CHANGING THE COURSE OF DISEASE TOWARD HEALTH
Dear colleague,

We are pleased to share the OHSU Knight Cardiovascular Institute Activity Report for 2016. The OHSU Knight Cardiovascular Institute is an integrated center for translational research, clinical care, professional training and outreach in all aspects of heart and vascular disease. Our mission is to accelerate new prevention, diagnostic and treatment strategies in the laboratory and move them into patient care as rapidly as possible. The institute brings the highest level of cardiac care to Oregon while making OHSU the training ground of choice for some of the best cardiovascular specialists. Through research and clinical trials we work with providers to give patients early access to the best new treatments.

As you may know, the OHSU Knight Cardiovascular Institute was established through a visionary $125 million philanthropic investment in 2012 from Nike co-founder and chairman Phil Knight and his wife, Penny, the largest gift ever recorded to advance cardiovascular health in the United States. The gift has allowed us to drive innovative programs, and we want to take this opportunity to share with you some recent activity in our clinical care and research realms.

Regards,

Albert Starr, M.D.
Executive Chairman, OHSU Knight Cardiovascular Institute
Distinguished Professor of Surgery and Cardiovascular Medicine

Sanjiv Kaul, M.D.
Chief Executive Officer, OHSU Knight Cardiovascular Institute
Ernest C. Swigert Chair of Cardiovascular Medicine
Professor of Medicine and Diagnostic Radiology
Associate Dean, School of Medicine
Changing the course of cardiovascular disease toward cardiovascular health

That’s the focus of every physician and researcher at the OHSU Knight Cardiovascular Institute. We are an evidence-based institute dedicated to creating new ways to attack cardiovascular disease from every angle, at every point in a person’s lifetime.

Our mission is to accelerate prevention, diagnostic and treatment strategies being developed in the laboratory and transition them into the clinic as rapidly as possible. Our discoveries benefit Oregonians and people everywhere facing cardiovascular disease.

Contents

Featured news ............... 6
Innovation .................... 9
Research groups ............. 10
Activities ..................... 12
Clinical programs .......... 16
Continuing medical education events .......... 20

To refer a patient or consult with our team, please call:
800-245-6478

www.ohsuknightheart.com
Leading in prevention and care

At the OHSU Knight Cardiovascular Institute, our experts are improving cardiovascular health and finding cures for cardiovascular disease through personalized care and research innovation. Year after year OHSU is ranked Oregon’s top Cardiology and Heart Surgery hospital according to *U.S. News & World Report*, and in 2016 was ranked #36 in the nation. We offer Oregon’s only comprehensive heart program – everything from helping prevent heart disease to performing heart transplants.

As Oregon’s only academic health center, patients have access to the latest diagnostic tests, drug treatments and surgery techniques available, as well as:

- Oregon’s only provider of clinical services for end-stage heart failure and heart transplants.
- First-class programs for the placement and follow-up care of the most advanced heart valves and assist devices.
- A dedicated cardiovascular intensive care unit featuring 26 beds and a specialized team of cardiologists and intensivists providing round-the-clock care 24/7.
- Internationally respected imaging experts that collaborate to find faster ways to diagnose and treat heart attacks and cardiovascular diseases.
- Cutting-edge preventive services including cardiology, endocrinology, behavioral health, nutrition counseling and prescriptive exercise.
U.S. News ranks OHSU among the nation’s best for Cardiology & Heart Surgery

In a clear testament to the remarkable growth achieved since the $125 million gift from Phil and Penny Knight, our institute rose in ranks to be listed #36 in the nation in 2016 by U.S. & World Report. With more specialty programs and better outcomes than any other hospital in Oregon, OHSU consistently is ranked the state’s top Cardiology & Heart Surgery center by U.S. News year after year.

Dr. Cherrie Abraham brings p-branch to Oregon

Dr. Cherrie Abraham, one of the most experienced surgeons in the world at endovascular aneurysm repair, recently joined the OHSU Knight Cardiovascular Institute as the director of the Aortic Program. Due to Dr. Abraham’s extensive experience in complex endovascular aneurysm repair, he is currently one of the most experienced surgeons with the p-branch device. The p-branch endovascular graft is an “off-the-shelf” aortic stent graft constructed with fenestrations, or holes, to maintain blood flow to the arteries. This allows for more durable repair to the aortic aneurysm anatomy that would otherwise not be amenable to endovascular therapy with an approved device. It is currently under clinical trial under the supervision of the FDA. In addition to performing Oregon’s first such operation in 2016, Dr. Abraham is currently traveling to other centers across the U.S. to train surgeons to treat patients with complex abdominal aortic aneurysms for the first time with the p-branch stent graft.
New Intermediate Care Unit opens

In early 2016, the OHSU Knight Cardiovascular Institute proudly unveiled a new cardiovascular intermediate care unit on 7C of OHSU Hospital. This newly renovated unit expanded the capacity for cardiac monitoring of our patients transitioning out of cardiovascular intensive care. In addition to the 12 beds on the unit, 20 registered nurses were added to ensure the needs of all of our inpatient cardiovascular patients are met.

Starr-Edwards heart valve featured in Smithsonian exhibit

A new exhibit at the Smithsonian's National Museum of American History explores the development of artificial heart valves in the history of medicine. “Mending Broken Hearts” prominently displays the Starr-Edwards valve, the world’s first successful artificial heart valve co-invented and implanted by our executive chairman, Dr. Albert Starr. This comprehensive exhibit documents how surgeons and engineers, like Dr. Starr and his co-inventor Lowell Edwards, worked to create a viable artificial heart valve for patients. The exhibit will be on view and available to the public from September 2016 to March 2017.

TOTAL CARDIOVASCULAR BEDS AT OHSU

68
Innovation at the institute

We believe that the integration of clinical care and research expands the possibilities of cardiovascular health.

The OHSU Knight Cardiovascular Institute is an integrated center for translational research, clinical care, education and outreach in all aspects of heart and vascular disease. Areas of innovation include cardiovascular imaging, cardiovascular device design, cardiac surgery and transplantation, and epigenetics — the study of fetal origins of chronic adult diseases.

Under the umbrella of a multi-disciplinary institute, researchers and clinicians collaborate to bring the latest knowledge and cutting edge care to our patients, including:

- Teams of researchers identifying the genetic and biochemical underpinnings of heart valve defects, vascular disease, rhythm disorders and other potential targets for drug therapies.
- Sanjiv Kaul, M.D., developer of the powerful microbubble-based myocardial contrast echocardiography (MCE) technique, used for diagnosing heart disease.
- Scientists across OHSU detecting biological markers and promising drug candidates for treatment of cardiac and stroke damage.
- National leadership in studying the developmental origins of disease, such as how certain factors in the prenatal environment can make people more susceptible to heart disease and obesity. Our experts work toward understanding the origins of cardiovascular disease and providing tailored treatments.
Research groups

Adult Congenital Heart Disease
Craig S. Broberg, Associate Professor
Adrienne Kovacs, Associate Professor
Abigail Khan, Assistant Professor
Luke J. Burchill, Assistant Professor

Aortic
Cherrie Abraham, Associate Professor
Lynn Sakai, Professor
Cheryl L. Maslen, Professor
Amir Azarbal, Associate Professor

Artificial Heart
Albert Starr, Professor
Richard Wampler, Adjunct Research Associate Professor

Cardiothoracic Surgery
Howard Song, Professor
Jai Raman, Professor
Victor Rodriguez, Associate Professor
Donald Thomas, Associate Professor
Fred Tibayan, Associate Professor

Cardiovascular Imaging
Sanjiv Kaul, CEO, Professor
Jonathan R. Lindner, Professor
Xubo Song, Professor
Kevin Wei, Professor
Elizabeth Le, Associate Professor
Diana Rinkevich, Associate Professor
Maros Ferencik, Assistant Professor
Scott Chadderdon, Assistant Professor
Stephen B. Heitner, Assistant Professor
Azzdine Y. Ammi, Research Assistant Professor
Hind Rahmouni, Assistant Professor
Shimoli Shah, Assistant Professor
Qi Yue, Research Instructor

Center for Developmental Health
Kent Thornburg, Professor
George Giraud, Professor
Sonnet S. Jonker, Research Associate Professor
Antonio Frias, Associate Professor
Natasha N. Chattergoon, Research Assistant Professor
Samantha C. Louey, Senior Research Associate
Alina Maloyan, Assistant Professor
Lucia Carbone, Assistant Professor

Electrophysiology
Charles A. Henrikson, Associate Professor
Beth Habecker, Professor
Eric C. Stecker, Associate Professor
Larisa Tereshchenko, Research Associate Professor
Rupa Bala, Associate Professor
Zhengfeng Zhou, Research Associate Professor
Qiuming Gong, Research Assistant Professor
Babak Nazer, Assistant Professor
Thomas Dewland, Assistant Professor
Gene Therapy
Shoukhrat Mitalipov, Professor

Genomics/Genetics
Andrew Adey, Assistant Professor
Dhandapany Perundurai, Assistant Professor
Meghan Chirpich, Instructor

Hypertrophic Cardiomyopathy
Stephen B. Heitner, Assistant Professor

Heart Failure
James O. Mudd, Assistant Professor
Christopher Lee, Associate Professor
Wohaib Hasan, Research Assistant Professor
Jill M. Gelow, Assistant Professor
Jonathan Davis, Assistant Professor

Informatics
Jiri Sklenar, Research Associate Professor
Jessica Minnier, Assistant Professor

Interventional Cardiology
Joaquin Cigarroa, Professor
Yen Tibayan, Assistant Professor
Firas Zahr, Assistant Professor

Preventive Cardiology
Sergio Fazio, Professor
Jonathan Q. Purnell, Professor
Bart Duell, Professor
Michael Shapiro, Associate Professor
Hagai Tavori, Assistant Professor
Nathalie Pamir, Assistant Professor
Tina Kaufman, Assistant Professor

Center for Radiochemistry Research
Jeanne Link, Professor
Kenneth Krohn, Professor

Vascular Biology
Nabil Alkayed, Professor
Xiangshu Xiao, Associate Professor
Xuehong Liu, Research Assistant Professor
Anthony Barnes, Assistant Professor
Anusha Mishra, Assistant Professor
Catherine Davis, Assistant Professor
Jeffrey Iliff, Assistant Professor
Joseph Aslan, Instructor

Vascular Surgery
Greg Moneta, Professor
Erica Mitchell, Professor
Greg Landry, Professor
Timothy Liem, Professor
Enjae Jung, Assistant Professor
2016 activities

OHSU teams up with Intel to use big data to answer big questions

In 2016, the OHSU Knight Cardiovascular Institute partnered with Intel on the You 24x7 project, a collaborative research study aimed at using big data obtained from wearable devices to draw conclusions about population health. According to Dr. Joaquin Cigarroa, Associate Chief of Clinical Affairs, the OHSU Knight Cardiovascular Institute teamed up with Intel to “learn how to utilize big data to answer big disease questions.”

The six-month preliminary study led by cardiologist Dr. Luke Burchill included 500 healthy participants with no prior history of cardiovascular disease. Each wore a wearable activity tracker from which the data was collected.

Intel built the analytics platform used by OHSU to manage the 26,434,171,371 bytes of data generated and created profiles within the data with help from OHSU’s biostatistics team for grouping body states so that they could be sorted and examined. The project, and the data collected, has opened up a number of new lines of questioning for the OHSU investigators involved.

In particular, Dr. Burchill hopes to apply what he has learned about collecting and interpreting data from wearable devices to clinical research. One approach he is considering is to create a frailty study of aortic stenosis patients to better understand their ability to undergo intervention. He believes this could be applied to heart failure and heart transplant patients as well.

“We have the populations we can study to close in on the most effective intervention for that patient based on their physical abilities,” said Burchill. “This way we can get to the true impact of our cardiovascular interventions.”

The abstract generated from this project, “Do Wearable Activity Trackers Improve Subjective Health Status, Physical Activity and Cardiometabolic Risk?” was presented at the American Heart Association’s 2016 Scientific Sessions. OHSU experts plan to continue exploring the data set to uncover trends in activity and patient health, and use this preliminary study to show funding agencies the potential for further studies that utilize wearable activity trackers.
Congenital heart disease is the most common birth defect in the U.S., but due to major advances in medical and surgical care, more than 90% of these patients are surviving into adulthood. There are over one million adults in the U.S. with congenital heart disease, but many are not keeping up with routine, follow-up care. Our ACHD program has expanded in recent years, adding additional expertise and many specialty services, in order to provide the most comprehensive care to meet this growing need in adult cardiovascular care.

All our providers within the program have years of advanced training in ACHD, in addition to their cardiology training. Our doctors are certified by the American Board of Internal Medicine as specialists in ACHD. In addition, they have received extra training in cardiac imaging, heart failure and transplant, and pregnancy for patients living with ACHD.

The OHSU Knight Cardiovascular Institute recently recruited one of the few psychologists in North America who specializes in congenital heart disease. Dr. Adrienne Kovacs launched a new psychology service within our ACHD program in 2016. She is an expert on the challenges of being born with a heart problem, living with adult congenital heart disease, switching from childhood to adult heart care and much more. She helps our patients with ACHD cope with the physical, emotional and life challenges of living with a heart problem.
Center for Radiochemistry Research opens in 2016

In September, OHSU celebrated the official opening of the Center for Radiochemistry Research. The OHSU Knight Cardiovascular Institute led a collaborative effort to bring advanced radiochemistry capabilities to campus with others at OHSU who saw the potential for radiochemistry to elevate research across multiple fields. The center includes new labs, a cyclotron for isotope generation, and cleanrooms for synthesis of diagnostic agents for translational imaging and personalized medicine, all housed within a state-of-the-art new facility.

The Center for Radiochemistry Research gives OHSU scientists access to a new suite of powerful imaging tools to improve our understanding of disease processes and facilitate their treatment in order to enhance clinical care.

In particular, the center provides:

- New capacity to develop novel radioactive isotopes to address specific research questions using in-vivo, real-time imaging.
- New PET/MRI capacity to enhance the capability to quantify organ perfusion, assess metabolic pathways and measure pharmacodynamics.
- Applications toward a range of models, ranging from small animal to non-human primate, to humans.

Many at OHSU will benefit from these new capabilities, including dedicated imaging scientists as well as researchers in oncology, neurology, neurobiology, pharmacology (PET pharmacokinetics), cardiology, regenerative medicine, metabolism and more.

Ribbon-cutting with Drs. Robertson, Kaul and Link of the Center for Radiochemistry Research.
Adding flavor to clinical care

As part of the institute’s Heart Protection Kitchen cooking demonstrations within our Center for Preventive Cardiology, our cardiologists are trading stethoscopes for aprons to show off their hidden talents in the kitchen. Usually led by OHSU’s executive chef along with a registered dietitian, our health care providers are periodically stepping in to cook heart-healthy meals for their patients.
Clinical programs

**Aortic Conditions**
Nationally and internationally recognized clinicians and researchers in vascular surgery, cardiothoracic surgery, interventional radiology, cardiology and related disciplines partner to provide consultation, treatment and comprehensive surgical and medical management for any aortic condition. Services include the latest multimodality aortic imaging, medical monitoring, aneurysm repair, endovascular surgery, hybrid open/endovascular surgery and minimally invasive vascular surgery such as EVAR and TEVAR.

**Center for Preventive Cardiology**
For patients with increased risk of heart disease (e.g., dyslipidemia, diabetes and hypertension), the Center for Preventive Cardiology offers a combination of advanced medical intervention and lifestyle modification. We work with genetic counselors, behavioral health experts and lipid experts to offer specialized care for patients with complex lipid abnormalities such as familial hypercholesterolemia, intolerance to statins, early family history or premature disease. Our multidisciplinary team includes endocrinologists, cardiologists and nutritionists for a collaborative approach to managing other high-risk factors. The Center also includes OHSU’s three-phase inpatient/outpatient cardiac rehab program, which is nationally certified by the American Association of Cardiovascular and Pulmonary Rehabilitation.

**Heart Rhythm Disorders**
Full range of electrophysiology (EP) procedures, including pacemaker and defibrillator implantation; EP study and ablation of supraventricular tachycardia, atrial fibrillation and ventricular tachycardia; laser lead extraction; and epicardial access and ablation. OHSU is the first hospital in the region to offer a cryoballoon procedure to isolate, freeze and ablate the pulmonary veins, and is the only hospital in the region with a research protocol that permits safe MRI scans on patients with a permanent pacemaker (PPM) or implantable cardioverter defibrillator (ICD).

**Structural Heart Disease**
A multidisciplinary team including imaging specialists, interventional cardiologists, nurses, advanced practitioners and surgeons, provide a comprehensive approach to valvular heart disease, congenital defects, and acquired cardiovascular conditions. Catheter and surgical approaches are available to patients with all types of valvular heart disease, hypertrophic cardiomyopathy, coronary arteriovenous fistulae and other acquired heart defects. For patients with a patent foramen ovale, joint evaluation by neurologists and cardiologists

|underscored text|
determine whether closure might reduce the risk of future stroke.
Active clinical trials are available to patients for the treatment of
many of these conditions.

**Congenital Heart Disease**

A full-service team of adult cardiologists, pediatric cardiologists,
interventional cardiologists, geneticists and heart surgeons specialize
in the inpatient and outpatient care of adults with congenital heart
disease, including the full spectrum from undiagnosed lesions to
complex palliated patients. OHSU offers state-of-the-art diagnostics,
catherter intervention, electrophysiologic study and surgery, and
patients have access to congenital heart disease clinical trials not
available elsewhere in the state.

**Heart Failure and Transplant**

Oregon’s only heart transplant program and the
first hospital in the Pacific Northwest to receive
the Joint Commission’s Advanced Certification
in Heart Failure. A multidisciplinary team of
cardiac surgeons, cardiologists, intensivists,
clinical coordinators, advanced practitioners and
social workers specialize in the care of patients
with advanced heart failure and work together to
provide the most appropriate advanced therapies
available, including augmented medical therapy,
inotropes, ventricular assist devices and other forms of mechanical
circulatory support, and heart transplantation. OHSU has performed
more than 600 heart transplants and more than 200 mechanical
support device implants.

**Hypertrophic Cardiomyopathy**

The first program of its kind in Oregon, this multidisciplinary team
from cardiology, medical genetics and pediatric cardiology provides
expert care for a condition characterized by abnormal thickening
of the left ventricular muscle. The program is registered with the
Hypertrophic Cardiomyopathy Association and provides treatment
that includes medical therapies (beta blockers, certain calcium
channel blockers, disopyramide), septal reduction therapies (surgical
or catheter-based), implantable cardioverter defibrillator and
advanced heart failure therapies.

**Ischemic Heart Disease**

Advanced medical, interventional, diagnostic and surgical procedures
to manage diseases of the coronary arteries, including percutaneous
coronary intervention and coronary artery bypass grafting (CABG).
OHSU is home to Oregon’s first accredited chest pain center and is one of the few hospitals in the country to offer myocardial contrast echocardiography (MCE) to quickly and accurately detect decreased blood flow in arteries.

**Vascular Disease**

OHSU’s vascular disease program includes nationally renowned experts specially trained to diagnose and treat the entire spectrum of arterial, venous and lymphatic disorders. A team of providers, including vascular, cardiothoracic and endovascular surgeons, treats the carotid artery and extracranial cerebrovascular system, aneurysms of the thoracic and abdominal aorta, intestinal and kidney arteries and veins, upper and lower extremity arteries and veins, patients with Raynaud’s syndrome, those requiring vascular access for hemodialysis as well as patients with varicose veins, venous thrombosis, lymphedema and vascular malformations.

**Cardiothoracic Surgery**

Regional resource for patients with advanced heart diseases that require complex treatments. OHSU’s cardiac surgery team cares for adult patients with congenital and acquired heart diseases, including coronary artery disease, valvular heart disease, aortic aneurysms and
heart failure using innovative surgical techniques. Minimally invasive approaches are used whenever possible to give patients the best outcomes while minimizing discomfort and recovery time.

**Cardiogenetics**

This multidisciplinary team of experts provides personalized care and support to patients and families with hereditary cardiovascular diseases such as familial hypercholesterolemia, Marfan syndrome, familial amyloidosis, dilated and hypertrophic cardiomyopathy and Long QT syndrome, among others. Genetic counselors, cardiologists, electrophysiologists, surgeons, neurologists, primary care providers, nephrologists, nurses and other health care providers work together to ensure patients receive precision health care tailored to their genetic diagnosis. Genetic counselors consult with patients and families to understand the hereditary nature of cardiovascular diseases, provide genetic testing, address the physical and emotional implications of having an inherited cardiovascular condition, and connect patients to research opportunities.

**Cardio-oncology**

This unique program specializes in the cardiovascular care of patients currently undergoing or previously treated with chemotherapy, radiation therapy or bone marrow transplantation. To ensure long-term health and overall survival of cancer patients, we offer expert care for prevention of chemotherapy-induced cardiotoxicity and radiation-induced heart damage, management of existing heart conditions during cancer treatment and cardiac complications after cancer treatment, and assessment of long-term cardiovascular risk with optimization of preventive treatments for cancer survivors. Our multidisciplinary program brings together cardiologists with a special interest in the cardiovascular effects of anti-cancer therapies and oncologists to provide comprehensive and personalized care for our patients.

**Maternal Cardiac**

Unique to the region, this clinical partnership between cardiology and maternal fetal medicine at OHSU provides comprehensive care for women with diagnosed or suspected cardiac disease who are pregnant or planning for a pregnancy. The program offers preconception counseling, cardiac monitoring during pregnancy, and early postpartum follow-up. Wherever possible, the program partners with local providers to give the best ongoing care available to our patients.

Joaquin Cigarroa, M.D., Clinical Chief of the OHSU Knight Cardiovascular Institute.

www.ohsuknightheart.com
Continuing medical education

OHSU offers accredited continuing medical education for medical professionals. Oregon Health & Science University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

2017 Flagship Conferences

39th Annual Salishan Conference: Cardiology for the Primary Care Provider
October, 20-22
Salishan Spa & Golf Resort, Gleneden Beach, Ore.
www.ohsuhealth.com/cardiologycme

3rd Annual Pacific Northwest Cardiovascular Summit
September, 8-9
The Nines, Portland, Ore.
www.pnwcvsummit.com

Join us for the Pacific Northwest Cardiovascular Summit

Learn about the latest in diagnosing and treating cardiovascular disease from internationally renowned speakers at this weekend-long symposium.

September, 8-9
The Nines, Portland, Ore.

For more information, please contact Brittany Brownlee at 503-494-3596 or brownleb@ohsu.edu, or visit www.pnwcvsummit.com.
## Providers by department

<table>
<thead>
<tr>
<th>CARDIOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaun Ageno, M.D.</td>
</tr>
<tr>
<td>Rupa Bala, M.D.</td>
</tr>
<tr>
<td>Bassel Beitinjaneh, M.D.</td>
</tr>
<tr>
<td>Craig Broberg, M.D.</td>
</tr>
<tr>
<td>Luke Burchill, M.D., Ph.D.</td>
</tr>
<tr>
<td>S. Albert Camacho, M.D.</td>
</tr>
<tr>
<td>Scott Chadderdon, M.D.</td>
</tr>
<tr>
<td>Joaquin Cigarroa, M.D.</td>
</tr>
<tr>
<td>Khidir Dalouk, M.D.</td>
</tr>
<tr>
<td>Jonathan Davis, M.D., M.P.H.S.</td>
</tr>
<tr>
<td>Thomas Dewland, M.D.</td>
</tr>
<tr>
<td>P. Barton Duell, M.D.</td>
</tr>
<tr>
<td>Sergio Fazio, M.D., Ph.D.</td>
</tr>
<tr>
<td>Maros Ferencik, M.D., Ph.D.</td>
</tr>
<tr>
<td>Jill Gelow, M.D., M.P.H.</td>
</tr>
<tr>
<td>David Guarraia, M.D., M.S.</td>
</tr>
<tr>
<td>Allen Harrelson, D.O., Ph.D.</td>
</tr>
<tr>
<td>Stephen Heitner, M.D.</td>
</tr>
<tr>
<td>Charles Henrikson, M.D.</td>
</tr>
<tr>
<td>Sanjiv Kaul, M.D.</td>
</tr>
<tr>
<td>Abigail Khan, M.D.</td>
</tr>
<tr>
<td>Adrienne Kovacs, Ph.D.</td>
</tr>
<tr>
<td>Jonathan Lindner, M.D.</td>
</tr>
<tr>
<td>James Mudd, M.D.</td>
</tr>
<tr>
<td>Edward Murphy, M.D.</td>
</tr>
<tr>
<td>Babak Nazer, M.D.</td>
</tr>
<tr>
<td>Jonathan Purnell, M.D.</td>
</tr>
<tr>
<td>Hind Rahmouni, M.D.</td>
</tr>
<tr>
<td>Diana Rinkevich, M.D.</td>
</tr>
<tr>
<td>Daniel Sedehi, M.D.</td>
</tr>
<tr>
<td>Shimoli Shah, M.D.</td>
</tr>
<tr>
<td>Michael Shapiro, D.O.</td>
</tr>
<tr>
<td>Eric Stecker, M.D.</td>
</tr>
<tr>
<td>James Suero, M.D.</td>
</tr>
<tr>
<td>Yen Tibayan, M.D.</td>
</tr>
<tr>
<td>Kevin Wei, M.D.</td>
</tr>
<tr>
<td>Chi-Gang Yen, M.D.</td>
</tr>
<tr>
<td>Firas Zahr, M.D.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CARDIOTHORACIC SURGERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Dubose, M.D.</td>
</tr>
<tr>
<td>Jai Raman, M.B.B.Ch., Ph.D.</td>
</tr>
<tr>
<td>Victor Rodriguez, M.D.</td>
</tr>
<tr>
<td>Howard Song, M.D., Ph.D.</td>
</tr>
<tr>
<td>Don Thomas, M.D.</td>
</tr>
<tr>
<td>Frederick Tibayan, M.D.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VASCULAR SURGERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherrie Abraham, M.D.</td>
</tr>
<tr>
<td>Amir Azarbal, M.D.</td>
</tr>
<tr>
<td>Enjae Jung, M.D.</td>
</tr>
<tr>
<td>Gregory Landry, M.D.</td>
</tr>
<tr>
<td>Timothy Liem, M.D.</td>
</tr>
<tr>
<td>Robert McLafferty, M.D.</td>
</tr>
<tr>
<td>Erica Mitchell, M.D.</td>
</tr>
<tr>
<td>Gregory Moneta, M.D.</td>
</tr>
</tbody>
</table>

To refer a patient or consult with the Cardiovascular team, please call:

Physician Consult & Referral Service
800-245-6478
[www.ohsu-knight-heart.com](http://www.ohsu-knight-heart.com)
OHSU locations

- **Marquam Hill**
  3181 S.W. Sam Jackson Park Rd.
  Portland, OR 97239
  503-494-1775

- **South Waterfront Center for Health & Healing**
  3303 S.W. Bond Ave.
  9th floor
  Portland, OR 97239
  503-494-1775

- **Beaverton Cardiology Clinic**
  15700 S.W. Greystone Ct.
  Beaverton, OR 97006
  503-494-1775

Community collaborations

- **Longview, Washington**
  PeaceHealth St. John Medical Center
  1615 Delaware St.
  Longview, WA 98632
  360-414-2730

- **Vancouver, Washington**
  PeaceHealth Southwest Medical Center
  200 N.E. Mother Joseph Pl.
  Vancouver, WA 98664
  360-514-4444

- **Astoria, Oregon**
  Columbia Memorial Hospital
  2095 Exchange St., Ste. 301
  Astoria, OR 97103
  503-338-4087

- **The Dalles, Oregon**
  Mid-Columbia Medical Center
  551 Lone Pine Blvd, Ste. #303
  The Dalles, OR 97058
  541-506-6530

To refer a patient for consult, call **800-245-6478**