

# VIRGINIA MEDICINE

University of Virginia School of Medicine

Spring 2021



## Next Gen 2.0

*Medical Education for the Next Generation*

**A** little over one year ago, the world as we know it changed forever as a result of COVID-19. As I write this, vaccines are being rolled out nationwide – physicians, nurses and even medical students are stepping up and once again serving on the front lines to hopefully put an end to this pandemic.

In the past 13 months, we have celebrated milestones like graduation and Match Day virtually. Other special occasions, like the White Coat Ceremony and class reunions, have been delayed. We have missed out on opportunities to gather in favor of social distancing and stopping the spread. It has been difficult, but we have come through stronger as a result and found new ways to learn, to serve and to be a community.

I am grateful to the faculty and staff of the University of Virginia School of Medicine for their outstanding leadership during this time. Through hard work and innovation, they have risen to the challenges of this pandemic in order to maintain the high level of excellence our students expect and deserve. Indeed, our faculty have used the pandemic to fine tune some of the changes that were already planned as part of our Next Gen 2.0 curriculum, which was implemented in March. Part of that effort extends to our new Inova Regional Campus in northern Virginia, where our third-year medical students in Pinn College are doing their clerkships. You can read more about this effort beginning on page 12.

Although my time as dean is winding down, I want to take a moment to thank our students, alumni, housestaff and faculty for their support over the past five years. I am enormously proud of what we have accomplished together. Today, UVA is a national model for excellence through innovation and collaboration. Our research program is in a strong position, evidenced by the five-year, \$23 million grant from the National Institutes of Health for iTHRIV, great improvements in infrastructure, and three years of the highest-ever extramural funding in the history of the School of Medicine. Similarly, our clinical mission has been recognized for providing the highest quality care in Virginia, ranking as the #1 hospital in Virginia for five years in a row by *U.S. News & World Report*.

No matter whether you went to school here, trained here, or taught here, you are a part of the UVA family and a contributor to our success.



Sincerely,

David S. Wilkes, MD  
Dean, UVA School of Medicine  
James Carroll Flippin Professor of Medical Science



**I am grateful to the faculty and staff of the University of Virginia School of Medicine for their outstanding leadership during this time.**





# VIRGINIA MEDICINE

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## ON THE COVER


Students (l-r) Brett Whalen, SMD'22, JT Morgan, SMD'21, and Dika Aligbe, SMD'21 at the Claude Moore Medical Education Building

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## FEATURE STORY

# 10 Medical Education for the Next Generation

Next Gen 2.0 extends the innovative changes made 10 years ago to the curriculum at the School of Medicine and transforms the clinical phases of medical education at UVA.

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## What is it?

# Breast Cancer Discovery Could Help Stop Disease's Deadly Spread



Sanchita Bhatnagar, PhD

**“Despite metastasis being the key reason for failure of cancer therapies, it remains poorly understood. We do not clearly understand what drives the metastatic growth in patients.”**

**U**VA Cancer Center researchers have identified a gene responsible for the spread of triple-negative breast cancer to other parts of the body — a process called metastasis — and developed a potential way to stop it.

Triple negative breast cancer (TNBC) is an aggressive form of breast cancer that accounts for 40,000 deaths in the United States annually. The majority of these deaths result from resistance to chemotherapy and subsequent aggressive metastases. So UVA researchers asked: What causes a primary tumor to become metastatic? This is an important question in cancer biology because patients with metastatic tumors have the highest death rate.

UVA's Sanchita Bhatnagar, PhD, and her team found that the breast cancer oncogene TRIM37 not only causes the cancer to spread

but also makes it resistant to chemotherapy. A new approach she and her colleagues have developed could possibly address both, the researchers hope.

“Despite metastasis being the key reason for failure of cancer therapies, it remains poorly understood. We do not clearly understand what drives the metastatic growth in patients,” says Bhatnagar, who

was the first to identify TRIM37 as a breast cancer oncogene. “In general, several genes are altered during tumorigenesis. However, whether targeting the same genes will prevent metastatic transition remains to be addressed.”

Promising research from Bhatnagar's team shows that targeting TRIM37 prevents metastatic lesions in mouse models. Those findings form the foundation of her lab's current work exploring the role of TRIM37 in racial disparities in triple negative breast cancer. Incidence of the disease is disproportionately higher in African-American women compared with other races, with a 5-year survival rate in African-American patients of only 14% compared with 36% in non-African American women.

## Triple-Negative Breast Cancer

Bhatnagar and UVA's Jogender Tushir-Singh, PhD, have developed a new approach to stop the effects of TRIM37, which they hope will prevent or significantly delay the spread of triple-negative breast cancer. This could also lower the disease's defenses against chemotherapy.

Blocking the gene could benefit approximately 80% of triple negative breast cancer patients, the researchers estimate.

Bhatnagar and Tushir-Singh's approach uses nanoparticles — microscopic balls of fat — to deliver treatment to block TRIM37. These nanoparticles are paired with specially engineered antibodies that bind to the cancerous cells but not to healthy cells. “As soon as the antibody finds the triple negative breast cancer cell, it binds to the receptor and is taken up by the cell,” explained Tushir-Singh, of UVA's Department of Biochemistry and Molecular Genetics.

“It is a kiss of death that selectively reduces the expression of TRIM37 in cancer cells and prevents the spread,” says Bhatnagar.

The approach could be used to deliver targeted treatments for many other cancers as well, the researchers report. “That would not only get the treatment where it needs to be, but we hope it will also help prevent unwanted side effects. Besides preventing metastases, it adds selectivity,” Bhatnagar says.



# Investigating Blasts and Brain Injury

“A problem in the field is, how will you give a nanoparticle treatment to the patients? Most of these nanoparticles are cleared by the liver, so they never have a chance to really do their job,” she says. “In this study, researchers bypassed this issue by delivering nanoparticles by nasal route, increasing the rate of uptake in the lungs — one of the most common metastatic target sites in TNBC patients.”

The development of the new approach is in its early stages, but tests with lab mice have offered encouraging indications. “The lungs showed dramatic reduction in metastatic lesions after the treatment in comparison to the mice that received no treatment,” says Bhatnagar.

## Next Steps

To verify that TRIM37 targeting might offer a potential treatment approach, Bhatnagar teamed up with Tushir-Singh, her husband, to test it in the lab. “And we find that our targeted nanoparticles significantly reduce metastatic lesions in the lungs of spontaneous metastatic murine models — both immune compromised and immune sufficient,” she says. “This is an important proof-of-concept much needed for the bench-to-clinic transition of these important findings.”

Clinically, most women in the early stages of breast cancer are treated with surgery, followed by radiation or chemotherapy. However, metastasis remains a challenging medical problem. Bhatnagar’s research offers a potential way to target a driver of metastasis that she hopes will prevent or slow metastatic progression and improve overall survival.

Much more work needs to be done, but Bhatnagar’s research is being noticed by pharmaceutical companies interested in exploring the approach’s potential. “This is a delivery platform, not only for targeting our protein of interest but for many other chemotherapeutic drugs that can be packaged into the nanoparticles and selectively delivered,” says Bhatnagar.

**M**ilitary and law-enforcement personnel repeatedly exposed to low-level blasts have significant brain changes — including an increased level of brain injury and inflammation — compared with a control group, a new study has found.

Led by University of Virginia School of Medicine researcher James Stone, MD '04, Res '09, Fel '10, PhD, the study compared the brains of 20 “breachers” — specialists who use explosives to enter buildings and other structures — with a 14-person, age-matched control group. The breachers had been exposed to an average of 4,628 blasts, while the control group had been exposed to an average of three.

Blood measurements and neuropsychological assessments suggest that the breachers have increased levels of brain injury and inflammation, which the researchers wrote is “consistent with the theory that exposure to breaching-related blasts leads to system-wide effects in the brain.”

The study also found that the breachers had statistically significant differences in blood flow, brain structure and brain activity.

“This study is the first to comprehensively assess military and law enforcement personnel to better understand whether

repetitive blast exposure over a career can lead to changes within the brain,” says Stone. “This is an area of high importance to military and law enforcement communities, as it is becoming increasingly clear there may be occupational health considerations related to repetitive low-level blast exposure in training and operations over the career of an exposed individual.”

The researchers wrote that further studies will be needed to determine more precisely what level and frequency of blast exposure may result in the observed brain changes.

Stone and his colleagues have two additional studies underway to further examine the effects of blasts on the brains of military personnel. The first — backed by a three-year, \$2.1 million grant from the U.S. Department of Defense — is researching the effects of regular exposure to artillery blasts. The second is examining whether special operations forces are at risk for brain injury over their career.

“These additional studies will allow us to better understand whether the observations made in breachers are also seen in other blast-exposed populations, such as those that operate heavy weapons,” says Stone. “We also hope to be able to shed light on how the brain responds to repetitive blasts on a molecular level.”



**James Stone, MD '04, Res '09, Fel '10, PhD**

# Unveiling How HIV Begins to Invade Cells

Scientists at the UVA School of Medicine have developed a method to understand how HIV and other viruses first begin to infect our cells, and that could help us prevent COVID-19 and other diseases.

Such viruses are so small that scientists must study them using electron microscopes rather than traditional light microscopes. But limitations in how samples are prepared for electron microscopy have long stymied efforts to understand the very beginning of the infection process. Basically, scientists have gone into battle unable to see how the invasion starts.

UVA researchers, however, have devised an ingenious solution. They have used tiny, detached portions of a cell's membrane to witness how HIV and other viruses first launch their assaults. The delicate virus-cell membrane samples are super-rapidly frozen while the virus is trying to breach the cell membrane to form "vitreous" (glassy, non-crystalline) ice, so the structures can be preserved as in solution and imaged at -196°C using cryo-electron microscopy, a technique that was awarded the Nobel Prize in Chemistry in 2017.

"Samples for electron microscopy need to be extremely thin, thinner than a single

human cell, which previously made imaging viruses as they begin infection by entering a cell very difficult to nearly impossible, depending on the virus," says researcher Amanda E. Ward, an MD/PhD student at the UVA School of Medicine. "Visualizing intermediate steps as the viral and plasma membranes fuse brings us closer to a molecular-level understanding of the dramatic rearrangements that proteins and lipids undergo as two membranes become one and a virus begins its infectious cycle."

## Stopping Viral Infections

The UVA researchers call their little membrane sections "blebs." They have tested their approach with HIV but say it could be used to better understand many

The new technique has already allowed the UVA researchers to better understand how HIV enters our cells and how that process can be disrupted by two proteins our bodies make, Serinc3 and Serinc5.

"Practically every living thing can be infected by viruses, so organisms have evolved a myriad of ways to prevent viral infection and damage," explains Ward, who has recently defended her thesis and returned to medical school clerkships as a member of the Class of 2023. "Some of the most recently identified restriction factors, Serinc3 and Serinc5, can block HIV and other lentiviruses from entering cells, although HIV has evolved a way to counteract Serinc's inhibition, so they may not play a large role in controlling HIV infection in humans."

Scientists, however, may be able to improve on what nature created. They could enhance that same mechanism, for example, to create drugs that would block the infection process.

The new tool has already yielded important insights into how our bodies respond to HIV infections. The scientists determined, for example, that the Serinc proteins seek to stop HIV by causing broad changes to the membrane fusion process. This came as a surprise, defying the previous scientific understanding of Serincs and other restriction factors like them.

"Our methods are quite general, and many human viruses share lots of common principles when entering cells. Therefore, we expect to learn much more about the fundamentals of cell entry of many viruses and how to inhibit that process," says lead researcher Lukas K. Tamm, PhD, chair of UVA's Department of Molecular Physiology and Biological Physics. "We are lucky to be particularly well equipped at UVA for these kinds of studies, and we benefit from a fantastic group of exquisite researchers, physicians and trainees contributing their expertise in this area. We are also fortunate to have been funded by the NIH for research on virus entry continuously for nearly 30 years."



Lukas K. Tamm, PhD

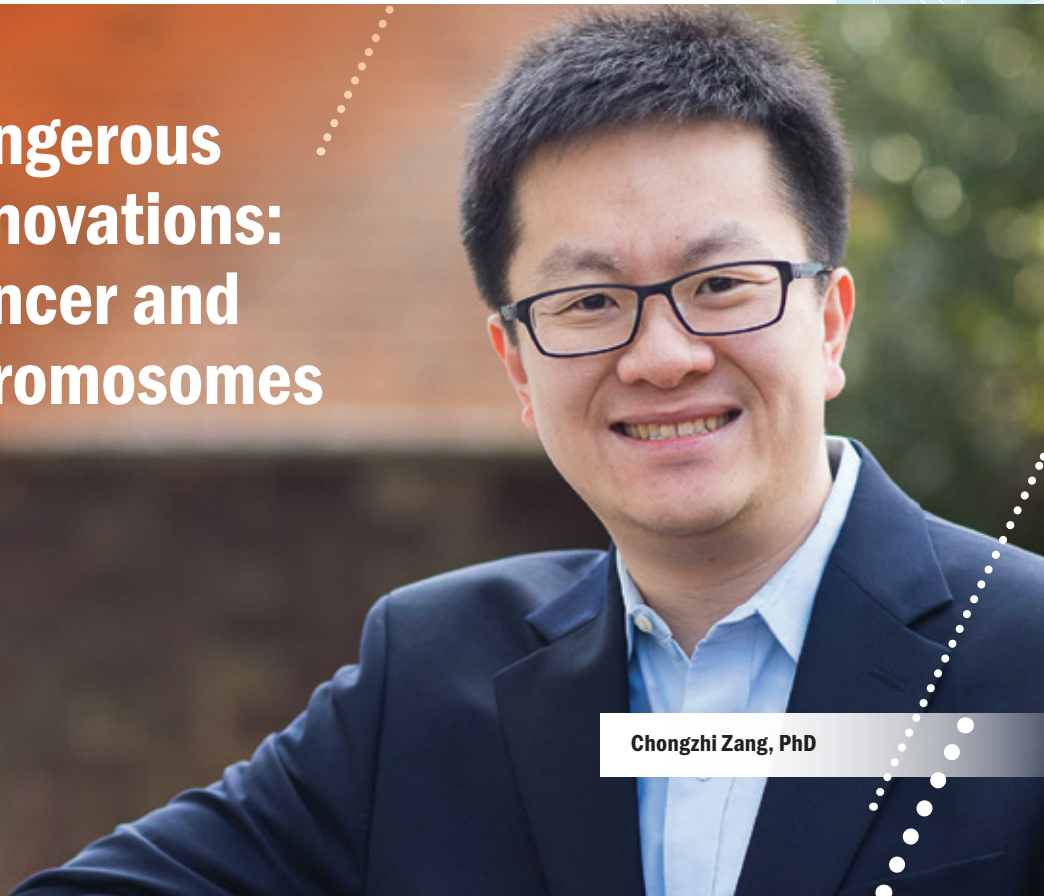


Amanda E. Ward

other viruses, including SARS-CoV-2, which causes COVID-19. Scientists just would need to produce the blebs from different cells, such as lung epithelial cells for SARS-CoV-2, that express the appropriate receptors for the virus they wish to study.



# Dangerous Renovations: Cancer and Chromosomes



Chongzhi Zang, PhD

**C**ancer remodels the architecture of our chromosomes so the disease can take hold and spread, UVA researchers have revealed.

This remodeling is important because the arrangement of the components in our chromosomes actually affects the workings of our genes. With these renovations, cancer begins making a comfortable home for itself inside our cells.

“Even when the genetic code in DNA sequence may largely remain the same, the three-dimensional structure of chromosomes in cancer can be very different from our normal cells,” says researcher Chongzhi Zang, PhD, a computational biologist with UVA’s Center for Public Health Genomics. “A better understanding of the cancer genome structure can give us insights for developing new drugs to specifically target the Achilles’ heel of each cancer.”

## Understanding Cancer

To make its desired changes inside our chromosomes, cancer relies on a protein called “CCCTC-binding factor,” or CTCF for short. CTCF occurs naturally in our cells. In healthy cells, it plays an important role in maintaining the chromosome structure and turning genes on and off as needed.

But cancer, Zang found, highjacks CTCF for its own purposes. CTCF appears where it shouldn’t, and it doesn’t bind where it should. This alters the three-dimensional organization of our chromosomes and changes the way genes work.

To understand CTCF’s role in cancer, Zang and his team dived deep into genomic data collected from human tissues and cancer samples. They identified patterns of CTCF remodeling in six different cancers, including T-cell acute lymphoblastic leukemia, acute myeloid leukemia, breast cancer, colorectal cancer, lung cancer, and prostate cancer.

“We developed an innovative data science approach to collect and integrate thousands of publicly available datasets to make these findings,” says Zang. “It’s exciting to see how many new scientific discoveries can be made solely by analyzing the big data that’s already out there.”

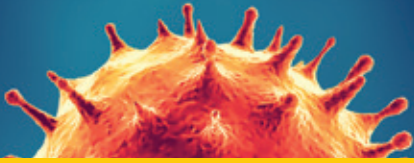
The researchers validated their findings

by looking specifically at T-cell acute lymphoblastic leukemia, but they say further research into changes into CTCF binding will help scientists better understand the origins of other cancers as well. (Faulty CTCF binding also has been linked with developmental disorders and

**“A better understanding of the cancer genome structure can give us insights for developing new drugs to specifically target the Achilles’ heel of each cancer.”**

other conditions, so understanding it may also offer important insights into those diseases as well.)

“The abnormal patterns of CTCF binding that we found is probably a signature existing in every cancer type,” says Zang. “These findings brought us one small step closer to fully unraveling the molecular mechanism of cancer, an extremely complex disease.”



## Reducing COVID-19 Infections at Long-Term Care Facilities

UVA Health has received a national health innovation award for its collaborative program to prevent COVID-19 infections at local long-term care facilities and reduce mortality when outbreaks occur.

UVA Health's Geriatric Engagement and Resource Integration for Post-Acute and Long-Term Care Facilities (GERI-PaL) program was named a runner-up in the 2020 Health Quality Innovators of the Year Awards.

"I am so proud to see the efforts of our entire team and our long-term care facility and community partners recognized," says UVA Health geriatrician Laurie R. Archbald-Pannone, MD, Res '05, Fel '06, MPH '07, the program's lead physician. "This is a wonderful example of healthcare providers here in the Charlottesville area who are working tirelessly to provide quality care for patients with COVID-19."

GERI-PaL brings together specialists from within UVA and across the healthcare community through telehealth technology to control COVID-19 at long-term care facilities, which nationally have been



particularly vulnerable to the pandemic's effects because of the serious health challenges many of their residents face.

As part of the program, long-term care facilities are able to consult with UVA infectious disease experts to develop infection-control procedures; meet with a range of UVA experts in nursing, geriatrics and pulmonology to receive the latest COVID-19 guidance through Project ECHO

(Kim Albero, DNP); obtain consultations on individual patients and transfers to the hospital as needed (Drew Harris, MD, and Justin Mutter, MD '13, Res '17); have medical student volunteers call residents to reduce social isolation; and have regular discussions with a nurse liaison to make sure each facility's needs are being met (Rebecca Steele, CNL).

A research paper based on the first two facility outbreaks addressed by the GERI-PaL team showed lower mortality rates — 12% and 19% — compared with a 28% mortality rate reported at a long-term care facility in Washington state.

"We believe this program is a model that can be replicated nationwide and has the potential to enhance care for patients at long-term care facilities long after the COVID-19 pandemic ends," says Archbald-Pannone.

**"We believe this program is a model that can be replicated nationwide and has the potential to enhance care for patients at long-term care facilities long after the COVID-19 pandemic ends."**



# Using AI to Watch Over COVID-19 Patients

At UVA Health, patients with COVID-19 are monitored not just by a phalanx of nurses, physicians and specialists, but also by artificial intelligence software – designed by a University of Virginia physician – that’s continuously computing their physiological data in order to predict whether life-threatening trouble might arise. Using numbers drawn every two seconds, and models updated every 15 minutes, the software predicts possible clinical issues before they happen, giving clinicians critical time to head off a potential crisis hours before it strikes.

Since last July, patients with serious illnesses convalescing on UVA Health’s fourth floor have the added benefit of CoMET, new software that uses continuous monitoring and computer algorithms to create a visual portrait of a patient’s risk of experiencing a serious event over the next 12 hours. Moment-to-moment data is drawn from a patient’s EKG, laboratory results and vital signs to create a graphic (shown below) representing risk on a large LCD screen. That visual helps clinicians gauge patients’ stability and risk for clinical issues, and, if needed, to determine what actions should be taken to protect a patient’s health.

Like a barometer of risk, stable patients’ “comets” are small, yellow and nestle close to the X-Y axis on the display. But if

the risk level rises, the comets grow, turn bright orange or deep red, and crawl up and across the screen like plump, shooting stars, indicating cardiovascular instability, respiratory instability or both.

These colorful graphics signal clinicians to employ proactive strategies to stabilize patients’ vital signs before serious medical events, such as sepsis, blood poisoning, respiratory distress or cardiac instability, and the need for ICU-level care happen. For one patient, whose growing risk appeared along the cardiovascular axis, nurses alerted physicians to reassess red blood cell levels, ultimately deciding that the patient needed a transfusion.

For COVID patients, the system is especially beneficial, given how quickly and unpredictably their prognoses can change, says CoMET’s creator Randall Moorman, MD, a cardiologist and professor of medicine at UVA.

“Vital sign measurements and labs can come too late,” he says. “But early detection through predictive analytics has the power to improve patients’ outcomes, especially for catastrophic illnesses like COVID-19.”

CoMET is also a boon given the most recent worldwide increase of COVID-19 cases.

“Using precision predictive analytics systems like this one helps nurses initiate clinical response before the scenario becomes, quite literally, life and death,” said Jessica Keim-Malpass, a professor in the School of Nursing and Moorman’s research partner.

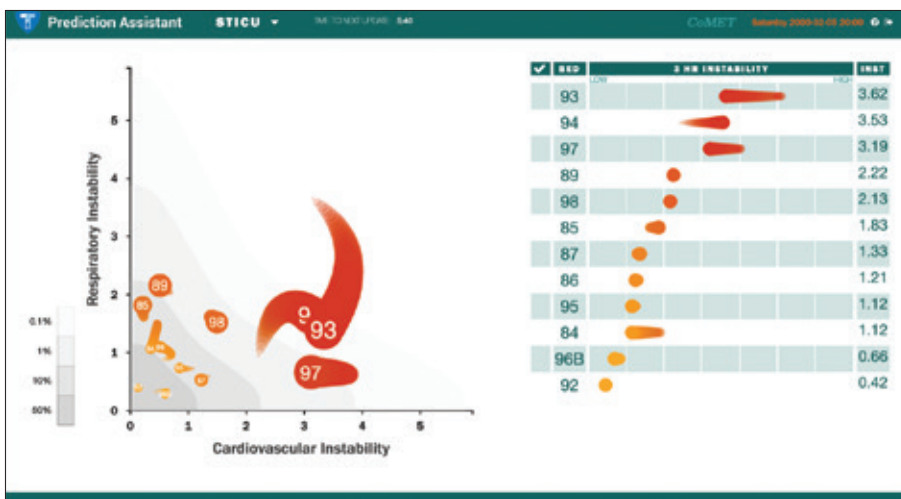
Keim-Malpass, who published her research on CoMET’s important aid to nurses on COVID units in the *International Journal of Nursing Studies Advances*, and UVA cardiologist Jamie Bourque, MD, Fel’10, recently began a two-year, randomized

**“Using precision predictive analytics systems like this one helps nurses initiate clinical response before the scenario becomes, quite literally, life and death.”**

controlled study of the software across UVA Health’s entire fourth floor, thanks to a \$600,000 bequest from the Frederick Thomas estate. Over the next two years, they’ll randomly assign a CoMET display to half the beds and compare the outcomes of patients in the experimental and control groups to determine the system’s efficacy and impact.

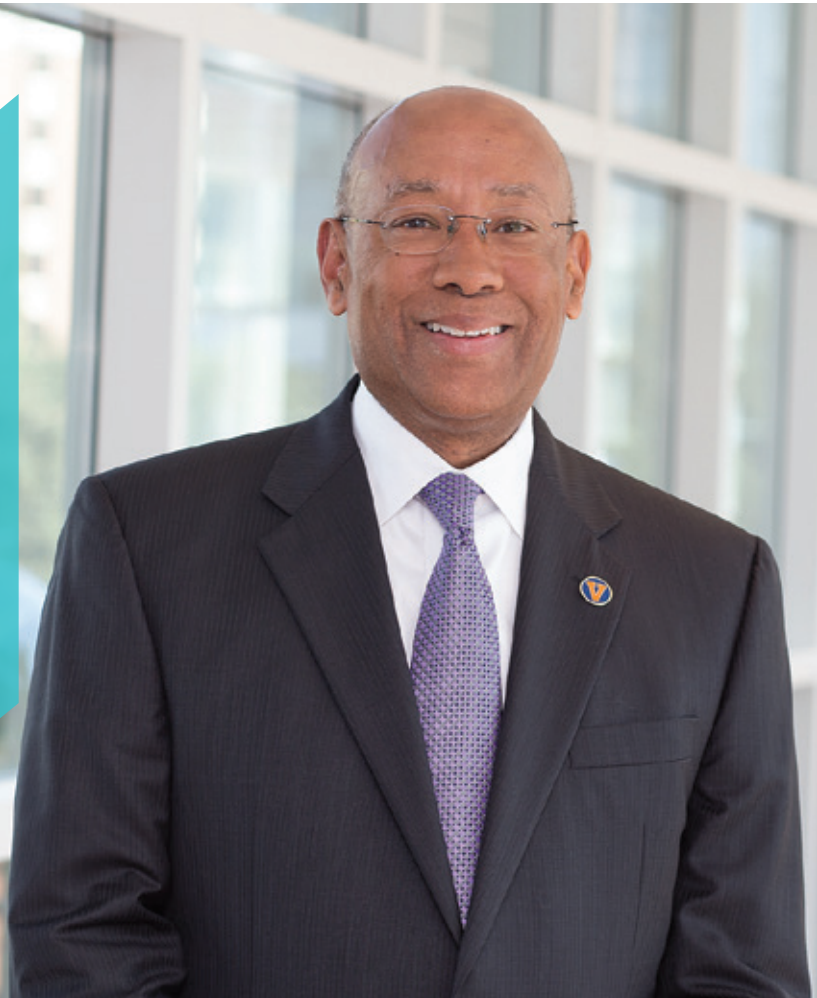
CoMET’s approach stands alone. Unlike other software that uses a point system or thresholds to calculate a patient’s risk for potential clinical issues, CoMET analyzes each new data point from the patient’s Electronic Health Record and bedside monitor, making sense of subtle changes across multiple predictors to continuously update and calculate their risk. Other patient monitoring systems offer a portrait of risk at four- or eight-hour intervals, or use alarms that contribute to alarm fatigue.

Moorman and Keim-Malpass say the new UVA Health study will provide another opportunity to fine-tune the technology in a moment when CoMET holds great promise for health systems seeking to improve their care of COVID patients. “In the fight against COVID-19, CoMET offers us the potential to change the clinical paradigm from reactive to proactive,” says Keim-Malpass.



**Have a story to share? Visit [UVAmedAlum.org/ share-your-covid-19-story/](https://UVAmedAlum.org/share-your-covid-19-story/)**

WILKES ELECTED TO PRESTIGIOUS NATIONAL ACADEMY OF MEDICINE



“Under David’s leadership, the School of Medicine has steadily increased its research funding, earning a UVA-record \$146.3 million in funding from the National Institutes of Health in fiscal year 2019 ... David demonstrates excellence in all that he does, and I am thrilled to celebrate his induction into the National Academy of Medicine”

K. CRAIG KENT, MD EXECUTIVE VICE PRESIDENT FOR HEALTH AFFAIRS

accolades

David S. Wilkes, MD, dean of the University of Virginia School of Medicine and James Carroll Flippin Professor of Medical Sciences, has been elected to the National Academy of Medicine (NAM).

Wilkes was recognized by NAM “for leading his institutions to record levels of research funding; guiding the Harold Amos Faculty Development Program to markedly increase minority physician scientist trainees; and creating a paradigm shift and novel drug development when discovering autoimmunity contributes to chronic rejection post-lung transplantation and in idiopathic pulmonary fibrosis.”

In announcing the news to UVA Health staff, Executive Vice President for Health Affairs K. Craig Kent, MD, said, “Under David’s leadership, the School of Medicine has steadily increased its research funding, earning a UVA-record \$146.3 million in funding from the National Institutes of Health in fiscal year 2019 ... David demonstrates excellence in all that he does, and I am thrilled to celebrate his induction into the National Academy of Medicine.”

Wilkes has served as dean at the University of Virginia

School of Medicine since 2015. Prior to coming to UVA, he was the executive associate dean for research affairs at Indiana University and the director of the Indiana University School of Medicine’s Physician Scientist Initiative.

He also served as the assistant vice president for research and as the director of the strategic research initiative for the Indiana University School of Medicine and Indiana University Health.

Election to the Academy is considered one of the highest honors in the fields of health and medicine and recognizes individuals who have demonstrated outstanding professional achievement and commitment to service. New members are elected by current members through a process that recognizes individuals who have made major contributions to the advancement of the medical sciences, health care, and public health.





**T**wo UVA Health physicians — **Taison Bell, MD**, and **Andrew Wolf, MD '84** — have been named Outstanding Faculty Award winners for 2021 by the State Council of Higher Education for Virginia. The SCHEV Outstanding Faculty Awards are the state's highest honor for faculty at Virginia's public and private colleges and universities, highlighting the recipients' achievements in teaching, research and public service. Bell is an assistant professor of medicine in the divisions of Infectious Diseases and International Health and Pulmonary and Critical Care Medicine at UVA. He is also the director of the medical intensive care unit (ICU) and director of the UVA Summer Medical Leadership Program. Wolf is a primary care physician and associate professor of medicine at UVA. He is also an associate program director of the UVA Internal Medicine Residency Program.



**R**esearchers **Robin A. Felder, PhD**, and **Boris Kovatchev, PhD**, have been named fellows by the National Academy of Inventors in honor of their pioneering and prolific work. Both researchers are part of UVA's School of Medicine; Kovatchev also holds an appointment with UVA's School of Engineering. They are among 175 inventors the NAI is inducting for demonstrating "a spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on quality of life, economic development and the welfare of society."



**C**hristopher Kramer, MD, FACC, will be honored this spring with the American College of Cardiology's 2021 Distinguished Mentor Award for his work with trainees ranging from medical students to advanced cardiovascular imaging fellows. Kramer has worked at UVA Health since 1999, establishing the cardiovascular magnetic resonance imaging program and a collaborative research group called the Cardiovascular Imaging Center. He has directly mentored 36 imaging fellows while helping several new faculty members earn National Institutes of Health research funding. He has won numerous awards for his mentorship and teaching.



**T**he American Urological Association selected **Tracey Krupski, MD, Res '02**, associate professor of urology, as the 2021 recipient of its Robert C. Flanigan Award. This award, which is only given out once every three years, recognizes individuals who make exemplary contributions to urology education. Krupski was selected for her outstanding efforts in teaching residents and medical school students about evidence-based decision making in urological care.

**T**he United States Preventative Services Task Force (USPSTF) inducted **Li Li, MD, PhD**, professor and chair of family medicine, as a member. The USPSTF is an elite organization that sets preventative healthcare standards across the nation.



**T**he Thoracic Surgery Residents Association named assistant professor **Mark Roeser, MD, Fel '14**, as the recipient of the Dr. Dwight McGoon Award. Roeser was chosen from a national pool of candidates for this prestigious award, considered the top teaching award for those within the first 10 years on faculty.



**T**he Biomedical Engineering Society (BMES) named **Shayn Peirce-Cottler, PhD**, professor of biomedical engineering, as a Fellow. BMES is the leading professional society in the field.



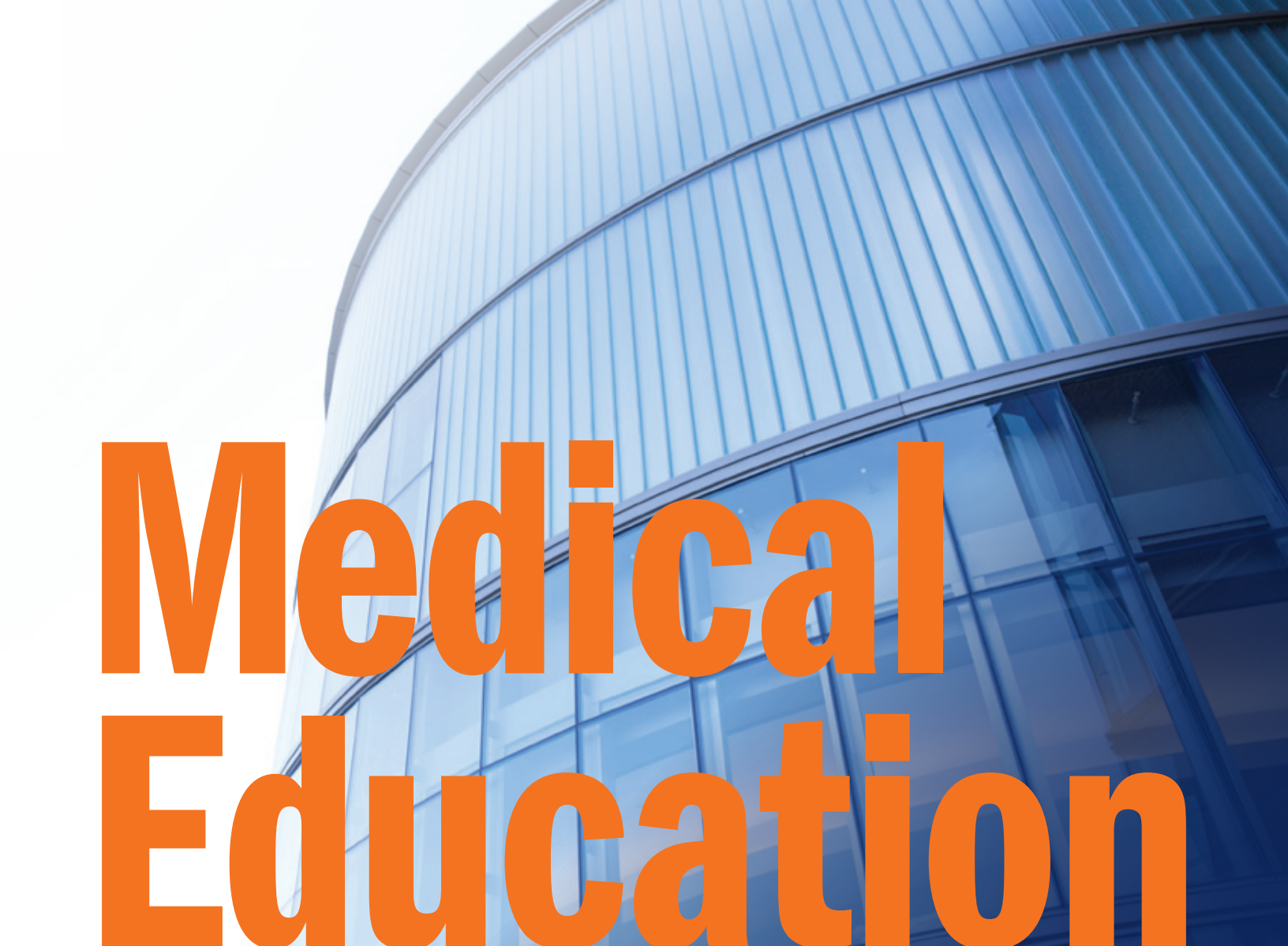
**T**he North Atlantic Treaty Organization (NATO) appointed **James Stone, MD '04, Res '09, Fel '10, PhD**, associate professor of radiology and medical imaging, to an elite research workgroup that will develop guidelines to reduce and prevent chronic brain damage among servicemen and women in NATO countries worldwide. NATO sought out Stone's expertise based on his past research into traumatic brain injury. As part of this project, Stone will work for the world's largest collaborative research forum in the field of defense and security.



**T**he National Foundation for Infectious Diseases will honor **William A. Petri Jr., PhD '80, MD '82, Fel '88**, for his "significant and lasting contributions to public health." Petri, vice chair for research and former chair of the Division of Infectious Diseases and International Health in UVA's Department of Medicine, will receive the 2021 Maxwell Finland Award for Scientific Achievement, in recognition of his seminal discoveries of the mechanisms that gut microbes use to evade and exploit the microbiota and mucosal immune system, leading to innovative approaches to diagnose and treat diarrheal diseases and prevent their collateral damage on child growth and development.



**C**ameron Webb, MD, assistant professor of medicine and public health science, has been named as a senior policy advisor for COVID-19 Equity on the White House COVID-19 Response Team. In this role, Webb will help shape national discourse and management of the COVID-19 pandemic.



# Medical Education

for the

*Next*

*Generation*



**“It was always  
the intention  
that these  
changes would  
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integration across  
the curriculum.”**

**MEG KEELEY, MD '92**  
ASSISTANT DEAN  
FOR STUDENT AFFAIRS



**M**eg Keeley, MD '92, has very fond memories of her time as a student at the UVA School of Medicine. She remains close friends with many of her former classmates who still want to hear news about what's happening at the school. More than anything, she appreciates that sense of camaraderie, community, and mutual support that has transcended the years, as well as the excellent medical education that prepared her well for her career. Now, as a pediatrician and college dean at the School of Medicine, she is in a unique position to shape the learning experiences of a new generation of students.

Ten years ago, UVA School of Medicine faculty implemented the revolutionary Next Gen curriculum, which completely flipped the script on the old Flexnerian approach to the preclinical phase of learning medicine. Now, they are building on the success of that model to introduce Next Gen 2.0, which began in March with the Class of 2023 and extends the innovative changes into the clinical phases of medical education at UVA.

“It was always the intention that these changes would be a complete integration across the curriculum,” says Keeley, one of three faculty members leading the redesign effort.

Next Gen employs an active learning model, requiring

students in the pre-clerkship phase to participate in their own evolving understanding through problem solving, small group discussions, and the use of technology as a tool for accessing the information they need. Basic sciences are integrated with clinical content, and opportunities have expanded for students to connect earlier with patients and develop mastery of essential clinical skills.

Along with these curricular changes and the intense faculty development required to make them a success, in the first year of the program the school also moved into a new, state-of-the-art medical education building. Class size was enlarged from 139 to 156, necessitating a complete restructuring of the student affairs model, which now divides each class into four smaller learning communities, or colleges, each with its own dean. And the clinical skills development model shifted from one of mentorship to coaching, where faculty work longitudinally with the students to develop individualized learning plans to improve their skills.

“It was a big undertaking,” Keeley says.



**We've made some significant structural changes to the curriculum in these phases, focused on providing experiences in a developmental fashion."**

**RANDOLPH CANTEBURY,**  
MD, RES '84  
SENIOR ASSOCIATE DEAN  
FOR EDUCATION

## Structural Changes

This same thoughtful approach has been used to design the clinical stage of the new curriculum: the clerkship and post-clerkship phases.

"We've made some significant structural changes to the curriculum in these phases, focused on providing experiences in a developmental fashion," says Senior Associate Dean for Education Randolph Canterbury, MD, Res '84. "We've also incorporated a workplace assessment plan across all four years to assess students' clinical skills. This is something that few, if any, medical schools are doing, and certainly none to the extent that we are. It really is a transformational process."

For example, emergency medicine had been taught in the clerkships or phase two portion of the curriculum. But for the new clinical student with little experience in assessment and diagnosis, caring for the undifferentiated patient could be challenging. Too often students were

observers rather than participants, unable to learn optimally from the experience. Emergency medicine is now a required rotation in the post-clerkship phase where students are better able to pull from previous clinical experiences to understand the care of even the sickest of patients.

"One of the principal tenets that we started with was how can we continue to integrate basic sciences back in during their clinical experiences, to remind students why that is relevant," says Megan Bray, MD, Res '99, associate dean of curriculum and chair of the committee that governs the design, implementation, and evaluation of the curriculum.

Members of the committee also realized that exposing students to every specialty is not as important as teaching students about medicine through the lens of those specialties. That's why they prioritized developing skills and acquiring the knowledge a physician needs to practice in any field.

Next Gen 2.0 reduces the number and length of what was once called third-year clerkships. Some of the material that was formerly taught there has been moved to the to the post-clerkship phase, which is now longer and includes a number of required rotations.



# Pandemic Panic

**C** OVID couldn't have happened at a worse time for third-year medical student Brett Whalen. When the School of Medicine closed classes and removed all students from clinical assignments last March, she was two weeks into her first clerkship.

"We had literally just started our clinical work," Whalen says. "We had done a year and a half of classroom work, and we were finally going to get to do the doctor thing. And right when we felt like we had gotten our feet wet, we were taken back out. It was so disappointing."

For members of the Class of 2021, taking a three-month pause at the beginning of the fourth year was more than just disappointing. This was a time when many students were counting on clinical experiences that would help them confirm career choices and bolster residency applications.

"It definitely had an impact on us in a lot more ways than just moving things to virtual," says JT Morgan, SMD '21. Students like Morgan soon found themselves doing online residency interviews instead of being able to visit institutions in-person, which was frustrating and stressful.

Still, the UVA experience was better than at some other institutions. Onyedikachi (Dika) Aligbe, SMD '21 remembers talking with friends at other schools who had been completely idle even as late as May.

"When they resumed in June, they still had to complete third year clerkships, whereas we jumped right into fourth year," Aligbe says. "The curriculum committee did a really nice job of pulling together virtual classes so we were not wasting any time."

Within days of the furlough, that committee assembled a

variety of one- and two-week courses that allowed students to continue moving toward graduation even while they worked remotely. Courses included humanities electives such as one won the history of epidemics. Other clerkships, such as a required geriatrics rotation and electives in dermatology and EKG interpretation, were retooled to be presented virtually.

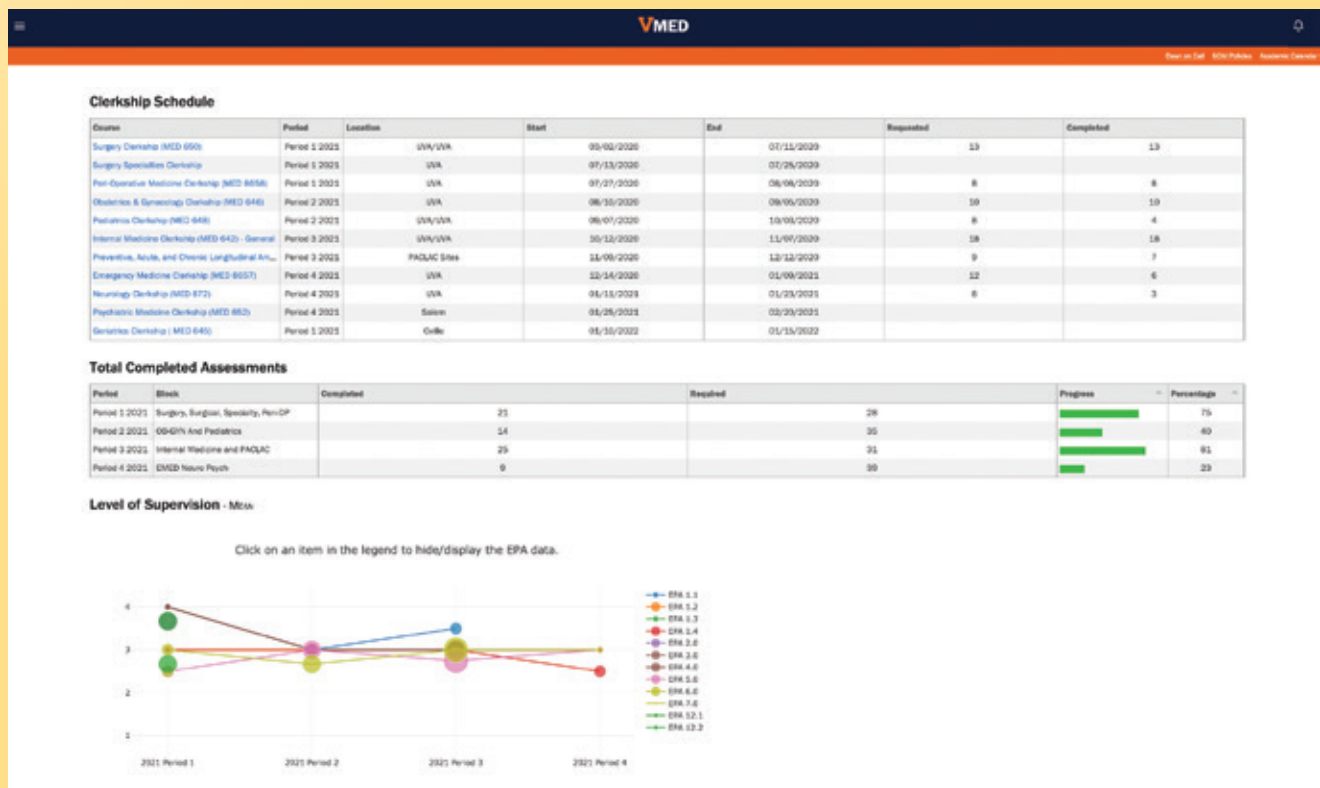
"I have to give our faculty credit," says Senior Associate Dean Randolph Canterbury, MD. "Literally within 48 hours, our faculty created courses that could be conducted online. They were not clerkships, but they were courses for which students received credit in their phase three."

At the same time, the curriculum committee was still working to implement the final phase of the Next Gen curriculum. Ironically, the pandemic helped facilitate some of those changes. For example, because students were furloughed from clerkships for three months, phase two clerkships ended up being compressed to eight months.

"The pandemic forced us to go to something almost exactly like our new framework," says Meg Keeley, MD, director of the phase three curriculum committee. "And suddenly all the pushback about shortening the clerkships evaporated because, boom, we had to do it. I think that launched us a little forward."

As representative of the class of 2023 on the curriculum committee, Whalen feels they were able to find a path forward that attended to both curricular concerns and the needs of students.

"I think the curriculum committee did a really good job in understanding what students really wanted," she says. "They really understood how valuable that time is to students in fourth year for things like career exploration, and they didn't want to take that away from students. Everyone in my class is grateful that we are finishing third year when we are."



A sample student dashboard in the VMED learning management system.



## Clerkship

In the clerkship phase or Phase 2, students rotate through a structured set of three 12-week blocks designed to provide basic clinical experiences that allow them to develop both knowledge and skills. One block includes six weeks of pediatrics, and three weeks each of psychiatry and neurology.

The internal medicine block includes six weeks of inpatient medicine and six weeks of ambulatory care that integrates primary care, geriatrics and palliative care. The final block integrates the operative specialties: surgery, OB/Gyn, and anesthesiology.

A new feature of Next Gen 2.0 is that each of the three clerkship blocks will have a weeklong intersession. The intersessions provide time for students to engage opportunities for specialty exploration, clinical skills and communication workshops, simulation sessions, basic and clinical science integration, wellness activities, and coaching meetings.

## Post-Clerkship

Significant changes will also be seen when SMD '23 students enter the post-clerkship phase next January. This phase is now longer — 16 months — and includes a set of required experiences with more complex patients as well as electives and more self-guided learning opportunities.

“We wanted to offer more opportunities for students to think intentionally about what elective time they’re selecting, while still not losing the richness of the ability to take a humanities elective or engage in global health opportunities,” says Maryellen Gusic, MD, senior adviser for educational affairs and the third leader working to redesign the clinical curriculum. “It’s still very individualized but has some structure to ensure that within those requirements they can prepare themselves for their careers.”

Students are still required to take an advanced clinical elective, sometimes called an acting internship. In addition, there is the required four-week emergency medicine rotation, and every student will also engage in a four-week intensive care experience. These are opportunities for students to demonstrate the advanced knowledge and skills they’ve acquired and to do so at the appropriate time in their development as doctors.

Starting the final phase of medical school in January of the third year is also expected to give students an advantage when it comes to preparing for the residency application process. With this head start, they will have more time to explore fully the specialties that interest them and be confident in this decision that will determine the course of their careers.



## Beyond the Grade

**A**mong the priorities in restructuring the medical school curriculum was the effort to ensure that students are not only mastering classroom content but are also achieving clinical competence. To this end, the School of Medicine has been rolling out an assessment program to formally evaluate students' abilities to perform the skills they will need to provide care to patients.

"UVA is at the forefront of implementing workplace-based assessment for medical students with our entrustable professional activities program (EPA)," says Maryellen Gusic, MD.

EPAs cover the kinds of skills every medical student should be ready to do on day one of residency. These include processes such as taking a patient history, documenting a patient encounter, performing basic procedures like starting an IV, interpreting lab values and collaborating as part of an interprofessional team.

To date, nearly 45,000 assessments have been done, with students being observed in clinical situations by attending physicians and residents as well as faculty who are trained to be master assessors. Evaluators use a detailed set of criteria to assess students based on where they are in the SOM program. The process is facilitated by a web-enabled tool that quickly and easily records progress and provides the student with feedback.

"EPA assessments are helping us identify students who may need additional support and coaching to promote their clinical skills development," says Gusic, who oversaw the national pilot to implement a standard set of EPAs for medical students within the Association of American Medical Colleges (AAMC). "The EPA program also helps our students become self-regulated learners — guiding students through the process of using data from assessment as a tool to guide learning, a skill they will need throughout their careers as physicians."

This assessment process has become even more important after recent changes to the USMLE Step 2 Clinical Skills Exam. Last year, these in-person skills assessments, part of the medical licensing process, had to be canceled because of pandemic restrictions on in-person encounters. This year, the Federation of State Medical Boards (FSMB) and the National Board of Medical Examiners (NBME), which jointly sponsor the medical licensing exams, have decided to discontinue the Step 2 CS completely.

"Now the onus is on medical schools to be able to demonstrate that their graduates clearly are clinically competent before they start residency," says Senior Associate Dean Randolph Canterbury, MD. "The fact that UVA is already doing these workplace assessments is meaningful from the perspective of not only doing the right thing, but also now replacing the USMLE Step 2 CS."

**"We wanted to offer more opportunities for students to think intentionally about what elective time they're selecting, while still not losing the richness of the ability to take a humanities elective or engage in global health opportunities."**



## A New Regional Campus

One final change has also been initiated with the Class of 2023. In addition to being the first class to make its way through medical school entirely with the Next Gen curriculum, this is also the first class to have one of its four colleges complete phases two and three at the UVA School of Medicine – Inova Campus in Northern Virginia.

Inova's Fairfax Hospital has been a clinical site for UVA students for many years, providing unique clerkship opportunities in a number of specialties. Now through a partnership with Inova Health Systems, students can opt to spend their entire clerkship and post-clerkship phases engaging in the practice of medicine in this diverse, high-volume, urban environment.

For example, Inova Fairfax Hospital has one of the busiest obstetrics department in the country, delivering 10,000 babies each year. For those who choose this 923-bed tertiary care center as their clinical option, opportunities also exist for experiences in trauma surgery, organ transplant and more.

"Our focus on learning communities here at UVA is unique from other medical schools," Keeley says. "It's the idea of having this smaller group of students who work together from the beginning of medical school and know each other well. Our students then rotate through all their clerkship blocks as a college. They have that supportive and longitudinal relationship-based learning from the outset. Similarly, those who choose to go to Fairfax are going together as a college cohort."

Through all of the planning and retooling of the clinical phases of the curriculum, the faculty worked to create a program on the cutting edge of medical education.

"The students who apply here have the opportunity to apply to a lot of different schools," Bray says. "We want to make sure we're attracting the best and the brightest of them. I know our alumni are proud of who they are, and we want to continue to attract the types of students who will be leaders in medicine. That's what our foundational ideas were based on."



**We want to continue to attract the types of students who will be leaders in medicine. That's what our foundational ideas were based on."**

MEGAN BRAY, MD, RES '99  
ASSOCIATE DEAN OF CURRICULUM



## Cherise Green Brackett, MD '19, Res '22

It is a beautiful spring day, and Cherise Green Brackett, MD '19, Res '22, is resting up for a busy night. Now in her second year as a pediatrics resident at UVA, she is currently on the backup rotation and has been called in to work a night shift in the PICU.

For residents like Brackett, the past year has been a hectic one. "It was a lot of changes and being able to adapt quickly," she says. "Last year, when the pandemic started, we were trying to figure out the best schedule to make sure that we had a big pool of residents and staff to draw from in the event of a big exposure."

Brackett herself had a big personal event in 2020 — the birth of her son, Jeremy, in August. She and her husband, whose name is also Jeremy, experienced the same challenges many new parents faced in 2020, including limitations during prenatal visits that meant only the expecting mom could enter the doctor's office.

She is grateful for breaks during rotations when she can spend time with her family. It helps that her schedule is more relaxed now than it was early in the pandemic, when resident schedules involved one week on, followed by a week of educational sessions. She gives UVA high marks for how it communicated with residents about the changes needed to handle the demands of working in the hospital during COVID-19.

"Our residency program did a good job being very transparent with us. There were lots of housestaff meetings about what we'd be required to do and what our schedules would look like, plus how to practice good PPE," she says.

Brackett, who graduated from the UVA School of Medicine in 2019, was born in Jamaica and moved to the U.S. when she was 5 years old. Her family then moved to Charlotte, NC, and she grew up there, attending the University of North Carolina for undergrad.

Today, Brackett is using her experience as a UVA medical student and resident in a new role — president of the Housestaff Council for Diversity and Inclusion (HCDI). The group is supported by the Graduate Medical Education Office and School of Medicine faculty.

"The goal of HCDI is to provide a place where people from various backgrounds feel welcome and included at UVA," Brackett says. "We want to be sure that all of our residents feel supported and have all the resources that they need in order to become good physicians."

Over the past year, Brackett has been involved in HCDI's community outreach efforts, including coordinating events such as a food drive to support local families and a STEM boxes project with Charlottesville elementary schools providing science and math tools to local students.



HCDI has also developed a mentoring program that Brackett is excited about. "We're trying to make it more robust over the next year by offering opportunities for faculty members to mentor residents and residents to mentor medical students in a structure where everyone feels like they're getting something out of it," she says.

Brackett says that she hopes those who take part in the mentoring program find answers to questions they have about medical school or residency at UVA. She knows from experience how hard it can be sometimes just to ask those questions. "One of the things that I wish I would have taken a little bit more seriously was not being afraid to ask questions. In general, I tend to be more on the reserved side, so as far as being able to have opportunities for research, for example, for me that meant not being afraid to email a faculty member or stop by their office if I had a question about a research project they were working," she says. "It's about not being afraid to be persistent about what you're hoping to get out of your medical education. Everyone is here to help and support you. It really is up to you sometimes to be tenacious and persevere to have the opportunities you think you need."

Brackett credits former general surgery resident Allie Martin, MD, Res '20, MPH and current surgery resident Mark Fleming, MD, with HCDI's success to date. "They have done so much to lay the groundwork for HCDI. I feel like I stand on huge shoulders taking on the president's role of HCDI for the next year."



## 1960s

The American Medical Association (AMA) presented **Vivian W. Pinn, MD '67**, a groundbreaking academic and public health official, with its Distinguished Service Award. The award honors a member of the AMA for meritorious service in the science and art of medicine and was presented during the November 2020 Special Meeting of the AMA House of Delegates. Pinn was also the recipient of the 2020 Alma Dea Morani Renaissance Woman Award from the Women in Medicine Legacy Foundation.

“Dr. Pinn has spent her life blazing trails. Attending segregated public schools in small-town Virginia, Dr. Pinn attended Wellesley College and the University of Virginia School of Medicine, where she was the only woman and only African American in her class. With grit and intelligence, she has carved out a career as a physician, academic leader, public health official and mentor, not to mention a leader in organized medicine. We all stand on her shoulders,” said AMA President Susan R. Bailey, MD.

## 1980s

**Mark Gelder, MD '82**, has been promoted to chief medical officer of Elevar Therapeutics, a fully integrated biopharmaceutical company built on the promise of elevating treatment experiences and outcomes for patients who have limited or inadequate therapeutic options. Gelder joined Elevar in 2020 as vice president of medical affairs where he was responsible for building and leading Elevar’s global medical organization, setting the strategy for development programs from clinical trials through regulatory filings, new product launches and lifecycle opportunities. In his role as chief medical officer, Gelder will oversee the Company’s clinical development, medical affairs, regulatory affairs, and preclinical teams. Gelder brings more than 35 years of clinical development, medical affairs and medical marketing experience including 17 years of global medical affairs experience leading therapeutic oncology programs for



Gelder

companies such as Pfizer, Wyeth and Bayer, where he was involved in the approval and launch of several cancer therapeutics. He has led successful global trials, launch plans and Phase I-Phase IV studies for several emerging oncology organizations and has been instrumental in the approval and launch of numerous oncology products. Prior to his work in the biopharmaceutical industry, Gelder was an investigator in multiple clinical trials and has authored numerous scientific papers in the areas of women’s health and oncology.

**John Kern, MD '88**, is the 2020 recipient of the Master Clinician Award from the UVA School of Medicine. This annual award recognizes faculty physicians with a reputation for being a “doctors’ doctor” – the physicians to whom their colleagues turn to assist in managing complicated patients, care for family members, or serve as their personal physician. The award is given to up to two physician faculty members each year who demonstrate outstanding clinical service.



Kern



## 1990s

**Lisa A. Michaels, MD '90**, is the executive vice president and chief medical officer of Editas Medicine, Inc. Michaels leads clinical research and drug development for the company's pipeline of experimental medicines. She has more than 25 years of experience in clinical research and drug development



in both industry and academia. She joined Editas Medicine from Bayer Pharmaceuticals where she spent more than 10 years in drug development, leading teams from early research and drug discovery through regulatory approval, commercial launch, and life cycle management. Most recently, she served as head of Bayer's Rare Diseases, Cell & Gene Therapy therapeutic area

**Michael R. Nelson, MD '93**, retired as colonel after 25 years of active duty service in the U.S. Army in 2019. After a year of civilian federal service, he concluded his 26 years of affiliation with Walter Reed and returned to UVA as Allergy and Immunology Division Chief in November 2020. He continues his service as president of the American Board of Allergy and Immunology.



**Harriette Browning Fishburne, MD '91** has retired after practicing pediatrics for 20 years. In addition to traveling with her husband, Cary, she is also enjoying photography. "I picked up a Nikon camera and thus my new adventure began! We spent two summers exploring Alaska, particularly Homer and Kodiak. The summer of 2018 I hopped on a floater plane in Kodiak with a small group of photographers and travelled to Katmai National Park and Preserve where I was fortunate enough to follow a small family of grizzly bears, a mama and her two cubs. This family relaxed and went on with their normal routine, letting me enjoy the intimate exchange of unadulterated love and silly antics. It wasn't until these isolated months of COVID that I had time to review all of my RAW photos. I fell in love with this family once again and decided to share them in a book, *Family is So Special*, that I published in September."





Lightfoote

## 2000s

**Lynne Lightfoote, MD '01**, has been a physician with Foxhall OB/GYN Associates in Washington, DC since 2005. She completed her undergraduate studies at Wellesley College. After receiving her MD from the University of

Virginia School of Medicine, she completed her residency in obstetrics and gynecology at the Albert Einstein Medical Center in Philadelphia, Pa. Lightfoote is board certified by The American College of Obstetrics and Gynecology. Her efforts to improve Black maternal health

were featured in a column in *The Washington Post* in January 2021.

## 2010s

**Amy Fan Conrad, MD '15**, completed her residency in pediatrics at Georgetown University. While working in pediatric primary care in Boston, she founded Kinder Digital Pediatric Clinic, the first and only full scope digital pediatric service, to redesign the family-pediatrician relationship, empower parents, and transform health for children. She also continues to produce content for her YouTube channel,

information for parents and families. In her clinical practice, Conrad has a particular interest in guidance for conscious parenting, attachment theory, and balancing evidence-based medical treatments with wellness-based integrated health for children and families.

Reproductive endocrinologist **Jennifer Hsu, MD '13**, has joined Shady Grove Fertility at the practice's Woodbridge, Va., location. As a University of Virginia alumna, Hsu is proud to return to the state where her medical journey began. Hsu is very active in the medical community. She is an experienced lecturer and oral examiner at Harvard Medical School and has spent time in Appalachia providing free medical and women's health services to residents. Additionally, Hsu is an accomplished researcher, having contributed to more than 15 presentations across the country on topics including intrauterine insemination (IUI), anti-Mullerian hormone (AMH), and polycystic ovary syndrome (PCOS). She has also served as a peer-reviewer for several publications including the *Journal of Assisted Reproduction and Genetics*.



Conrad

*Ask Dr. Amy — Answers From Your Pediatrician*, which aims to deliver accessible and high quality

**Diem Nguyen, PhD '00**, is the chief executive officer of Xalud Therapeutics, a clinical-stage biotechnology company that has developed a non-viral gene therapy platform to treat pathologic inflammation through immune modulation. Nguyen

brings to the role more than 25 years of extensive expertise in pharmaceuticals, including leadership of global commercial businesses spanning multiple therapeutic areas and of large commercial teams. Nguyen currently serves on the board of Verrica Pharmaceuticals, Vitara and Children's Hospital of

Philadelphia. She earned a PhD in biochemistry and molecular genetics at the University of Virginia (UVA) in 2000, as well as an MBA from the Darden Graduate School of Business Administration in 2001. She received her bachelor's degree in chemistry, also from UVA, in 1994.



Hsu



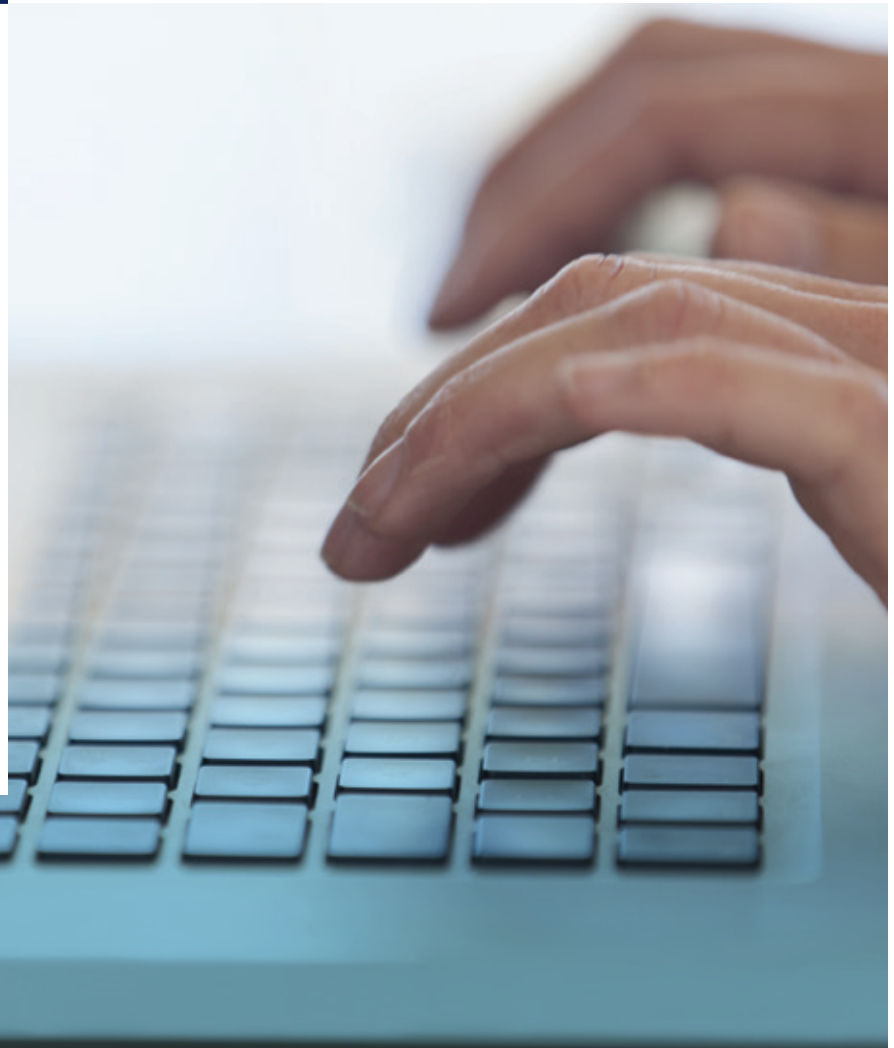


**Austin Sim, MD '17, JD '17, and Allison Lure, MD '18,** celebrated their wedding in Tampa, Florida, on January 23, 2021, with their families. They hope to have the reception they initially had planned in 2022. Lure will be completing her residency in pediatrics at the University of Florida this year and will start her fellowship in neonatology at Nationwide Children's Hospital in Columbus, Ohio. Sim will remain in Florida for another year to complete his residency in radiation oncology at Moffitt Cancer Center, as he starts his term as chief resident in March and also as the chair of the national organization Association of Residents in Radiation Oncology (ARRO) in April.

## Attention, Gmail Users

We are aware that emails sent to some of our alumni who use Gmail are being tagged as "Promotions" or "Spam," making it easy to miss them.

We've put together some tips to help make sure that you don't miss an update from your class or other pertinent news about the UVA School of Medicine. Learn more at [UVAAlum.org/gmail](https://UVAAlum.org/gmail).



## Greg Skaggs, MD '92, Res '95

**G**reg Skaggs, MD '92, Res '95, moved to Tampa, Florida in 2019 as the newly hired director of athlete performance with the Tampa Bay Buccaneers. It was his job to develop and oversee the team's efforts to optimize player performance and safety.

Less than a year later, COVID-19 happened.

For Skaggs, keeping the team safe took on a new meaning. Not only was he responsible for player safety, but his efforts extended to the Buccaneers' coaching staff, one of the oldest in the National Football League (NFL). He leaned on his training as a physician, and in particular his experience as a former family medicine physician, to educate the team about the importance of wearing masks and social distancing so they could continue in-person meetings and practices.

Coaches and players listened. And in February 2021, the Buccaneers won Super Bowl LV.

"It was fortuitous that I ended up here and COVID happened," says Skaggs. "We were in a unique position that we were the only organization that had a physician on staff to really manage the operation and try to keep COVID from interrupting our success."

For Skaggs, the road to the Super Bowl started in medical school and the University of Virginia. He became a Virginia resident during college — his parents moved there for work while he was an undergrad at Creighton University in Omaha, Nebraska. Skaggs says he applied to UVA for medical school because of its reputation and the benefit of in-state tuition. He was soon a member of the Class of 1992, and after graduating, stayed at UVA for his residency in family medicine.

"It was great. I have very fond memories of Charlottesville. I got engaged during my residency and commuted to UVA from Culpeper because my fiancé was working on her PhD in neuroscience at George Mason University," he says. Skaggs and his wife, Nani, have now been married for 27 years and have two children in college.

Skaggs and his wife considered staying in Charlottesville after his residency ended. Instead, their journey took them out west.

"I like the outdoors, especially cycling, mountain biking, and skiing. The physiology of endurance sports was really interesting to me," he says. "When I finished my family medicine residency, sports medicine fellowships were fairly new. They were just being accredited, so I decided to do that and went to the University of California San Diego (UCSD) for a year."

**"We were the only organization that had a physician on staff to really manage the operation and try to keep COVID from interrupting our success."**

Following his time at UCSD, he relocated to Oregon and spent a few years in private practice as a family medicine physician. The specialty had attracted him early on because it allowed him to mix two areas that he enjoyed: science and teaching. "There is a lot of teaching and education that you end up doing as a provider, helping guide people and helping them help themselves," he explains.

It was while he was living in Bend, Oregon, that some previous patients who worked in the athletics department at the University of Oregon approached him with a unique opportunity to join them there. Initially he continued to work part-time in private practice and part-time in the

school's training room. "After a couple years, they saw the value of having me full-time. I worked there for the next 15 years, and my practice was taking care of about 600 student-athletes," Skaggs says. "I ended up working with incredible people and learned a lot about team sports. I took care of elite athletes who went on to win gold medals in the Olympics and go to Rose Bowls, national championships and Final Fours."

While at the University of Oregon, Skaggs also enjoyed his involvement in the graduate program for athletic training and was able to put his love for teaching to work with students in the training room. "It was fun to run that program kind of like I remember medical school, where they would see a patient and you would talk to them about the patient's presentation and what history to take and what physical exams to do," he recalls.

In 2019, Skaggs was contacted by the Tampa Bay Buccaneers about joining the organization as director of athlete performance. It was a new role that came out of the general manager's need to have someone with a medical background to administratively oversee everything from strength and conditioning to nutrition to sports science and player safety. "Football is a very interesting sport because the players have so many different responsibilities, so you have all different kinds of athletes. At U of O, I took care of everyone from gymnasts to shot putters, and I knew I could use little pieces of that experience and apply it to football where you have 350-pound linemen and 180-pound sprinters," he says. "The experience of individualizing the training, the nutrition, and the recovery for all different kinds of athletes had really prepared me. This was an opportunity I really couldn't pass up."

Since joining the team, Skaggs has built a strong department focused on the health and wellness of players, including hiring a nutritionist and developing the team's sports science program, which monitors training and provides data used to ensure that the strength and conditioning efforts are working and helping prevent injuries.





When the COVID-19 pandemic struck in March 2020, Skaggs used his background as a physician and educator to get buy-in from the coaching staff about what needed to happen to keep everyone healthy. That involved more than just following rules set forth by the NFL or relying on testing, back when slow turnaround for results was a significant obstacle.

"I think the key to our experience and being successful during all that was educating the coaches. Our head coach wanted to do everything in person. He said no Zoom meetings. Fortunately, we're in Tampa so we could do a lot of things outside," says Skaggs. "Before their first in-person meeting in May, I had 30 minutes to educate them on what this was all about and that the key was going to be wearing masks, having 100% compliance, and not having any mask-less activities indoors."

The importance of compliance would be demonstrated early on when a member of the coaching staff tested positive for COVID-19 but there was no transmission, and that accomplishment was a sign of

things to come. "The success really came from players believing me," he says. "And then extending that to their families and explaining what it was going to take for the entire season — not going to nail salons or going to get haircuts. It wasn't just the players. Everyone had to sacrifice in order for us to be successful. Especially in Florida, there were many opportunities for players and their families to catch COVID, but they did a really good job of taking the educational message and applying it. We had very few cases during the year and didn't lose anybody for any games."

As a member of the Buccaneers organization, Skaggs will receive a Super Bowl ring to commemorate the team's successful run. But for him, the real prize is having a career that has allowed him to build on a variety of skills and interests. "Having such a broad range really provided me with these kinds of opportunities," he says. "You really need to not be in a niche to do this kind of job and to instead be a generalist and enjoy being an educator. Those have been the keys to my path."

**Skaggs and his wife, Nani, at Super Bowl LV. Inset: Skaggs holding the NFL's Vince Lombardi Trophy.**



# MATCH DAY 2021

One year into the COVID-19 pandemic that turned their fourth year of medical school upside down, the Class of 2021 celebrated Match Day on March 19 with a virtual gathering and individual celebrations.

This year, residency interviews were held online, a challenge for fourth-year students who were unable to visit potential residency programs in-person and gain firsthand knowledge of the institution and local area. Nonetheless, the UVA School of Medicine's Class of 2021 persevered and 144 students matched to programs across the country, with 14 continuing their training at UVA for all or part of their residency.

"COVID presented substantial challenges to this year's graduates across the country because of the increased number of applicants interviewing for the same positions in most specialties, the less personal nature of virtual interviews, and students not being able to visit the hospitals where they will spend the next three to seven years," says Senior Associate Dean for Education Randolph Canterbury, MD, Res '84.

"That said, the UVA Class of 2021 matched in some of the most competitive residencies and the most prestigious institutions in the country. They are an outstanding class and that is apparent in the match."

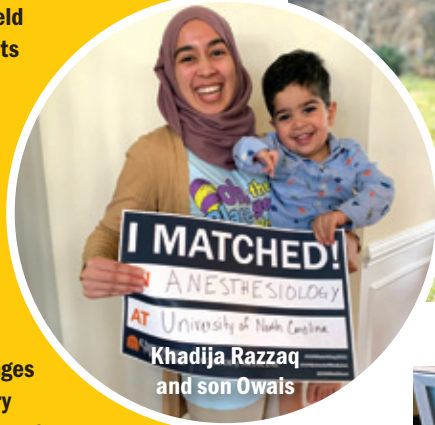
Like the students in the Class of 2020 who also celebrated Match Day virtually, this year's students relied on social media to share their Match results, including:

*"Beyond thrilled to have matched into OBGYN at UVA! So excited to start this next chapter in my medical training."* – Gabrielle Smith, SMD'21

*"Excited to say I will be continuing my training as an orthopaedic surgeon at NYU Langone Orthopaedic Hospital. This journey has not been easy; however, I have had a lot of support and mentorship along the way. I am grateful for the blessings the most high continues to provide me. New York City here I come."* – Samuel Montgomery, SMD'21.

Top matches included internal medicine (28), pediatrics (16), anesthesiology (13), family medicine (13), emergency medicine (12), obstetrics-gynecology (11), and surgical-general (9).

To view the complete list, visit [UVAMedAlum.org/match-day-2021/](http://UVAMedAlum.org/match-day-2021/)



**Khadija Razzaq and son Owais**



**Emily McDowell**



**Gabrielle Smith**



**Dan Hess and Goliath**



**Samuel Montgomery**



**Dika Alligbe**





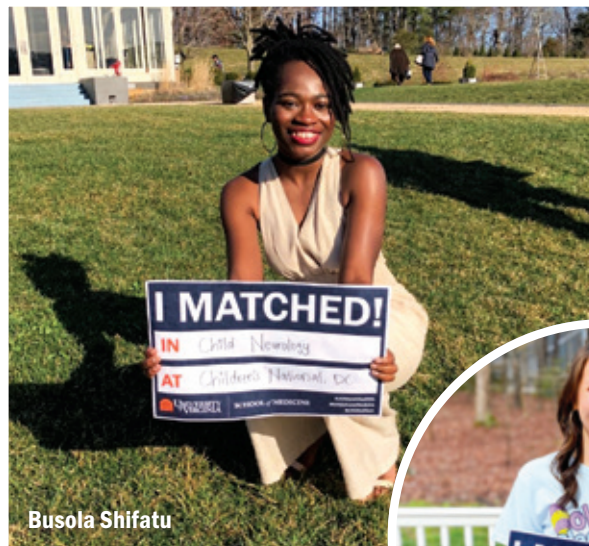
Calvin Dorsey  
(with fiancé Marian  
and their dog, Olive)



Adriana Irvine  
(with fiancé John  
and their dog, Murphy)



Samhita Nelamangala



Busola Shifatu



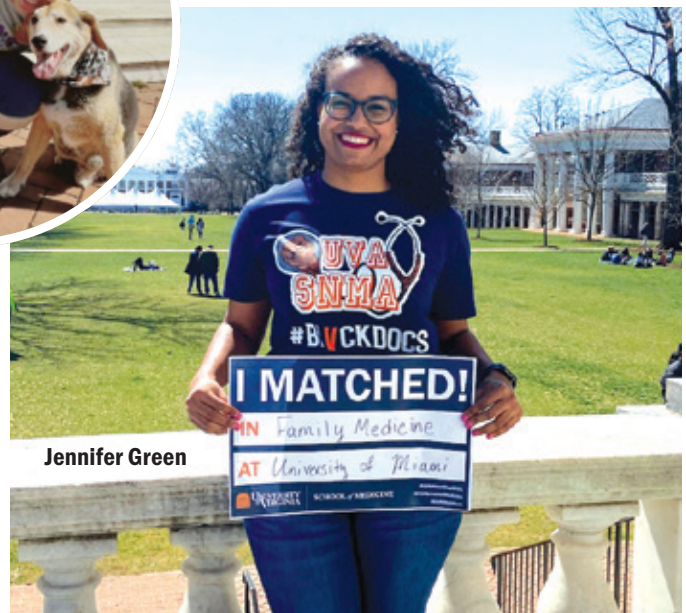
Nicole Byram



Jenna Milstein  
and Marty



Samantha Wickman



Jennifer Green



## WHAT IS IT?



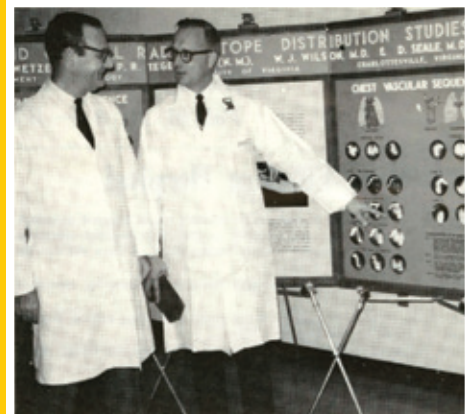
**B**ullock and Crenshaw's "Magneto-Electric Machine" was patented in 1854. The electrotherapy device was marketed to both physicians and the public. The device was operated by the crank on the front of the box which was turned to generate an electric current. Internal components included a large magnet and a pair of copper wire spools connected to a system of gears. Attachments in the form of handles or electrodes and wires would connect the device to the patient. The manufacturer claimed the device could be used for the relief of pain, as well as the treatment (or cure!) of conditions ranging from tuberculosis to rheumatism, paralysis, gangrene, heart disease, and spinal deformities.

This item was donated by Daniel L. Seale, MD '63, Res '67, Fel '68, FACR. After completing his training at UVA, Seale joined the faculty of the Department of Radiology and worked under longtime chair Theodore

E. Keats, MD, FACR. Some of Dr. Seale's other donations to the Health Sciences Library include antique radiology equipment, which he donated in honor of Dr. Keats.

Seale became vice-chair of the department in 1973, later leaving UVA to pursue private practice.

To view more items archived by the Historical Collections & Services, Claude Moore Health Sciences Library, visit [guides.hsl.virginia.edu/historical](https://guides.hsl.virginia.edu/historical).



**Drs. Daniel Seale (left) and Richard Wetzel collaborated on this winning exhibit in 1968.**



## Reducing Student Debt

A gift from an anonymous alumni donor has established the new UVA Medical Alumni Association Scholarship Fund, which will provide need-based financial assistance to medical students.

In 2020, the average medical education debt for a student graduating from the University of Virginia School of Medicine was \$160,203. There were 100 graduates with medical education debt, or 66% of the class. The debt ranged from \$19,000 – \$292,000.

A gift of \$25,000 from the donor kicked off the fund in January and was matched by the UVA Medical Alumni Association. The donor has also made a \$1 million estate gift through two charitable gift annuities and a bequest.

By providing the seed money for the fund, the alumnus hopes to lessen the burden of debt for tomorrow's physicians. "The cost

of medical education can be really crippling for students as they start their careers and could cause some to reconsider a career in medicine," the donor says. "I wanted to do my part to help reduce their debt as an alumnus and hope others will join me."

Barry Collins, executive director of the UVA Medical Alumni Association and Medical School Foundation, says that this gift will have a significant impact for current and future students. "We are truly grateful to this donor for establishing this new scholarship fund," Collins says. "The support of alumni is critical to our mission, and this is a great example of how they can make a difference."

To contribute to the UVA Medical Alumni Association Scholarship Fund, visit [UVMedAlum.org/philanthropy](http://UVMedAlum.org/philanthropy).

**"The cost of medical education can be really crippling for students as they start their careers and could cause some to reconsider a career in medicine."**

ANONYMOUS ALUMNI DONOR







**2020** WAS A YEAR NONE OF US WILL EVER FORGET. And while many things changed because of the COVID-19 pandemic, one thing that remained steady was alumni support for students at the University of Virginia School of Medicine.

Last year, the UVA Medical Alumni Association pivoted from group events to virtual gatherings, including Family Day and a series of MedConnect panel discussions focused on a variety of specialties. Travel restrictions canceled in-person residency interviews, but the Host Program continued as we matched students and alumni to share information and provide mentoring from a distance, often by phone or email. And we piloted the new Student-Alumni Mentorship Program, where alumni offered guidance and support to School of Medicine students by exchanging ideas, and relating their experiences.

Alumni contributions to the Annual Fund made these and other programs possible. Thank you for your continued support. Learn more about how your gift makes a difference at [UVMedAlum.org/giving](https://UVMedAlum.org/giving).







The Virtual Host program has been very helpful for me. Jill has connected me with four alumni at internal medicine programs that I am applying to. It has been helpful to talk on the phone with these alumni and learn more about their residencies and hear them speak candidly about their likes and dislikes of the programs. It has also been useful to hear about the cities they live in in terms of where they live in relation to the hospital, cost of living, etc. Because they all studied at UVA, there are easy comparison points for us to use (e.g., the culture is similar to UVA's, the patient population is different for xyz reasons). I would highly recommend using this service to fill in some of the gaps created by virtual interviewing this year."



NATALIE SAVINI, SMD '21



I am so grateful to the Student Alumni Mentorship program for matching me with Dr. Williams! We were first matched in July 2020, and it was quite a shock to me to learn that a wonderful, Black female pediatrician not only lived just a few miles away from me and attended my church but also graduated from UVA's School of Medicine. And given my initial interests in peds, I knew that Dr. William's insight would prove invaluable as I began to consider what specialties might be a good fit for me. In the past few months, I've learned so much about her journey and felt inspired to follow in her footsteps. To me, she is the embodiment of a physician deeply rooted in her communities, and I hope that I, too, will be able to give back to UVA Med in the ways she continues to do. I feel very lucky to have signed up for this mentorship program early on in my medical education, and I hope many more students will get to enjoy this partnership as the program develops."

AKUA NYARKO-ODOOM, SMD '24



I want to sincerely thank you all for your generosity. I know myself, and my classmates, were riddled with excitement the first time we put on the stethoscope. Not only am I grateful for the gift, it also inspires us to continue the legacy of alumni involvement once we are in your shoes."

SUNNY MURTHY, SMD '24



## Your Impact in 2020

**\$437,915**

Medical School Foundation Annual Fund

**\$4,135,715**

Restricted Gifts (e.g., Class Funds)

**\$4.1 million**

Endowment support given to the School of Medicine for the 2020-2021 academic year.

Fiscal Year 2020 (July 1, 2019 - June 30, 2020)

MEDICAL ALUMNI ASSOCIATION  
MEDICAL SCHOOL FOUNDATION

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## UPCOMING EVENTS

Events these days look a little different, but we are hopeful that in-person gatherings like class reunions will resume this fall in Charlottesville, including:

- **Fall 2021 Medical School Reunion Weekend**  
(1975, 1985, 1991 and 1995)  
September 10-12
- **Robley Dunglison Society Weekend**  
(1956, 1960, 1961, 1965, 1970 and 1971)  
September 17-19
- **Medical School Recent Grads Weekend**  
(2005-2020)  
September 24-26
- **Class of 1966 Reunion Weekend**  
October 29-31

These and other events are subject to change. Please visit our online calendar at [UVAMedAlum.org/events](https://UVAMedAlum.org/events) for a listing of current events, hotel information and more.