MEDICINE MATTERS

NEWS FROM THE DEPARTMENT OF MEDICINE

JUNE 2020

UVAHealth | 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.

MESSAGE FROM THE CHAIR

Spring is here and I hope all of you are enjoying some time outside while at the same time ensuring that you stay safe and well. This is a special issue of Medicine Matters as we say farewell to many of our trainees who have worked so hard to further the mission of the University of Virginia. A special thanks to our Chief Residents who have worked tirelessly over the past year, their dedication and passion are much appreciated. We have several things to celebrate this month: our 5th straight Mulholland Award which is given by the medical students to the Department with the best teaching as well as the winners in our annual Scholar's Research Day.

Finally, this month we highlight the Division of Cardiovascular Medicine under the leadership of Dr Christopher Kramer. The Division provides world-class care across the entire discipline of cardiology as well as being a leader in education and research. In addition, you will read about their community involvement as well as international outreach. I encourage you to learn more about their research in valvular disease, exercise, medical analytics, vascular disease, and electrophysiology. It is an impressive portfolio and my thanks to all of the faculty, fellows, and staff of the Division.

With best wishes,

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

QUICK LINKS

SUBSCRIBE

GIVE TO DOM

DOM FINANCIAL UPDATE

Department of Medicine
Summary of Consolidated Financials
FY20 as of April 30, 2020

	Budget YTD	Actual YTD	$ Variance YTD
Work RVUs	772,600	715,114	(57,486)
Clinical Receipts (NPSR)	52,197,665	47,261,555	(4,936,110)
Total Revenues	150,935,899	148,654,122	(2,281,778)
Total Expenditures	154,966,008	152,101,849	2,864,159
Net Income	**(4,030,109)**	**(3,447,728)**	**582,381**

Summary Explanation of Variance:
For the fiscal year ending April 30, 2020 DOM posted a consolidated net loss of $3.4M and a favorable variance to net budget surplus of $582K.
The unfavorable variance in Net Patient Service Revenue is largely driven by the effects of the COVID-19 pandemic on clinical productivity and medicaid conversion rates.
Non-personnel expenditures outperformed budget driven by reduced discretionary expenditures.

CONGRATULATIONS TO OUR DOM FAMILY CLASS OF 2020 GRADUATES!

J. Wade Foster
Virginia Tech class of 2020
Graduating Magna Cum Laude in Aerospace Engineering

Son of Wendi Foster
(Division of Infecticious Diseases)

Future plans: Employed at TORC Robotics in Blacksburg, VA beginning May 2020

Madeline Eubank
Fluvanna County High School

Daughter of Tammy Eubank
(Division of General Medicine)

Future plans: Attending PVCC in the Fall

CLASS OF 2020

Faith Holmes
Albemarle County High School

Daughter of Ray and Viola Holmes
(Division of Endocrinology)

Future plans: She will attend the University of Mary Washington in the fall and plans to major in Political Science

Studies Opened Since April 1, 2020

GASTROINTESTINAL ONCOLOGY

20-21834 PHAR PANC003
A Phase III Multicenter Open-Label Randomized Trial to Evaluate Efficacy and Safety of FOLFIRINOX (FFX) versus Combination of CPI-613 with modified FOLFIRINOX (mFFX) in patients with Metastatic Adenocarcinoma of the Pancreas
Stages: IV CT.GOV ID: NCT03504423
Primary: Kunk, Paul
CRC: Mannen, Sallie

Hematologic Malignancies
20-21078 PHAR BST002
Stages: Not specified CT.GOV ID: NCT03435848
A Phase 2b, Open-Label, Single Arm, Multi-Center Study to Assess the Efficacy and Safety of BST-236 as a Single Agent in Adults with Newly-Diagnosed Acute Myeloid Leukemia,
Not Eligible for Standard Induction Therapy
Stages: Not specified CT.GOV ID: NCT03435848
Primary:Keng, Michael

20-HSR200035
Other: National EAA173
Daratumumab to Enhance Therapeutic Effectiveness of Revlimid in Smoldering Myeloma (DETER-SMM)
Stages: Any/all stages CT.GOV ID: NCT03937635
Primary: Foster, Laahn
CRC: Johnson, Sharon, Lisa

20-HSR200044
Other: National EA4181
A Randomized 3-Arm Phase II Study Comparing 1.) Bendamustine, Rituximab and High Dose Cytarabine (BR/CR) 2.) Bendamustine, Rituximab, High Dose Cytarabine and Acalabrutinib (BR/CR-A), and 3.) Bendamustine, Rituximab and Acalabrutinib (BR-A) in Patients <=70 Years Old with Untreated Mantle Cell Lymphoma
Stages:Any/all stages CT.GOV ID: NCT04115631
Primary: Portell, Craig
CRC: Johnson, Sharon, Lisa

ACTIVE PROTOCOL CATEGORY

20-22040 BREAST52
A pilot study of neoadjuvant endocrine therapy tolerance to inform treatment decisions for adjuvant radiation in geriatric, early stage ER+ breast cancer
Stages: Not specified CT.GOV ID: NCT04272801
Primary:Millard, Trish
CRC: Lewis, Sarah, T

DOM UPDATES & NOTES


Taison Bell, MD


Ebony Hilton-Buchholz, MD


Kaitlin Love, MD


Leigh-Ann Webb, MD


Robert Carey, MD


Tim Short, MD

Congratulations to everyone! The **Department of Medicine** is the recipient of the **Mulholland Award** from the graduating School of Medicine students for the fifth year running. This award recognizes the Department that provides the best teaching experience for students, for which each of you should be very proud. Thank you for all your hard work and efforts.

We would also like to congratulate all those honored with awards on **Scholar's Research Day** and with **Excellence Awards**. We will be announcing and giving more details about both in our next issue.

Congratulations to **Taison Bell, MD** who was awarded DOM Inpatient Attending of the Year.

It is with great pleasure that the Division of Endocrinology & Metabolism announces the selection of **Kaitlin M. Love, MD**, a third-year clinical endocrinology fellow, as 2020 iTHRIV (integrated Translational Health Research Institute of Virginia) scholar. This is a pan-University mentored career development award with the major goal of training small groups of junior faculty seeking a clinical and translational research career. We are all extremely proud of Katie and her accomplishments and the review committee considered her having very high potential for academic success. This year's award was extremely competitive due to the financial constraint brought upon us by the COVID-19 pandemic. The award begins on July 1, 2020. Details on her publication: Love KM, Liu J, Regensteiner JG, Reusch JEB, Liu Z. *GLP-1 and insulin regulation of skeletal and cardiac muscle microvascular perfusion in type 2 diabetes*. Journal of Diabetes. 2020 Apr 9. doi: 10.1111/1753-0407.13045. [Epub ahead of print] Review.

Robert M. Carey, MD [Division of Endocrinology & Metabolism] presented at the 40th Anniversary Celebration of the Gordon Research Conference on Angiotensin in Lucca (Barga), Italy, in the middle of February, following which he and his wife, Theodora, spent a week in Florence. Title of lecture: *'New Therapeutics Targeting the Renin-Angiotensin-Aldosterone System'*. In retrospect, they were fortunate to escape Italy only a few days before the total travel shutdown due to COVID-19. Bob then delivered the 8th Ulrich Hopfer Lecture at Case-Western Reserve University, Cleveland, OH, in early March, again only a few days before the stay-at-home order was issued for the Commonwealth of Virginia. Title of lecture: *'Defective renal AT2 receptor signaling in hypertension.'*

Congratulations to **Ebony Hilton-Buchholz, MD** and **Leigh-Ann Webb, MD** along with illustrator Ashleigh Corrin Webb for creating a free book for children that is both a guide for staying healthy and a tool to help them cope with the stress and grief that the coronavirus pandemic may bring. The book, *"We're Going to be O.K,"* has been recognized as one of the top 5 – among 256 entries – in the *Emory Global Health Institute's COVID-19 Children's eBook Competition*. The book tells the story of Parker, a young African-American child, as he learns about COVID-19 from his parents and how the pandemic will change his day-to-day routines. You can view and download your copy here.

We will miss **Tim Short, MD** who will be joining the Hospice of the Piedmont and leaving UVA Medical Center, Tim has been a valued member of our palliative care team for years, and will be greatly missed.

DIVISION SPOTLIGHT - CARDIOVASCULAR MEDICINE

Division Chief Message - Dr Christopher Kramer

Christopher Kramer, MD

University of Virginia's Division of Cardiovascular Medicine, led by Christopher M. Kramer, 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 4,000 patients at University Hospital and an additional 50,000 in outpatient clinics each year. 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, sports cardiology, and vascular diseases.

The collaborative approach the division takes to patient care brings together specialists from cardiovascular medicine, pediatric cardiology and cardiac surgery, adult cardiac and vascular surgery, and interventional radiology to optimize treatment for each individual patient.

Its faculty and professional research staff excel in the research arena, with over 100 grants and total annual grant funding of approximately $8 million (directs). The division's research activities range from basic biomedical research to physiologic and device-related clinical studies to large international clinical registries.

Telemedicine Collaboration

Valvular heart diseases related to rheumatic fever is common in sub-Sahara Africa and especially Zambia, a country located in southern Africa. Because of the general lack of local cardiovascular expertise for advanced valvular interventions and treatment, many patients with advanced cardiac diseases are sent out of the country for further evaluation and treatment. A number of patients, however, cannot afford to pay their way abroad for life-saving treatments. Patients who cannot afford to travel are wait-listed on a government assistance program pending availability of funds. Unfortunately, many patients die while waiting for the availability of government funds. In other unfortunate circumstances, some patients find, after traveling abroad, that there is nothing more that can be done due to interval progression of the disease, after exhausting hard-earned life savings to travel abroad. Other patients who previously had life-saving treatments abroad sometimes have difficulties with subsequent follow-ups due to financial constraints.

In October 2019, Dr Scott Lim and Dr Sula Mazimba went to Zambia to help with teaching local providers how to perform mitral valvulplasties.

There are still a lot of patients waiting to be evaluated and treated for advanced cardiac disease in Zambia. A follow up surgical –intervention mission from UVA was scheduled for this year but is now canceled because of the COVID pandemic. With the COVID-19 pandemic in Zambia, patients who were scheduled for evaluation and treatment abroad can no longer travel because of travel restrictions.

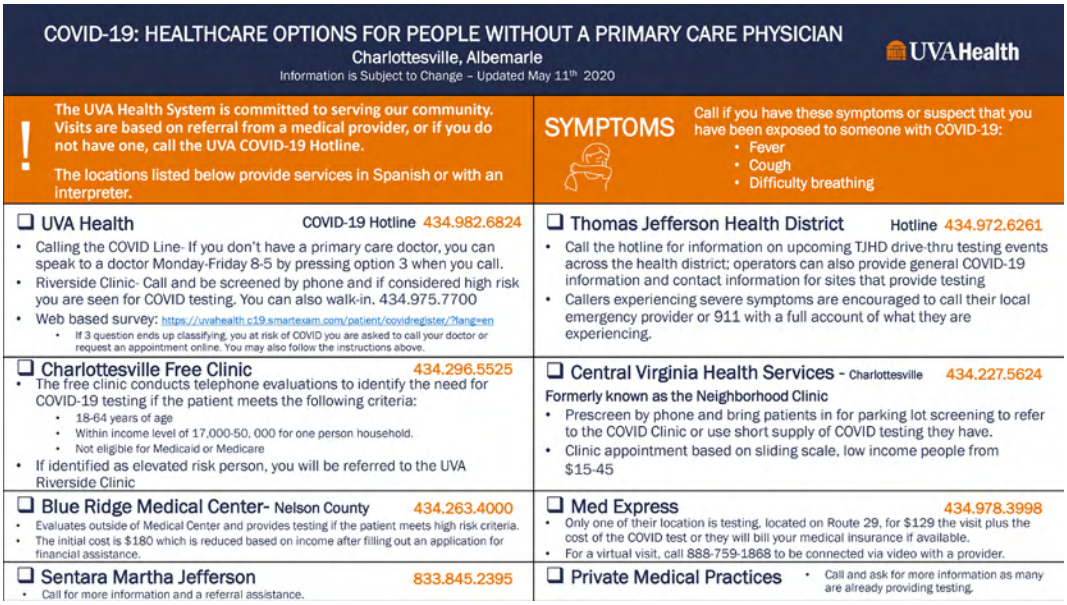
To help mitigate some of these problems of lack of cardiovascular care access in Zambia, we have assembled a group of cardiovascular experts from UVA (UVA-Dr's Scott Lim, Mike Ragosta, Angela Taylor, Nishaki Mehta, George McDaniel, Gorav Alawadi and Ebony Hilton), University of Alabama at Birmingham and The Global Alliance of Zambian healthcare Professionals (GAZHP) so as to provide virtual second opinions and training to the Zambian local providers treating advanced valvular and cardiac diseases at Morningstar Clinic, a newly opened clinic in Lusaka, Zambia.

The telemedicine collaboration platform tool, VitalEngine, also in use in several major US hospitals for medical collaboration across providers.

Latino Community Health Initiative During COVID-19

Latinos are among the most vulnerable populations during the COVID-19 pandemic for the following reasons:

- *Language barriers are highly prevalent and limit the effectiveness of communications between the patients, the health system and their providers*
- *Latinos are frequently front line workers in the service and production industry where the virus is easily transmissible*
- *They usually lack unemployment safety options and have a higher risk of bankruptcy if temporarily unemployed which can increase the likelihood of choosing to go to work despite the risk of infection*
- *They are often unable to work from home due to limited access to technology and/or internet services or because their jobs cannot be carried through a virtual interface*
- *They have lower health literacy and fewer means to overcome this challenge*
- *Latinos are marginalized by the anti-immigrant rhetoric which discourages them from seeking timely medical attention*
- *At baseline, they are more likely to be uninsured or underinsured which results in poor access to medical care, including primary care physician services*
- *They have disproportionately high rates of obesity, diabetes, and hypertension and more importantly are less aware of the presence of these conditions in them*
- *Because rates of obesity, diabetes and hypertension are pervasive and frequently unrecognized among members of this group, it effectively positions Latinos into a high-risk category for COVID-19 complications*



COVID-19: HEALTHCARE OPTIONS FOR PEOPLE WITHOUT A PRIMARY CARE PHYSICIAN

Charlottesville, Albemarle

Information is Subject to Change – Updated May 11th 2020

UVA Health

The UVA Health System is committed to serving our community. Visits are based on referral from a medical provider, or if you do not have one, call the UVA COVID-19 Hotline.

The locations listed below provide services in Spanish or with an interpreter.

SYMPTOMS

Call if you have these symptoms or suspect that you have been exposed to someone with COVID-19:

- Fever
- Cough
- Difficulty breathing

❑ UVA Health — COVID-19 Hotline 434.982.6824

- Calling the COVID Line- If you don't have a primary care doctor, you can speak to a doctor Monday-Friday 8-5 by pressing option 3 when you call.
- Riverside Clinic- Call and be screened by phone and if considered high risk you are seen for COVID testing. You can also walk-in. 434.975.7700
- Web based survey: https://uvahealth.c19.smartexam.com/patient/covidregister/?lang=en
  - If 3 question ends up classifying, you at risk of COVID you are asked to call your doctor or request an appointment online. You may also follow the instructions above.

❑ Thomas Jefferson Health District — Hotline 434.972.6261

- Call the hotline for information on upcoming TJHD drive-thru testing events across the health district; operators can also provide general COVID-19 information and contact information for sites that provide testing
- Callers experiencing severe symptoms are encouraged to call their local emergency provider or 911 with a full account of what they are experiencing.

❑ Charlottesville Free Clinic — 434.296.5525

- The free clinic conducts telephone evaluations to identify the need for COVID-19 testing if the patient meets the following criteria:
  - 18-64 years of age
  - Within income level of 17,000-50, 000 for one person household.
  - Not eligible for Medicaid or Medicare
- If identified as elevated risk person, you will be referred to the UVA Riverside Clinic

❑ Central Virginia Health Services - Charlottesville — 434.227.5624

Formerly known as the Neighborhood Clinic

- Prescreen by phone and bring patients in for parking lot screening to refer to the COVID Clinic or use short supply of COVID testing they have.
- Clinic appointment based on sliding scale, low income people from $15-45

❑ Blue Ridge Medical Center- Nelson County — 434.263.4000

- Evaluates outside of Medical Center and provides testing if the patient meets high risk criteria.
- The initial cost is $180 which is reduced based on income after filling out an application for financial assistance.

❑ Med Express — 434.978.3998

- Only one of their location is testing, located on Route 29, for $129 the visit plus the cost of the COVID test or they will bill your medical insurance if available.
- For a virtual visit, call 888-759-1868 to be connected via video with a provider.

❑ Sentara Martha Jefferson — 833.845.2395

- Call for more information and a referral assistance.

❑ Private Medical Practices

- Call and ask for more information as many are already providing testing.

Max Luna, MD, and his team from the UVA Schools of Medicine and Nursing working in collaboration with University and Community organizations form the Latino Health Initiative. During COVID-19, this work has become even more vital to our community. Recently, UVAHS and collaborators delivered a weekend for Targeted COVID-19 testing to the Southwood Community in Charlottesville.

Practicing systematic, scientific, and culturally sensitive delivery methods from an academic medically centered source, while constantly examining procedures on how to build a scalable approach to target COVID-19 services to vulnerable groups, careful attention was placed on how to approach this community of more than 1500 individuals and more than 700 Hispanic residents (the Southwood Community mobile home park) while minimizing the risk of discomfort, avoid creating fear, yet continue to build bridges.

Latino Community Health Initiative During COVID-19 (continued)

Max Luna, MD

The following are how the initiative is being carried out to date:

Service

1. Delivery of COVID-19 testing for symptomatic people and people that have experienced exposure to COVID-19 positive individuals

2. Medical support for people in need

3. Social determinants of health support to ease the family burden for positive people

Strategic Collaboration

- Thomas Jefferson Health District
- Habitat for Humanity- managers of the Southwood Community
- UVAHS groups with specific expertise
    - Ambulatory Services leadership
    - UVAHS Community Health and Wellbeing
    - Laboratory Medicine and Infectious Disease
    - Community Program with cultural insight and community trust- UVA Latino Health Initiative
    - Department of Pediatrics and Medicine
- UVAHS Community Relations
- Academic expertise in social determinants of health- the UVA Equity Center

Stages of Delivery (9 days total)

- Crafting of idea and planning with the health department and appropriate UVAHS groups
- Invitation flyers, public health education flyers, and information on how to access COVID-19 care for people without primary care physicians delivered to more than 350 mobile homes
- 5 hours of COVID testing on Saturday May 2nd followed by running tests, reporting results, and securing housing for optimal social distance and food assistance to the COVID-19 positive individuals and their families within 24 hours. All were provided direct numbers to call in case further questions and medical care is needed in the near future.
- All services delivered in Spanish without medical interpretation

Results

- 19 people tested - 1 positive subject

Although the total number of people serviced and detected positive was small, the greater goals were achieved. A team composed of UVAHS leadership, physicians, nurses, medical students, non-SOM faculty, and community health workers, multitasked from the most complex to the simplest roles, regardless of professional stature, to service and to give the Latino community support.

In summary, what was accomplished:

1. Organized a COVID-19 Latino community response team that involved, faculty, community organizations, and the health district where the following needs were shared and discussed: health and wellness, economic support, food security, and legal support.

2. Created the attached flyer informing people without PCPs about COVID-19 evaluation locations in Spanish and in English that is updated weekly. UVAHS has strongly endorsed this effort.

3. Organized three Facebook Live educational interviews for the Latino community as well as shared widely CDC educational material in the Charlottesville area social media.

4. Participated in the Community Health and Health Equity (in the setting of COVID-19) weekly Steering Committee Meeting.

5. Co-led the first Albemarle county community Covid-19 testing event and reported to leadership

UVA Advanced Cardiac Valve Program

From left: Nishtha Sodhi, MD, Scott Lim, MD, Michael Ragosta, MD

UVA Valve Program Expansion: The Advanced Cardiac Valve Program at UVA, under the leadership of Drs. Scott Lim and Gorav Ailawadi, has had a dynamic year with significant growth and innovation. The program welcomed the addition of new Structural and Interventional faculty, Dr. Nishtha Sodhi, to the team. In January of 2020, the team increased the number of procedure days per week to 3 and launched a formalized inpatient Valve Consultative Service. This expansion has translated into a 53% growth in procedural volume, 100% growth in inpatient consultation volume, and 30% growth in outpatient referrals and clinic volume compared to the prior fiscal year. Additionally, the Valve Program has pioneered quality initiatives such as a post-procedural PACU pathway to avoid unnecessary ICU admissions and a shift towards conscious sedation over general anesthesia during procedures. These quality initiatives have decreased overall hospital length of stay and increased patient satisfaction tremendously. Finally, the UVA Valve Program has continued to be at the international forefront of new innovation offering unique clinical trials for the tricuspid valve, for heart failure patients, advanced pre-procedural imaging with the implementation of 3Mensio software, amongst other niche structural devices and technologies offered at only select institutions worldwide. It is truly an exciting time in the Valve Program with the highest growth and expansion seen to date while maintaining excellence in patient-focused care.

UVA Valve Program Community Outreach: Through the "Every Heartbeat Matters Grant," awarded by Edwards Lifesciences, the UVA Valve Program partnered with Health Wagon to provide cardiology and echocardiographic screening to the underserved population of Wise, Virginia. Most recently in March 2020, Dr. Nishtha Sodhi, Mercedes Armstrong NP, Marissa Donatelle, Heather Laramy, and Angelica Ricotta evaluated over close to 50 patients. Those patients that screened for severe valvular heart disease were subsequently brought to UVA for their coronary intervention and TAVR procedures. The Grant has made a remarkable impact on these patients' lives who otherwise have limited resources and access to health-care. The next mission trip will take place in the Summer/Fall of 2020 led by Dr. Michael Ragosta.

UVA Valve Program Innovation: As a tertiary referral center, the UVA valve team takes care of some of the most complex valvular, structural, and cardiac cases. Drs. Nishtha Sodhi and Kenan Yount recently performed complex PCI and TAVR on an ECMO patient. He is the oldest living patient in the world to have successfully weaned from ECMO and is now 7 months post-procedure and back to his life and doing well. Under the leadership of Drs. Lim, Ragosta, Ailawadi, and Kern, the program has pioneered a true Heart Team approach to find creative solutions in complex anatomies.

Amyloid/Sarcoid Clinical Program Update

Mohammad Abuannadi, MBBS

Amyloidosis is a condition caused by the deposition of misfolded proteins in tissues including the heart, nerves, and kidneys. Cardiac amyloidosis has been considered a rare disease but recent data have suggested that the disease is more common than previously thought. In addition to increased recognition of the disease, there have been significant advances in the evaluation and treatment of amyloidosis. Patisiran (Onpattro) is an RNA interference therapeutic agent that inhibits the hepatic synthesis of transthytretin, and in patients with hereditary transthyretin amyloidosis with polyneuropathy, improves symptoms. More recently, tafamadis (Vyndaqel and Vyndamax) a transthyretin tetramer stabilizer, has been shown to lower all-cause mortality and slow the progression of symptoms of ATTR cardiac amyloidosis. In addition, other medications are currently undergoing evaluation for treatment in this growing field.

Given the systemic nature of amyloidosis and the complexity of the evaluation, we started a multidisciplinary collaboration with colleagues from heart failure, cardiac imaging, hematology, genetics, neurology, and hand surgery in order to improve the quality of care provided to patients with suspected or confirmed cardiac amyloidosis. One of the goals of our collaboration is to become a regional center of excellence for the care of patients with amyloidosis and to utilize research to help advance the field.

Sarcoidosis is another systemic disease that can involve different organs including the heart and lungs. In order to optimize the care of patients with this disease, a collaboration between pulmonology (Dr. Catherine Bonham) and heart failure cardiology (Dr. Mohammad Abuannadi) is ongoing. One of the goals of the collaboration is to launch a combined pulmonary- cardiac sarcoidosis clinic in the very near future, where specialists from both disciplines see patients together. In addition to the collaboration with pulmonology, the University of Virginia program offers the advantage of a nationally recognized cardiac imaging program that is essential for accurate diagnosis and guiding therapy of cardiac sarcoidosis. Another area of strength is the collaboration with electrophysiology team that provides excellent support to manage the arrhythmias that can complicate cardiac sarcoidosis. In addition to providing excellent clinical care to the patients, advancing the field of sarcoidosis through research is one of the important long- term goals of our program.

Please feel free to call or email Dr. Mohammad Abuannadi (913-484-2154; MA3WN@hscmail.mcc.virginia.edu) with inquiries or referrals of patients with suspected or confirmed cardiac amyloidosis or cardiac sarcoidosis.

Congratulations to Cardiology Honorees Selected for Best Doctors in America List 2019-2020

Mohammad A. Abuannadi, MBBS
Robert W. Battle, MD
James D. Bergin, MD
Jamieson M. Bourque, MD
John M. Dent, MD
Christopher Kramer, MD
Scott Lim, MD
Michael Ragosta, MD
Michael Salerno, MD
Angela M. Taylor, MD

Bailes Bryceland Research


Linda Bailes Bryceland, RN,CCRC

By Linda Bailes Bryceland, RN, CCRC

Our CIC research team is coordinating 2 Covid-19 PI principal investigator-initiated UVA trails.

UVA Biorepository study is Uva PI initiated study collected prospective lab samples on Covid-19 positive patients at 4-time points during their hospital stay. This involves getting consent and ordered the lab samples in Epic and working with the nurses on the special pathogens unit to coordinate the collection of the samples and the BTRF staff to collect and test and store all the lab samples.

The study is also collecting all "leftover or discarded samples" for all labs on COVID-19 patients. These samples are stored and tested in BTRF lab here in MR6 at UVA.

Our second study is the UVA Phase II COVID-19 Convalescent Plasma treatment study. This is a treatment study using donated plasma from recovered Covid-19 patients as treatment in our currently admitted Covid-19 patients in hopes of preventing the progression of their illness and hopefully prevent their admission to the ICU and requiring ventilator use.

Our team is coordinating all activities with this study. We consent patients, order their convalescent plasma, and work with the Special Pathogen Unit nurses on plasma infusions and collection of follow up lab samples, and data on the patient's condition.

Our entire staff has been working directly with the UVA COVID-19 special research committee, iTHRIVE team, IRB, BTRF, and the staff on the special pathogens unit to coordinate and run these studies.

Bilchick Research


Kenneth Bilchick, MD

Kenneth Bilchick, MD, Director of Electrophysiology Research at the University of Virginia Health System, is very interested in using advanced cardiac imaging to improve outcomes for patients with arrhythmias and heart failure. In particular, his group has an ongoing randomized clinical trial evaluating the intervention of cardiac magnetic resonance (CMR) to guide the selection of left ventricular pacing sites for patients undergoing cardiac resynchronization therapy (CRT) implants. Dr Bilchick has also developed and validated innovative methods for imaging patients with CRT devices in the MRI scanner to obtain high-quality data regarding improvement in biventricular function after resynchronization.

In collaboration with Frederick Epstein, PhD and Jeffrey Holmes, MD, PhD in the Department of Biomedical Engineering and industry partners, he also has ongoing studies evaluating mechanisms of CRT response using bioengineering models of heart failure based on electromechanical parameters derived from CMR and body surface electrical potentials.

This work on heart failure mechanisms has also been complemented by exciting work with Coleen McNamara, MD's lab on inflammatory pathways in heart failure, in which peripheral blood mononuclear cell gene and protein expression are analyzed using RT-qPCR and CyTOF, respectively.

In addition, Dr Bilchick continues to have productive outcomes projects with the National Cardiovascular Data Registry to evaluate outcomes after ICDs at the national level and also collaborative work with Sula Mazimba, MD on clinical outcomes of UVA patients with cardiovascular disease, including a very interesting recent analysis of the impact of longitudinal trajectories of structural and neurohormonal trajectories on survival in heart failure.

Pivoting from CV Research to COVID-19

Colleen McNamara, MD

One fundamental and critical unanswered question in the COVID-19 pandemic is why some individuals with COVID-19 have mild-moderate or no symptoms and others develop cytokine release syndrome (CRS) and have severe courses and death. CRS or cytokine storm (CS) has been clearly linked to COVID-19 disease severity. Levels of circulating cytokines such as IL-6, IL-1ß IP-10, MCP-3, IL-2 are significantly higher in patients requiring ICU care, mechanical ventilation, and those who die from COVID-19. As such, therapies that block the immune cell signaling and activation induced by IL-6 and IL-1ß are currently in clinical trials in COVID-19 subjects at UVA and elsewhere to reduce morbidity and mortality. Yet, strategies for early identification of those at risk of CRS and those who might benefit from these therapies are lacking. Waiting until the patient develops high circulating levels of IL-6 and IL-1ß before initiating therapy may be too late for maximally effective intervention and yet initiating therapy in all COVID-19 subjects may be cost-prohibitive and lead to untoward effect.

Hema Kothari PhD (Assistant Professor of Research in the Cardiovascular Division) working with Chantel McSkimmings, MD/PhD student Oom Pattarabanjird and BME PhD student Corey Williams in the laboratory of Dr Coleen McNamara has been studying the immune cell signaling induced by IL-6 and IL-1ß in humans. Drugs that target these pathways are approved for therapy for autoimmune diseases and are emerging as potential therapies for cardiovascular diseases (CVD). Utilizing mass cytometry (a cutting edge technology available at a limited number of institutions including UVA) to analyze human circulating peripheral blood mononuclear cells (PBMCs), she has identified the cell types most vulnerable to IL-6 and IL-1ß activation and their signatures (Figure 1).

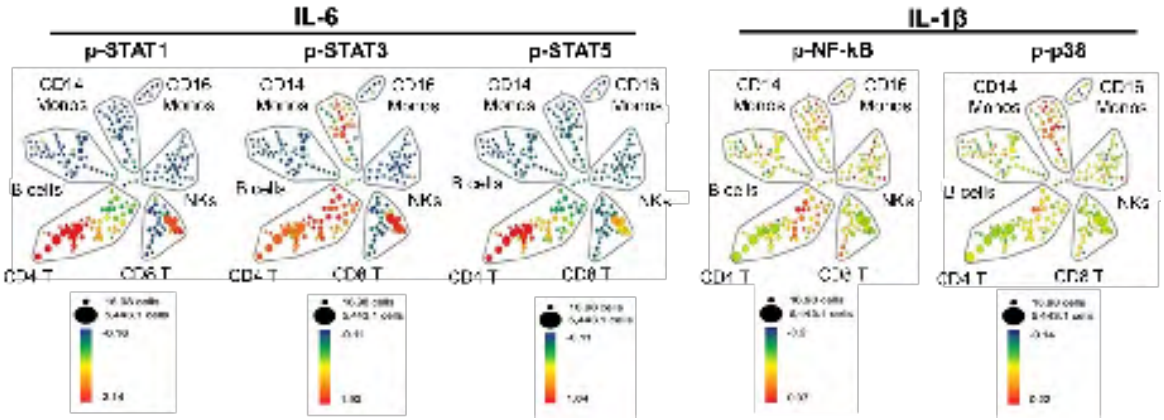
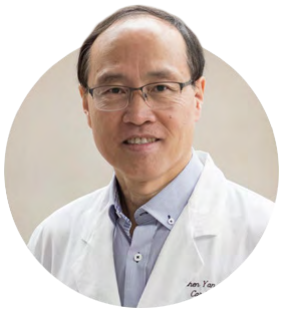


Figure 1: Spanning-tree Progression Analysis of Density-normalized Events (SPADE) demonstrates that CD4 and CD8 T cell subtypes are the circulating human immune cell subtypes most vulnerable to IL-6-induced activation of STATs. In contrast, IL-1β induces activation of NF-kB most prominently in a subset of CD4 T cells and of p38 in the CD14 monocytes. Human PBMCs were stimulated with vehicle control or IL-6 and IL-1β for 15 minutes. Representative SPADE analysis using cell surface markers to identify immune subtypes as labeled and color (blue to red) corresponds to the fold change in the median expression of p-STATs, p-NF-kB and p-p38.

Notably, she discovered consistency in IL-6 and IL-1ß-induced-activation with repeat testing in the same individual, yet a heterogeneity inactivation from one person to the next. In some individuals, stimulation with IL-6 and IL-1ß robustly induces phosphorylation of signaling intermediates (such as NF-κB, p38 and STAT1, 3 and 5) that are critical for induction of furthercytokineproduction (cytokine storm) and in other individuals there are much lower levels of activation. As NF-κB and STATs induce downstream cytokine production, it is likely that those with robust IL-6 and IL-1ß-induced activation of these intermediates will have greater inflammation and a more severe clinical course. It is also likely that these individuals will have a better response to therapies that block these cytokine signaling events. We are currently testing this hypothesis in a clinical trial of Anakinra (an IL-1ß receptor blocker) for heart failure. Thus, our customized panels for quantitating IL-6 and IL-1ß activation in human immune cells and all the necessary equipment, personnel, methods, and data analytics were on hand and "shovel ready" to pivot to COVID-19 to address the critical unanswered questions of how to achieve early identification of those at risk of CRS and identify those that might respond to agents that block CRS. In addition to studying COVID-19 patients with mild-moderate versus severe clinical courses at UVA to identify a precision biomarker of disease severity, we are also studying COVID-19 patients enrolled in the Remdesivir-Baricitinib trial to identify a signature that might predict Baricitinib therapy responders to potentially provide for future personalized medicine approaches.

CARDIOVASCULAR MEDICINE - RESEARCH HIGHLIGHTS

Yan Lab



Zhen Yan, PhD

Regular exercise has profound health benefits and is the most powerful intervention in disease prevention and treatment. Our lab focuses currently on elucidating the molecular mechanism by which aerobic exercise promotes the removal of damaged/dysfunctional mitochondria through mitophagy, a self-eating process of mitochondria, in skeletal muscle and heart.

Our research led to a new discovery of mitochondria-associated AMP-activated protein kinase (AMPK) and its regulatory role in the control of mitophagy. We are taking advantage of CRISPR-Cas9-mediated gene editing to further dissect the molecular mechanisms of this important regulator that is critical for exercise-mediated protection against diabetes and heart failure.

We are also investigating the role and mechanism of early exercise intervention in the prevention of the symptomatic onset of Friedreich's ataxia, an inherited mitochondrial disease. In our ongoing research, we have for the first time shown that long-term aerobic exercise training in a mouse genetic model of Friedreich's ataxia could completely prevent the symptomatic onset of the functional and biochemical abnormalities caused by reduced frataxin gene expression.

The Center for Advanced Medical Analytics

J. Randall Moorman, MD

The Center for Advanced Medical Analytics, run by Randall Moorman and Doug Lake with the recent addition of Oliver Monfredi, tests hypotheses about signatures of illness prior to clinical deterioration and develops decision support tools that convert readily available clinical data into risk estimates for bedside use. Much of the work is to study disordered breathing in premature infants, and they serve as the Data Coordination Center for a U01 grant. Their work is undertaken with medical students to senior faculty elsewhere in the Department (ID, Critical Care, General Medicine), other Departments (Surgery, ED, Pediatrics, Neurology), Schools (Nursing, Engineering, Data Sciences) and institutions. Recent work includes the application of thousands of numerical algorithms to TB of continuous monitoring and clinical data to generate a library of findable, accessible, interoperable, and reusable data and results that is available to UVa researchers.

Future work includes a randomized clinical trial of predictive analytics monitoring on the 4th floor (Jamie Bourque, coPI).

Through a commercial partner*, CoMET predictive analytics monitors will be installed in several locations throughout UVa Hospital.

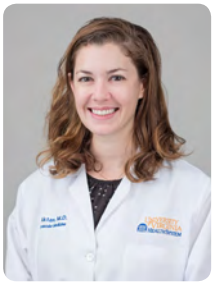
*(*AMP3D - Moorman has COI, as he is CMO and owns equity.)*

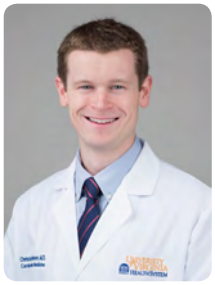
Congratulations to Austin Robinson, MD who won the Best Publication award (mentor John Dent, MD) and Chris Schumann MD who won a poster award (mentor Christopher Kramer, MD) at the Department of Medicine Scholar's Research Day

CARDIOVASCULAR MEDICINE - EDUCATION

General Cardiovascular Fellowship Graduates

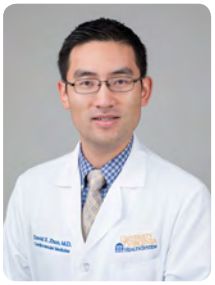
Idil Aktan, MD	NC Heart & Vascular	UNC Health Care
Chris Hanson, MD	Imaging Fellowship	UVA
Brittany Heard, MD	Clinical Cardiac EP Fellowship	UVA
Milan Kahanda, MD	EP Fellowship	Barnes Jewish Hosp/Washington U, St. Louis MO
David Zhuo, MD	Advanced Heart Failure/Transplant Fellowship	UT Southwestern - Dallas


Idil Aktan, MD


Chris Hanson, MD


Brittany Heard, MD

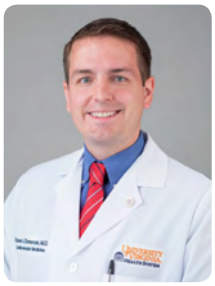

Milan Kahanda, MD

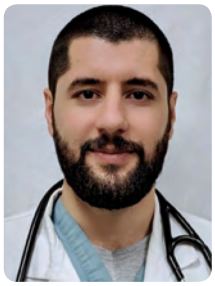

David Zhuo, MD

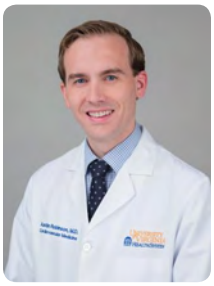
Advanced Fellowship Graduates

Cherisse Baldeo, MD	Vascular	UVA General Cardiology Fellowship
Robert Donovan, MD	Heart Failure/Transplant	University of Pennsylvania, Lancaster
Abdullah Omar, MD	Electrophysiology	EP Faculty, University of Florida, Gainesville
Austin Robinson, MD	Imaging	Director of Cardiac MRI Research, Scripps Clinic, La Jolla CA
Mary Shields, MD	Interventional	University of Florida VA, Gainesville
Chris Schumann, MD	Imaging	Cone Health, Greensville, NC


Cherisse Baldeo, MD


Robert Donovan, MD


Abdullah Omar, MD


Austin Robinson, MD


Mary Shields, MD


Chris Schumann, MD

Incoming Fellows

Cherisse Baldeo, MD	UVA Vascular Fellowship	General Cardiology
David Cook, MD	UVA Internal Medicine Residency	General Cardiology
Nisha Hosadurg, MBBS	Tufts University	General Cardiology
Juliette Logan, MD	Duke University	General Cardiology
Tim Maddux, MD	Medical College of Georgia at Augusta University	Interventional
Adithya Peruri, MD	Henry Ford Macomb Hospital	Vascular
Patricia Lozano Rodriquez, MD	University of Texas Medical Branch	Imaging
Patrick Stafford, MD	UVA Internal Medicine Residency	General Cardiology

CARDIOVASCULAR MEDICINE - PUBLICATIONS

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Bilchick KC, Auger DA, Abdishektaei M, Mathew R, Sohn M-W, Cai X, Sun C, Narayan A, **Malhotra R, Darby A, Mangrum JM, Mehta N**, Ferguson J, **Mazimba S, Mason PK, Kramer CM**, Levy WC, Epstein FH, *CMR DENSE and the Seattle Heart Failure Model Inform Survival and Arrhythmia Risk After CRT*. JACC: CARDIOVASCULAR IMAGING 2020 Apr;13(4):924-936

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FACULTY PROFILE - Oliver Monfredi

Tell us a little bit about yourself.
I've been at UVA for 1 year. I joined from The Johns Hopkins Hospital in Baltimore, where I had completed my Clinical Cardiac Electrophysiology fellowship, prior to which I had worked in the Laboratory of Cardiovascular Medicine at the NIH. I went to medical school in the northern city of Leeds in the United Kingdom, before progressing through my general medical and cardiology training with the Royal College of Physicians at a variety of NHS hospitals in Yorkshire and Manchester. I was awarded a PhD in cellular electrophysiology from the University of Manchester, focusing on the origins of pacemaking in the heart. I currently live near to 5th St Station with my wife and 2 little girls, and our 7-year-old terrier Elsie, who is the head of the family.

Why Healthcare?
I chose medicine, specifically cardiology, because my parents first child, Anna, was born with cyanotic congenital heart disease in the early 1970s. She sadly died at the age of 18 months, and the doctors of the time told my parents to not have any more children because of the risk of recurrence. My older sister, my parent's second child, was presumably therefore a mistake, but nonetheless was born in good shape, and my parents went on to have me (awkward middle) and my younger brother (100% mistake). Because of my parent's experience with my oldest sister, I always wanted to try to make a difference in the field of cardiology. That is, once I realized the chances of me playing on the wing for Manchester United were not going to be realized…

What brought you to Charlottesville?
I was excited about the opportunity to work in a department established by one of the founders of modern electrophysiology, Dr John DiMarco, and to work with a group of renowned colleagues headed by Dr Pam Mason in a young, vibrant and progressive department. I also loved the feel of the town, and it seemed like it was going to be a great place to bring up my 1 and 4-year-old daughters. And my wife likes wine and Wegmans.

What excites you about your work?
The ability to cure people of debilitating conditions – SVT, symptomatic bradycardia, VT and AF are huge burdens in people's lives, and through devices and ablation we are fortunate to be able to have major beneficial effects on these conditions, frequently being able to effect cure, and this is both gratifying and exciting. Also the pace of technology development in EP is remarkable – the field already barely resembles what it did when I started my cardiology training in 2007. I also am lucky to work with a great, highly skilled and highly motivated group of physicians, nurses, rad techs and industry colleagues, and this is truly exciting.

Proudest/greatest achievement outside the professional realm?
My two daughters, Matilda and Mollie are unquestionably my proudest achievement. And managing to convince a fine lady like my wife to marry me, and stay with me through a transatlantic relocation to exotic Baltimore. Before that, it was representing my beloved white rose county of Yorkshire at rugby at school and college level, and not coming out with a cauliflower ear.

Next life?
I'd be happy with more of the same. I've been blessed to be healthy so far, and that's the main thing.

What are you usually doing on the weekend?
Waking up at exactly 0630 (my daughter's body clocks are more accurate than a swiss watch), playing Lego, running the dog around Walnut Creek, walking around Mint Springs searching for snakes and bears, playgrounds (pre-COVID), finished off by watching my guilty pleasure '90-day fiancé' on the TV.

How did you meet your partner?
We went to elementary school together! We then went to different high schools, and didn't see each other for 20 years. Then I stalked her on Facebook and wore her down for a date.

What's one thing you always have in your fridge?
Milk. And HP sauce (its an English staple, and available at World Market in C'Ville! Put it on a sausage sandwich, and you'll never be without it again).

Favorite vacation/activity spot?
When the sun is shining, there's nowhere better than Sandsend in North Yorkshire, England. For the other 364 days of the year I'd say the Cap D'Antibes in the south of France.

FACULTY PROFILE - Oliver Monfredi (continued)

Most admired person, and why?
My parents (I know that's not one person) – they gave us opportunity, encouragement, discipline and unquestioning love and support. Since becoming a parent, I know that's hard to do but they did a faultless job of it, and continue to do so. Although my mum is not happy with this quarantine thing, its playing havoc with her lunching and having her hair done.

Best advice anyone ever gave you?
My mentor when I was an intern, who was a geriatrician at York Hospital in England, sat me down for a career talk and asked me what I wanted to be – I said a cardiologist. He proceeded to try to talk me out of it, using a variety of lame reasons, including that it was a popular choice for the best candidates, and maybe I ought to modify my aspirations a bit. I thought to myself, 'well somebody has to be getting these jobs, why shouldn't it be me?'. Ever since then, when faced with a decision regarding whether to try to do something tough or just stick with what I have got, I have taken the tough but potentially highly rewarding route, and its worked out more often than not. So even though his advice sucked, it worked out as some of the best.

What about you would surprise us?
When I finished med school I actually thought I wanted to be a medical examiner/forensic pathologist, so I spent a couple of years doing formative training in this, including time at the LA County OCME and the New York City Dept of Coroner. My time in New York covered the one week before and substantial period after September 11th 2001. Through the harrowing recovery and post-mortem identification that we undertook in back-to-back 12 hour shifts, I certainly learned a lot about forensic pathology, disaster management and the human response to large scale tragedy. I am proud to have been a part of the response to this event, and was fortunate to meet many amazing people who I still call my friends to this day.

What is a talent or skill that you have that is unual?
I'm good at vacuuming the house and cleaning the toilets. Forensically clean. So good that nobody else in the house even tries.

Favorite fictional characters?
I'm a geek, and I used to collect comics. Batman was my favorite. I also like Jack Reacher in Lee Child's books, but I thought Tom Cruise was not sufficiently statuesque in the films.

If you could go back in time, what year would you travel to?
1984 – I always wanted to be at a Bruce Springsteen concert in Asbury Park, NJ when the boss was at the peak of his powers, and also to ride the jet pack like the guy at the opening ceremony to the LA Olympics.

What is the last book you read for pleasure?
I read to Matilda every night, and it's a great pleasure. We are currently half way through Roald Dahl's Fantastic Mr Fox, which is much more brutal than I recalled.

What's the most unusual thing you have ever eaten?
My nan used to make us eat all kinds of things that she thought were legitimate from her experience of rationing in WW2 - pigs feet, chitterling and bag (boiled cow's stomach soaked in vinegar and salt) and black pudding (cold sausage made only of pigs blood and fat). It's amazing I'm alive.

Do you collect anything?
I collect everything – my wife says I'm a hoarder. If you want to see my ticket from Tina Turner at the Sheffield Arena in 1989, all I need is 5 minutes and it will be in your hand. Moving continents sadly stripped down my voluminous collection of useless memorabilia, but I'm working on re-accumulating it now.

What was your first job, how old were you?
My dad opened one of the first Toyota dealerships in England, and I used to go down to the lot on a Saturday and clean and leather all the cars, by hand, no jet washers back in the early '80's. I was 7, and I was paid in hot pork sandwiches.

FELLOW PROFILE - Xu Gao

Tell us a little bit about yourself.
I've been at UVA for almost 2 years. I moved here for cardiology fellowship after finishing residency at Ohio State. I grew up in Michigan and went to undergrad at Michigan State (Go Green!) then medical school at University of Cincinnati. This was my first time living in the South and so far I'm loving it!

Why Healthcare?
At the risk of sounding cliché, I wanted to become a doctor because I really enjoy the intellectual challenge of diagnosing and treating complex medical problems and caring for the sick.

What brought you to Charlottesville?
Virginia is the most southern place I have lived! I really love the community and rich history that Charlottesville has to offer and the cardiology program here offers an opportunity to pursue an elite training experience with really amazing faculty.

What excites you about your work?
What excites me the most about work is the never-endling learning opportunities and scientific research experience offered here.

Next life?
I'm excited to say that the next phase of my life will be pursuing an EP fellowship (yes…more training).

What are you usually doing on the weekend?
Weekends are atypical these days given the quarantine; however, pre-covid I would enjoy hanging out with friends, traveling, going to vineyards, spending time with my family and boyfriend… and also catching up on guilty pleasures (any shows on TLC!).

How did you meet your partner?
I met my boyfriend during residency. We were both at Ohio State.

What's on thing you always have in your fridge?
Something that is always in my fridge is: Miso ginger dressing and red wine.

Favorite vacation/activity spot?
My favorite vacation memory would have to be Peru. It was amazing climbing Machu Picchu on my 30th birthday!

Most admired person, and why?
Ruth Bader Ginsburg. I did a report on her in high school and have since admired her strength and perseverance.

Best advice anyone ever gave you?
I can't remember the exact wording but it was something to the effect of "If you are faced with two paths, choose the one that requires courage and you will have no regrets."

What about you would surprise us?
I think one thing that would surprise people is that I have lived in 3 different countries.

What is a talent or skill that you don't have that you wish you did?
If I could choose one talent it would be the ability to sing. I still sing, but I wouldn't call it one of my talents!

Favorite fictional characters?
My favorite fictional character would have to be Tina from Bob's Burgers. She's amazingly awkward.

If you could go back in time, what year would you travel to?
If I could time-travel, I wouldn't revisit the past, I would go to the future!

What is the last book you read for pleasure?
The last book I read for leisure was Empire Falls. It is one of my favorite books.

What's the most unusual thing you have ever eaten?
The most unusual thing I've ever eaten would have to be a Guinea pig when I was in Peru or a scorpion. Both pretty weird. I guess if I had to choose to eat one again I would choose the scorpion.

Do you collect anything?
I don't really collect anything other than debt…

What was your first job, how old were you?
My first job was as a hostess/waitress in high school. It definitely gave me an appreciation for those who work in the service industry!

FELLOW PROFILE - Saad Sultan Ghumman

Tell us a little bit about yourself.
I grew up in Lahore which is the cultural capital of Pakistan and after high school I moved to Islamabad where I attended the Shifa College of Medicine. I had the fortunate experience of moving to Charlottesville in July 2018 for Cardiology Fellowship by way of Texas where I completed my Internal Medicine Residency. I am a 2nd year fellow going into my 3rd year and also serve as a chief fellow for the program. My next destination is Boston where I will be an Interventional Cardiology Fellow at Brigham and Women's hospital. I'm an avid football (aka soccer) fan and a big supporter of Fc Barcelona which is a football club in Spain. I enjoy my weekends driving the skyline drive or playing soccer. Being an avid sports enthusiast, I am proud of myself for embracing American Sports (other than baseball which is still a work in progress).

Why Healthcare?
To be honest, it was my mother's dream to be a doctor but she could not achieve this due to several cultural road blocks she faced. I joined medical school with that being a primary motivator, but eventually found my own love for this profession and have not looked back since.

What brought you to Charlottesville?
To train at an excellent program, meet fantastic people and live in a beautiful city.

What excites you about your work?
Everything!! I have always thought my career should be something that I don't have trouble waking up in the morning for, I consider myself very lucky to be where I am.

Proudest/greatest achievement outside the professional realm?
Not forgetting the struggle my parents have put into raising me and to be able to make them happy in any way or form.

Next life?
You only live once.

What are you usually doing on the weekend?
Sleeping… cooking…long drives…soccer… sleeping more.

What's one thing you always have in your fridge?
A lot of empty space and milk.

Favorite vacation/activity spot?
Whichever comes next (post covid era)

Most admired person, and why?
My sister Minayel. She is a superhuman and a constant source of inspiration. She works full time, is married and takes care of her kid and household, also supports my parents in every way possible.

Best advice anyone ever gave you?
"not failure, but low aim is a crime" - my father

What about you would surprise us?
I have more than 30 pairs of shoes in my closet.

What is a talent or skill that you don't have that you wish you did?
Playing musical instruments.

Favorite fictional characters?
Butters and Eric Cartman from Southpark
Walter White aka Heisenberg from breaking bad
Daenerys Targaryen from GOT

What is the last book you read for pleasure?
Mike Ragosta's Textbook of Clinical Hemodynamics ;)

What's the most unusual thing you have ever eaten?
Octopus.

Do you collect anything?
Sports memorabilia, watches, and good memories.

What was your first job, how old were you?
When I started my residency at 26.

STAFF PROFILE - Kevin Martin

Tell us a little bit about yourself.
I've been the Grants and Contracts Administrator for Cardiovascular Medicine at UVA since September of 2019. The previous 5 years I worked in multiple roles at two Workforce Development Boards, first as an AmeriCorps Fellow in Pittsburgh, then as a Grants Coordinator in Harrisonburg, Virginia. My wife and I reside in Charlottesville with Beethoven, our basset hound/Australian Shepherd mix.

Why Healthcare?
I wasn't sure what I wanted to do after college, but I did know that I wanted to work in some sort of helping career. Through an AmeriCorps placement after I graduated, I wound up working with non-profit grants, and have been doing similar work ever since.

What brought you to Charlottesville?
My wife has been working in Charlottesville for about two years, but had been commuting over an hour each way while we were living in Harrisonburg. Her position, along with the fact that the Department of Labor Grant I was working on at the time was winding down, are the primary reasons we chose to move to Charlottesville.

What excites you about your work?
I like the idea that my job is to make it as easy as possible for our investigators to conduct medical research. The more I can take care of the grant and fiscal tasks, the more the investigators can focus on the science.

Proudest/greatest achievement outside the professional realm?
It's not an achievement per se, but I take great pride in being a good partner to my wife.

Next life?
Music historian or bassist for a semi-regionally famous rock band.

What are you usually doing on the weekend?
Playing one of my favorite sports; tennis, basketball, ultimate Frisbee or basketball.

How did you meet your partner?
I met my wife, Katherine, during our second year of college. We initially bonded over a shared love of The Avett Brothers and an upcoming concert was a great excuse to ask for her phone number.

What's one thing you always have in your fridge?
Avocado hot sauce.

Favorite vacation/activity spot?
I rarely go to the same vacation spot twice. One of my favorite vacation memories is hiking in Glendalough, Ireland near my namesake's hermitage.

Most admired person, and why?
My maternal grandfather. What always stood out to me about him was his humor, generosity and unending curiosity about life. There wasn't a topic that didn't interest him.

Best advice anyone ever gave you?
Most growth occurs outside your comfort zone.

What about you would surprise us?
I've never broken a bone or needed stitches for an injury. I'd like to keep that streak going as long as possible.

What is a talent or skill that you don't have that you wish you did?
I wish I could speak Spanish. I also wish learning languages came naturally to me.

Favorite fictional characters?
Calvin and Hobbes.

What is the last book you read for pleasure?
Naked by David Sedaris.

What's the most unusual thing you have ever eaten?
Mopane Worms during a study abroad semester in South Africa.

Do you collect anything?
I used to collect CDs; now I'll occasionally pick up my favorite albums on vinyl.

What was your first job, how old were you?
Picking peaches, strawberries and corn as a sixteen year old.

CARDIOVASCULAR MEDICINE WORD SEARCH

HEMOGLOBIN
CRUOR
SANGUINE
PLASMA
CYTOPLASM
PULSE
EKG
CATH LAB
ULTRASOUND
MONITOR
ECHO
STENT
PACEMAKER

CARDIOVASCULAR
VEINS
HEART
MUSCLE
BLOOD VESSEL
CAPILLARY
ARTERIOLE
METARTERIOLE
VENULE
ARTERY
CLOT
DEFIBRILLATOR