traboulssi, MD**

**Arthur Ulatowski, DO**

**Michael Vacante, DO**

**Philip Wendschuh, MD**

**Mojtaba Youssefi, MD**

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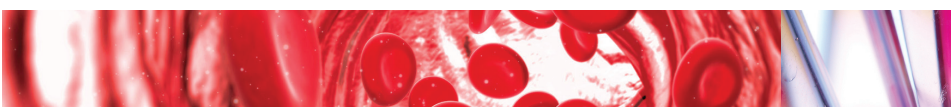

To refer a patient or learn more about Cardiovascular Medicine and Surgery at UH Case Medical Center, call **216-844-3800** or visit **UHhospitals.org/Heart**.

University Hospitals
Case Medical Center

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