

Medicine Matters

JUNE 2019

NEWS FROM THE UVA DEPARTMENT OF MEDICINE



DEPARTMENT OF MEDICINE

MISSION

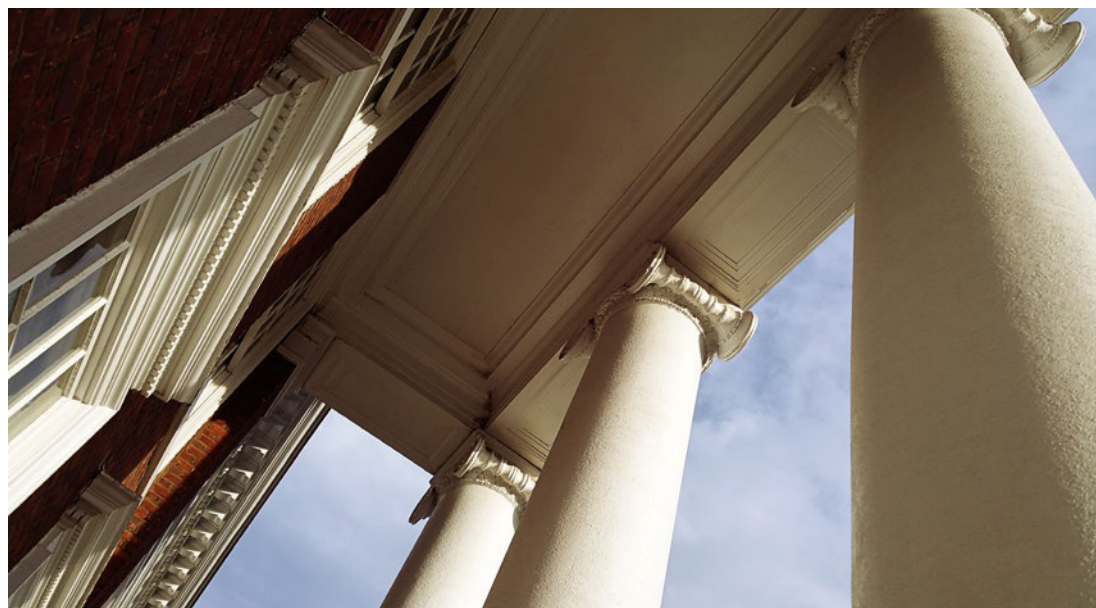
We are dedicated to preventing disease and treating illness, educating and inspiring future leaders in the field of internal medicine, and supporting innovative biomedical research.

VALUES

We strive for a sense of community, connection, and synergy among all faculty, staff, and trainees.

PLEDGE

We will conform to the highest ethical standards, uphold the values of our partner organizations, and give back to our community through public service.



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MESSAGE FROM THE CHAIR

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We are heading into the last month of the year and there is a lot of important activity to attend to. From the very mundane tasks of closing our financial books and reviewing performance v. budget to the glorious events of bidding farewell to students, residents and fellows who have been under our tutelage.

Overall, this time of the year should make us feel very proud – we have cared for 10's of thousands of patients, many of whom took advantage of the special skills and procedures that only we could provide in the area. In doing so we have saved and improved lives which is at the core of our mission. Behind this are the faculty, residents and staff of the Department and I could not be prouder to work with all of you.

This year we will not have a large faculty meeting, but instead Russ Manley, Alan Dalkin and I will meet in smaller groups with each

Division. We will review Department performance, challenges and strategic plans. Most importantly, we need to hear what is on your mind and how we can continue to improve the Department. We will also have a larger Departmental award ceremony on June 17 to celebrate the numerous winners of Departmental excellence awards.

My thanks to all of you for an outstanding year,

Mitchell H. Rosner, MD, MACP
Henry B. Mulholland Professor of Medicine
Chair, Department of Medicine

DOM FINANCIAL UPDATE

Department of Medicine Summary of Consolidated Financials FY19 as of April 30, 2019

| | Budget YTD | Actual YTD | Variance YTD |
|--------------------------|--------------------|----------------|------------------|
| Work RVUs | 750,751 | 751,624 | 873 |
| Clinical Receipts (NPSR) | 45,914,706 | 48,197,322 | 2,282,616 |
| Total Revenues | 146,467,566 | 142,054,457 | (4,413,109) |
| Total Expenditures | 147,818,803 | 141,415,181 | 6,403,622 |
| Net Income | (1,351,237) | 639,276 | 1,990,513 |

Summary Explanation of Variance:

For the ten months ending April 30, 2019 DoM posted a consolidated net surplus of \$639K and a favorable variance to net budget surplus of \$1.99M. Faculty clinical effort performance and higher collections per Work RVU drove net patient service revenue to outperform budget by \$2.3M. Sponsored program revenue underperformed budget by \$3.6M due to the timing of anticipated NIH awards. The department realized non-personnel cost savings of \$7.7M driven by lower than expected grant expenditures.

BILLING TEAM SPOTLIGHT PROFILE

Lucinda Veney

Tell us a little bit about yourself.

Collectively I've worked at UVA for 16 years. I worked in patient transportation for three years, left and came back to work in medical records for a year before I started in the Department of Medicine in 2007 where I work as a Billing and Coding Analyst.

Why healthcare?

Even though I'm not involved with patients directly I like being part of an environment that makes a difference in their lives.

What brought you to Charlottesville?

I was born in Brooklyn, NY and moved to Waynesboro, Virginia when I was one. When I was sixteen my mother packed up our family and moved to Charlottesville.

What excites you about your work?

You never know what's going to happen. Every day is different. There is always a mystery to be solved, whether it's why a claim wasn't paid, or how a patient ended up with a mysterious disease. It's always something new and interesting to be learned.



Proudest achievement outside the professional realm?

Raising my kids, and now helping my son to raise his son.

Next life?

I'm living this one for now.

What are you usually doing on the weekend?

Spending time with my family.

Favorite vacation/activity spot?

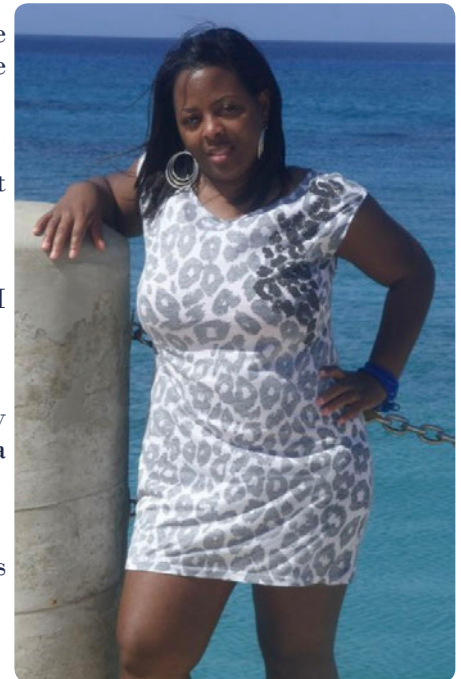
Any place tropical. Even though I cannot swim I love being on the beach listening to the wind and the waves.

Most admired person, and why?

My mother, she's taught me what it is to be a survivor. If you fall, get up, brush yourself off, hold your head up, and keep moving forward.

Best advice anyone ever gave you?

Treat others the way you would like to be treated.



DOM UPDATES & NOTES



Mitchell Rosner, MD, MACP



Taison Bell, MD



Anubhav Kumar, MD



Saad Ghumman, MD



Su Hee Kim, MD



Silas Culver, MD



William Horton, MD



Jennifer Kirby, MD



Helmy Siragy, MD



Brandon Kemp

Congratulations to **Dr Mitch Rosner** who is the recipient of the 2019 Robert G. Narins Award. This award honors individuals who have made meritorious contributions in education and teaching.

Congratulations to UVA *Pulmonary and Critical Care Medicine's* **Dr Taison Bell**, who was elected as the Medical Specialties Clinical Staff Executive Committee (CSEC) Representative.

The *Division of Nephrology* is proud to announce that **Anubhav Kumar, MD**, will be joining UVA Nephrology as an Assistant Professor of Medicine beginning July 1, 2019. Dr. Kumar is currently an Instructor in Med and Ultrasound Fellow at Pennsylvania. He will expand an Nephrology based US program at UVA.

Congratulations to **Dr Saad Ghumman** who was awarded second place in the EPIC-SEC case presentation competition.

Congratulations to the *UVA Global Infectious Diseases Institute* team **Martin Wu, Ann Hays, Cirle Warren, and Sook Hoang**, on an award from the Commonwealth Health Research Board to study *C. difficile* persister cells in recurrent *C. difficile* infections. Global Infectious Diseases Institute is proud to have seeded this great transdisciplinary collaboration.

Congratulations to *Endocrinology and Metabolism Division's* **Dr Su Hee Kim** who will receive a K23 mentored patient-oriented research career development award from NIH/NICHD, starting May 1, 2019. And to **Drs Silas Culver and William Ben Horton** who have been selected by the integrated Translational Health Research Institute of Virginia (iTHRIV) as 2019 iTHRIV scholars, a pan-University mentored career development award, beginning July 1, 2019. The major goal of the program is to train small groups of junior faculty seeking a clinical and translational research career within the University.

Congratulations to **Jennifer L. Kirby, M.D., PhD**, Associate Professor of Medicine, who has been appointed as the Associate Chief for Clinical Affairs for the *Division of Endocrinology and Metabolism*.

Dr Kirby is an outstanding clinician and educator, and has demonstrated a superb leadership ability and commitment to excellence in patient care. She currently serves as medical lead for Fontaine endocrine clinic, division medical quality liaison, and director of the inpatient diabetes program.

Dr Helmy Siragy has accepted an invitation from Nature group to join the Nature editorial board. This is a wonderful testimony to his status as a leading expert in endocrine hypertension in the world.

The Division of *Endocrinology and Metabolism's* Laboratory Research Specialist **Brandon Kemp** has been working on the UVA Health System mentor's project for 5 years and serves as co-director. The program is for High School Students interested in medicine and science. Learn more about the unique program [here](#).

Recent Publications in the Division of Endocrinology and Metabolism

Kemp BA, Howell NL, Keller SR, Gildea JJ, Shao W, Navar LG, Carey RM. Defective Renal Angiotensin III and AT2 Receptor Signaling in Prehypertensive Spontaneously Hypertensive Rats. *J Am Heart Assoc*. 2019 May 7;8(9):e012016.

Gildea JJ, Xu P, Kemp BA, Carey RM, Jose PA, Felder RA. The Dopamine D1 Receptor and Angiotensin II Type-2 Receptor are Required for Inhibition of Sodium Transport Through a Protein Phosphatase 2A Pathway. *Hypertension*. 2019 Apr 29.

Li J, Kemp BA, Howell NL, Massey J, Minczuk K, Huang Q, Chordia MD, Roy RJ, Patrie JT, Davogusto GE, Kramer CM, Epstein FH, Carey RM, Taegtmeier H, Keller SR, Kundu BK. Metabolic Changes in Spontaneously Hypertensive Rat Hearts Precede Cardiac Dysfunction and Left Ventricular Hypertrophy. *J Am Heart Assoc*. 2019 Feb 19;8(4):e010926.

DOM UPDATES & NOTES

VIRGINIA CENTER FOR DIABETES PREVENTION & EDUCATION (VCDPE)



National Diabetes Prevention Lifestyle Coach Trainings

VCDPE has been busy presenting our Lifestyle Coach Training (LCT) training for the National Diabetes Prevention Program (National DPP). The National DPP was created in 2010 to address the increasing burden of prediabetes and Type 2 diabetes in the US. This national effort created partnerships between public and private organizations to offer evidence-based, cost-effective lifestyle change interventions that help to prevent or delay Type 2 diabetes. To date, we have trained 245 lifestyle coaches throughout Virginia and the United States. We recently had an amazing 2 days in Abingdon, VA at the Southwest VA Higher Education Center at our largest LCT to date. We had 37 registrants, mostly healthcare professionals from the Southwest region of Va. VCDPE is fulfilling a mission of the VCDPE to provide greater access to diabetes prevention programs in high risk areas of the state.

Online National-DPP Lifestyle Coach Training

An exciting development within our Center's efforts around the National DPP has been the creation of an Online Lifestyle Coach Training Program. Developed last Fall, and pilot tested in January, we are now completing our third Online training this month! Every course has been sold out and very well received. We look forward to continue growing our online National DPP training and continuing education, as well helping and mentoring program providers to establish a hybrid of online + live delivery of the National DPP in their respective regions around the state.

2019 Virginia National-DPP Annual Networking Meeting

Diabetes prevention providers don't have an annual meeting to help them stay current with new research and trends like we do for diabetes so in 2018, the Virginia Center for Diabetes Prevention & Education initiated the first Virginia Diabetes Prevention Program Networking Meeting. In April of 2019, we held our second annual meeting to full room.



We had 79% of all CDC recognized National DPP's in the state of Virginia present at the meeting, with great regional representation. Seventy plus National DPP providers, organizations, and stakeholders had a meaningful day of educational talks and networking to establish collaboration.

The day started with an overview of where we are with National DPP's in VA, then moved onto a session by Dr. Linda Delahanty, MS, RD about "Strategies to Sustain Weight Loss". Recruitment and Retention were the focus of the next session. Lunch was full of networking and discussion, and then Cassi Stish from Well Health gave a demonstration of their health software. The day ended with a panel on how to "Build Rapport and Bolster Retention". All present at the meeting earned 2 continuing education credits.

DOM UPDATES & NOTES

ADDRESSING PULMONARY HEALTH DISPARITIES IN CENTRAL APPALACHIA



Dr Drew Harris (left) at the Wise remote clinic with former UVA pulmonary fellow Dr Sean Callahan and retired pulmonologist and health wagon volunteer Dr Joe Smiddy

In part as a result of the decline in extractive industries such as coal mining, Appalachian counties in Virginia face ongoing socioeconomic challenges with high rates of poverty and unemployment and low educational attainment levels. Given the robust evidence that the social determinants of health contribute to life expectancy and overall health and well being across populations and disease states, it is therefore not surprising that Virginians living in Appalachia face a range of pulmonary health disparities. The region faces disparities in smoking rates, COPD and lung cancer. Unique to the region is disparate outcomes in black lung disease (caused by lung injury from inhaling toxic dusts in coal mines). Black lung disease in the US has increased since the turn of the century and is especially prevalent in Southwest Virginia, where recent surveillance of 3 black lung clinics uncovered the largest cluster of progressive massive fibrosis (PMF) ever reported. A major factor driving pulmonary health disparities in Appalachia is inadequate access to care to because of geographic isolation.

Since his arrival to Virginia in 2017, UVA pulmonologist Drew Harris has been committed to addressing pulmonary health disparities in central Appalachia. Initially starting as a volunteer at the remote area medical (RAM) clinics in

Wise VA – the largest free pop-up medical clinic in the country – Drew has been increasingly engaged in Appalachian health. Through monthly trips to Lee County VA, Drew is establishing community partnerships and programs to improve health care delivery to the region. Drew is currently the medical director of the only federally funded black lung clinic in Virginia at Stone Mountain Health Services. Drew is working with Brian Dunn and David Cattell-Gordon at the Karen S. Rheuban UVA Center for Telemedicine, Jim Werth, Margie Tomann and Jody Willis at Stone Mountain Health Services, and UVA transplant pulmonologist Sarah Kilbourne to improve access to pulmonary subspecialty care through 4 new programs:

- 1) A pulmonary telemedicine clinic:** This clinic will work towards improving access to subspecialty care for those with complex lung disease including black lung in central Appalachia. Internal Medicine residents will have an opportunity to learn about rural healthcare disparities and the challenges of rural healthcare delivery through this clinic as part of a new “Community Partnered Medicine” rotation for all rising PGY3’s.
- 2) A bridge to lung transplant program:** This program aims to identify patients with advanced black lung disease at Stone Mountain, and utilize technology to facilitate their pre-and post-transplantation evaluations by the pulmonary transplant team at the University of Virginia.
- 3) A pulmonary rehabilitation program for patients with black lung disease:** Pulmonary rehabilitation is known to improve quality of life and reduce pulmonary symptoms for a range of lung diseases, yet is woefully under-prescribed and under-utilized in rural areas. Through a new program at a Stone Mountain black lung clinic in St. Charles Virginia, access to pulmonary rehabilitation for those with black lung disease in central Appalachia will be improved. Future plans include utilizing a technology to implement a home-based program using remote patient monitoring.
- 4) A Project ECHO targeting lung disease in central Appalachia.** Through web-based, real time connections between UVA pulmonologists and community providers in central Appalachia, 10 project ECHO sessions will begin with a tele-health lecture delivered by a content expert on a range of relevant pulmonary topics (e.g. black lung disease, smoking cessation, interpreting pulmonary function testing, pulmonary rehabilitation). Each lecture will be followed by a case-based group discussion on a related topic that allows community providers to share information and real world experiences about their patients and community.

Congratulations to the Division of Infectious Diseases on their 50th Anniversary!



Dr Gerald Mandell

Beginning in July 1969, and headed by Dr Gerald L. Mandell, along with Drs Kunin, Gwaltney, Edmundson, and McCormick of the Department of Preventive Medicine, the Division of Infectious Disease began to take form. These five doctors began seeing consults, conducting conferences, and Dr Mandell started his research into leukocyte function.

Within five years the division had two to three fellows who completed their fellowship training each year. Now the division boasts ten fellows, 35 faculty, and 24 staff. The faculty run three busy inpatient consultation services and several outpatient clinics, as well as attending on the general medicine service and serving the Medical Center, University at large, and several state agencies (for more specifics, please see the January 2019 issue of Medicine Matters where ID has been featured.) UVA’s Infectious Diseases Division was granted \$23.1 million worth of research funding last year, and includes investigations into both domestic and international projects.

Throughout the next five decades the division has expanded and developed its faculty, fellowship program, staff, and research activities so that the name of the University of Virginia and the department of Medicine have become associated with excellence in infectious disease teaching, research, and clinical practice throughout the state, nation, and world. From humble beginnings this division is now in the top national tier.

DOM UPDATES & NOTES

INTERSECTIONS OF ARCHITECTURE AND MEDICINE



The panel, including Dr Mitch Rosner (center left), Dr Claudio Ronco (Director, Department of Nephrology Dialysis and Transplantation, International Renal Research Institute (IRRI), San Bortolo Hospital, Vicenza, Italy) and Andy Johnston (Director of the Program in Historic Preservation and Associate Professor, Departments of Architectural History and Architecture, UVA)

Vicenza, Italy, April 3-5, 2019 - Inspired by the University of Virginia's Bicentennial, this conference explored the modern implications of Thomas Jefferson and Andrea Palladio's shared interest in creating a salubrious environment through design – spaces that are both socially and physically healthful and equitable.

The meeting opened at the Teatro Olimpico in Vicenza on Wednesday, April 3. Attendees then moved to Villa Cordellina Lombardi, Montebelluna Maggiore, Vicenza, for Thursday and Friday. This location was selected because it represents the wellness principles of the conference and the region's Palladian architecture.

Speakers include thought leaders in medicine and design from Europe and the US, including several UVA faculty: Phoebe Crisman, Elgin Cleckley, Louis Nelson, Mitch Rosner, William Sherman, and Richard Guy Wilson.



Dr Mitch Rosner (from left) with Louis Nelson (Vice Provost for Academic Outreach and Professor of Architectural History), Dr Bobby Battle (Co-chair of the UVA Bicentennial Commission and Professor of Medicine and Pediatrics, Director of the Adult Congenital Heart Clinic, and Team Cardiologist and Director of Sports Cardiology), and Dr. Claudio Ronco (Director, Department of Nephrology Dialysis and Transplantation, International Renal Research Institute (IRRI), San Bortolo Hospital, Vicenza, Italy)

The conference is a collaboration of the University of Virginia Bicentennial, School of Architecture, and the UVA Health Systems, with the Università Degli Studi Di Padova, the Associazione Amici del Rene Vicenza, the International Renal Research Institute Vicenza, the Palladio Museum, and Regione del Veneto.



Dr Rosner presents a toast.

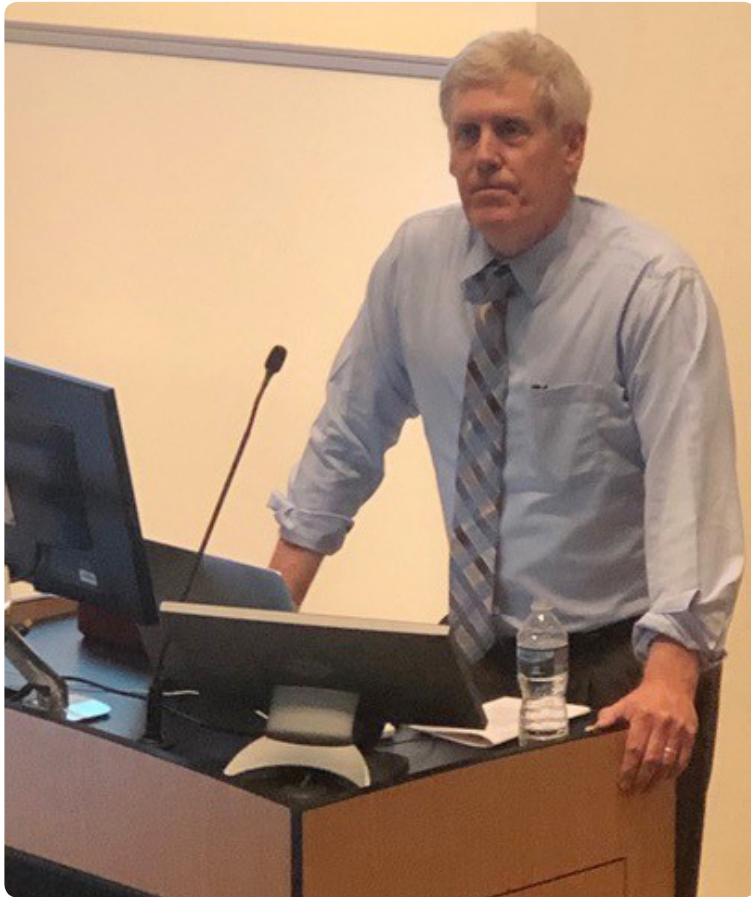
DOM UPDATES & NOTES

CAREY, THORNER, AND MARSHALL RESEARCH AND SCHOLAR'S DAY 2019

Named for three eminent physician-scientists from UVA's Department of Medicine - Robert Carey, John Marshall and Michael Thorner - the annual Carey-Marshall-Thorner Research and Scholars Day provides an occasion to learn about the research that our residents and fellows are conducting as a vital part of their educational experience.

This scientific gathering also serves as a vehicle to foster research collaborations, and a chance for faculty and trainees from the Department of Medicine's ten divisions to learn about colleagues' work and celebrate DOM's breadth and depth of research.

The day's events include Grand Rounds, oral presentations by trainees and new faculty members, a poster session open to residents, fellows, postdocs and graduate students, and an awards ceremony and reception.



As an electrical engineer at Kodak in 1974, **Steven Sasson** created a device that captured an image, converted it to an electronic signal, digitized the signal, and stored the image - the first hand-held digital camera. (*National Inventors Hall of Fame)

Steve was guest speaker for this year's Research and Scholar's Day, where he gave us his "Thoughts on Innovation."

Describing the journey of his 'small, unbudgeted project' that resulted in much of today's digital technology, Mr Sasson used the unanticipated success of the digital camera to demonstrate possibilities and opportunities that can be afforded us where we do not always expect them. Recognizing and then cultivating these prospects can turn innovations into reality.

He reminds us that challenging cultural norms with new innovations requires the "Three P's" - patience, persistence and persuasion. Knowing your organization's culture and presenting new ideas in familiar and simple terms helps introduce new concepts and creates a shared vision.

Special thanks to this year's Research and Scholar's Day speaker Steven Sasson for sharing with us his experience and sparking inspiration.



Poster presentations on view and judging taking place in the Education Resource Center during Research and Scholar's Day



Participants gather at the Education Resource Center for awards to be presented at the end of Research and Scholar's Day 2019

DOM UPDATES & NOTES

CAREY THORNER AND MARSHALL RESEARCH AND SCHOLAR'S DAY 2019



Dr Mitch Rosner presents Shirin Pourafshar, PhD, with the Shyr Te Ju Award for Best Immunology Presentation



Dr Mitch Rosner presents Dr Marta Stremeska with the Award for Best Poster Presentation



Dr Mitch Rosner presents Dr Joe Leeds with the Award for Best Oral Presentation



Dr Mitch Rosner presents Mahmoud Saleh, PhD with the Award for Outstanding Publication



Dr Rahul Sharma giving a description of the Shry-te Ju Award and its history



Dr Mitch Rosner presents Dr Sa Ra Park the Award for Outstanding Oral Presentation



Dr Mitch Rosner presents Dr Kevin Steiner the Award for Outstanding Poster



Dr Mitch Rosner presents Jack Melson the Award for Outstanding Poster



Dr Mitch Rosner presents Dr Kevin Steiner the Award for Outstanding Publication



Dr Mitch Rosner presents Dr Sam Oliver the Award for Outstanding Presentation

DIVISION SPOTLIGHT - CARDIOVASCULAR

MESSAGE FROM DR. Brian H. Annex - Division of Cardiovascular Medicine



University of Virginia's Division of Cardiovascular Medicine, led by Brian H. Annex, MD, is nationally recognized for excellence in clinical care, research and teaching. Faculty members provide expert, comprehensive care for all forms of cardiovascular disease through UVA Heart and Vascular Center, which serves more than 5,000 patients at University Hospital and an additional 43,000 in outpatient clinics each year. In the past two years we have been recognized as one of the top Cardiology and Cardiac Surgery programs by US News and World Reports.

The division's clinical practice covers a wide range of disciplines, including general cardiovascular disease and prevention, cardiac imaging, diagnostic and interventional electrophysiology and cardiac catheterization, valvular heart disease, peripheral vascular disease, basic and advanced heart failure, mechanical support, congenital heart disease and vascular-related diseases. Its research faculty and professional research staff excel in patient-focused research, with over 100 active grants and total annual research funding of approximately \$16 million.

The collaborative approach the division takes to patient care brings together specialists from cardiovascular medicine, pediatric cardiology, congenital cardiac surgery, thoracic and vascular surgery and interventional radiology to optimize treatment for each individual patient. ~ Brian H. Annex, MD

CARDIOVASCULAR QUALITY AWARDS

UVA Heart and Vascular Center received the following awards from the AHA:

The American College of Cardiology National Cardiovascular Data Registry's ACTION Registry®-Get with the Guidelines Platinum Performance Achievement

Hospitals that receive this award have reached an aggressive goal of treating patients with 90% or higher compliance to achievement measures outlined by the AHA for heart attack care for at least two years.

Get with the Guidelines®-Heart Failure Gold Plus Achievement

Hospitals that receive this award have reached the goal of treating patients with 85% or higher compliance with achievement measures and 75% or higher compliance with select quality measures outlined by the AHA for heart failure for at least two years.

Get with the Guidelines Target: Heart Failure Honor Roll

Hospitals that receive this award have reached 50% or higher compliance with Target: Heart Failure measures outlined by the AHA for at least one three-month period.

Mission: Lifeline STEMI Receiving Center – Bronze Plus Achievement Award

Mission: Lifeline NSTEMI – Silver achievement award from the AHA

These awards were earned for meeting national standards to improve care and outcomes for heart attack patients. AHA guidelines include

- Quickly restoring blood flow to blocked arteries during a heart attack
- Providing counseling on how to quit smoking
- Providing recommended medications
- Evaluating how well patients' hearts are functioning following a heart attack
- Referring patients to a cardiac rehabilitation program

Blue Distinction® Center (BDC+) for Cardiac Care

Blue Cross Blue Shield Association recognizes UVA's Heart & Vascular Center for demonstrating outstanding quality care in three areas— safely, effectively and cost efficiently. Nationally recognized for providing quality cardiac care services and improving patient outcomes and complications, UVA Heart & Vascular Center provides affordable care and treatment plans and, ultimately, an overall better patient experience.

RESEARCH INTERESTS



Dr Bilchick discusses a case with colleagues

Dr Brian Annex's laboratory is a true bench to bedside translational research laboratory that focuses on angiogenesis (the growth and proliferation of blood vessels from existing vascular structures) in the context of peripheral arterial disease (PAD). With this as a focus, they have launched a research program that focuses on specific microRNAs that may serve as unique therapeutic approaches for the treatment of PAD in mouse, cell culture, and selected human studies. They have maintained continuing NIH funding. Additionally, they have two active projects in the area of computational modeling for angiogenesis in PAD. All four grants have a non-clinical and clinical component. Two new grants are looking at novel mechanism of angiogenesis.



Dr Alexander Klibanov's laboratory has been active in pre-clinical research in the field of targeted imaging and drug delivery for over 25 years. Ultrasound imaging is a widespread and inexpensive non-invasive diagnostic technique. Ultrasound contrast agents offer a flexible platform that can be used for diagnostic imaging as a blood pool marker (tissue perfusion), as a targeted marker for imaging of inflammation, angiogenesis, and also as adjunct microdevices for enhanced targeted drug delivery and gene therapy. In diagnostic imaging, detection of contrast material offers high sensitivity (individual micron-sized particles can be visualized in vitro and in vivo by ultrasound medical imaging systems).



They prepare and analyze such ultrasound contrast materials, attach targeting ligands (antibodies, peptides) and plasmid DNA to their surface for targeting and ultrasound-enhanced delivery. Using colloid chemistry-based approaches, stable microbubbles with extended circulation lifetime are designed; polymer brush coating is applied to ensure enhanced stability.

Dr Michael Salerno's laboratory's research involves the development and evaluation of novel magnetic resonance imaging (MRI) pulse sequences and techniques to improve the clinical utility of cardiovascular MRI (CMR). His lab is an interdisciplinary group which includes undergraduate and graduate engineering students as well as clinical cardiologists and cardiovascular imaging fellows with the goal of bringing new advances into clinical practice. From an engineering perspective they are actively involved in the design and implementation of MRI pulse sequences and the development of new advanced image reconstruction and image processing techniques. The current clinical focus of the research is on myocardial perfusion imaging, imaging of myocardial fibrosis, and rapid free-breathing data acquisition. The group develops novel pulse sequences and applies these techniques in human subjects with the goal of creating robust clinically relevant techniques.



Dr Jamie Bourque has an active research program examining the population of patients with chest pain and negative coronary arteries. He is studying the long-term prognosis impact of non-obstructive CAD and has completed a K23 analyzing the effects of exercise on diagnosis, treatment, and prognosis in coronary microvascular dysfunction. He is studying the relationship of coronary flow reserve and extent of CAD by CT coronary angiography, and remains interested in prognostic factors with exercise stress, including high frequency QRS analysis and changes in lead AVR. A new area of interest for him is predictive analytics, and he is serving as principal investigator for a randomized controlled clinical trial of real-time predictive monitoring to reduce decompensation requiring ICU and adverse events in patients cared for on the acute cardiology care ward. Finally, he is interested in patient-centered imaging and is performing a decision analysis study to use patient preferences and utilities to guide the optimal pathway for assessment of coronary artery disease.



RESEARCH INTERESTS

Dr Angela Taylor's research, in collaboration with Dr McNamara, is managing the Human Phenotyping and Immune Cell Core. The function of Core is to provide human and immune cell phenotyping for each project that will be critical to the translation of mechanistic findings into the human model.



The effects of immune cell variations on atherosclerosis in humans represents a poorly understood area of atherogenesis and possible atheroprotection. The goal of the Human Phenotyping and Immune Cell Core (Core B) is to provide the resources necessary for translation of novel immune mechanisms of atherosclerosis that are well defined in murine models into the human model.

Genotype to Phenotype studies: Have discovered a single nucleotide polymorphism (SNP) in the human inhibitor of differentiation 3 (ID3) gene at rs11574 that results in attenuated ID3 function (Cir Res) and is associated with CVD in 3 distinct human cohorts. They have shown that knockout of the Id3 gene in mice regulates vascular smooth muscle cell (VSMC) proliferation in vitro and in vivo, and that Id3 overexpression reduces VSMC differentiation gene activation. VSMC growth and differentiation are key processes involved in atherogenesis. Ongoing work in the lab is utilizing CRISPR/Cas9 gene editing of human iPSC-derived VSMC to determine the impact of this CV disease-associated SNP on VSMC phenotypes linked to CVD.

Dr Christopher Kramer's research is focused on further development of cardiovascular magnetic resonance imaging (CMR) for clinical use. He is co-principal investigator of the Hypertrophic Cardiomyopathy Registry (HCMR), a natural history study of 2755 patients recruited from 6 countries and 44 sites to improve risk prognostication in HCM using a combination of clinical markers, CMR, genetics, and biomarkers. A second major area of interest is developing new CMR-based endpoints for clinical trials in peripheral arterial disease in collaboration with investigators in Radiology and Biomedical Engineering. These endpoints include atherosclerotic plaque imaging in the superficial femoral artery as well as calf muscle physiology (perfusion and energetics). These endpoints are being used in NIH and pharma-sponsored trials of lipid lowering therapies including PCSK9 inhibitors, exercise, as well as other novel therapeutics.



Dr Matthew Wolf's laboratory investigates signaling mechanisms that contribute to cardiomyopathies and heart failure. Cardiomyopathies are diseases of the heart that lead to cardiac hypertrophy, impaired left ventricular systolic function, heart failure, and death. Many etiologies cause cardiomyopathies including myocardial infarction that results in scar formation, genetic predisposition related to inherited genetic variants that confer increased risk of developing disease, and environmental exposures including chemotherapeutic agents. Despite advances in pharmacologic and device-based treatment, ~50% of individuals who have heart failure do not survive beyond five years, highlighting the need for additional therapies. To address this important clinical need, research in the lab focuses on the following areas:



1. Signaling pathways that cause or modify cardiomyopathies identified in genetic screens of *Drosophila*
2. Mechanisms to induce transient cardiomyocyte proliferation to enhance myocardial regeneration after injury

The Precision Medicine: lab has developed the pipeline for high dimensional analysis of human PBMCs to identify unique immunophenotypes associated with disease burden and therapeutic responses. They are applying them to clinical scenarios to aid in the development of personalized approaches to therapy.

Dr Ken Walsh's laboratory investigates the signaling and transcriptional-regulatory mechanisms that control both normal and pathological tissue growth in the cardiovascular system. Their studies were among the first to document that the eNOS/PI3-kinase/Akt/GSK/Forkhead signaling axis is of critical importance in the regulation of the cardiovascular system. Signaling through this pathway controls cellular enlargement (hypertrophy), cell death (apoptosis), and blood vessel recruitment and growth (angiogenesis). Major projects in the Walsh laboratory have analyzed mechanisms of inter-tissue communication within the cardiovascular system and how these regulatory mechanisms are perturbed by obesity-induced metabolic dysfunction. A new project in the laboratory investigates how acquired mutations in blood cells contribute to the development of cardiovascular disease. Somatic DNA mutations accumulate over time in many tissues, and this is a hallmark of the aging process. In particular, somatic mutations in preleukemic “driver” genes within hematopoietic stem cells can confer “fitness” advantages leading to the clonal amplification of these cells. Finally, the laboratory has examined how age-associated loss of skeletal muscle mass affects metabolic and cardiovascular function, and is exploring the possibility that muscle-secreted factors (myokines) confer some of the benefits of exercise training on cardiovascular and metabolic diseases. This process is referred to as clonal hematopoiesis, and it is remarkably prevalent in the elderly population. A number of recent studies have associated advanced clonal hematopoiesis with increased mortality and elevated risk of cardiovascular disease and stroke.



Dr Coleen McNamara's laboratory has been active in three focus areas: Inflammation and Cardiovascular Disease (CVD). A wealth of studies have clearly shown that atherosclerosis is a chronic inflammatory disease. As such, immunomodulatory therapy has been proposed as the next stage for improving prevention of atherosclerotic CVD. Indeed, a recent large human trial (CANTOS) provided proof of concept data that treating inflammation could reduce CV events. Yet, not all immune cells are pro-inflammatory. This group is actively pursuing both human and murine studies on the role of immune cells in CVD and development of precision and personalized immunomodulation approaches.



RESEARCH INTERESTS

Dr Zhen Yan's laboratory focuses on two major areas:



Molecular mechanism of exercise training-induced skeletal muscle adaptation - Exercise training (physical activity) has been known since antiquity to promote physical performance and health and prevent disease. The benefits are largely mediated by responses and adaptations in skeletal muscle. Mitochondria, the cellular powerplants which oxidize nutrients and generate ATP, are responsible for meeting the energetic demand of exercise in skeletal muscle. Research in this laboratory has focused on two opposite processes: addition (biogenesis) and removal (mitophagy) of mitochondria in skeletal muscle. They investigate the role of mitogen-activated protein kinase (MAPK) p38 in exercise training-induced mitochondrial biogenesis through peroxisome proliferator activated receptor γ co-activator-1 α (Pgc-1 α) (NIH R01). In addition, they investigate the regulation and functional role of mitochondria-associated bioenergetic sensor AMPK (mitoAMPK) in striated muscles and other tissues. They have recently patented and developed a novel mouse voluntary weightlifting model and study the activation of mTOR and autophagy machineries in contractile and metabolic adaptation to resistance exercise (Read more). The overall goal of these research efforts is to elucidate the fundamental molecular and signaling mechanisms of exercise training-induced contractile and metabolic adaptations and lay a solid foundation for the development of more efficacious interventions to promote health and prevent and treat chronic diseases.

Exercise benefits in protection against diseases - Exercise training is considered the most effective intervention against the development of non-communicable diseases, including cardiovascular, metabolic and neurodegenerative diseases and cancer; however, scientific evidence with experimental proof are often missing, and the underlying mechanisms are less well understood. To this end, we take advantage of animal models with molecular genetics and the state-of-the-art imaging and functional analyses to gain improved understanding of the benefits of exercise training in disease prevention. We investigate the role of endurance exercise training-induced EcSOD expression in skeletal muscle in protection against oxidative damage in skeletal muscle and other peripheral tissues/organs in various disease settings, including catabolic muscle wasting, diabetic cardiomyopathy and multiple organ dysfunction syndrome induced by endotoxemia and sepsis and trauma (NIH R01). These and other collaborative projects will provide novel insights into the molecular mechanism by which exercise training elicits profound protection against the development of various diseases.

Dr Nishaki Mehta's research is conducted in collaboration with the Division of Biomedical Engineering. Everyday clinical needs are identified and addressed to create simple, meaningful solutions for safe and effective patient care. For instance, her team has developed a device to reduce the risk of bleeding and possibly improve wound healing outcomes in patients undergoing cardiac implantable pacemaker and defibrillator placements. The clinical trial is currently pending approval from the hospital review board. She has also developed a patient centric compression stocking which will deliver the same compression with minimal effort owing to a fulcrum mechanism which can amplify the pressure to improve efficiency. Volunteer testing is underway to demonstrate the efficacy. Another active effort is development of a modified scalpel which can reduce injuries during cardiac procedures and deliver controlled incision depths. She is also working with the Division of Computer Engineering to develop and validate an algorithm that can improve diagnostic pathways for discrimination of tachycardia in cardiac implantable defibrillators.



Dr Mehta's clinical research focusses on risk factor modification for atrial fibrillation. Her team has obtained a research grant to evaluate the impact of dietary patterns on the gut microbiota which can be the signature to systemic inflammation. This can impact atrial fibrillation outcomes. Patient enrollment will begin this fall.

Dr Kenneth Bilchick As UVA's Director of Electrophysiology Research, Dr Bilchick oversees a broad program of research related to heart rhythm disorders and heart failure. Ongoing clinical trials and studies supported by the NIH, AHA, and other sources focus on the impact of advanced cardiac imaging modalities such as cardiac magnetic resonance on improving clinical outcomes and establishing mechanisms of disease in these patients. Many of these patients have conditions such as heart failure meeting criteria for cardiac resynchronization therapy, atrial fibrillation, ventricular tachycardia, and supraventricular tachycardia. Dr Bilchick has an active program related to evaluation of outcomes after ICDs in the National Cardiovascular Data Registry. He also has ongoing collaborations with Dr McNamara, Dr Epstein, Dr Holmes, and Dr Mazimba.



Dr J. Randall Moorman's research focuses on using Big Data to improve clinical outcomes. Dr Moorman is inaugural director of the University of Virginia Center for Advanced Medical Analytics (UVA CAMA), a multi-disciplinary resource for UVA investigators, allowing clinicians and quantitative scientists to make efficient use of Big Data to solve emerging complex health system medical engineering problems. The Center fosters innovative ways of addressing widespread and potentially devastating illness and provides the framework to facilitate commercialization of any new transformative technologies. The ability to learn from Big Data has the potential to improve quality of patient care while reducing cost by providing the most robust evidence base for individualized patient management. Specifically, Big Data analytics can add information about effectiveness of current best practice methods, suggest improvements to care pathways and, in its most advanced application, provide early warning of specific threats to a patient's health. Dr Moorman's lab studies have predictive analytics modeling, and predictive monitoring can improve clinical outcomes in neonates, children and adults.



CARDIOVASCULAR DIVISION - RESEARCH

Clinical Trials

• Annular Reduction for Transcatheter Treatment of Insufficient Mitral Valve (ACTIVE): A prospective, multicenter, randomized, controlled pivotal trial to assess transcatheter mitral valve repair with Edwards Cardioband System and guideline directed medical therapy (GDMT) compared to GDMT alone in patients with functional mitral regurgitation (FMR) and heart failure. *PI: Scott Lim

°Note: This study is temporarily closed to enrollment due to MitraClip results and the ethical issue of randomizing a patient to medical therapy with severe HF

• A Study evaluating the efficacy and safety of RalinEpag to improve treatment outcomes in PAH Patients - APD811-301 *PI: Andrew Mihalek

• A Study Evaluating the Long-Term Efficacy and Safety of RalinEpag in Subjects with PAH via an Open-Label Extension *PI: Andrew Mihalek

• Multicenter Study of Congenital Pulmonic Valve Dysfunction Studying the SAPIEN 3 Transcatheter Heart Valve with the Alterra Adaptive Prestent (ALTERRA) *PI: Scott Lim

• Early Feasibility Study of the AccuCinch® Ventricular Repair System in Patients with Prior Mitral Valve Intervention (PMVI) and Recurrent Mitral Regurgitation -- The CorCinch-PMVI Study *PI: Michael Ragosta

• Early Feasibility Study of the AccuCinch® Ventricular Repair System in Patients with Heart Failure and Reduced Ejection Fraction (HFrEF):The CorCinch-HFrEF Study *PI: Michael Ragosta

• #4433 Early Feasibility Study of the AccuCinch® Ventricular Repair System *PI: Michael Ragosta

• Assessment of the WATCHMAN™ Device in Patients Unsuitable for Oral Anticoagulation (ASAP- TOO) *PI: Rohit Malhotra

• A Phase 3, Open-Label, Multicentre Study of Flurpiridaz (18F) Injection for Positron Emission Tomography (PET) Imaging for Assessment of Myocardial Perfusion in Patients Referred for Invasive Coronary Angiography Because of Suspected Coronary Artery Disease *PI: Jamieson Bourque

• Early Feasibility Study of the CardiaQ-Edwards™ Transcatheter Mitral Valve (TMV) System For the Treatment of Moderate to Severe Mitral Regurgitation *PI: Scott Lim

• Edwards Cardioband™ Tricuspid Valve Reconstruction System Early Feasibility Study *PI: Scott Lim

• Edwards PASCAL Transcatheter Mitral Valve Repair System Study *PI: Scott Lim

• Edwards PASCAL Transcatheter Mitral Valve Repair System Pivotal Clinical Trial (CLASP IID): A prospective, multicenter, randomized, controlled pivotal trial to evaluate the safety and effectiveness of transcatheter mitral valve repair with the Edwards PASCAL Transcatheter Mitral Valve Repair System compared to Abbott MitraClip in patients with degenerative mitral regurgitation (DMR) *PI: Scott Lim

• Edwards PASCAL Transcatheter Valve Repair System in Tricuspid Regurgitation (CLASP TR) Early Feasibility Study *PI: Scott Lim

• Congenital multicenter trial of pulmonic valve dysfunction studying the SAPIEN 3 interventional THV *PI: Scott Lim

• COMPASSION S3 Continued Access: Congenital Multicenter trial of Pulmonic valve dysfunction studying the SAPIEN 3 interventional THV *PI: Scott Lim

• Edwards PASCAL Transcatheter Valve Repair System in Tricuspid Regurgitation (CLASP TR) Early Feasibility Study *PI: Scott Lim

• Congenital multicenter trial of pulmonic valve dysfunction studying the SAPIEN 3 interventional THV *PI: Scott Lim

•COMPASSION S3 Continued Access: Congenital Multicenter trial of pulmonic valve dysfunction studying the SAPIEN 3 interventional THV *PI: Scott Lim

• Fractional Flow Reserve versus Angiography for Multivessel Evaluation (FAME 3) *PI: Michael Ragosta

• Early Feasibility Study of the Edwards FORMA Tricuspid Transcatheter Repair System *PI: Scott Lim

• A Double-blind, Randomized, Placebo-controlled, Multicenter Study to Assess the Efficacy and Safety of Omecamtiv Mecarbil on Mortality and Morbidity in Subjects With Chronic Heart Failure With Reduced Ejection Fraction *PI: Mohammad Abuannadi

• Outcomes of Percutaneous revascularization for Management of surgically ineligible patients with multivessel or left main coronary artery disease: A Prospective Registry *PI: Michael Ragosta

• US-based, observational, drug registry of Opsumit (macitentan) new users in clinical practice-OPUS Registry (OPsumit Users Registry) *PI: Andrew Mihalek

• Pulmonary Hypertension Association Registry (PHAR) Protocol *PI: Sula Mazimba

• The PIONEER III Trial. A prospective, multicenter, global randomized controlled trial assessing the safety and efficacy of the BuMA Supreme™ Biodegradable Drug Coated Coronary Stent System for coronary revascularization in patients with stable coronary artery disease or non-ST segment elevation acute coronary syndromes *PI: Michael Ragosta

• A Multicenter Post-Market Registry for the evaluation of the CorPath GRX System Effectiveness in the Percutaneous Coronary Interventions *PI: Michael Ragosta

• Phase 2 Multicenter, Double-Blind, Placebo Controlled, Efficacy, Safety, and Pharmacokinetic Study of 2 Doses of CXA-10 on Stable Background Therapy in Subjects with Pulmonary Arterial Hypertension (PAH) *PI: Andrew Mihalek

• Reduce LAP-HF Randomized Trial II: A study to evaluate the Corvia Medical, Inc. IASD® System II to Reduce Elevated Left Atrial Pressure in Patients with Heart Failure *PI: Sula Mazimba

• A post-approval study of the Medtronic Resolute Onyx™ Zotarolimus-Eluting Coronary Stent System (RESOLUTE ONYX Post-Approval Study) *PI: Michael Ragosta

• SOPRANO: A prospective, multicenter, double-blind, randomized, placebo-controlled, parallel-group study to assess the efficacy and safety of macitentan in patients with pulmonary hypertension after left ventricular assist device implantation *PI: Sula Mazimba

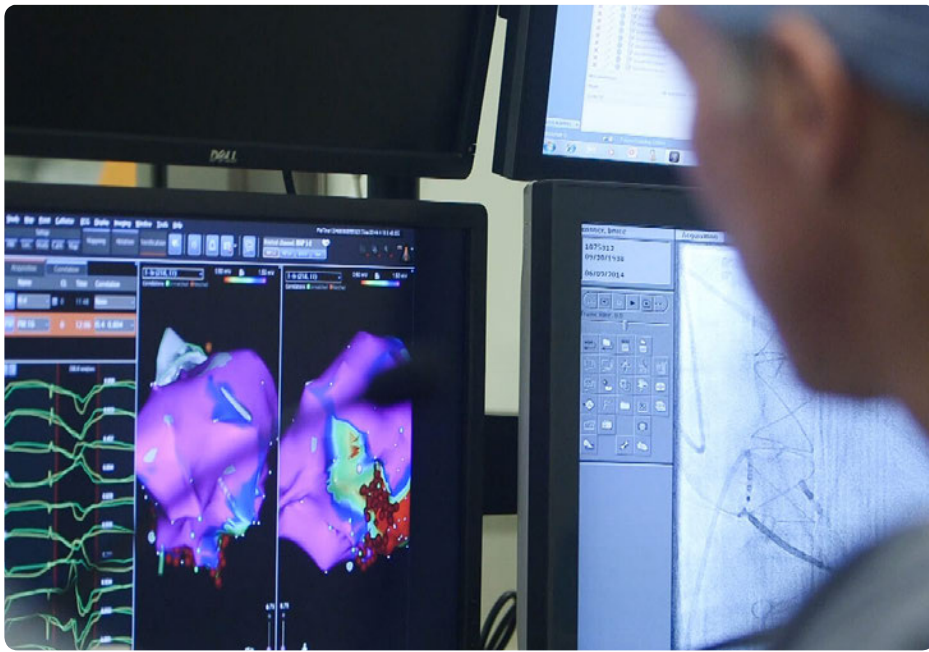
• Uptravi® (Selexipag): the users drug registry *PI: Andrew Mihalek

• Clinical Trial to Evaluate the Safety and Effectiveness of using the Tendyne Mitral Valve System for the Treatment of Symptomatic Mitral Regurgitation *PI: Gorav Ailawadi

• THEME Registry- Tandemheart Experiences and Methods *PI: Michael Ragosta

• Trial to Evaluate Treatment with Abbott Transcatheter Clip Repair System in Patients with Moderate or Greater Tricuspid Regurgitation (TRILUMINATE) *PI: Scott Lim

CARDIOVASCULAR DIVISION - EDUCATION



Clinical Fellowship in Cardiovascular Disease

The goal of the Clinical Fellowship in Cardiovascular Disease is to instruct fellows in evidence-based prevention, diagnosis, and management of patients with a wide variety of acute and chronic cardiovascular conditions. Our training reflects the standards of the American Board of Internal Medicine, the American College of Cardiology, and the Accreditation Council for Graduate Medical Education (ACGME) program requirements for residency education in cardiovascular disease.

We offer two pathways for completing an ACGME-accredited cardiovascular disease fellowship. The four-year research/clinical program is designed for fellows who want to pursue a career in academic medicine as physician-scientists. The three-year clinical training program is geared towards those who want careers as cardiologists in private practice; fellows are encouraged to undertake shortened research projects in their areas of interest.

All fellows participate in a world-class outpatient clinic during at least three of their four years. Fellows are matched with a team of attendings, nurses, and administrative support personnel with whom they remain throughout their training.

Cardiovascular disease fellows may continue their training at UVA with advanced fellowships in six different subspecialties. [More information on these programs can be found here.](#)

All training programs are conducted at a single hospital location with state-of-the-art facilities and educational opportunities, among a collegial group of faculty who are committed to the teaching mission.

Cardiovascular Imaging

UVA's advanced fellowship in cardiovascular imaging trains fellows in the use of cutting-edge technology that in turn facilitates a better understanding of the mechanisms of heart disease and of cardiac physiology and pathophysiology.

Specific program goals include:

- providing competence in technical aspects of imaging;
- providing competence in cardiac physiology and pathophysiology
- studying and developing innovative methods of imaging.

The Advanced Cardiovascular Imaging Fellowship Program is supported by a training grant from the National Institute of Biomedical Imaging and Bioengineering (NIBIB).

Austin Robinson MD, fellow on the NIBIB-funded Advanced Cardiovascular Imaging T32 grant, was funded 80K by the Ivy Foundation for his project supervised by Christopher Kramer MD (Cardiology) and John Hossack PhD (Biomedical Engineering) entitled Therapeutic Ultrasound for the Treatment of Degenerative Mitral Stenosis. He plans to develop a noninvasive, ultrasound-based therapy for calcific mitral stenosis in a bench-to-bedside manner.

Interventional Cardiology

UVA's Division of Cardiovascular Medicine offers a comprehensive and accredited one to two-year training program in interventional cardiology, to fellows in their fourth or fifth year of a cardiology fellowship. Fellows work in a variety of settings, including the cardiac catheterization laboratory, the inpatient service and the interventional outpatient clinic, in order to develop technical expertise in all interventional and diagnostic cardiovascular procedures and gain broad clinical experience in the care of inpatient and outpatient interventional patients.

To supplement this clinical experience, didactic core lectures are presented throughout the fellowship to provide a key knowledge base for the pursuit of academic interventional cardiology. Fellows are also encouraged to pursue directed reading and independent research or scholarship.

The fellowship may consist of a single accredited clinical year, as outlined here, or structured as a two-year experience, with the first year dedicated to research and the second to the accredited clinical year. A variety of research opportunities exist, including in basic and clinical research.

CARDIOVASCULAR DIVISION - EDUCATION

Clinical Cardiac Electrophysiology

The Clinical Cardiac Electrophysiology Fellowship Program offers a two year fellowship to fellows who have completed a basic Cardiovascular Disease fellowship. The CCEP fellowship provides extensive experience in all areas of electrophysiology, and exposure to a wide variety of patients and arrhythmias.

The program is accredited by the ACGME and meets the requirements for subspecialty certification by the American Board of Internal Medicine in Clinical Cardiac Electrophysiology. Fellows are provided with outstanding clinical training in the management of arrhythmias and syncope, electrophysiologic testing, radiofrequency ablation, and implantation of arrhythmia and resynchronization devices. They also engage in mentored research that prepares them for careers in academic cardiac electrophysiology.

A research fellowship in cardiac electrophysiology is also available, with a focus on new techniques for arrhythmia diagnosis and management. It also provides opportunities for collaboration with faculty from bioengineering and other disciplines related to cardiovascular medicine.

Vascular Medicine

The mission of the Vascular Medicine Training Program in the Division of Cardiovascular Medicine is to educate fellow-physicians in the care of complex vascular patients. Training covers outpatient and inpatient management of patients; diagnostic testing (primarily non-invasive vascular laboratory testing); and a range of therapies and treatment options including:

- medical therapy for symptoms and to promote cardiovascular risk reduction
- antithrombotic therapy
- vascular surgery
- endovascular therapy
- vascular imaging

Cardiac Valve

UVA's Advanced Cardiac Valve Center offers advanced fellowship training to cardiologists and surgeons in diagnostic and therapeutic modalities for cardiac valve disease. Trainees have both research and clinical responsibilities that aid in their education, carried out alongside internationally respected faculty.

During the Advanced Cardiac Valve fellowship, trainees are educated in, and gain direct experience with, a variety of therapies, including:

- [transcatheter aortic valve replacement](#)
- [mitral valve repair](#)
- transcatheter mitral commissurotomy
- percutaneous pulmonary valve implantation
- transesophageal and intracardiac echocardiographic imaging to guide valve therapies

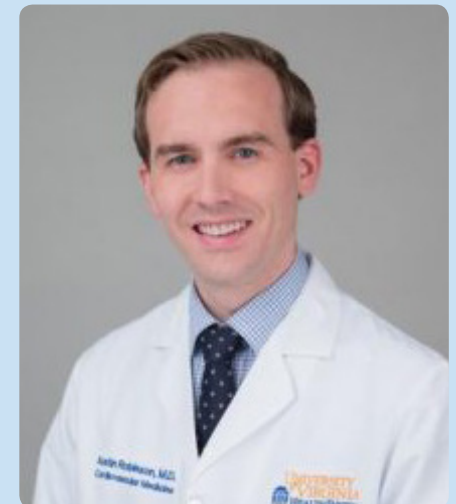
Heart Failure and Transplant

The mission of Advanced Heart Failure and Transplant Cardiology training at UVA is to educate fellow physicians in the care of complex cardiac patients, including outpatient and inpatient management, diagnostic testing, and the treatment roles of:

- Implantable cardioverter-defibrillators (ICDs)
- cardiac resynchronization therapy
- high-risk cardiac surgery
- mechanical circulatory support
- transplantation
- palliative care
- pulmonary hypertension



Milan Kahanda MD was nominated for the “Exemplary Professional Resident Physician Award” as part of the UVA Nursing Excellence Awards. This nomination is an acknowledgement of his team leadership and excellent interdisciplinary relationships. He was honored at their ceremony last evening.



Austin Robinson MD, fellow on UVA's NIBIB-funded Advanced Cardiovascular Imaging T32 grant, was funded 80K by the Ivy Foundation for his project supervised by Christopher Kramer MD (Cardiology) and John Hossack PhD (Biomedical Engineering) entitled *Therapeutic Ultrasound for the Treatment of Degenerative Mitral Stenosis*. He plans to develop a noninvasive, ultrasound-based therapy for calcific mitral stenosis in a bench-to-bedside manner.

CARDIOVASCULAR DIVISION - PUBLICATIONS

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CARDIOVASCULAR DIVISION SPOTLIGHT PROFILES

STAFF PROFILE - Amanda Scott



Tell us a little bit about yourself.

I have lived in Central Virginia my entire life. I've been fortunate to spend the past 16 ½ years working at UVA. I joined the Division of Cardiology in December as the Operations Manager. Prior to joining Cardiology, I spent 16 years in leadership with Ambulatory Care Operations supporting clinic operations in Internal Medicine and Geriatrics. I live on a small part of my family's farm in Madison County with my husband Ed. We are "empty nesters" with three adult children and two granddaughters.

Why Cardiology?

Last fall, I decided it was time to step out of my comfort zone in Primary Care and learn another aspect of health care. In the short time I have been in Cardiology, I've been amazed at the scope of services provided by the division, am enjoying learning something new each day and working with excellent leadership and a great team.

Proudest/greatest achievement outside the professional realm?

There have been many. In life's journey, each obstacle you overcome is ultimately a great achievement. Being the mother to two grown children who are independent and successful in their own careers is certainly one of them.

What excites you about work?

Learning! Each day brings new challenges, new opportunities and new people. The past 6 months in my new position have certainly opened new doors and given me a chance to meet many interesting people.

Next Life?

Flash forward several years, plans are in the making to move to the Outer Banks of North Carolina.

What are you usually doing on the weekend?

Sunday is fun day for my husband and myself. We are lovers of Virginia wine and spend Sundays exploring wineries in the Commonwealth.

Our bucket list is to visit all of the Virginia wineries and at last count we have visited 175! My husband is a third generation Hokie, so we spend many fall weekends at Virginia Tech football games.

Favorite vacation/activity spot?

Outer Banks of North Carolina. There's nothing quite like the beach. Even in the off season, it's a great place to go unwind and enjoy the sand and surf.

Most admired person and why?

My father. I grew up on a dairy farm and my father worked seven days a week. He exemplified hard work and dedication to his family yet never complained. He is 79 and although he no longer owns dairy cattle, he is on the farm every day taking care of the cattle, growing crops and maintaining the property.

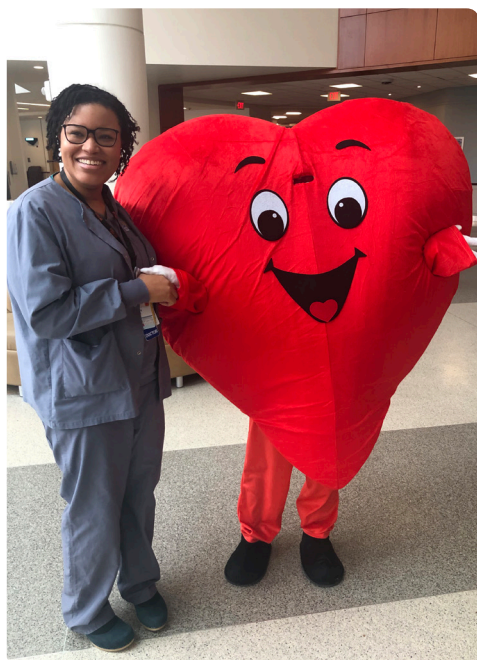
Best advice anyone ever gave you?

Life is marathon; not a sprint. Enjoy each step of the journey.



CARDIOVASCULAR DIVISION SPOTLIGHT PROFILES

FELLOW PROFILE - Brittney Heard



Tell us a little bit about yourself.

I've been at UVA for almost two years as a fellow in General Cardiovascular Medicine. Prior to joining UVA, I completed Internal Medicine residency at the University of Tennessee Health Science Center in Memphis, TN. I live in Charlottesville but on weekends I frequent Memphis where my husband is completing his residency training.

Why Healthcare?

As a biomedical engineering college student, I had an internship with a subsidiary of a cardiac implantable electronic device company. That pivotal experience gave me the exposure to the field of cardiac electrophysiology which I felt was the perfect combination of engineering and medicine. Additionally, I observed that medicine provided the fulfillment of patient care and the opportunity to observe its impact in patients' lives.

What brought you to Charlottesville?

UVA Health System Cardiology Fellowship.

What excites you about your work?

Continuous learning and the advanced technology of the field.

Proudest/greatest achievement outside the professional realm?

I'm proud of the introspection I practice on a regular basis.

Next life?

Not sure if you meant next life or next in life so I'll answer both. In my next life, I'd probably pursue shoe or interior design. In the next phase of my life, I hope to enter subspecialty fellowship in cardiac electrophysiology.

What are you usually doing on the weekend?

It varies based on my work schedule but generally includes cooking, aerial yoga, research, possibly traveling to Memphis/Birmingham to spend time with family, and watching the final season of Game of Thrones.

How did you meet your partner?

My husband and I met as classmates in medical school at Meharry Medical College in Nashville, TN.



Favorite vacation/activity spot?

I love relaxing on the beach. My favorite vacation was for my wedding in Montego Bay, Jamaica.

Most admired person, and why?

I admire and draw inspiration from several groups of people. I admire my parents, grandparents, and brother for their undying encouragement and support of my goals. In times of hardship, the resilience of my ancestors helps me to persist knowing that I have so much more opportunity. I admire my college and high school friends who have diverse paths that have shown me life lessons as we've grown into adulthood together. My husband motivates me to grow as I've seen him push his potential professionally and personally. I admire the UVA Cardiology Faculty who are all role models for the academic excellence I should pursue while being the exposure I need to visualize possibilities of my future.

Best advice anyone ever gave you?

Find an environment where you can live up to your full potential.

What about you would surprise us?

I love badminton and I have a 150-pound Italian mastiff, Blue, who is the most loving creature!

FACULTY PROFILE - Todd Villines



Tell us a little bit about yourself.

I recently started on 1 May 2019 as a Professor of Medicine in the Division of Cardiovascular Medicine at the University of Virginia. Prior to this, I was a Colonel in the United States Army Medical Corps where I served for more than 20 years in various roles, to include as a Professor of Medicine, Cardiology Fellowship Program Director, Director of Cardiac CT, and Director of Cardiovascular Research at the Walter Reed National Military Medical Center in Bethesda, Maryland. My family recently moved from Rockville, Maryland to Charlottesville, where we are currently building a home. I enjoy hiking, fly fishing, golf, and traveling.

What brought you to Charlottesville?

I recently retired from Active Duty Service in the Medical Corps where I was very involved as a clinician, but also enjoyed my role as a teacher, clinical researcher, and physician leader. I was very much drawn to the University of Virginia based on its excellent reputation in all of these areas and the amazing people that I had met at UVA during my career. Plus, Charlottesville is such a beautiful place to raise a family.

What excites you about your work?

I love caring for patients, getting to know them and their families, and helping them live the highest quality of life possible. Cardiovascular diseases have affected too many of my own family members and I want to help advance the care of patients through clinical work, research, and teaching. In the field of advanced cardiovascular imaging, where I do much of my research, I am convinced that atherosclerosis imaging using cardiac CT changes treatment will ultimately save lives, and I hope to help grow this cutting-edge technology within the UVA Health System.

Proudest/greatest achievement outside the professional realm?

I am most proud of my wonderful family, their core values, and their enduring support during my career, especially during my deployments to Iraq and Afghanistan.



What are you usually doing on the weekend?

I am usually at a sporting event involving either my daughter (14 years-old) or son (10 years-old), hiking, working in the yard, or enjoying a nice dinner with friends and family.

Favorite vacation/activity spot?

I love just about anywhere where one can hike, fly fish, and enjoy the great outdoors. I love the mountains and have spent the past 3 summers in northern Colorado.

CARDIOVASCULAR DIVISION SPOTLIGHT PROFILES

FACULTY PROFILE - Christopher M. Kramer



Tell us a little bit about yourself.

I came to UVA 20 years ago, dually recruited by George Beller MD then Chief of the Cardiovascular Division and Bruce Hillman MD, then Chair of Radiology, to start a clinical and research program in cardiovascular magnetic resonance imaging (CMR). We then recruited a number of other investigators in Cardiology, Radiology, and Biomedical Engineering (Fred Epstein PhD, Craig Meyer PhD, Mike Salerno MD, PhD, Jamie Bourque MD) and it has grown into an internationally recognized program. As part of the broader Cardiovascular Imaging Center, we have an NIH-funded T32 program to train cardiology fellows in Advanced Cardiovascular Imaging.

Why healthcare?

I come from a long line of lawyers (my father was Dean of Tulane Law School), so healthcare was the obvious choice, right? Math and science were always strengths and I figured I would be the black sheep of the family... and contribute to society.

Why research?

Got lucky there. I was originally planning to do heart failure, but during CV fellowship at Penn, I started a project using CMR to study a sheep model of LV remodeling after

myocardial infarction. I got more interested in the CMR side. That was a gamble at the time as it was a nascent technology and there was no guarantee it was leading anywhere. It turned out to be a good choice.

Proudest/greatest achievement outside the professional realm?

My kids. Alex, 28, is a Yale-trained NYC-based actor. He was the lead guest star and villain in Law and Order: SVU on 1/31/19. "A Tale of More Woe". He is a naval officer in Tom Hanks' "Greyhound," a WWII naval battle epic due out in May, 2020. Zach, 25, has had some learning differences, but just graduated from community college and is now enrolled at Southern Illinois University. I am incredibly proud of them both.

What are you usually doing on the weekend?

Hiking, biking, swimming, and/or playing golf with Bob Battle. Tennis was a passion, but a neck injury derailed this for now. I also spend a lot of time with my wife at various music venues – she's quite the music aficionado.

How did I meet my wife?

We were anatomy lab partners in 1st year of medical school at UCSF (yes, it is a cliché!). We went through the couples match. She spent 3 years in surgical training, then finished in Anesthesia. She retired after Zach was born and is a master gardener and Alexander technique instructor now.



Favorite vacation spot?

Islesboro, Maine, an island in Penobscot Bay where I have spent part of every summer since I was 11. My 3 brothers (full, step, and half) and their families share the same 1-2 weeks there every summer. It is a special time and place.

Best advice anyone ever gave you?

Nat Reich MD, one of my mentors in cardiology and CMR, said "It is a marathon, not a sprint." So true.

What about you would surprise us?

I used to play a lot of ice hockey. During residency and fellowship, I would often trade call to free myself up for games.

