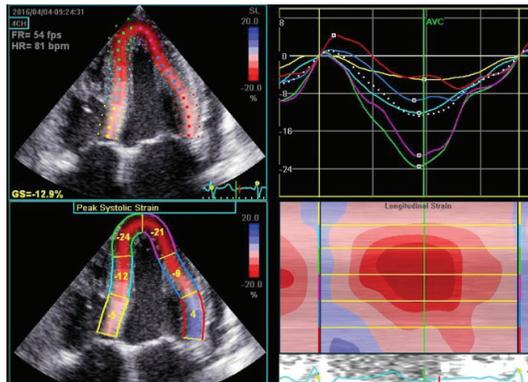


HARRINGTON HEART & VASCULAR INSTITUTE INNOVATIONS



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DANIEL I. SIMON, MD

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A Conversation With

DANIEL I. SIMON

New President of UH Case Medical Center

Daniel I. Simon, MD, was recently named President of University Hospitals Case Medical Center after 10 years leading the UH Harrington Heart & Vascular Institute. He shares his thoughts on his new role and how health care will evolve in the next 10 years.

Q: What are the biggest priorities in health care today?

A: The biggest priority in health care today is the transition from a volume-based health care model to a value-based model. It's about optimizing the health of our patients – not episodically treating sickness – and doing so in a consumer-driven health environment. Five or 10 years ago, you made an appointment and waited for the doctor. In today's environment, the doctor waits for you. This is on-demand health care.

Q: What is your vision for UH Case Medical Center?

A: My vision for UH Case Medical Center is really pretty simple: Healthy community, exceptional medicine, better world. We're talking about optimizing community health and impacting the future of medicine.

Q: Does this fit well into the value-based system you just described?

A: It does. The value-based system relies on reimbursement for diagnosis or treatment of disease. Now, we're focusing on wellness and aiming to keep people out of the hospital and in the outpatient arena. The integrated health system of UH is poised to succeed in this value-based and consumer-driven environment.

Q: What are you most proud of during your tenure here?

A: I'm most proud of assembling an expert team in heart and vascular disease. We've grown from a small division and institute to now more than 165 physicians and surgeons at more than 20 locations. It's the physicians, surgeons, nurses and technicians across the health system that have made the UH Harrington Heart & Vascular Institute excel.

Q: Will you continue to maintain a clinical practice in your new role?

A: Absolutely. I plan to continue to work in the cardiac catheterization lab on Mondays performing interventional procedures, and I plan to also continue seeing outpatients. I have a small but very gratifying ambulatory practice of longitudinal patients with cardiovascular disease. As a hospital leader, it's very important for me to maintain personal engagement with patients.

Q: What will health care look like in the next 10 years?

A: Health care in the next 10 years will continue to undergo a consumer-based transformation, especially with virtual and telehealth. Patients will want to connect on an as-needed and on-demand basis. We're going to have to pivot to this consumer-driven marketplace. Of course, with all the new opportunities in telehealth, you will be able to examine patients in a virtual environment, examining heart and lungs using remote means. I think that's where we're moving in the next 10 years.



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.

EXPANDING LIMITED OPTIONS

Cardiac amyloidosis patient receives LVAD at UH Case Medical Center in rare procedure

Patients with advanced cardiac amyloidosis generally have few treatment options.

“When cardiac amyloidosis presents as heart failure, the prognosis is very poor,” says Soon Park, MD, Chief of Cardiac Surgery at University Hospitals Harrington Heart & Vascular Institute. “The heart, in general, does not dilate because of the infiltrative process. Instead, the cavity gets very small and the heart becomes much thicker. When these patients develop NYHA Class 4 symptoms, their survival is weeks, at the most a few months.”

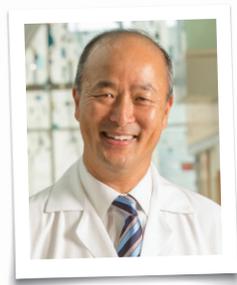
Unfortunately, these patients are also rarely candidates for heart transplantation. Advanced age, frailty, multisystem organ failure, the systemic nature of amyloidosis and the risk of recurrence all play a role, as does the lack of available organs for transplant.

Within this grim reality, however, there is an emerging sliver of hope: A growing base of clinical experience suggests that implanting a left ventricular assist device (LVAD) is a feasible destination therapy for these patients. In fact, Dr. Park just successfully completed this procedure at UH, implanting an LVAD in a 79-year-old man with advanced cardiac amyloidosis and heart failure.

Dr. Park has perhaps the world’s most extensive clinical experience with implanting LVADs in patients with cardiac amyloidosis. He began performing the procedure in 2008, while at Mayo Clinic.

“When I was at Mayo, we saw a lot of patients with amyloidosis,” he says. “As we saw them, I began wondering whether we could help them with an LVAD as destination therapy. It had not been done to any degree.”

Dr. Park and his Mayo colleagues reported the first data on successful LVAD implantation in cardiac amyloidosis patients in 2011, publishing their experience in the journal *Circulation: Heart Failure*. In 2013, they reported results for nine amyloidosis patients in the *Journal of Heart & Lung Transplantation*. Mean survival for these patient after LVAD implantation was 17 months. Just last year, Dr. Park and his former Mayo colleagues published results on 28 patients exclusively with restrictive cardiomyopathy, including cardiac amyloidosis. One-year survival for patients with LVADs, without transplantation, was 64 percent, and it was not significantly different between amyloidosis and nonamyloid patients.



SOON PARK, MD

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“LVAD therapy in some of these people is a viable option,” Dr. Park says. “Experience is limited, but compared with their natural history, it seems to be overall the right thing to do in terms of risk-benefit ratio for patients. In my experience, they may have anywhere from an additional six months to three years of prolonged survival and improved quality of life.”

For Dr. Park, the key to success in LVAD therapy for amyloidosis is timely referral.

“It’s important to see the patient before it is too late, before the onset of cardiac cachexia or before they are bedridden,” he says. “If they can be referred while they can still ambulate and are not malnourished, their chances of doing well in terms of survival and speedier recovery are much better.”

Dr. Park points to the collective expertise available at UH Harrington Heart & Vascular Institute that makes this rare procedure possible for patients.

“We have a very strong LVAD and mechanical circulation program,” he says. “Cardiac surgeon, Dr. Benjamin Medalion, provides surgical leadership, and Dr. Guilherme Oliveira, Director of the Advanced Heart Failure & Transplant Center, provides expertise on medical management of these patients.”

“The LVAD procedure in an amyloidosis patient is technically difficult,” he adds. “The cavity gets quite small, so getting the cannula in can be quite difficult. The myocardium with the infiltration can become very friable. But we are up to the task. We have the surgical expertise to implant the device and the medical expertise to manage the patients afterward.”

For more information about LVAD therapy at UH Harrington Heart & Vascular Institute or to refer a patient, please call 216-844-3800.

Cancer and cardiovascular disease are closely linked, both by their shared risk factors and the cardiotoxic effects of certain cancer therapies. Nevertheless, there are only a handful of hospitals that recognize this reality. A 2015 survey of U.S. adult and pediatric cardiology division chiefs, reported in the *Journal of the American College of Cardiology*, found that only 27 percent of medical centers offered an integrated onco-cardiology program featuring the services of more than one clinician. At 16 percent of centers, there was just one cardiologist with onco-cardiology expertise. The vast majority of cancer patients had no attention paid to their hearts.

This unrecognized need has potentially devastating consequences for patients.

"Most cancer patients with heart disease fail to receive appropriate cardiovascular care," says Guilherme Oliveira, MD, Director of the Onco-Cardiology Program at University Hospitals Harrington Heart & Vascular Institute. In fact, his study of nearly 7 million patients, recently published in the *Mayo Clinic Proceedings*, found significantly high rates of co-existing cardiovascular disease among cancer patients. More alarmingly, however, was the fact that less than half of these patients were followed by a cardiologist or treated with appropriate cardiovascular medications.

Part of the success of the program at UH comes from partnering with providers within the UH system to offer onco-cardiology services locally. Although initially only available at the main campus of UH Seidman Cancer Center, onco-cardiology services are now available at four UH community hospitals and two ambulatory health centers, with expansion planned soon to another community hospital.

"We strive for close integration of practice patterns and protocols at every location, so that there is high reliability of care across all the health system," Dr. Oliveira says. Another key to success is standardization of echocardiography machines, software, image acquisition and interpretation. All echocardiography imaging is performed on state-of-the-art GE Vivid 9 equipment with three-dimensional and strain software.

"We have strict adherence to our imaging and interpretation protocols," Dr. Oliveira says. "We train echo techs in our main lab and only allow level 3 certified echo techs to perform these studies. We also conduct frequent quality reviews and continued education."

Evidence is emerging that onco-cardiology services translate into improved outcomes for patients. Dr. Oliveira and colleagues from UH recently reported lower cardiovascular mortality among survivors of Hodgkin lymphoma, publishing their findings in the journal *Clinical Lymphoma, Myeloma & Leukemia*.

WHEN CANCER MEETS CARDIO

A national model for onco-cardiology care

"Heart disease is incredibly common and often neglected in patients with cancer," Dr. Oliveira says. "Patients with lung cancer, for example, have an almost 50 percent chance of having underlying severe cardiovascular disease at the time of cancer diagnosis. Identifying and treating underlying cardiac disease may not only attenuate cardiotoxicity but also prevent unexpected cardiac complications during treatment, such as myocardial infarction or heart failure, thereby improving overall survival."

In a collaborative effort between UH Seidman Cancer Center and UH Harrington Heart & Vascular Institute, Dr. Oliveira has built a program that bucks the national trend, reaching out to oncology patients and bringing them under the onco-cardiology umbrella before cancer treatment even begins.

"Our program is one of the largest, best organized and most comprehensive in the country," he says. "In 2015 alone, we treated more than 1,200 patients, providing comprehensive cardiology longitudinal care. We evaluate patients before they receive the first dose of chemo, monitor them through their treatment and follow them as survivors. Because of its scope, the UH Onco-Cardiology Program has been nationally recognized as a model of onco-cardiology care. Physician groups from Europe, South America, Africa and over a dozen centers in the U.S. have traveled to Cleveland to learn from our experience."



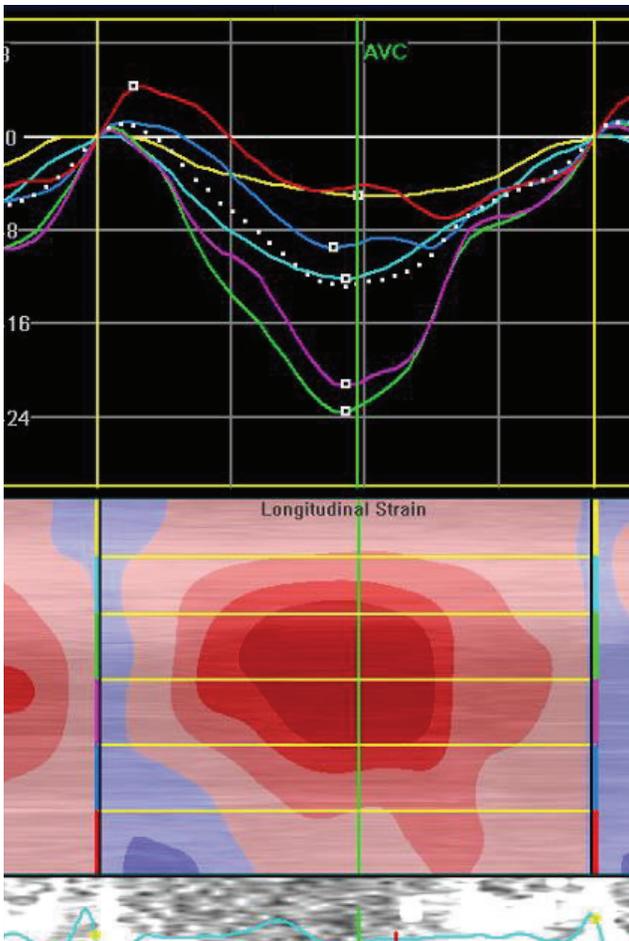
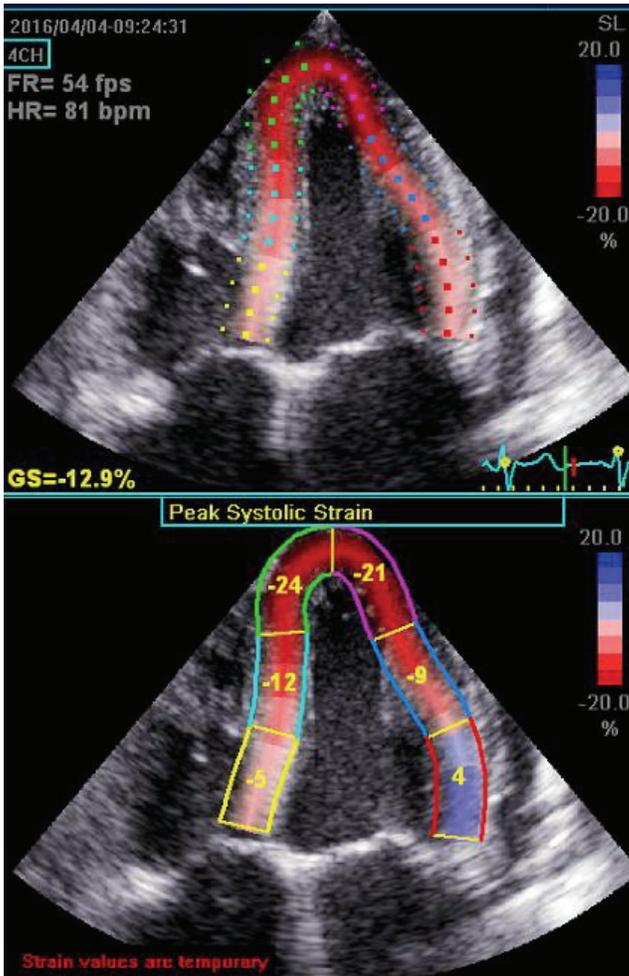
GUILHERME OLIVEIRA, MD

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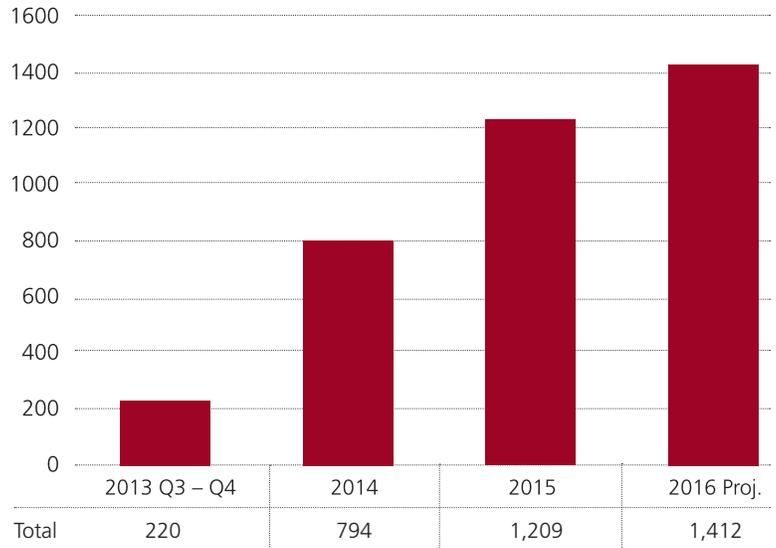
"We found that cardiovascular mortality in these patients has decreased about 7 percent per year over the past two decades," Dr. Oliveira says. "We also have data soon to be published showing that cardiovascular death among breast and lung cancer survivors has decreased in recent years. We speculate that this reflects the impact of improved cardiovascular care and onco-cardiology."

To spur even better outcomes for patients, Dr. Oliveira and his team at UH have secured more than \$1.5 million in intramural and extramural funding for onco-cardiology research.

"We currently participate in multicenter clinical trials in the field of onco-cardiology," he says. "We also have several investigator-initiated clinical and translational studies trying to understand different aspects of cardiotoxicity."



Onco-Cardiology Volume Trends



One area of investigation is the idea of an “individual cardiotoxic threshold” or ICT. Dr. Oliveira’s research, published in both the Journal of the American College of Cardiology and the Journal of Heart and Lung Transplantation, has shown that women are more likely than are men to develop cardiotoxicity in response to cancer treatment.

However, other factors affecting ICT are still to be identified.

“We have observed that there are patients that can withstand large doses of chemotherapy without developing cardiotoxicity, while others develop cardiotoxicity with only one dose,” he says. “This clinical observation, in combination with work showing that genetic factors can modulate cardiac susceptibility to the toxic effects of chemotherapy, gave rise to the concept of ICT. Patients with cancer often have characteristics such as age, gender, genetic predisposition and pre-existing cardiovascular disease that partly determine cardiotoxicity. Specialty cardiovascular assessment, more sensitive monitoring technology and timely interventions in selected patients can decrease cardiotoxicity and improve patient outcomes. This and other concepts require confirmation through research and clinical experience.”

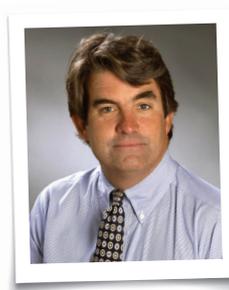
For this to occur, however, Dr. Oliveira and his team need to evaluate as many newly diagnosed cancer patients as possible. Having access to patients before they start cancer therapies is essential, and requires strong partnership with oncologists.

“As we’ve shown, less than half of all cancer patients with cardiovascular disease are treated with guideline-directed medical therapy or are referred to a cardiologist,” Dr. Oliveira says. “That is something that needs to change to optimally care for these patients.”

For more information on the Onco-Cardiology Program at UH Harrington Heart & Vascular Institute or to refer a patient, please call 216-844-3800.



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Making the Case for CORONARY CALCIUM SCORING

Innovative, low-cost program increases access to vital test

Preventive cardiologists continue to refine their risk prediction models, striving for the “perfect formula” for predicting a heart attack or other cardiovascular event. Yet many of these specialists acknowledge there is still much to be learned.

“These models aren’t as good as we’d like them to be at identifying high-risk people,” says David Zidar, MD, PhD, an interventional cardiologist at University Hospitals Harrington Heart & Vascular Institute. “We have risk scores that rely on some of the traditional cardiac risk factors, but they’re not always adequate for us to drill down and focus our efforts on specific populations.”

At UH Harrington Heart & Vascular Institute, preventive cardiologists are addressing this issue by supplementing traditional risk scoring with an aggressive coronary calcium scoring program. Begun in 2007, the program has provided 15,000 coronary calcium tests to date for UH patients.

“The coronary calcium score allows us to reclassify a patient’s risk for heart attack or stroke, more accurately than if they had a ranking based solely on traditional risk factors,” Dr. Zidar says.

To increase access, the test is available on a self-pay basis for \$99.

“We decided early on that we weren’t going to let cost be an issue in terms of access to this technology,” says Robert Gilkeson, MD, Director of the Cardiovascular Imaging Center at UH Harrington Heart & Vascular Institute. “As a result, we’ve been able to much more appropriately risk-stratify and prescribe statin therapies for our patients.”

Coronary calcium scoring is available at UH Case Medical Center through the UH Harrington Heart & Vascular Institute, as well as multiple UH community hospitals and ambulatory health centers. The program has grown from about 100 tests per month, systemwide, to now about 200. During a June 2015 pilot, the test was offered at no-cost and attracted 800 patients – including a significant number of women.

“We know that women tend to under-report and under-treat symptoms of heart disease,” Dr. Gilkeson says. “When we offered the test at no-cost, the proportion of women went from 40 percent to 60 percent – and we saw severe disease in about 15 percent of them.”

Risk Implications

CACS	10-Year Risk of Nonfatal MI or CHD Death	Risk Stratification
0	Less than 1%	Lower
1 – 99	4%	Lower to moderate
100 – 399	13%	Moderate
400 or greater	24%	High

Given the success of the coronary calcium scoring program, UH launched a similar self-pay, low-dose CT screening program for lung cancer in 2011 – the first health care provider in Northeast Ohio to do so. This test, too, is priced at \$99. However, it is now covered by Medicare for certain patients.

“It took CMS and Medicare a few years to get on board,” Dr. Gilkeson says. “But in the interim, we scanned about 1,000 patients. We diagnosed 15 lung cancers, many at an early stage.”

For Dr. Zidar, it’s a matter of having another tool in the arsenal.

“Coronary calcium scoring is not right for everyone, and it’s absolutely not right for people who are having symptoms, such as chest pain,” Dr. Zidar adds. “Chest pain requires evaluation with stress testing or fractional flow reserve-CT angiography (FFR-CT).”

UH Harrington Heart & Vascular Institute is launching a new program – ICE (Inflammatory Cardiovascular disease Elimination) Cardiology – that will focus on the prevention of cardiovascular disease in patients with chronic inflammation. Inflammation drives the initiation and progression of atherosclerosis, and is also linked to plaque rupture and thrombosis that cause heart attack and stroke. Individuals with rheumatologic (systemic lupus erythematosus, rheumatoid arthritis, ankylosing spondylitis, scleroderma), inflammatory bowel (ulcerative colitis, Crohn’s disease), and skin (psoriasis) disease are known to be at increased risk of cardiovascular disease. Risk prediction in these individuals is challenging and may be improved substantially with the use of CAC scoring.

For more information on the coronary calcium scoring program at UH or to refer a patient, please call 216-844-3800.

Does your patient have a history of:

- Coronary artery disease
- Myocardial infarction
- Angioplasty or stenting of any of the coronary arteries
- Coronary artery bypass grafting (CABG)
- Peripheral arterial disease (i.e., claudication, TIA, carotid stenosis)
- Aneurysm or enlargement of the aorta

NO

YES

- Male (age 45 or older)
- Female (age 55 or older)
- Patient with chronic inflammatory disease (age 40 or older)

NO

Family history of heart disease at age 50 or less?

NO

Patient should not have test performed

YES

YES

Do they weigh less than 400 lbs. (182 kg)?

NO

Schedule Cardiac CT scan

YES

NO

Arrange for follow-up visit to discuss test results

Does your patient have one of the following risk factors:

- Hypertension
- Hyperlipidemia or low HDL cholesterol
- Cigarette smoking (current or past)
- Diabetes mellitus
- Family history of heart disease in men < age 55 years of age or < 65 years old in women (mother, father, sister, brother or child)
- Chronic inflammatory condition (i.e., inflammatory bowel disease, lupus, rheumatoid arthritis, ankylosing spondylitis, psoriasis)

YES

Refer to patient management recommendations

Consider referral to cardiology for CACS \geq 100

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UH Case Medical Center President Recognized with Top American College of Cardiology Honor

Daniel I. Simon, MD, President of University Hospitals Case Medical Center, has been awarded the 2016 Distinguished Scientist Award – Basic Domain by the American College of Cardiology (ACC) in honor of his contributions to the cardiovascular profession. Dr. Simon also serves as President of UH Harrington Heart & Vascular Institute.

“Dr. Daniel Simon has made lasting contributions to the field of cardiovascular medicine through dedication to his patients, practice and colleagues,” says ACC President Kim Allan Williams, MD, FACC. “It is an honor to recognize Dr. Simon with the Distinguished Scientist Award and celebrate his contributions to and achievements in cardiology.”

The Distinguished Scientist Award is awarded to a Fellow of the American College of Cardiology who has made major scientific contributions to the advancement of scientific knowledge in the field of cardiovascular disease. The award is presented annually to three recipients; one each in the basic, clinical and translational domains.

Dr. Simon’s main area of research interest is the role of inflammation in vascular injury and repair. Using leading-edge transcriptional profiling approaches, his laboratory has identified a novel biomarker called MRP-8/14 that predicts the risk of future heart attack and stroke.

“Dr. Daniel Simon has made multiple contributions to basic and translational research through serial groundbreaking discoveries,” says Peter Libby, MD, Dr. Simon’s mentor and renowned scientist and cardiologist from Harvard Medical School. “Important clinical problems have always inspired Dr. Simon’s laboratory studies. He has always simultaneously pursued his hypotheses at fundamental levels, and sought novel translational opportunities



Drs. Daniel Simon and Peter Libby



Dr. Daniel Simon (center) with Dr. Jonathan Stamler (left) and Dr. Mukesh Jain (right)



DANIEL I. SIMON, MD

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to apply his scientific discoveries to improve the practice of cardiovascular medicine and patient outcomes. This record of consistent basic and translational research accomplishment and prowess, together with his impressive record of outstanding mentoring, clinical and leadership abilities, establish Dr. Simon as an exemplar of the physician investigator.”



University Hospitals Case Medical Center and Case Western Reserve University School of Medicine are consistently recognized as two of the premiere institutions in the nation, according to U.S. News & World Report.

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