COVID Response
Flexibility, Innovation & Best Practices Highlight Division Response

Even before the first confirmed COVID-19 case was identified in St Louis, teams of hospital and university personnel converged into emergency task forces to re-imagine how patient care would be delivered in the face of a rapidly spreading infectious disease. In the Cardiovascular Division, multiple adaptations had to be made and, as a result, best practices have been identified that will be implemented for the long-term.

At the outset of the pandemic, non-emergent procedures were temporarily suspended, a cardiac cath lab was converted to a negative pressure procedural room, and new protocols for transthoracic and transesophageal echocardiograms were put into place to limit exposure time for sonographers, nurses, house staff and attending physicians. “It meant implementing COVID testing prior to any procedure, conducting focused echos, which were directed to answer only the relevant clinical questions, and utilizing mobile echo equipment whenever possible to minimize patient transport,” says echocardiographer Majesh Makan, MD. “All personnel also wore full personal protection equipment (PPE) because the procedures carried a heightened risk for virus spread due to aerosolization from coughing or gagging.”

At Barnes-Jewish Hospital, the cardiovascular intensive care unit (CCU), located on the 8th floor of the Rand Johnson Building for the past 50 years, has had to move three times, into a converted observation unit and in and out of — and now back into — a shared unit with neuro-intensive care so that other ICUs could be converted to negative pressure areas to accommodate the ebb and flow of COVID patients. “We really had to be flexible as well as intensely focused on how we provided care to our own patients while implementing all necessary safety protocols during all of these moves,” said CCU medical director Richard Bach, MD.

As part of the Division’s response to the COVID-19 pandemic, several cardiologists took part in the American Heart Association’s online Community Conversations zoom presentation to discuss the impact of COVID-19 on cardiovascular disease. Clockwise from top left: Division Chief Gregory Ewald, MD; Blair Ledet, Fox2 News Reporter; Bria Giacomino, DO; and Kory Lavine, MD, PhD.

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MESSAGE FROM THE CHIEF

These are not ordinary times, and what I have seen most visibly these past few months as we have faced a worldwide pandemic has been dedicated faculty and staff doing extraordinary work.

From research into what causes some of the devastating cardiovascular complications in COVID-19 patients to on-waivering efforts to maintain and enhance premier patient care, our Division has risen to the challenge of meeting healthcare needs in a rapidly changing environment.

We have exceptional expertise in flexibility and innovation, which has enabled us to weather the move of our cardiovascular intensive care unit multiple times as the number of critically ill COVID-19 patients ebbs and wanes. We’ve also rapidly adapted to tele-health practices, something I see as an integral part of our services going forward.

Together with many of you, we are sharing best practices and challenges in the waiting rooms for social distancing, and implemented phone check-in services from the parking lot so that patients could wait in their vehicles until their appointment time.”

Two cardiac critical care specialists — Drs. Adam May and Bria Giacomino — volunteered to work in the COVID units. They and other intensivists across the country already have identified several best practices to better prepare for a potential uptick in COVID cases this fall. Among them:

- Adherence to evidence-based management practices for Acute Respiratory Distress Syndrome (ARDS)
- Preferred use of high flow nasal cannula oxygen or non-invasive positive pressure ventilation options over premature endotracheal
- Careful and continuous monitoring of QT intervals, especially among patients receiving QT prolonging medications (e.g. hydroxychloroquine)
- Well-timed use of anticoagulants to prevent systemic thrombosis, including recurrent clotting of dialysis filters

“Because COVID-19 patients commonly present with an intense hyper-inflammatory and hypercoagulable physiological state, we needed to adjust the way we managed these patients. Furthermore, we also needed to establish innovative and stricter safety protocols to prevent transmission of the virus to healthcare workers,” said May.

For at least the next several months, the CCU will remain in the shared unit with neuro-intensive care as hospital officials discuss options for keeping more dedicated COVID units available. “We are concerned that there will be a resurgence in COVID-19 cases,” adds May. “But, as we continue to identify best practices, we will be more prepared as a division, a hospital and a community to face the next wave...or even the next pandemic.”

Gregory A. Ewald, MD, FACC
Interim Chief, Cardiovascular Division

COVID Response

Remote telemetry was implemented to monitor for life-threatening arrhythmias. Some procedures also were moved directly to the bedside to minimize patient transport. “Pericardiocentesis can be done at the bedside, for example, and we had to do that once instead of bringing the patient to the cardiac cath lab,” says Howard Kurz, MD, director of the Cardiac Catheterization Lab. “Whenever possible, we postponed stent procedures. To optimize staffing and safety, we also staggered procedure times and limited the number of open cardiac cath rooms.”

Outpatient cardiac visits moved temporarily to telemedicine platforms. “We cancelled routine office visits and turned to telephone and then video visits with our patients,” says Division interim chief Gregory Ewald, MD. “As we moved through the impact of the pandemic and reinstituted office visits, we scheduled patients farther apart, staggered chairs and delving into the mechanisms that make COVID-19 so lethal to many. Already we see promising treatment options. No one could have ever predicted a pandemic of this nature, but I’m proud to see our Division respond in so many innovative ways.”

If you are interested in making a donation to the Cardiovascular Division, please contact Rachel A. Hartmann in the Washington University Medical Alumni and Development office at: 314-935-9715 or rachel_hartmann@wustl.edu

Washington University in St. Louis
Office of Medical Alumni and Development
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cardiology.wustl.edu
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888-210-8375

Address Change or Emailed Newsletter? If you would like to receive communications from the Cardiovascular Division electronically or have an address change, please email Amy Borah at aborah@wustl.edu.
FELLOWSHIP & ALUMNI NEWS

Fellowship Program Update
Andrew Kates, MD

In the midst of evolving patient care practices during the COVID-19 pandemic, the Cardiovascular Fellowship Training Program has also had to evolve. This fall, like other programs across the country, interviews with fellowship applicants will be done virtually.

In most years, we would have had 12 applicants on campus per day over a five-day period, all of whom have opportunities to meet with faculty, engage with other fellows and experience the cardiovascular program firsthand. They also would have had the chance to see what St. Louis has to offer, including our affordable housing, a diversity of culture, food and outdoor activities, and major league sports, including baseball and hockey.

While virtual recruitment challenges our creativity in showcasing our program, we also know it also potentially broadens the pool of applicants. Without the time and expense of travel to various programs, each applicant can consider applying to more programs than usual. In other words, we have increased opportunities to show why Washington University is the best place for cardiovascular training.

We are excited to welcome Katie Zhang, MD, to our fellowship leadership team, as Associate Program Director for Recruitment. Katie, a former fellow, completed her residency in Pennsylvania and her undergraduate training in California and is uniquely positioned to discuss the level of excellence and the “Midwest” appeal of our program. Currently she’s working on virtual tour videos, ways for applicants to meet and talk with our current fellows and faculty online, and how to engage prospective candidates through social media.

The cornerstone of our fellowship program, as you probably remember, is flexibility to choose or create a cardiovascular career pathway tailored to individual interests. That expertise is serving us well as we apply flexibility to our fellowship recruitment efforts.

Alumni Update
Stacy Mandras, MD,
Fellow, General Cardiology, 2008; Advanced Heart Failure, 2009

Current: Director of Pulmonary Hypertension (PH), AdventHealth, Orlando, FL.

Mandras joins AdventHealth in Sept. 2020, where she not only will serve as director, but also has plans to launch an Advanced Heart Failure (HF)-Transplant Cardiology Fellowship in 2021. For the past 11 years, she has served as Medical Director of the Pulmonary Hypertension Program at Ochsner Medical Center in New Orleans, La. There, she led the effort to become an accredited Center of Comprehensive Care through the Pulmonary Hypertension Association. Six years ago, she also started the Advanced HF-Transplant Cardiology Fellowship at Ochsner and served as the Associate Program Director for the General Cardiology Fellowship. During the COVID pandemic, she started a Facebook photo blog of her day to day period, all of whom have opportunities to meet with faculty, engage with other fellows and experience the cardiovascular program firsthand. They also would have had the chance to see what St. Louis has to offer, including our affordable housing, a diversity of culture, food and outdoor activities, and major league sports, including baseball and hockey.

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Advanced Fellows

The following physicians have completed their cardiovascular training and continue in our program for 1–2 year advanced fellowships:

**Advanced Heart Failure**
Amit Bhatia, MD

**Adult Congenital Heart Disease**
Natasha Wolfe, MD

**Cardiovascular Imaging**
Brittany Dixon, MD

**Interventional Cardiology**
Nathan Frogge, MD
Prashanth Thakker, MD

**Structural Heart Disease**
Mark Gdowski, MD

**T32 Research Training Grant**
Diwan Lab
David Rawnsley, MD

Departing Fellows

Best wishes to these fellows who move on to the next phase of their careers:

**Michael Daniel, MD**
Vital Heart and Vein Hospital
Humble, Texas

**Anandita Kulkarni, MD**
Baylor Scott & White Health
Dallas, Texas

**Geoffrey Orme, MD**
Intermountain Health Care
Humble, Texas

**Rajeev Singh, MD**
Vital Heart and Vein Hospital
Humble, Texas

**Marwan Elhendawy, MD**
Columbus Heart
Columbus, OH

**Samantha Lawyer, MD**
Columbia University, NYC

New Faculty

**Curtis Steyers III, MD**
Missouri Baptist Medical Center
St. Louis, MO

**Manoj Thangam, MD**
Interventional Cardiology Fellowship
Columbia University, NYC

**Jose Alvarez-Cordona, MD**
St. Jude Children’s Research Hospital
Memphis, TN

**Mustafa Husaini, MD**
St. Jude Children’s Research Hospital
Memphis, TN

**Jonathan Moreno, MD, PhD**
St. Jude Children’s Research Hospital
Memphis, TN

**Amanda Verma, MD**
St. Jude Children’s Research Hospital
Memphis, TN

Mandras and her significant other Jorge Nagel
Best buddy Theodore

WILLIAMSBURG UNIVERSITY CARDIOLOGY Alumni Newsletter | 3
New Faculty

Jose Alvarez-Cardona, MD  
Assistant Professor of Medicine

Dr. Alvarez-Cardona completed subspecialty training in cardio-oncology at Washington University School of Medicine. He earned his medical degree from the University of Puerto Rico School of Medicine in San Juan in 2011. Following a residency in internal medicine at the University of Texas Health Science Center in Houston, he completed fellowships in cardiovascular disease and advanced heart failure and transplant cardiology at the University of Florida in Gainesville. He joins the Division’s cardio-oncology and advanced heart failure programs.

Mustafa Husaini, MD  
Assistant Professor of Medicine

Dr. Husaini joins the division as a general cardiologist after completing his cardiovascular fellowship at Washington University School of Medicine.

Jonathan D. Moreno, MD, PhD  
Instructor of Medicine

Dr. Moreno earned his medical and doctorate degrees from Weill Cornell Medical College in New York. Following a residency in internal medicine and a cardiology fellowship at Washington University School of Medicine, Moreno served as a postdoctoral fellow in the laboratory of Jon Silva, PhD, studying models of antiarrhythmic drugs. Last year, he completed an advanced heart failure and cardiac transplant fellowship in the Division and was the recipient of the Burton E. Sobel Award for Excellence in Cardiovascular Research. He will focus his research on building computational models of inherited arrhythmia syndromes to design precision therapies, and will attend on the heart failure and transplant service.

Robert V. Same, MD  
Assistant Professor of Medicine

He earned his medical degree at Johns Hopkins University School of Medicine and completed a residency in internal medicine at Johns Hopkins Bayview Hospital. He will serve as a general cardiologist at the Division’s clinic in west St. Louis County.

Amanda K. Verma, MD  
Assistant Professor of Medicine

Dr. Verma completed fellowships in general cardiology, advanced heart failure and transplant cardiology at Washington University School of Medicine. She earned her medical degree at Duke University School of Medicine in Durham, NC. As a fellow, she received the Fellow of the Year Award for Outstanding Performance at the VA Hospital in St. Louis. She joins our heart failure team.

Virtual ACC.20/WCC

As Washington University cardiologist Andrew Kates, MD, welcomed participants to the 2020 American College of Cardiology’s Scientific Session this year, he did so from his home in St. Louis instead of face-to-face in Chicago, where the event had been planned.

“Everyone was at home, but we were all together,” he said. “We moved the meeting online and it was an extraordinary conference.”

COVID-19 forced the first onsite cancellation of the ACC’s Scientific Session, which typically draws more than 18,000 attendees. This year, the event, one of the largest cardiovascular conferences in the world, was supposed to be even bigger, with members from the World Congress of Cardiology also attending.

“We had three weeks to transition critical content over to a digital platform,” said Kates, who chaired the annual Scientific Session.

“I was fortunate enough to work with the amazing ACC staff and other members to move the most important science and educational sessions to a video format for streaming over the internet, including presentations on late-breaking clinical trials, global health topics and special intensive sessions on cardio-obstetrics. We also made more than 3,500 abstracts accepted for presentation available in PDF format so that they could be viewed on demand.”

In total, ACC 2.0/WCC showcased 27 sessions, with chat boxes for participants to ask questions and comment in real time. Nearly 40,000 people from more than 150 countries joined in over the three days of the meeting. All presentations also were made available on demand free through June 2020.

“It worked far better than we could have imagined,” Kates said. “We were able to address the needs of all participants forced to stay at home and expand our reach globally by creating a virtual program. The ACC.21 is scheduled in Atlanta, GA next March, but with the success of this year’s conference, I think we’ve greatly advanced the online aspect to all of the Annual Sessions going forward.”

Faculty Promotions

Effective July 2019:

Angela L. Brown, MD  
Professor of Medicine

Effective January 2020:

Kathryn J. Lindley, MD  
Associate Professor of Medicine, Dev Biology and Pathology & Immunology

Nishath Quader, MD  
Associate Professor of Medicine

Kory Lavine, MD, PhD  
Associate Professor of Medicine, Dev Biology and Pathology & Immunology

Joel Schilling, MD, PhD  
Associate Professor of Medicine, Pathology & Immunology

Effective July 2020:

Abhinav Diwan, MD  
Professor of Medicine, Ob/Gyn and Cell Biol & Phys

Ali Javaheri, MD, PhD  
Assistant Professor of Medicine
Heart failure specialist Kory Lavine, MD, PhD, has pivoted his research lab to better understand how the novel coronavirus impacts heart and blood vessels and the testing of promising therapeutics.

Lavine, whose research focuses on understanding how the immune system impacts the development of heart disease, says studying COVID-19 is a natural fit for his lab. “We turned our attention to COVID-19 in early April and within 12 weeks, a collaborative effort at Washington University identified cardiomyocytes as the cell type targeted by the coronavirus and have learned how this virus enters and replicates within cardiomyocytes.”

His ability to rapidly translate basic research into potential clinical therapeutics is due to an established collaboration with WU biochemist Michael Greenburg, PhD and infectious diseases specialist Michael Diamond, MD, PhD, along with Lavine’s wife, Ashley Steed, MD, PhD, a pediatric critical care physician and virologist. The group has generated engineered heart tissues from human pluripotent stem cells that are subsequently differentiated into the various cardiovascular cells that comprise the human heart, such as cardiomyocytes, fibroblasts and immune cells. The engineered cells are assembled into a tissue that resembles small rubber bands, or calamari-like rings, that model a spontaneously beating human heart. “We are using this system to study how the virus infects the heart and to test therapeutics such as Remdesivir and macromolecular traps or antibodies that block binding of the coronavirus to its receptor,” explains Lavine. “We further envision the system to be a platform to better understand the mechanisms by which coronavirus infection leads to myocarditis, a fatal complication of COVID-19.”

In another study, an expanded team of WU researchers involves a collaboration between heart failure specialists and pathologists to study autopsy tissue of COVID-19 patients who have died of myocarditis. This, too, can lead to additional therapeutic pathways to test on the engineered heart model. Lavine, a nationally recognized cardiovascular researcher, was awarded the prestigious Presidential Early Career Award for Scientists and Engineers by the White House last July. “We have continued the work in my lab non-stop since COVID-19 impacted the healthcare system in this country,” he says. “I have five people in my lab dedicated to heart failure research related to COVID-19 and the benefit of working at Washington University is that we can find collaborative partners across multidisciplinary fields here to escalate the speed at which we investigate promising avenues to both better understand and then treat this virus.”

“Dr. Dude’s” Second Act

Cardiovascular researcher Dana Abendschein, PhD, is launching the next phase of his career. Internationally recognized for developing novel antithrombotic approaches to treat acute myocardial infarction, Abendschein is “retiring” from the Cardiovascular Division in July after 37 years at Washington University School of Medicine.

He has been instrumental in developing and testing several currently prescribed antiplatelet and anticoagulant medications on the market today. “Burt Sobel got me started on this path when he charged me with developing a model that would induce platelet-rich and fibrin-rich clots to test drugs that would increase the efficacy of r-tPA for treatment of MI.” “In the last few years, I’ve focused on physiologic analog drugs that inhibit platelet activation and coagulation without causing bleeding complications. Some of those are headed for clinical trials and I anticipate will become available in the next few years.”

Abendschein is taking his expertise in antithrombotic research and, as part of a new company, now is focused on novel treatments for stroke. “I’ve never been more excited to translate my cardiovascular research to the brain because strokes can be so debilitating,” he says. “We’re testing the use of magnetite microbeads (nanotechnology) that can stir and move fibrinolytic agents to previously inaccessible vessels in the brain to dissolve blood clots. We do that by placing a magnet near the head to guide the microbeads and r-tPA to where they need to go. It’s fascinating!”

He still may be around the medical center. For more than three decades, Abendschein and his wife, Jane, have run a clown ministry, first visiting prisons and nursing homes. Twenty years ago, Jane started “Clown Docs” at St. Louis Children’s Hospital. Abendschein occasionally appears as a clown known as ‘Professor Dude. “I’ve been clowning around since I was a teenager and it gives me great joy and purpose to make the kids and families laugh in spite of the circumstances”, he says. “I’ve even taught a course to WU medical students called the ‘Medicine of Laughter.’”

He adds, “Retirement is just a door. I’m truly excited about opening the door to my second act.”
OUR WORLD HAS CHANGED
by Majesh Makan, MD

Our world has changed, forever!
No matter how you look at
Life is not the same, lessons to be learned
The invisible enemy is here to stay
Make no mistake, it’s not a “little flu”
It won’t disappear just like that
Heat won’t kill it
Nor should we wait for a miracle!

Our world has changed
We must adjust the sails
Together we can fight,
If we understand what it takes
No point dwelling on the past
Prepare for the future
And future starts today!
Stay home, do your part
Eat healthy, sleep plenty
Remain active, be creative
Stay in touch with your friends and family
Help your neighbors, care for our seniors
Rest if you must, but don’t you quit
Because life is so precious and we must honor

Our world has changed
Wear a mask when in public
Show kindness, respect privacy
Keep distance, be thoughtful
Count your blessings, not your sorrows
Strive for a shared commitment
To make our world a better place
For our children and the future generations
We must work together for the greater good
And let’s not forget our frontline workers
Who are out there day and night
Working fearlessly to save thousands of lives
Who deserve a standing ovation and
Our unconditional gratitude for years to come!

Echocardiographer Majesh Makan, MD, one of the many Division faculty that are adapting and innovating throughout the COVID-19 pandemic, is a creative writer, inspired often by people or events. “Our World Has Changed” was written in May 2020. “I’m a very optimistic person by nature,” Makan says. “I’ve written romantic poems as well as about major events, such as 9/11. COVID-19 has been on my mind since March and I wanted to write this to give people hope and provide an uplifting message that we will get through this together.”