

UH Heart & Vascular Institute: An Update

By Robert Jansen

In July 2006, when leading Harvard cardiologist Daniel I. Simon, MD, joined University Hospitals (UH) as chief of the Division of Cardiovascular Medicine, his goal was to expand UH's entire cardiovascular service line and to establish a heart and vascular institute that would rise to the rank of a national center of excellence—not only in regard to patient care, but also in regard to cardiovascular research and physician education.

A triple threat in his own right, Dr. Simon was formerly an associate professor of Medicine and associate director of Interventional Cardiology at Harvard and the Brigham and Women's Hospital in Boston, where he completed his medical residency, cardiovascular fellowship, research and advanced interventional cardiology training. Board certified in Internal Medicine, Cardiovascular Disease and Interventional Cardiology, Dr. Simon's clinical activities focus

on interventional cardiology while his research work, funded by the National Institutes of Health (NIH) for the past 16 years, has involved developing new approaches to prevent heart attack and restenosis of arteries after angioplasty and stenting.

Today, as the director of University Hospitals Heart & Vascular Institute, Dr. Simon is proud of the milestones he and his colleagues have already achieved during the past 18 months. These include new facilities, physician and physician-scientist recruits, research grants and awards, expanded clinical services, and new cardiovascular subspecialty fellowships.

“What we're trying to build is a premier academic cardiovascular program . . . a balanced and well-rounded program that encompasses research, fellow education, and cutting-edge clinical care,” said Dr. Simon.

Daniel I. Simon, MD, (left) is the Herman Hellerstein chair and University Hospitals' chief of the Division of Cardiovascular Medicine and director of the Heart & Vascular Institute. Mukesh K. Jain, MD, is the Ellery Sedgwick Professor of Medicine, chief research officer at University Hospitals Heart & Vascular Institute and director of the Case Cardiovascular Research Institute. Both receive research funding from the National Institutes of Health and are elected members of the prestigious American Society of Clinical Investigation.



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James Fang, MD, (right) is chief medical officer at University Hospitals Heart & Vascular Institute and medical director of Heart Failure, Transplantation, and Circulatory Assistance. **Ivan Cakulev, MD,** is a senior instructor at Case Western Reserve University and an electrophysiologist at University Hospitals.

To help in this regard, Dr. Simon initially recruited five cardiovascular colleagues from Harvard and Brigham, including James C. Fang, MD, and Mukesh K. Jain, MD. Dr. Fang serves as chief medical officer at University Hospitals Heart & Vascular Institute and medical director of Heart Failure, Transplantation, and Circulatory Assistance. Dr. Jain is the Ellery Sedgwick Professor of Medicine, chief research officer at University Hospitals Heart & Vascular Institute and director of the Case Cardiovascular Research Institute. Drs. Anne Hamik, Brandon Atkins, and Saptarsi Haldar, all highly accomplished clinician-scientists from Harvard Medical School, were recruited as well. Since then, more than 13 clinicians and researchers have joined them.

RESEARCH AND EDUCATION

Dr. Simon believes that research—from clinical research to population research to basic science research—is fundamental to all top-flight cardiovascular divisions, and he encourages all faculty members to be engaged in some aspect of research to advance patient care. To help in this endeavor, Case Western Reserve University School of Medicine founded the Case Cardiovascular Research Institute. The results have been quite impressive.

“We’ve experienced enormous growth on the research front,” said Dr. Simon. “Before we joined the Cardiovascular Medicine Division,

there were 22 people conducting cardiovascular research. Now, there are 59.”

The most recent include Aaron Proweller, MD, PhD, and Diana Ramirez-Bergeron, PhD, from the University of Pennsylvania. Their research interests include heart and blood vessel development and genetics. Marco Costa, MD, PhD, was recruited to direct the Research & Innovation Center and Invasive Services at UH’s Heart & Vascular Institute. Richard Josephson, MD, joined UH to direct Cardiovascular-Pulmonary Rehabilitation.

According to Dr. Simon, Dr. Costa is a world-renowned interventional cardiologist who trained with two of the most prominent interventionalists in the world—Patrick Serruys, MD, from the Thorax Center in Rotterdam, The Netherlands, and Eduardo Sosa, MD, from Brazil.

“Dr. Costa was trained on two continents and brings us key industrial and new device technology that’s way ahead, about three to five years ahead, of what we currently have in the United States. So he provides us access to innovative technology and discovery,” Dr. Simon explained. “His specialty is in imaging, and he has a core imaging laboratory that uses OCT (optical coherent tomography), intravascular ultrasound, and MRI for high-resolution imaging of blood vessels.”

Richard Josephson, MD, trained at Johns Hopkins and at the NIH and is known for developing one of the premier cardiovascular pulmonary rehabilitation programs in the nation while in Akron, according to Dr. Simon. A member of the National Cardiovascular and Pulmonary Rehabilitation Board of Directors and an NIH-funded researcher, Dr. Josephson uses state-of-the-art neuro-imaging modalities to study the effects of exercise on cognitive function in patients with heart failure.

While the ability to continue to recruit such outstanding individuals is a measure of success for the cardiovascular division, so, too, is the explosive growth in total grant support over the past 18 months. When Dr. Simon and his colleagues arrived at UH, R01 grants (the most prestigious of research awards) totaled seven; now that total is 15. Previously, there were no career development grants; now there are eight K08 and SDG awards from the NIH and American Heart Association. Total committed grant support (direct and indirect costs) from the NIH now exceeds \$21 million.

In 2007, Dr. Simon personally received a prestigious MERIT award—one of only four to seven annually given by the NIH to investigators across the country. This will likely bring in up to \$3.9 million.

“We’ve garnered prestigious awards, and these are signs that the institution is doing well,” said Dr. Simon.

Perhaps one of the best success stories is in the area of cardiovascular stem cell and regenerative medicine research, which has been a win not just for UH but for the state of Ohio, as well. University Hospitals Case Medical Center and Case Western Reserve University School of Medicine, with its FDA-approved cell production facility led by Stanton Gerson, MD, is a nationally recognized site for adult, non-embryonic stem cell research. Not coincidentally, it is also the site of the Ohio Cell-Based Therapy Consortium for Cardiovascular



(Far left) Alan Markowitz, MD, chief surgical officer of University Hospitals Heart & Vascular Institute, directs University Hospitals' new Valvular Heart Center. He is shown here (left to right) with Jerry Goldstone, MD, chief of the Division of Vascular Surgery, and Adnan Cobanoglu, MD, chief of the Division of Cardiac Surgery and co-director of University Hospitals Heart & Vascular Institute.

Disease, a multi-institutional effort directed by Dr. Simon which includes investigators from University of Toledo, Ohio State University, Christ Hospital in Cincinnati, and University of Cincinnati. Current trials are underway to examine cell-based therapy for ischemic heart and peripheral vascular disease.

Dr. Simon is also a member of the Commercialization Advisory Board of the Global Cardiovascular Innovation Center (GCIC). GCIC's goal is to build cross-industry partnerships to facilitate the development and adoption of new cardiovascular technologies geared towards improving patient care.

"This has been a great windfall for UH, because we received about \$1.8 million in state funding to build innovative cardiovascular programs that lead to discovery and also jobs for the state of Ohio," he said.

As pleased as Dr. Simon is with the progress of the research arm of the Heart & Vascular Institute's cardiovascular program, he's equally pleased with the ongoing evolution of the physician education arm. Currently, there are 18 physicians in fellowship training programs at UH.

"Our success on the research side is now leading to recognition of Case's cardiovascular fellowship training program as really being a top program," said Dr. Simon. "We're now getting applicants from Johns Hopkins, Duke and the University of Texas Southwestern for the first time."

He reported that his division will be introducing two new fellowship programs—one in vascular medicine and the other in cardiovascular imaging. Teresa Carman, MD, who headed the Cleveland Clinic

vascular medicine fellowship program, was recruited to initiate a similar program at UH. The new cardiovascular imaging fellowship program will be directed by three UHMC physicians: Brian Hoit, MD, director of Echocardiography; Robert Gilkeson, MD, director of Cardiovascular Imaging Center; and James O'Donnell, MD, director of Nuclear Medicine.

"We'll have pretty strong coverage now in electrophysiology, interventional cardiology, general cardiology, vascular medicine and cardiovascular imaging," said Dr. Simon.

His commitment to education extends to the medical community, as well. Only three months after joining UH, he and three of his colleagues initiated an annual continuing medical education course entitled *Update in Cardiovascular Medicine*. The first year, 150 physicians attended. Last year, there were 300 attendees. The purpose was to increase cardiovascular disease awareness especially among UH internists and family practice physicians.

CLINICAL CARE

Regarding patient care, Dr. Simon is pleased to report the development of a ventricular assist device program and reactivation of UH's heart transplantation program.

"Drs. Jim Fang, Arie Blitz (surgical director of Heart Transplantation) and Adnan Cobanoglu (chief of the Division of Cardiac Surgery and co-director of the Heart & Vascular Institute) are committed to offering all components of advanced heart failure therapies, whether it's devices, improved medical therapy or transplantation. There's strong commitment from UH in these areas, and I think the lung and heart transplants in 2007 showed that," said Dr. Simon.

In the Division of Electrophysiology (EP), which is directed by Judith Mackall, MD, he's excited about the "great growth" in the number of electrophysiologists. There are now six, and one more is being recruited. The most recent addition is Mauricio Arruda, MD.

"Dr. Arruda just joined us from the Cleveland Clinic. He is quite renowned for AF ablation and will direct our AF Center and Electrophysiology Laboratories in the Heart & Vascular Institute," said Dr. Simon.

Community outreach efforts included the expansion of EP services to UH medical centers in Bedford, Richmond, and Geauga, as well as ambulatory facilities in Westlake, Twinsburg, Chardon, Euclid, Mentor and Chagrin Highlands.

Perhaps even more exciting are the new and innovative prevention programs at UH developed by Carl Orringer, MD, director of Lipid and Prevention. "Carl has developed one of the most innovative screening programs for asymptomatic patients. It's based on what's called

the SHAPE protocol, which uses coronary calcium scoring to screen at-risk individuals. And we've been able to develop a protocol to offer \$99 calcium screening tests to identify these individuals," Dr. Simon explained.

"It's really a paradigm shift to identify patients that have a 10-year risk of disease that could be as high as 25 percent versus 3 percent for a low-risk individual, and to embark upon therapies and evaluation that you normally wouldn't. And it's already garnered a lot of interest from other institutions which want to know how we were able to do this and how we organized it and set it up."

Dr. Orringer, who is a board-certified lipidologist and serves on the National Lipid Board, is also developing an LDL Apheresis Center for treatment of very high-risk patients at UH. Once implemented, it will be the only LDL apheresis center in the entire Northeast Ohio/Western Pennsylvania region.

"Again, we're trying to offer the full spectrum of prevention and lipid coverage from the simple to the most complex patients that are at very high risk but refractory to management," said Dr. Simon.

Another new development is the creation of a Valvular Heart Center made possible by a substantial donation to UH by John Haugh, a grateful patient. Directed by Alan Markowitz, MD, chief surgical officer of the Heart & Vascular Center, and James Fang, MD, the new Center will offer comprehensive evaluation and minimally invasive treatments for patients with valvular heart disease.

"Alan Markowitz is a real gem of a surgeon and has a very large following for complex valvular heart disease," said Dr. Simon. "This has really been a success story over the past year, as well."

Another success story is the cardiovascular division's collaboration with University Hospitals' MacDonald Women's Hospital to provide women's heart care. The plan is to provide access to cardiovascular expertise for women in neighborhood communities as well as in downtown Cleveland.

"We're the primary sponsor for the American Heart Association's Go Red for Women campaign. We did that last year, and we're excited to be doing that again this year," said Dr. Simon. "Heart disease is the number one health threat to women. Go Red for Women is designed to educate women about the signs and symptoms of heart disease. Women are the most important drivers of health decisions in their families, but we need to remind them that they need to take charge of their own health, too. We are excited to be a part of MacDonald Women's Hospital programs focusing on bone, breast and heart health."

In terms of other issues regarding clinical care, Dr. Simon is very



PHOTO COURTESY OF UNIVERSITY HOSPITALS CASE MEDICAL CENTER

Judith Mackall, MD, is medical director, Division of Electrophysiology, University Hospitals Case Medical Center. University Hospitals Heart & Vascular Institute recently announced a collaboration with MacDonald Women's Hospital to provide women's heart and vascular care in neighborhood communities as well as in downtown Cleveland.

pleased that construction is completed on UHCMC's new cardiovascular ambulatory/outpatient center which now houses cardiac medicine, vascular medicine, cardiac surgery and imaging all in one location. An additional 15,000 square feet of laboratory space exclusively for cardiovascular research was also recently completed in the Wolstein Research Building, owned Case School of Medicine.

To further facilitate patient access, new catheterization labs have been opened in a number of UH's community medical centers, including University Hospitals Bedford Medical Center and University Hospitals Richmond Heights Medical Center. Heart and vascular services also play a fundamental role in the new University Hospitals Twinsburg Health Center which opened in October 2007, and Dr. Simon is looking forward to the opening of the University Hospitals Concord Health Center in 2009 and the Ahuja Medical Center in Beachwood in 2010. All of these new facilities are expected to improve not only patient access, but also patient care.

"All in all, I think the state of the Heart & Vascular Institute mirrors the overall state of the institution—it's aggressively expanding," said Dr. Simon. "Achilles Demetriou (UH president), Tom Zenty (UH CEO), and Fred Rothstein (UHCMC president) have provided strong leadership and supplied us with sufficient resources to grow the heart and vascular enterprise. And we're just wildly excited about it."

To schedule a patient, call 216-844-3800 or UH4-CARE. For more information about UHCMC's Heart & Vascular Institute, call 216-844-8448 or visit www.uhhospitals.org/heart. ■