

# DEPARTMENT OF MEDICINE

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## 2022 ANNUAL REPORT



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**COVER: *Left Image:*** Carol Feghali-Bostwick, Ph.D., Distinguished University Professor, Division of Rheumatology & Immunology.  
***Middle Image:*** Chief resident Dena Rhinehart, M.D. with residents.  
***Right Image:*** Brian Greenwell, M.D., assistant professor, Division of Hematology & Oncology.

### **Acknowledgments:**

The Department of Medicine would like to thank the many individuals, especially our leadership, including our division directors and division administrators, for their collective efforts in helping to complete this year's annual progress report. Additionally, we would like to thank those who are featured within these pages for their continued service to MUSC and contributions to this publication.

**Editor, Creative and Production Manager:** Natalie Wilson

**Photographers:** Sarah Pack, Natalie Wilson



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# DEPARTMENTAL LEADERSHIP

## Administration

Benjamin Clyburn, M.D.  
*Chair, Department of Medicine*

Georgia Brogdon, MBA, DHSc,  
FACHE, FACMPE  
*Vice Chair, Finance and Administration*

Elisha Brownfield, M.D.  
*Vice Chair, Leadership Development*

Kimberly Davis, M.D.  
*Vice Chair, Clinical Affairs*

Marc Heincelman, M.D., MPH  
*Vice Chair, Quality Improvement*

Aundrea Loftley, M.D.  
*Vice Chair, Diversity & Inclusion*

Jim Oates, M.D.  
*Vice Chair, Research*

Samuel Schumann, M.D.  
*Vice Chair, Quality Improvement*

Richard Silver, M.D.  
*Vice Chair, Development*

Gerard Silvestri, M.D.  
*Senior Vice Chair, Faculty  
Development*

## Divisions

### CARDIOLOGY:

Thomas Di Salvo, M.D., MBA, MPH  
*Division Director*

Bill Stalvey, MHA  
*Division Administrator*

### ENDOCRINOLOGY:

Marc-Andre Cornier, M.D.  
*Division Director*

Elizabeth Swan  
*Division Administrator*

### GASTROENTEROLOGY AND HEPATOLOGY:

Brenda Hoffman, M.D.  
*Interim Division Director*

Richard “Mac” Houck, MBA  
*Division Administrator*

### GENERAL INTERNAL MEDICINE:

Kimberly Davis, M.D.  
*Interim Division Director*

Brian Collins, MHA  
*Division Administrator*

### HEMATOLOGY AND ONCOLOGY:

A. Craig Lockhart, M.D., MHS  
*Division Director*

Lee Putney, MHA  
*Division Administrator*

### HOSPITAL MEDICINE:

Marc Heincelman, M.D., MPH  
*Interim Division Director*

Susanne Jaques, MHA  
*Division Administrator*

### INFECTIOUS DISEASES:

Cassandra Salgado, M.D., MS  
*Division Director*

Laura Sublett, MHA  
*Division Administrator*

### NEPHROLOGY:

Joshua Lipschutz, M.D.  
*Division Director*

Susanne Jaques, MHA  
*Division Administrator*

### PULMONARY AND CRITICAL CARE:

Dee Ford, M.D., MSCR  
*Division Director*

Richard “Mac” Houck, MBA  
*Division Administrator*

### RHEUMATOLOGY AND IMMUNOLOGY:

Jim Oates, M.D.  
*Division Director*

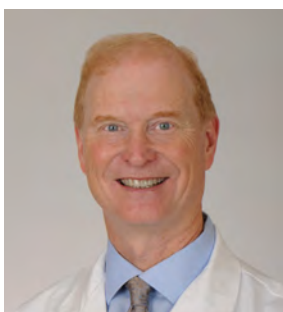
Elizabeth Swan  
*Division Administrator*

*As of Dec. 2022*



## MESSAGE FROM THE CHAIR

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The past academic year was one of extraordinary growth and progress across the Department of Medicine's mission areas, including increased cultural awareness and enhanced diversity, equity, and inclusion (DEI) efforts. Despite the ongoing pandemic and the continual challenges we face across the ever-evolving health care landscape, we remain resolute in our commitment to finding innovative solutions to care for our patients, mitigating disparities in health care, conducting research, and educating our residents and fellows.

The department remains dedicated to improving patient care and serving the needs of everyone in the state, including in our rural and medically underserved areas. Part of this mission extends to addressing health disparities and advancing health equity for all.

In this year's report, we focus on the accomplishments of the researchers and clinicians across our 10 divisions who are leading the charge to identify and address health disparities to assure that every individual has the ability to achieve good health, regardless of race, ethnicity, socioeconomic status, or other factors.

We are at the forefront of identifying and conquering the genetic and social determinants that contribute to health disparities. With leading national experts in health disparities, the Department of Medicine is helping to advance new standards of care and treatment.

These initiatives, along with many more that you will read about in this report, illustrate how the department is poised to shape the future of care for our patients through scientific discovery, education, and medical leadership. I could not be prouder to be a part of this incredible group and the work we have accomplished this year.

**Benjamin Clyburn, M.D.**  
Chair, Department of Medicine  
Medical University of South Carolina

# FY 2022

## BY THE NUMBERS

*Our commitment to providing the highest level of compassionate patient care, best-in-class training for the next generation of physician leaders, and cutting-edge research is Changing What's Possible for our patients.*



### CLINICAL ACTIVITY



### RESEARCH ACTIVITY



### FACULTY, STAFF AND TRAINEES



**40,166**

NEW PATIENTS



**85**

NEW AWARDS



**280**

Faculty



**1,078,145**

wRVU  
GENERATION



**\$41.8**

MILLION  
in research awards



**108** Residents

**103** Fellows

**19** Post Docs



**333,211**

OUTPATIENT  
ENCOUNTERS

**81**

PI's with Active Corporate  
Clinical Research

**40**

PI's with Active Federal Awards  
and Clinical Research

**129**

Research Staff

**102**

Management and Support Staff

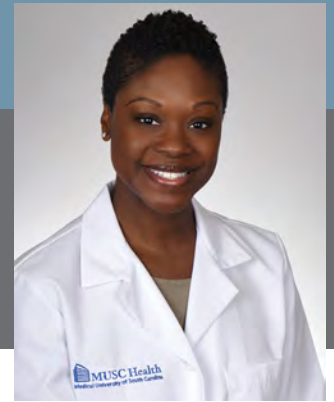
**94**

Advanced Practice Providers



# DIVERSITY & INCLUSION OVERVIEW

*In my first year as Vice Chair for Diversity and Inclusion, I worked with DOM leadership, faculty, and staff to define the mission and vision for diversity and inclusion within our department.*



**AUNDREA LOFTLEY, M.D.**  
Vice Chair for Diversity & Inclusion

## MISSION

To foster a diverse, equitable, and inclusive community of trainees, faculty, and staff to meet the needs of the diverse populations we serve.

## VISION

To support and promote the integration of policies and practices that support diversity, equity, and inclusion in patient care, education, and research. The departmental culture will be one that celebrates the differences that make us unique and the shared goals that unify our purpose.

**B**uilding on this framework, we identified our goals for the 2021–22 academic year: assess the department’s climate and develop a DEI team to help operationalize our efforts.

We successfully accomplished both goals and assembled the inaugural Department of Medicine Diversity and Inclusion Council. The council is composed of faculty and staff from each division who serve as Diversity Champions and work to create goals and develop strategies to address needs related to DEI within our department. Looking ahead, our goal for the upcoming year is to create a formal DEI Strategic Plan and begin to operationalize its components.

Thank you to all the division directors, faculty, and staff who participated in meetings and focus groups to identify the strengths, weaknesses, and opportunities for improvement related to DEI. Your feedback and participation were invaluable and content from these meetings is being incorporated into the DEI Strategic Plan.

We believe education is one of the first steps toward better understanding the problems and becoming equipped to find solutions. By placing a greater emphasis on diversifying our grand rounds content, our residents and faculty members can learn and grow from new perspectives and cultivate meaningful discussion around DEI topics in health care. We are also collaborating with the internal medicine residency program to place an increased focus on the recruitment of women and underrepresented medical trainees.

These initial steps toward our DEI goals are paving the way for a culture that values and honors unique perspectives and experiences, positioning us to be well-equipped to meet the needs of the diverse populations we serve.

As outlined in this annual report, each division in our department is focused on addressing health disparities through research, patient care, and education efforts. This work will ultimately bridge and eliminate health disparities gaps, leading to better health outcomes.

## DIVERSITY & INCLUSION COUNCIL



Aundrea Loftley, M.D.



Gerard Silvestri, M.D., MS



Ashley Duckett, M.D.



Brittany Pinckney, MHA



Bhavadharini Ramu, M.D.



Anbukarasi Maran, M.D.



Jyotika Fernandes, M.D.



Joseph Elmunzer, M.D.



Mary Adler, NP



Jay Brzezinski, M.D.



Nathalie Malcolm, M.D.



Leigh Vaughan, M.D.



Craig Lockhart, M.D.



Bianca Farley, M.D.



Ruth Adekunle, M.D.



Zipporah Krishnasami, M.D.



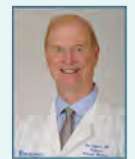
Seniorita Lucas



Denise Sese, M.D.



Deanna Baker Frost, M.D., Ph.D.



Ben Clyburn, M.D.

## NEW FACULTY RECRUITS Hired in FY23



**Jessica Atkins, M.D.**  
Assistant Professor  
Cardiology



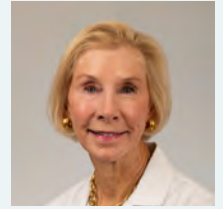
**Zeeshan Azeem, M.D.**  
Assistant Professor  
Nephrology



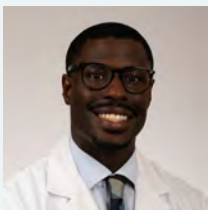
**Steliyana Bakalova-Georgieva, M.D.**  
Assistant Professor  
Hospital Medicine



**Priyanka Ballal, M.D.**  
Assistant Professor  
Rheumatology & Immunology



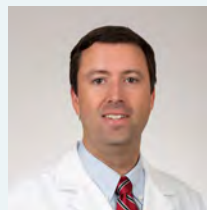
**Rebecca Bechhold, M.D.**  
Assistant Professor  
Hematology & Oncology



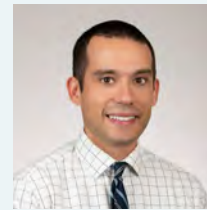
**Jamel Brown, M.D.**  
Assistant Professor  
Hospital Medicine



**Anthony Carnicelli, M.D.**  
Assistant Professor  
Cardiology



**George Carter, M.D.**  
Assistant Professor  
Pulmonary & Critical Care



**Alexander Coltoff, M.D.**  
Assistant Professor  
Hematology & Oncology



**Christopher Cordeiro, M.D.**  
Assistant Professor  
Hospital Medicine



**Christian Clark, M.D.**  
Assistant Professor  
Gastroenterology



**Hayley Davis, Pharm.D.**  
Instructor  
Infectious Diseases



**Bishnu Dhakal, M.D.**  
Assistant Professor  
Cardiology



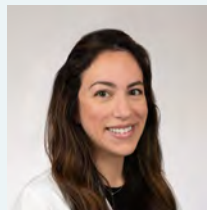
**Rashmi Dhakal, M.D.**  
Assistant Professor  
Endocrinology



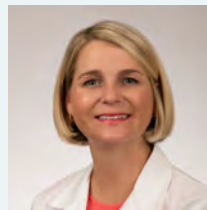
**Mohamed Elshazly, M.D.**  
Assistant Professor  
Cardiology



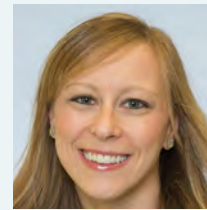
**Waleed ElSheikh Mohammed, MBBS**  
Assistant Professor  
Nephrology



**Michele Esposito, M.D.**  
Assistant Professor  
Cardiology



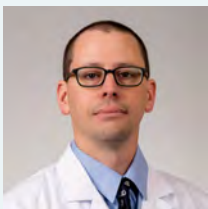
**Susan Evenhouse, M.D.**  
Assistant Professor  
General Internal Medicine



**Halle Field, M.D.**  
Assistant Professor  
Hospital Medicine



**Colleen Gavigan, M.D.**  
Assistant Professor  
Endocrinology



**Christopher Gilbert, D.O.**  
Associate Professor  
Pulmonary & Critical Care



**Megan Goff, D.O.**  
Assistant Professor  
Nephrology



**Rachel Kaplan, M.D.**  
Assistant Professor  
Cardiology



**Fred Krainin, M.D.**  
Assistant Professor  
Cardiology



**Jessica Lozier, M.D.**  
Assistant Professor  
Pulmonary & Critical Care



## PROMOTIONS

### Promotions Jan. 1, 2022:

Anand Achanti, M.D.  
*Associate Professor, Nephrology*

William Edwards, M.D.  
*Associate Professor, Cardiology*

Theodore Gourdin, M.D.  
*Associate Professor, Hematology & Oncology*

Faye Hant, D.O., M.S.C.R.  
*Professor, Rheumatology*

Keri Holmes-Maybank, M.D.  
*Associate Professor, Hospital Medicine*

Diane Kamen, M.D., M.S.C.R.  
*Professor, Rheumatology*

Blaithin McMahon Ph.D., MBBCr  
*Associate Professor, Nephrology*

Daniel Reuben, M.D.  
*Professor, Hematology & Oncology*

Zengdun Shi, M.D.  
*Associate Professor, Gastroenterology*

### Promotions July 1, 2022:

Erin Forster, M.D., MPH  
*Associate Professor, Gastroenterology*

Elizabeth Higgins, M.D.  
*Professor, General Internal Medicine*

Heather Hughes, M.D.  
*Associate Professor, Infectious Diseases*

W. Ennis James, IV, M.D.  
*Associate Professor, Pulmonary & Critical Care*

Stephanie Kirk, Pharm.D.  
*Associate Professor, Infectious Diseases*

Aundrea Loftley, M.D.  
*Associate Professor, Endocrinology*

Nathalie Malcolm, M.D.  
*Assistant Professor, General Internal Medicine*

Christina Mingora, M.D.  
*Assistant Professor, Pulmonary & Critical Care*

Robert Moran, M.D.  
*Associate Professor, Gastroenterology*

Maria Aurora Posadas Salas, M.D.  
*Professor, Nephrology*

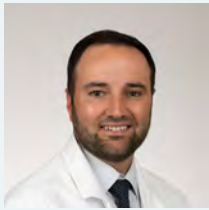
Paula Ramos, Ph.D.  
*Associate Professor, Rheumatology*

Karim Soliman, M.D.  
*Associate Professor, Nephrology*

Deanna Vroman, M.D.  
*Associate Professor, General Internal Medicine*

Phillip Warr, M.D., FHM  
*Associate Professor, Hospital Medicine*

## NEW FACULTY RECRUITS Hired in FY23



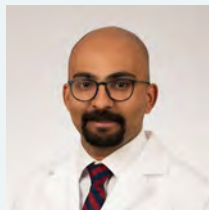
**Richard Lueking, M.D.**  
Assistant Professor  
Infectious Diseases



**Kathleen Maksimowicz -  
Mckinnon, D.O.**  
Associate Professor  
Rheumatology & Immunology



**John Mckinnon, M.D.**  
Associate Professor  
Infectious Diseases



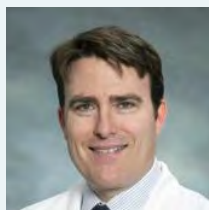
**Aravind Menon, M.D.**  
Assistant Professor  
Pulmonary & Critical Care



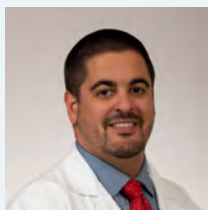
**Alexandra Mills, M.D.**  
Assistant Professor  
Infectious Diseases



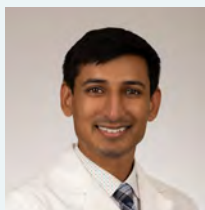
**Ellie Nielsen, M.D.**  
Assistant Professor  
Hospital Medicine



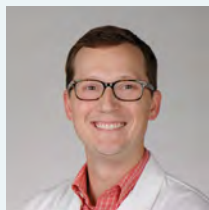
**Michael Rajala, M.D.**  
Associate Professor  
Gastroenterology



**Christopher Rangel, M.D.**  
Assistant Professor  
Hematology & Oncology



**Pranav Shah, M.D.**  
Assistant Professor  
Hospital Medicine



**Harrison Smith, M.D.**  
Assistant Professor  
Pulmonary & Critical Care



**Christopher Tan, M.D.**  
Assistant Professor  
Hospital Medicine



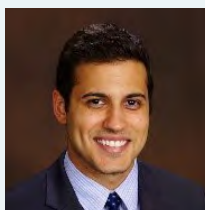
**Genta Uehara, M.D.**  
Assistant Professor  
Nephrology



**Sakshi Vaishnav, M.D.**  
Assistant Professor  
Nephrology



**Tracey Voss, M.D.**  
Associate Professor  
General Internal Medicine



**Ramsey Wehbe, M.D.**  
Assistant Professor  
Cardiology



## AWARDS & DISTINCTIONS

The 2022 Department of Medicine Awards Ceremony honors outstanding achievements by medicine faculty, staff, and trainees during the past year. In the COVID-19 era, we held our third virtual awards ceremony on June 2.

# 2022 DEPARTMENT OF MEDICINE AWARDS

## FELLOW AWARDS

### Fellows of the Year:

Zain Gowani, M.D.  
Sam Friedman, M.D.

## DIVISION AWARDS

**Division of the Year:** Division of Nephrology

## FACULTY AWARDS - CLINICAL CARE AND EDUCATION

**Michael E. Assey Department of Medicine Attending Teaching Award:**  
Meghan Thomas, M.D.

### Ambulatory Teacher of the Year:

Chelsey Ann Petz, M.D.

### Consult Teacher of the Year:

Eric Powers, M.D.

### Education Mentoring Award:

Andrew Schreiner, M.D., MSCR

### Outstanding Junior Faculty Clinician Educator of the Year:

Meghan Thomas, M.D.

### Outstanding Mid-Career Clinician Educator of the Year:

Edward Kilb, M.D.

### Outstanding Established Faculty Clinician Educator of the Year:

Ryan Tedford, M.D.

### The Doctor's Doctor Award:

Amanda Overstreet, D.O.

### Professionalism Award:

Alice Boylan, M.D.

### Hidden Gem Award:

Mariam Alexander, M.D., Ph.D.

Amanda Northup, M.D.

### DOM Lifetime Clinician Educator Achievement Award:

William Moran, M.D., MS

### Excellence in Medical Student Teaching:

Jay Brzezinski, M.D., *Faculty Winner*

Andrew Schreiner, M.D., *Faculty Winner*



**38**  
AWARDS GIVEN  
  
TO  
**68**  
FACULTY, TRAINEES, & STAFF



Gowtham Gannamani, M.D., *Fellow Winner*  
George Adly, M.D., PGY2, *Resident Winner*  
John Thiele, M.D., PGY2, *Resident Winner*

**Excellence in Patient Satisfaction:**  
Thomas Di Salvo, M.D., MPH, MBA  
Elisha Brownfield, M.D.  
Ben Clyburn, M.D.  
Brad Keith, M.D.  
John Wrangle, M.D., MPH  
Blaithin McMahon, MB.BCh.BAO, Ph.D.  
Timothy Whelan, M.D.  
Cassie Frazier, NP

**FACULTY AWARDS – RESEARCH**

**Research Faculty Mentoring Award:**  
Michael Zile, M.D.

**New K Awards:**  
Brian Hess, M.D.  
Adam Fox, M.D.

**Outstanding Scientific Publication Award:**  
Susan Dorman, M.D.

**Best Mentored Paper Award:**  
Gerard Silvestri, M.D., MS (mentor)  
Adam Fox, M.D. (mentee)

**MilliPub Club Award:**  
Brenda Hoffman, M.D.  
John Wrangle, M.D., MPH  
Gary Gilkeson, M.D.  
Betty Tsao, Ph.D.

**Top Ten Publishers Club Award (CY21):**  
Michael Zile, M.D.  
Joseph Elmunzer, M.D., MSc  
Ryan Tedford, M.D.  
Don Rockey, M.D.  
Gerard Silvestri, M.D., MS  
Patrick Flume, M.D.  
Diane Kamen, M.D., MSCR  
Patrick Mauldin, Ph.D.  
Brian Houston, M.D.  
Daniel Judge, M.D.  
Charlie Strange, M.D.

**Outstanding Achievement in Early Career Research Award:**  
Harsha Karanchi, M.D.  
Paula Ramos, Ph.D.

**FACULTY AND TRAINEE AWARDS**

**Community Service Award:**  
Sabra Slaughter, Ph.D.

**RESEARCH STAFF AWARDS**

**Outstanding Research Staff Member Award:**  
Lori Ann Ueberroth  
Michael Balassone, MPH

**RESIDENT AWARDS**

**General Internal Medicine Ambulatory Resident of the Year:**  
Abigail Southard, M.D.

**General Internal Medicine Ambulatory Intern of the Year:**  
Zola Francis, M.D.

**General Internal Medicine Hospitalist Resident of the Year:**  
Rayphael Hardy, M.D.

**General Internal Medicine Hospitalist Intern of the Year:**  
Stephen Fuller, M.D.

**Resident Research Award:**  
Rock Savage, M.D.

**Teaching and Education Award:**  
Joshua Mixson, M.D.

**Leadership Award:**  
Meg Scott, M.D.

**Triple Threat Award:**  
Prarthana Jain, D.O.

**Doctor’s Doctor Award:**  
Jake Altier, M.D.

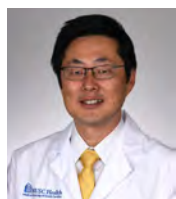
**Professionalism Award:**  
Sophia Urban, M.D.

**Intern of the Year:**  
Jameson Sorrels, M.D.

**Resident of the Year:**  
Romik Srivastava, M.D.



## AWARDS & DISTINCTIONS



M. Casey



K. Davis



F. del Monte



S. Dorman



C. Feghali-Bostwick



D. Ford



R. Hardy



H. Hashmi



M. Heincelman



C. Herzke



K. Holmes-Maybank



E. Kilb



C. Lal



C. Salgado



G. Silvestri



L. Vaughan

- **Michael Casey, M.D.**, named medical director of MUSC Kidney Transplant Program
- **Kimberly Davis, M.D.**, received the Distinguished Faculty Service Award, MUSC 2022 Annual Faculty Awards
- **Federica del Monte, M.D., Ph.D.**, named delegate of the College of Medicine Faculty Council
- **Susan Dorman, M.D.**, received the College of Medicine Research Excellence Award, Fall 2021
- **Carol Feghali-Bostwick, Ph.D.**, received the College of Medicine Research Excellence Award, Winter 2022
- **Dee Ford, M.D.**, accepted into the Executive Leadership in Academic Medicine (ELAM) Program
- **Ray Hardy, M.D.**, received 2022 Lift as You Climb Diversity Mentorship Award from MUSC College of Medicine Diversity Affairs
- **Hamza Hashmi, M.D.**, named delegate of the College of Medicine Faculty Council
- **Marc Heincelman, M.D.**, received the Teaching Excellence Educator Mentor Award, MUSC 2022 Annual Faculty Awards; and the 2022 Golden Apple Excellence in Teaching Award (Clinical Preceptor, Faculty)
- **Carrie Herzke, M.D., MBA**, named Chief Medical Officer MUHA, Charleston Division, and Executive Medical Director
- **Keri Holmes-Maybank, M.D.**, named delegate of the College of Medicine Faculty Council
- **Edward Kilb, M.D.**, received the 2022 Education Innovation Fund award
- **Chitra Lal, M.D.**, named vice chair of the Sleep Medicine Network for the American College of Chest Physicians; named chair of the Non-Respiratory Sleep Section of CHEST's Sleep Medicine Network; named 2022 CHEST Educator
- **Cassandra Salgado, M.D.**, appointed Senior Associate Dean for Faculty Affairs, Development, and Wellness at the MUSC College of Medicine
- **Gerard Silvestri, M.D.**, awarded Master Fellow from American College of Chest Physicians
- **Leigh Vaughan, M.D.**, received 2022 Lift as You Climb Diversity Mentorship Award from MUSC College of Medicine Diversity Affairs

# EMPLOYEE RECOGNITION

The Department of Medicine Employee of the Quarter program was established to showcase employees who have shown exemplary strides in contributing to the Department of Medicine and to the MUSC community.

## FY22 EMPLOYEE OF THE QUARTER WINNERS:

Sean Barry  
*Administrative Coordinator, Cardiology*

Gayle Cox  
*Administrative Coordinator  
General Internal Medicine*

Sara Croft  
*Fellowship Program Coordinator  
Pulmonary & Critical Care*

Brittany Frasier  
*Clinical Trials Coordinator  
Rheumatology & Immunology*

Evette Green  
*Peer Advocate, Infectious Diseases*

Kelly Hylton, MSN, RN, FNP-C  
*Nurse Practitioner, Hematology & Oncology*

Max Lento  
*Clinical Research Coordinator  
Pulmonary & Critical Care*

Norma Lynn Higgins, LISW-CP  
*Social Worker  
Infectious Diseases*

Michelle Potter  
*Administrative Coordinator II  
Gastroenterology & Hepatology*

Lori Ann Ueberroth  
*Program Manager  
Rheumatology & Immunology*

Susannah Wakefield  
*Program Coordinator II  
Rheumatology & Immunology*



S. Barry



G. Cox



S. Croft



B. Frasier



E. Green



K. Hylton



M. Lento



N. Higgins



**Employee of the Year:**  
Norma Lynn Higgins, LISW-CP  
*Social Worker, Infectious Diseases*



**Medicine Excellence Winner:**  
Sara Croft  
*Fellowship Coordinator, Pulmonary & Critical Care*



**Medicine Excellence Winner:**  
Evette Green  
*Peer Advocate, Infectious Diseases*



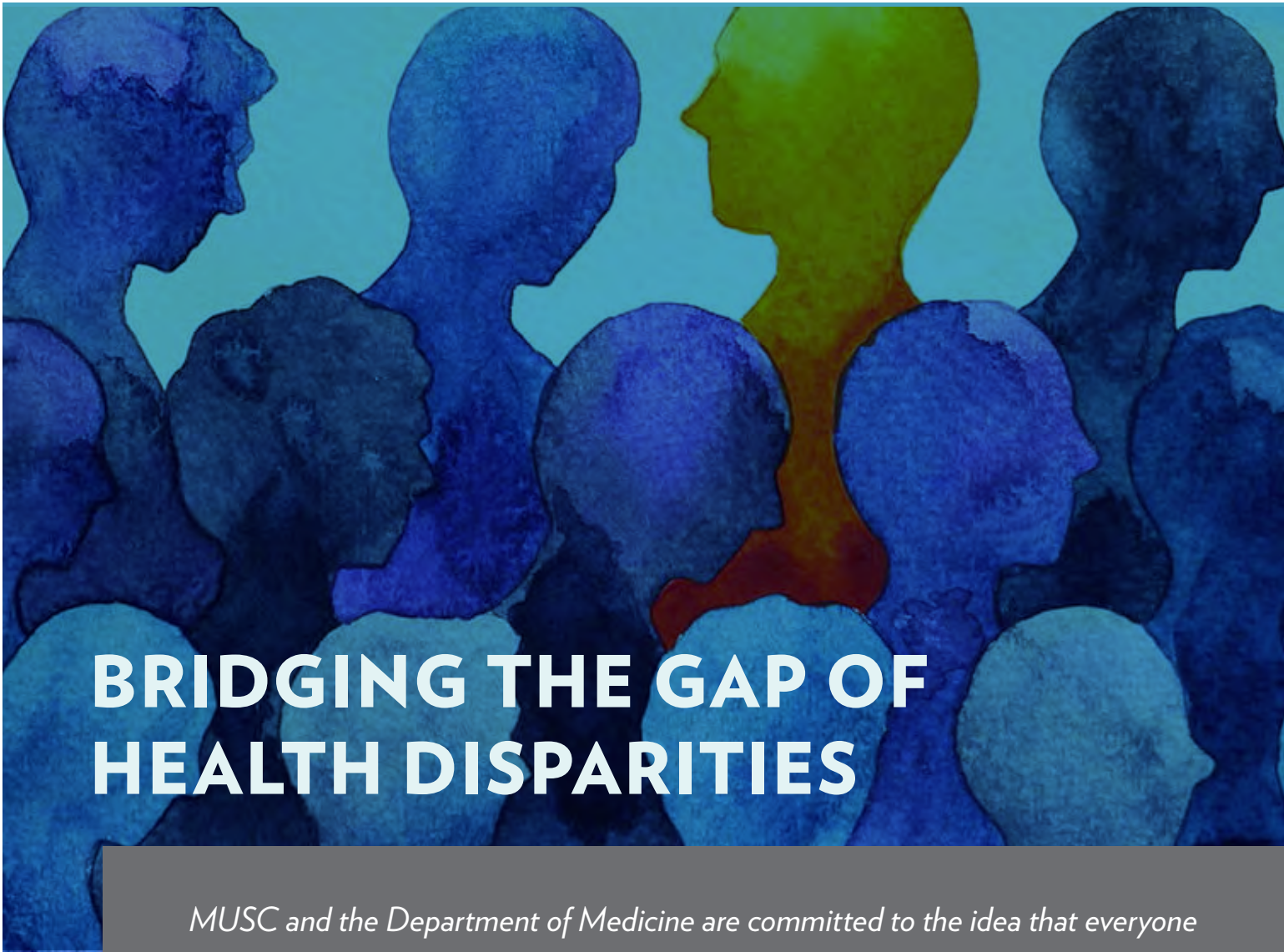
M. Potter



L. Ueberroth



S. Wakefield



# BRIDGING THE GAP OF HEALTH DISPARITIES

*MUSC and the Department of Medicine are committed to the idea that everyone deserves high-quality health care. As one of the state's only academic health systems, MUSC is committed to strengthening both quality of care and patient health outcomes, as well as addressing health disparities and public health issues.*

In this year's report, we focus on the accomplishments of the researchers and clinicians across the Department of Medicine's 10 divisions who are leading the charge to identify and address health disparities to assure that every individual has the ability to achieve good health, regardless of race, ethnicity, socioeconomic status, or other factors.

This work will ultimately bridge and eliminate health disparities gaps, leading to better health outcomes. With leading national experts in health disparities, we are well-positioned to lead the state and the country in addressing health disparities and help to create a more diverse, equitable, and inclusive health care landscape.



## LARGE-SCALE INITIATIVE SEEKS TO IMPROVE HEALTH OUTCOMES, ADVANCE INNOVATIVE RESEARCH USING GENETICS



In Sept. 2021, MUSC and Helix announced a strategic collaboration to develop a first-of-its-kind population genomics initiative in South Carolina called In Our DNA SC. The program is designed to improve health care outcomes by integrating genetic insights into clinical care and research. Advances in genetic medicine make it easier than ever to screen your DNA and detect risks for many common diseases and conditions.

The statewide initiative aims to enroll 100,000 of South Carolina's 5 million residents in genetic testing over the next four years in hopes of better understanding how DNA influences health. It may also help improve access to personalized health care and support new research discoveries for our community. Researchers also want to recruit participants who reflect the diversity of the state's population. The program will enable the use of genomic insights with an initial focus on actionable information regarding a patient's risk for certain forms of cancer and cardiovascular disease. This initiative is being led by principal investigator **Daniel Judge, M.D.**, who is a professor of medicine and a translational scientist in the Division of Cardiology at MUSC who specializes in inherited cardiovascular disorders.

## ENDOCRINOLOGY

### MUSC, FETTER PARTNER TO BRING QUALITY CARE TO UNDERSERVED COMMUNITIES

The MUSC Division of Endocrinology, Diabetes & Metabolic Diseases recently established a partnership with Fetter Health Care Network, a federally qualified health care center that serves Charleston, Berkeley, Colleton, and Dorchester Counties, to start a diabetes prevention program for women.

The partnership, made possible through grant funding from the BlueCross BlueShield of South Carolina Foundation (Diabetes Free South Carolina), seeks to offer improved access to care and to eliminate health disparities in the community.

Women aged 18 to 35 who are at high risk for diabetes (with prediabetes, history of gestational diabetes, or obesity/family history of diabetes) can receive care at Fetter. Participants will receive virtual group-based and one-on-one care with MUSC specialists in lifestyle change, nutrition, and weight management via telehealth.

"This prevention program will increase access to specialized care for women at high risk of developing diabetes," said **Marc-Andre Cornier, M.D.**, director of the Division of Endocrinology.

The affiliation will include opportunities for care coordination when Fetter patients need MUSC specialty or hospital-based services as well as other community initiatives to increase access to high-quality health care for all residents. Fetter is one of MUSC Health's initial affiliates in a statewide strategy to increase access to care for rural and underserved



communities through new agreements with FQHCs located in those communities.

"We will use a multidisciplinary and culturally tailored model of diabetes prevention involving education and empowerment of patients, partnership with primary care teams and stakeholders to enhance screening, recruitment and retention, while reducing health care inequities," said **Harsha Karanchi, M.D.**, program director of the new Women's Health Initiative.

As of now, the program is available at Charleston-area Fetter locations with the goal to expand throughout South Carolina.

## MITIGATING DISPARITIES IN INFLAMMATORY BOWEL DISEASE

Crohn's disease and ulcerative colitis, also known as inflammatory bowel disease (IBD), affect millions of Americans and can significantly impair patient quality of life. Due to the complex nature of the disease, treatment can be challenging and requires a team with a deep understanding of IBD and its physical, medical, and emotional impact.

To address the specific needs of the IBD population, the MUSC Division of Gastroenterology and Hepatology is instituting a new model of care for patients with IBD: the IBD medical home.

Under the leadership of **Erin Forster, M.D., MPH**, Marvin Jenkins Family Endowed Chair for IBD, this new IBD medical home will offer patients complete treatment for digestive disorders, including seamless access to IBD experts from multiple specialties including surgeons, behavioral health experts, social workers, nurse practitioners, dietitians and others.

While there is no cure for IBD, modern medicine is rapidly evolving to give patients the highest quality of life. Unfortunately, the lack of access to subspecialists and multidisciplinary care creates disparities in IBD outcomes, especially for patients living in underserved areas.

One priority in establishing the new IBD medical home at MUSC is to identify disparities in care and outcomes of patients with IBD to improve health care equity and delivery.

Dr. Forster teamed up with researcher and colorectal surgeon **Thomas Curran, M.D.**, to examine the state of IBD care in South Carolina.

"As part of our collaboration with colorectal surgery, one of our first goals was to obtain a snapshot of inflammatory bowel disease patients in South Carolina," said Dr. Forster. "We hope to be able to use our medical home to identify barriers and facilitators to improving care for all patients, but especially those that are particularly disadvantaged or under resourced."

Existing evidence for disparities in IBD management is fragmented and heterogeneous. In a recent study led by Dr. Curran, researchers performed a systematic review of the literature to examine disparities in surgery for inflammatory bowel disease in the United States. They discovered that not only do patients of color have limited representation in the



Thomas Curran, M.D. and Erin Forster, M.D.

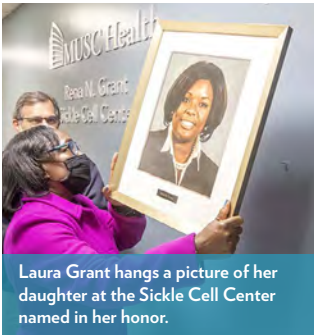
literature, but also have worse outcomes. Dr. Curran and team also conducted an audit to determine the makeup of IBD patients at MUSC and the treatments they received.

"We have one of the largest proportions of African American patients in our state compared to the rest of the United States, and we have identified certain disparities in health care and access to surgery and surgical outcomes along racial lines," said Dr. Forster.

Dr. Forster and colleagues recently received grant funding from the Patient-Centered Outcomes Research Institute (PCORI) to study "Engaging Inflammatory Bowel Disease Patients of Color in Patient-Centered Outcomes Research" to improve access and recruitment of patients of color to clinical trials. Julia Liu, M.D., at Morehouse School of Medicine is the primary investigator and Sarah Glover, D.O., from the University of Mississippi and Dr. Forster are co-investigators.

"MUSC has much to offer IBD patients throughout the state and to the academic environment more broadly, in terms of the representation of the patients that we have here and some of the lessons that we're in the process of learning of how best to navigate complex illness in the setting of social and structural determinants of health, that often, may be barriers," said Dr. Curran. "We are thrilled to have this collaboration with the Department of Medicine and are uniquely positioned to really affect a lot of change for those patients who need it most who have inflammatory bowel disease."

## RENA N. GRANT SICKLE CELL CENTER OPENS AT MUSC



Laura Grant hangs a picture of her daughter at the Sickle Cell Center named in her honor.

In Jan. 2022, MUSC opened a new expanded Sickle Cell Center, named in honor of a remarkable woman who made her mark with the SC legislature. The namesake of MUSC's new Rena N. Grant Sickle Cell Center was known for being so dedicated to her job with the South Carolina House of Representatives' Ways and Means Committee that she kept working even when she was in the hospital being treated for pain crises caused by sickle cell disease (SCD).

After Grant's death, legislators allocated \$1 million to MUSC for the development of a comprehensive approach to SCD treatment in the state. The goal is to raise SCD awareness, study ways to cure the disease, and educate the state's health care providers about the inherited disorder and the pain it causes. The funding also will establish a Rena N. Grant Endowed Chair for Hematology.

MUSC Health CEO Patrick Cawley, M.D., called the center's opening a natural and much-needed development. "Hospitalization is very high among sickle cell patients, particularly adults. These funds will support a center of care focused on people with this disease. That'll help us to No. 1: provide more outreach to rural and underserved areas; No. 2: increase service access for people in need of specialized care; and No. 3: address some of the health disparities we see among people with sickle cell disease," he said.

## DIABETES: EMPOWERING PATIENTS TO BE INVOLVED IN THEIR OWN CARE

A novel diabetes telehealth program offered through the MUSC Center for Health Disparities Research enables patients to monitor diabetes and blood pressure from their homes, with direct transmission of real-time data for viewing by their primary care doctors. This technology provides doctors and nurses with the information they need to make treatment recommendations over the phone between office visits. The center launched its Technology Assisted Case Management for Low Income Adults with Type II Diabetes (TACM-2) program in 2014.

"Our goal is to improve diabetic control for low income, rural adults in SC with type II diabetes who otherwise have difficulty accessing primary care," says **Chelsey Petz, M.D.**, assistant professor and medical director of the TACM-2 program.

Since inception, the program has partnered with 15 clinical sites comprised of 40 different clinics and has enrolled over 1,900 patients. The program is currently focused on the three counties in South Carolina with the highest prevalence of diabetes: Dillon, Marion, and Williamsburg. Future expansion plans are to roll out the program to MUSC Primary Care Physicians' Offices.

"What we found is that there are dramatic improvements in A1C levels in the first six months and these improvements are being sustained at the 12- and 18-month mark," says Dr. Petz. Dr. Petz attributes this success to patients being able to manage their own disease and receive direct feedback from case managers. Remote monitoring also reduces the barrier of having to continually go to the doctor's office, saving patients time and money.



Caroline Wallinger, RN, with patient newly enrolled in the TACM-2 program.



## GRANT FUNDING TO SUPPORT OUTREACH TO INCREASE ACCESS AND CARE FOR AFRICAN AMERICAN CUTANEOUS T-CELL LYMPHOMA PATIENTS IN THE LOWCOUNTRY

Minority populations, including African Americans, are disproportionately impacted by missed or delayed diagnosis of cutaneous T-cell lymphoma (CTCL). Hollings Cancer Center (HCC), the state's only NCI-designated cancer center, has the only dedicated cutaneous lymphoma multidisciplinary clinic staffed by dermatology and medical oncology faculty. The South Carolina lowcountry also has a disproportionate number of counties with large African American populations in rural areas with suboptimal access to local medical care. This uniquely positions MUSC Hollings Cancer Center to provide outreach and high-quality care with CTCL-specific expertise to populations in these counties.



Patient speaking with Dr. Brian Greenwell.

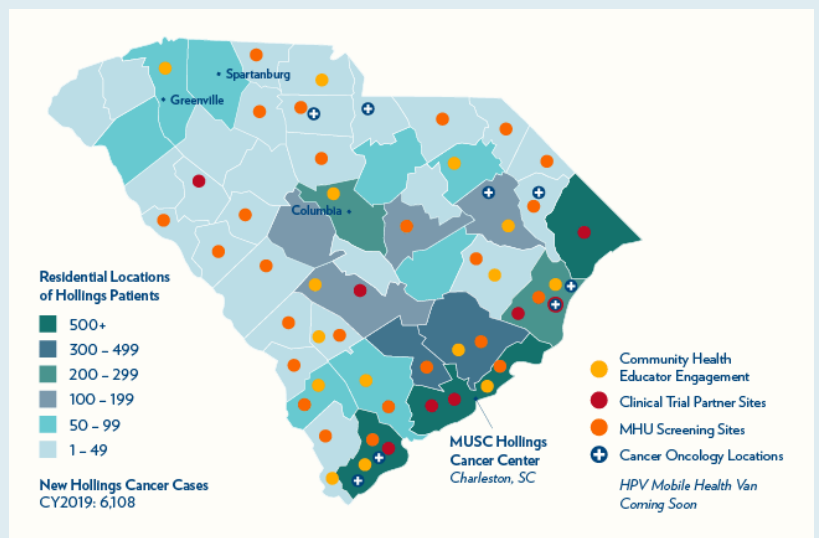
Hollings oncologist **Brian Greenwell, M.D.**, recently received grant funding from Kyowa Kirin to support the multidisciplinary cutaneous lymphoma clinic. This has resulted in:

- Dedicated advanced practice provider (APP) support for patient care
- Implementation of a remote oral therapy monitoring and titration program so that patients don't have to come to MUSC as frequently
- Expansion of the cutaneous lymphoma clinic from once monthly to twice monthly due to patient volumes

Additionally, this has provided opportunities to collaborate with Emory University and other leading CTCL institutions across the United States to study outcomes in African Americans with CTCL.

### ADDRESSING THE NEED:

- Hollings patients come from every county in South Carolina.
- 75% of South Carolina's counties include rural areas. Potential barriers to care for rural residents include transportation issues, distance to specialty care sites, and access to clinical trials.
- South Carolina has a much higher percentage of black Americans than the average U.S. state, with black residents accounting for 27.1% of all state residents. Black people have the highest death rate and shortest survival of any racial or ethnic group for most cancers in the U.S., according to the American Cancer Society.
- More than 15% of South Carolinians fall below the poverty level, which is higher than the national average. Poverty is associated with worse cancer outcomes and a higher risk of death.



## HOSPITALIST TELEHEALTH

Since 2019, MUSC has partnered with Hampton Regional Medical Center (HRMC) in Varnville, S.C., to bring specialty care services to the 32-bed rural hospital via MUSC's telehealth network.



According to **Yotam Papo, M.D., MPH**, medical director of the tele-hospitalist program at MUSC Health Charleston, a 2015-

2016 study conducted by the South Carolina Revenue and Fiscal Affairs Office found that 85% of residents from Hampton and Allendale counties receive their inpatient medical care outside of their home counties. "This outmigration and/or bypassing of HRMC by local residents is multifactorial and has greatly impacted the long-term viability of HRMC as well as the community's ongoing access to health care," said Dr. Papo.

Through this partnership, MUSC provides specialty consultative services both in person on an outpatient basis as well as inpatient virtually via a telehealth platform, including tele-hospitalist, tele-neurology, and tele-infectious diseases. Most of these services were previously unavailable in the local area, contributing to outmigration. Through this program, MUSC Health Charleston-based attending physicians round via telehealth daily with the assistance of on-site advanced practice providers (APPs) to oversee all admitted patients to HRMC.

"Having MUSC provider interactions reassures the local community that they are receiving high-quality, evidence-based medicine and instills confidence in their ability to stay locally at HRMC for their care," explained Dr. Papo.

Since the program's inception, there has been a decrease in bypass culture as determined by emergency room (ER) utilization and admissions from the ER; suggesting more people are using HRMC. This is further illustrated by an increase of 25% in the average daily census of HRMC.

Most recently, HRMC and the MUSC tele-hospitalist team were recognized by the Health Services Advisory Group for preventing 30-day readmissions and ranked #1 out of 21 other similar-sized hospitals in the state. "Perhaps, most noteworthy,



we were able to support the hospital and local residents during an unprecedented global pandemic," said Dr. Papo.

The MUSC telehealth program is helping to transform health care in the state and improve access to care in rural communities.

"We have seen a successful tele-hospitalist model as evident at HRMC and we hope to expand to other rural markets in the near future by continuing to change what is possible for the residents of South Carolina," said Dr. Papo.



*"Having MUSC provider interactions reassures the local community that they are receiving high-quality, evidence-based medicine and instills confidence in their ability to stay locally at HRMC for their care."*

- Yotam Papo, M.D., MPH

## MUSC INVESTIGATORS LEAD RESEARCH EFFORTS TO IMPROVE TB TREATMENT AND PREVENTION

In recent years, the Division of Infectious Diseases within the Department of Medicine has made global health a priority by implementing a number of initiatives dedicated to reducing health disparities in South Carolina and around the world. Leading the charge is **Susan Dorman, M.D.**, a pioneer in the field who was recruited to MUSC from Johns Hopkins University in 2017 to strengthen and expand the Infectious Diseases Global Health program.

Dr. Dorman, who has dedicated her career to studying Tuberculosis (TB), serves as a TB medical consultant for the South Carolina Department of Health and Environmental Control and leads research efforts to improve TB treatment and prevention.

TB is a deadly infection that occurs in every part of the world and the leading infectious disease killer aside from COVID-19. While TB is curable and preventable, multidrug-resistant TB remains a top public health threat.

“In the U.S. and around the world, tuberculosis mainly affects populations that experience greater obstacles to health and health care,” Dr. Dorman explained. “For example, in the U.S., the percentage of people with tuberculosis who are Black or African American and the percentage of people with tuberculosis who are Hispanic or Latino are higher than expected based on the percentages of these populations in the overall U.S. population.”

Dr. Dorman’s team is working across the diagnostics and therapeutics pipelines to bring new approaches to diagnosis and treatment to the people that can benefit from them. Their work emphasizes TB diagnostics that are easy to use at point-



Samuel Kennedy and April Borkman with key lab team members at the Integrated Biorepository of H3Africa at Makerere University in Kampala, Uganda

of-care and inexpensive, yet have the high diagnostic accuracy of the more cumbersome, centralized, expensive diagnostics currently used in practice.

“Shortening the treatment time improves adherence, decreases costs to programs, and decreases the burdens on patients themselves,” explained Dr. Dorman.

Dr. Dorman and her team at MUSC worked with both a Centers for Disease Control and Prevention (CDC) and a National Institutes of Health trials group to find a way to shorten the overall duration of treatment needed to cure the disease completely.

The team focused on a drug called rifapentine. Over the course of 15 years, Dr. Dorman and her team performed preclinical and early phase clinical studies to determine how best to use this drug. They then launched a worldwide phase III study with the TB Trials Consortium and the AIDS Clinical Trials Group.

The results of the trial revealed that the four-month regimen containing rifapentine and another antibiotic, moxifloxacin, worked just as well as the six-month regimen. It was also safe and well-tolerated by the patients.

Dr. Dorman and her team hope these results will change how TB is currently being treated.

“This work really represents a landmark in TB care, and some of the scientific work embedded in this trial will help us and others to understand how to improve TB treatment even more,” said Dr. Dorman. “Four months is still too long - the real goal is to shorten tuberculosis treatment to one month or less - that would really help people get back to their work and lives faster and avoid the personal/family economic devastation that often is a result of tuberculosis.”



Samuel Kennedy discussing how to properly document study activities with site staff from Makerere University and Kisenyi Health Centre in Kampala, Uganda.



## KIDNEY TRANSPLANT ACCESS FOR PERSONS LIVING WITH HIV



R. Adekunle

Persons living with HIV (PLWH) are at an increased risk of developing end-stage renal disease (ESRD) compared with the general population. Despite this, PLWH are less likely to make it to the kidney transplant waiting list. Researchers in the lab of **Ruth Adekunle, M.D.**, are conducting a study to better understand how PLWH proceed through the transplant process at MUSC.

Dr. Adekunle, along with her research assistant Kyle Crawford, determined that between May 1, 2012 and December 31, 2021, 45 patients have been referred for kidney transplant at MUSC, of which 22 (49%) made it to the organ waitlist and 13 (29%) were ultimately transplanted. Though these numbers seem small, they are higher than what has been reported from other facilities. The most common reason for not completing the transplant evaluation process was co-morbid psychiatric conditions and having a history of substance abuse. In a similar study conducted on the veteran population, Dr. Adekunle and team determined that veterans with HIV are 30% less likely to receive a kidney transplant and additionally spend a longer time on the waitlist compared to a non-HIV veteran population.

Dr. Adekunle's goal is to increase awareness of the disparities in access to kidney transplants for PLWH and develop ways to better support PLWH undergoing the transplant process, which would increase their chance of being eligible for kidney transplantation.

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## IMPACT OF COVID-19 ON VETERANS WITH HIV

In 2020, public health efforts to curb the spread of COVID-19 required structural changes to health care delivery. Unintended consequences of these shifts in access to medical care may have further exacerbated racial, geographical, and social disparities that existed long before COVID-19 among marginalized populations such as PLWH. Dr. Adekunle's project aims to better understand the short- and long-term impact of COVID-19 on care retention among veterans with HIV and identify the barriers that prevented engagement and retention in care. This project is still in the data gathering stage, but Dr. Adekunle hopes to learn how to optimize HIV care delivery that is sensitive to socioeconomic vulnerabilities.

## SALT SENSITIVE HYPERTENSION AND METABOLISM

The kidney is one of the main target organs involved in hypertension, and it regulates water and salt transport in the body, vascular function, and blood pressure. According to American Heart Association-supported studies, 75% of African-American patients with hypertension are salt sensitive and have a higher incidence of end-stage renal disease. End-stage renal disease, or kidney failure, occurs during the progression of chronic kidney disease and results in significant renal function decline to the point that the kidneys can no longer function on their own. A patient with end-stage renal failure must receive dialysis or kidney transplantation in order to survive for more than a few weeks.



O. Palygin

MUSC nephrology researchers in the lab of **Oleg Palygin, Ph.D.**, use Dahl salt-sensitive (Dahl-SS) rats as a classic model of salt-sensitive hypertension in their studies. The model exhibits stably inherited physiological characteristics in humans with salt-sensitive

hypertension, often present in the African American population, such as salt sensitivity, hyperlipidemia, insulin resistance, renal failure, increased urinary protein secretion, and low plasma renin activity.

Kidneys are central metabolic organs that regulate body metabolism by filtering urine through the glomerulus and then reabsorbing nutrients using a complex tubular system of the nephron. Their data revealed the metabolic aspects of hypertension-induced glomerular sclerosis and proximal tubule oxidative stress. Moreover, they show the essential role of amino acid metabolism in kidney function. In a study published in *Nature Communication*, Dr. Palygin describes how salt-sensitive hypertension and kidney disease are associated with changes in lysine metabolism. Lysine, or L-lysine, is an essential amino acid necessary for human health, but the body cannot make it. The deficiency in body lysine could be associated with the progression of hypertension and renal function decline.

The team's studies suggest that dietary lysine supplementation protects proximal tubules and renal metabolic function. Furthermore, the experiments in human patients and Dahl-SS rats show that lysine supplements may be beneficial, protect kidneys and prevent or significantly slow down the development of salt-sensitive hypertension.



Physician viewing ICU monitors.

## PULMONARY & CRITICAL CARE MEDICINE

### TELE-ICU

The MUSC Health Tele-ICU Operations Center delivers 24/7, continuous patient monitoring of partner hospital ICU patients by MUSC Health and Hicuity Health intensivists, advanced practice providers, and critical care nurses.

The tele-ICU is a transformational program that uses proactive technologies and two-way audiovisual communication to enable intensivists, critical care nurses, and other critical care team specialists to collaborate in order to provide remote ICU care. Some hospitals use tele-ICU to gain access to intensivists, and others use the service for an additional layer of critical care support. System alerts produced by sophisticated algorithm software that inform remote tele-ICU physicians and nurses of important trends in patient condition, enabling proactive clinical decision making and early identification of potential problems.

The Division of Pulmonary, Critical Care, Allergy, and Sleep Medicine provides key leadership for the tele-ICU program where **Dee Ford, M.D.**, professor of medicine, is medical director. Currently, there are eight South Carolina

### Tele-ICU Program Reach & Impact

Patient-Related Interactions	CY2022
Patient Stays	7,930
Admission & Patient Evaluation Notes	16,013
Video Assessments	32,810
Interventions	10,589
Emergency Responses	497
Estimated Lives Saved	20

hospitals enrolled in tele-ICU program with plans to expand in the future.

The tele-ICU and ICU Innovations Program was the proud recipient of the SC Telehealth Program of Excellence, which was awarded by the Governor in 2020.

# BRIDGING THE GAP:

## Spotlight on Dee Ford, M.D., MSCR, National Leader in Population Health



**Dee W. Ford, M.D., MSCR**, is a physician scientist and leader in critical care. The preponderance of her clinical and research work has focused on issues related to critical care with an emphasis on health disparities and implementation of best practices. To date, among her most impactful contributions at

MUSC is the establishment of the tele-ICU program. Dr. Ford strongly advocated for the development of a tele-ICU model for several years before it became a reality. In her vision, MUSC was uniquely positioned to use its expertise to provide guidance and support for critically ill patients to hospitals around the state.

Dr. Ford received the 2020 Population Health Award from the Medical University of South Carolina Foundation for her outstanding contributions to improving the health of the state of South Carolina. Nationally, she has served on a number of leadership committees for both the American Thoracic Society and the American College of Chest Physicians.

Dr. Ford was subsequently tasked to lead the tele-ICU domain when the MUSC Center for Telehealth was first established, and she has steadily grown its operations over the last eight years. The tele-ICU program has demonstrated improved

outcomes year over year including decreased severity-adjusted mortality, decreased hospital and ICU length of stay, and better adherence to best practices.

In concert with the tele-ICU program, Dr. Ford developed ICU Innovations, an interprofessional program provided to tele-ICU partner hospitals. ICU Innovations provides quarterly site visits by multidisciplinary teams from MUSC, who facilitate case-based seminars on the implementation of ICU best practices with similarly constructed local teams. Further, ICU Innovations provides ongoing support between seminars with sharing of expertise, protocols, and lessons learned during structured conference calls.

Recognizing a unique opportunity to expand MUSC's ability to deliver telehealth to the state of South Carolina, Dr. Ford formed a team of clinician investigators and wrote a successful proposal for the first of-its-kind Telehealth Center of Excellence Award (COE) from the Health Resources and Services Administration (HRSA). This multi-year, multi-million dollar award provides critical funding to support the delivery and evaluation of telehealth, positioning MUSC at the forefront of national telehealth leaders.

Dr. Ford has consistently and successfully improved the health of the state and is a national leader in the field of population health.



## MITIGATING LUNG CANCER DISPARITIES

*Gerard Silvestri, M.D., Hillenbrand Professor of Thoracic Oncology and lung cancer pulmonologist in the Division of Pulmonary, Critical Care, Allergy, and Sleep Medicine, is an international expert in lung cancer and interventional pulmonology who has dedicated his career to the evaluation, management, and improvement of outcomes for lung cancer patients.*



*Some of his most recent work to address lung cancer disparities is featured below:*

### STUDY FINDS BARRIERS STILL EXIST WITH LUNG CANCER SCREENING ACCESS

A study led by **Dr. Silvestri** found that the recent changes to lung cancer screening guidelines may paradoxically increase health disparities rather than reduce them, given a gap of insurance coverage for some people. The study was published in JAMA Network Open in Oct. 2021.

In 2021, lung cancer screening guidelines from the United States Preventive Services Task Force (USPSTF) were revised, lowering the age and pack-year requirements for screening from 55 years to 50 years and 30 pack-years to 20 pack-years, respectively. A pack-year is smoking an average of one pack of cigarettes per day for one year.

These changes were made to expand eligibility to around 7 million more Americans in the hopes of diagnosing lung cancer at an earlier more curable stage and reducing mortality. These proposed changes seemingly would have been of great

benefit to Blacks, as they develop lung cancer at a younger age and with less of a smoking history. However, Dr. Silvestri's team found that while the intent of expanding screening eligibility was good, it did not resolve the barrier of access.

Researchers found only 20% of eligible Blacks under 65 were being screened versus 80% of Blacks over 65 being screened, whereas the number of whites screened was equal below and above age 65. At age 65, everyone becomes eligible for Medicare and has access to insurance.

This is of particular concern in South Carolina where nearly 30% of the state's population is Black. Even for those patients with health insurance, lack of access to screening is still a widespread problem. Dr. Silvestri said the study shows that more needs to be done to improve lung cancer screening rates than just expanding eligibility requirements.

### RESEARCHER IDENTIFIES THAT INSURANCE STATUS AFFECTS CANCER OUTCOMES MORE THAN AGE



In a paper published in the May 2021 issue of Health Affairs, **Dr. Silvestri** found that a lack of insurance leads to worse cancer survival than for those with Medicare. This work, a joint effort between Dr. Silvestri and researchers at the American Cancer Society, highlights the current dire barrier in medical care: Many people cannot take advantage of the newer potentially lifesaving treatments due to the high costs.

“Fortunately, the cancer center is really well-positioned to help smokers with programmatic support,” said Dr. Silvestri. Hollings Cancer Center, which is the state's only National Cancer Institute-designated cancer center, has a **robust smoking cessation program**, a **lung cancer screening program**, as well as

**rigorous disparities research**, which has led to the implementation of novel programs across the state, he said.

Dr. Silvestri hopes this research will be a catalyst for conversations about the financial toxicity of cancer treatment, at the state and national level.

## NEW EFFORT TO EXPAND CANCER SCREENINGS IN UNDERSERVED S.C. COMMUNITIES



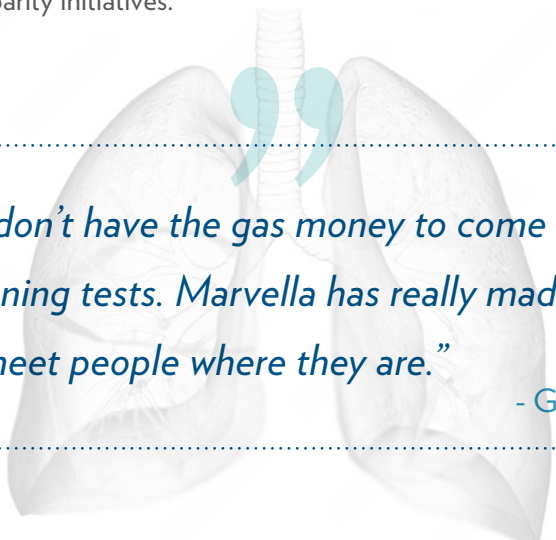
M. Ford

**Dr. Silvestri** and Hollings cancer disparities researcher **Marvella Ford, Ph.D.**, are combining their medical and behavioral science expertise to get more people to cancer screenings,

Earlier this year, they led Hollings Cancer Center to receive a Stand Up to Cancer grant and become part of the Southeastern Consortium for Lung Cancer Health Equity, which has as one of its goals improving cancer outcomes and screening rates in medically underserved communities.

Now, they are co-leaders of a \$1.2 million grant to Hollings from The Duke Endowment, with ambitious goals to increase screening rates for five cancers and expand biomarker research trials by working with the regional hospitals in Florence, Lancaster, Chester, Marion, Columbia, and Kershaw and a new facility scheduled to open in 2023 to serve Lake City and Williamsburg County. To date, the Charleston screening program has expanded into MUSC Health-Lancaster Division, MUSC Health-Florence Division and MUSC Health-Midlands Division.

The Duke Endowment Grant establishes the Center for Cancer Equity and Engagement at Hollings, a center that will house this and many other health disparity initiatives.



*“Some people don’t have the gas money to come and see me, let alone get screening tests. Marvella has really made me a believer – you’ve got to meet people where they are.”*

- Gerard Silvestri, M.D.



## IMPROVING MINORITY HEALTH IN RHEUMATIC DISEASES



In fiscal year 2022, the P30 Core Center for Clinical Research (Improving Minority Health in Rheumatic Diseases or IMHRD) was successfully renewed with **Jim Oates, M.D.**, as the new lead. This center provides research resources to enable and enhance clinical and translational research on two autoimmune connective tissue diseases, scleroderma and lupus, that have a disparate impact on women and African Americans.

The center, initially led by **Gary Gilkeson, M.D.**, was established in 2017 through a P30 center grant from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) of the National Institutes of Health. With the core purpose of improving minority health, IMHRD researchers place a major emphasis on communicating and collaborating with minority patient groups and communities to encourage input and participation in clinical research and health promotion activities.



The MUSC Lupus Erythematosus research group (also known as M.U.S.C.L.E.) is comprised of faculty and staff with interests in clinical, translational, and basic research related to lupus and community outreach to improve knowledge and awareness of lupus.

## DEANNA BAKER FROST, M.D., PH.D. - EXPANDING EXPERTISE AT THE MUSC SCLERODERMA CENTER OF EXCELLENCE



D. Baker Frost

**DeAnna Baker Frost, M.D., Ph.D.**, is an assistant professor in the Division of Rheumatology and Immunology with a clinical interest in autoimmune diseases and fibrosis. Along with her colleagues, Dr. Baker Frost recently published findings from her NIH-funded study on the link between estradiol levels

and severe disease in scleroderma in “Arthritis Research & Therapy”. As a member of the MUSC Scleroderma Research Team, Dr. Baker Frost is continuing her efforts to improve patient lives through compassionate patient care and innovative research. She shares her insights into the diagnosis, treatment, and future of scleroderma – a rare autoimmune connective tissue disease that disproportionately affects women and underserved minorities, often profoundly affecting quality of life and survival.

Estradiol is one of the forms of estrogen that naturally occurs in our body. Males and post-menopausal females typically have lower levels of estradiol. “However, we found

that in scleroderma patients, men and post-menopausal females have higher levels of estradiol compared to those without scleroderma,” said Dr. Baker Frost.

Estradiol can also promote fibrosis, which is one of the hallmarks of scleroderma.

“Therefore, we are concerned that these high levels of estradiol are contributing to fibrosis,” said Dr. Baker Frost. “We are completing other experiments to better understand how these high levels influence the severity of scleroderma in patients. But it is possible that using medications that prevent high levels of estradiol may be a treatment option for patients.”

According to Dr. Baker Frost, the current thought is that genetics does play a role in the development and possibly the severity - in several autoimmune diseases, including scleroderma, but we need more research in this area. “With increased resources and collaborations dedicated to scleroderma research, the hope is that one day this disease can be cured,” said Dr. Baker Frost.



## RESEARCHERS TAKE A MULTIFACETED APPROACH TO UNDERSTANDING AUTOIMMUNE DISEASE DISPARITIES

The disproportionate rates at which some autoimmune diseases strike African American women are among the most glaring disparities in medicine. About 90% of people with lupus and 60% of those with scleroderma are women, and the majority identify as African American or Hispanic.

**Paula Ramos, Ph.D.**, and **Diane Kamen, M.D.**, have spent years trying to identify the causes for these striking inequities and recently received funding from the National Institutes of Health for a novel study investigating how social factors might influence lupus in African American women through epigenetic changes. “Many studies analyze biospecimens but not social factors, or they collect social data but not biological samples,” says Dr. Ramos. “For each participant, we’re collecting genetic data from blood samples as well as social exposure data, including sociodemographic, behavioral, racial discrimination, and social support data.” The study will also consider disease severity, comorbidities, and outcomes.

It is well established that genetic risk factors can increase vulnerability to developing certain diseases. It is also known that social factors such as housing instability, racial discrimination, poverty, trauma, and violence impact disease development. “What we don’t know,” says Dr. Kamen, “is how these things interact to affect our biology and influence disease development or severity. Why do some people develop autoimmune disease while others with similar environmental exposures and genetics do not? Can we identify environmental or genetic protective factors to help prevent people at risk from developing lupus or reduce their disease severity?”



L-R: Diane Kamen, M.D., Quinette King, and Paula Ramos, Ph.D.

Both Drs. Ramos and Kamen agree that if their study can help explain how multiple social factors influence lupus, it will be a great step forward. “We’re measuring DNA variation, DNA methylation, and gene expression at the genomewide level in the major immune cell types such as T-cells, B-cells, and monocytes. We want to understand how social factors like racial discrimination affect lupus outcomes through epigenetic changes, accounting for genetics and other sociodemographic factors. We’ll specifically look at the effects of social factors on DNA methylation and gene expression,” explains Dr. Ramos. “We can then compare to see if differences in gene expression are associated with social factors.”

While they acknowledge that it is an ambitious project, Drs. Ramos and Kamen think that understanding how social factors affect gene regulation and how the resulting gene expression patterns affect lupus, could turn up insights that may open new avenues for helping patients.

*Adapted from original article by Kat Hendrix, Ph.D.*

## SEX BIAS IN AUTOIMMUNE DISEASE



Melissa Cunningham, M.D., Ph.D., and Jena Wirth, MS

Systemic lupus erythematosus (SLE) and many other autoimmune diseases disproportionately affect females. Researchers in the lab of **Melissa Cunningham, M.D., Ph.D.**, have a particular interest in autoimmunity, inflammation, and sex bias. Dr. Cunningham’s team investigates the role of estrogen receptor alpha ( $ER\alpha$ ) in modulating the inflammatory response, with a specific focus on protective  $ER\alpha$  variants. They use mouse models of lupus and patient samples to study  $ER\alpha$  modulation of inflammation in innate immune cells. In recent years, the team has discovered that if they removed ovaries from lupus mice expressing an  $ER\alpha$  short variant, and gave the animals estrogen, mice were protected from developing severe kidney disease.

Although the exact mechanism of its protective effect is currently unknown, Dr. Cunningham’s team hypothesizes that the  $ER\alpha$  short variant regulates the immune response similar to a short endogenous  $ER\alpha$  variant that is expressed in both mice and humans. The team proposes this short  $ER\alpha$  as a novel therapeutic target in lupus and has recently expanded their studies to look at selective estrogen receptor modulators that may act similarly and could be used in humans as an adjuvant treatment strategy.

# BRIDGING THE GAP:

## Spotlight on Ray Hardy, M.D., Chief Resident

*Rayphael “Ray” Hardy, M.D., is one of four internal medicine chief residents for the 2022-2023 academic year. He completed his undergraduate studies at Clemson University prior to joining MUSC for his medical school and residency training. After completion of his year as a chief resident, Dr. Hardy plans to pursue a career in academic gastroenterology.*



## LEADING NEW EFFORTS

One of Dr. Hardy’s main goals as chief resident this year was to implement a health care disparities curriculum for the internal medicine residency program. Read the interview below to learn what led to his active role in diversity initiatives and what he focused on this year.

### **What led you to take an active role in diversity and equity as it relates to education and residency training?**

I’m originally from Singapore. My Dad is from North Carolina and was in the military and my mom is Arabic and European, so a very diverse family. I lived overseas my entire life until I was 15 years old and during that time I was exposed to many different cultures through our frequent travels. Then in 2007, I came to America for high school, and it was a completely different world. What’s amazing is that overseas (and maybe my parents shielded me from it), I didn’t experience much racism or those different kinds of biases many people experience over here. But when I came to America, I started to really feel those things and it was definitely evident in my high school. In college, my interest in disparities really peaked with some of the groups that I volunteered with, and then in medical school as part of the Student National Medical Association (SNMA) at MUSC. I think our medical school curriculum was fantastic. They did a really good job talking about disparities and the different kinds of biases that we experienced, but I thought our residency program was lacking all of that. Honestly, I think that’s kind of what sparked a lot of my interest in this initiative.

### **What are your goals in implementing this curriculum?**

Initially in my residency training, there wasn’t as much emphasis on disparities that I noticed. However, in 2020, after a series of unfortunate events across the country, our program leadership realized the need to implement health care disparities awareness and curriculum into residency training. The chief residents at that time (in 2020), started a bare bones skeleton of a disparities curriculum hosting one lecture every two to three months – this set the foundation which this past year’s chiefs worked to build upon. My next step as chief resident is to further expand upon that by implementing more didactics into academic half-day, and by actively engaging our speakers (from grand rounds or academic half-day) in discussions about what disparities they see in their practice to give us further insight into what they see from their patients.

My next goal in clinic is to investigate some of the common barriers that patients have in accessing our clinics. Whether they live in a small town where they don’t have access to transportation services such as Uber or are unable to take time off work, etc... There’s a whole host of different things that could be going on. That’s the gist of what we’re trying to develop this year: more education, more clinical oversight to figure out what trends exist among our patients and then develop and implement ways that we can promote that awareness among our residents.

# RESEARCH HIGHLIGHTS:



## Fostering Innovation

*The Department of Medicine has a long tradition of conducting original and rigorous biomedical and clinical research.*



**JIM OATES, M.D.**  
Vice Chair for Research

### FROM THE VICE CHAIR FOR RESEARCH

Faculty and staff across the department have shown resilience during the COVID pandemic and have emerged from slowdowns to show great progress, bolstered by the strengths of critical centers, training programs, and the South Carolina Clinical and Translational Research Institute.

The Department of Medicine remains the most well-funded in the College of Medicine along with the Department of Psychiatry. Areas of strength include clinical trials in the Divisions of Pulmonary and Critical Care, Cardiology, Gastroenterology and Hepatology, and Rheumatology and Immunology and federally-funded translational research in Rheumatology and Immunology, Cardiology, Pulmonary and Critical Care, Nephrology, and General Internal Medicine.

Core Centers in Gastroenterology and Hepatology, Rheumatology and Immunology, and the Hollings

Cancer Center provide critical infrastructure support for translational research, while training grants in General Internal Medicine, Pulmonary and Critical Care, Rheumatology and Immunology, and Hematology and Oncology provide the support for our trainees who will be the next generation of investigators.

Research in health disparities is essential to improving the health of our state. Programs in Hematology and Oncology and Rheumatology and Immunology are focused on health disparities. One of the key initiatives in the Department of Medication is expanding health disparities research.

### RESEARCH FUNDING

In FY22, investigators received \$41.8 million\* in external research funding (\*reduced from last year, largely due to a reduction in COVID-19 clinical trial awards) and received 85 new awards.

During the past academic year, the Department of Medicine's research portfolio totaled nearly \$18.2million in federal awards, \$15.9 million in industry funded grants/clinical trial earnings, and over \$7 million in non-federal awards. The success rate among applications for federal funding (including flow-downs) was 60%, a testament to the competitiveness of applications. Research expenses reached over \$55 million.

#### FY22 Awards:

# 165

## AWARDS

(includes all types of awards)

for a total of

# \$41,883,603



## RESEARCH MILESTONE

Female faculty members from MUSC and College of Charleston receive \$2.4M grant to tackle gender disparities in innovation



From left: Rachel Simmons, STEM-CREW coordinator; Angela Passarelli, Ph.D., coaching director; Carol Feghali-Bostwick, Ph.D., principal investigator; Jesse Goodwin, Ph.D., chief innovation officer; Tammy Loucks, DrPH, SCTR science development officer

A new MUSC initiative – **STEM-Coaching and Resources for Entrepreneurial Women (CREW)** – will begin to address gender inequity in entrepreneurship with funds from a \$2.4 million grant from the National Institute of General Medical Sciences. With this funding, STEM-CREW will offer mentorship, coaching and training opportunities to increase the number of women, especially underserved minority women, who not only become entrepreneurs but remain engaged in entrepreneurial activities throughout their careers.

The initiative will be led by **Carol Feghali-Bostwick, Ph.D.**, the Kitty Trask Holt Endowed Chair for Scleroderma Research and director of the Advancement, Recruitment and Retention of Women (ARROW) program at MUSC, which seeks to advance the careers of women scientists. Dr. Feghali-Bostwick is an entrepreneur herself, having identified an anti-fibrotic peptide that has been licensed by a company.

Angela Passarelli, Ph.D., associate professor of management in the College of Charleston School of Business and director of Research at the Institute of Coaching at McLean/Harvard Medical School, will be director of coaching. MUSC's Tammy Loucks, DrPH, science development officer for the South Carolina Clinical & Translational Research Institute, will serve as communications director. Jesse Goodwin, Ph.D., chief innovation officer at MUSC, will support the invention disclosure and entrepreneurship processes. Jillian Harvey, Ph.D., will lead program evaluation efforts, and Rachel Simmons will be the program coordinator.

“Studies have shown that women start companies with 50% less money and raise 66% less capital than their male counterparts,” said Dr. Goodwin. “There are a lot of hypotheses as to why this divide exists, and it includes

things like implicit bias as well as the willingness of women to seek funds within their own network of contacts. These are barriers to success for women who have already decided to pursue entrepreneurship. The CREW program hopes to address both through coaching, mentorship and other programmatic support.”

The STEM-CREW program will look to address an imbalance in the number of women entrepreneurs in biomedical sciences. For a period of one year, CREW participants will be partnered with both an accomplished biomedical entrepreneur for mentorship and a professional coach and will engage in individual and group mentorship and coaching sessions monthly. In addition, participants will complete entrepreneurship mindset surveys, an online entrepreneurship course and training in responsible conduct of research and, lastly, provide feedback and evaluation of the program.

“Women don't usually promote themselves and their science as much as men,” said Dr. Feghali-Bostwick. “And some may lack mentors. If they don't see other women as role models and mentors in the entrepreneurship world, they might think it's not feasible for them to get there. We need more women there as role models to show them it's feasible.”

The program will initially focus its efforts on South Carolina but will later invite applications from women in other states in the region with historically low levels of research funding.

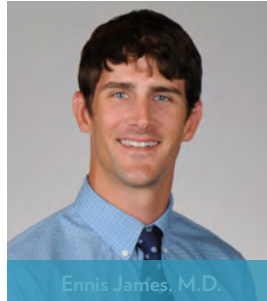
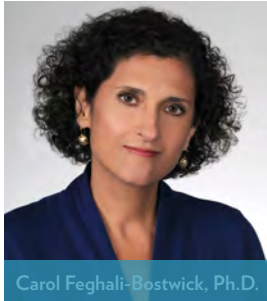
*Adapted from original article by Kimberly McGee.*



Carol Feghali-Bostwick, Ph.D.

## RESEARCH HIGHLIGHTS:

### Carol Feghali-Bostwick, Ph.D., and Ennis James, M.D., Receive Translational Team Science Award for Sarcoidosis Research



**Drs. Carol Feghali-Bostwick** and **Ennis James** were selected by the MUSC College of Medicine Dean's Office Research Committee for funding with the long-term goal of successfully competing for R01 support and publications. Dr. Feghali-Bostwick is a Distinguished University Professor and SmartState and Kitty Trask Holt Endowed Chair for Scleroderma Research in the Division of Rheumatology and Immunology, and Dr. James is an associate professor in the Division of Pulmonary and Critical Care and program director of the Susan Pearlstine Sarcoidosis Center of Excellence at MUSC.

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### Hollings Cancer Center and newly formed Southeastern Consortium for Lung Cancer Health Equity, co-led by Gerard Silvestri, M.D., awarded \$3 Million Stand Up To Cancer grant



The \$3 million four-year grant will facilitate health disparities research and scientific collaborations among researchers at three National Cancer Institute-designated cancer centers and form the SU2C Lung Cancer Health Equity Research Team. Dr. Silvestri, Distinguished University Professor and senior vice chair for faculty development, and Dr. Marvella Ford, associate director of population sciences and cancer disparities research at Hollings, are co-leading the Hollings Cancer Center portion of the new consortium.

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### Tamara Nowling, Ph.D., awarded Lupus Research Program Impact Award



The research, funded by the Department of the Defense, is advancing the field and will lead to breakthroughs in identifying the causes of lupus, accelerating diagnosis, and developing new medicines to prevent and treat the disease. Dr. Nowling is an associate professor in the Division of Rheumatology and Immunology.

# RESEARCH HIGHLIGHTS:

## FY22 EXTRAMURAL RESEARCH FUNDING HIGHLIGHTS

RESEARCH GRANT TITLE	PRINCIPAL INVESTIGATOR	SPONSOR
<b>CARDIOLOGY</b>		
Molecular Proteomics in CV Disease (Zile Endowed Chair)	Dr. Amy Bradshaw	MUSC Foundation
Cardiac Amyloidosis Registry Study	Dr. Daniel Judge	Cedars-Sinai Medical Center
<b>GENERAL INTERNAL MEDICINE</b>		
Adult PCORnet-PASC Response to the Proposed Revised Milestones for the PASC EHR/ORWD Teams (RECOVER)	Dr. Leslie Lenert	Children's Hospital of Philadelphia (CHOP)
Improving the Diagnosis and Fibrosis Risk Assessment of Nonalcoholic Fatty Liver Disease in Primary Care Patients with Abnormal Liver	Dr. Andrew Schreiner	NIH/NIDDK
<b>HEMATOLOGY &amp; ONCOLOGY</b>		
Evaluating the Impact of Genomic Alterations and Tumor-Associated Stromal Features on Clinical Outcomes in Pancreatic Ductal	Dr. Toros Dincman	The Fred Brotherton Charitable Foundation
<b>NEPHROLOGY</b>		
A Role of GAS6/Axl Signaling in the Development of Essential Hypertension	Dr. Justin Van Beusecum	VAMC
<b>PULMONARY &amp; CRITICAL CARE</b>		
A Prospective Study Evaluating Maternal and Fetal Outcomes in the ERa of ModulatorS (MAYFLOWERS)	Dr. Patrick Flume	Seattle Children's Hospital
ACS Seer Medicare Biomarker Nontreatment	Dr. Adam Fox	American Cancer Society - ACS
Program for Adult Care Excellence (PACE)	Dr. Christina Mingora	Cystic Fibrosis Foundation - CFF
A Collaboration to Expand Lung Cancer Screening to Federally Qualified Health Centers	Dr. Nichole Tanner	American Cancer Society - ACS
Determination and Validation of Lung Epicheck; a Multianalyte Assay for Lung Cancer Prediction	Dr. Nichole Tanner	Lowcountry Center for Veterans Research -
<b>RHEUMATOLOGY &amp; IMMUNOLOGY</b>		
The Role of Estradiol Production in Systemic Sclerosis	Dr. DeAnna Baker Frost	Scleroderma Foundation

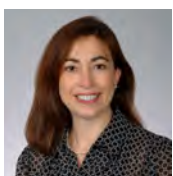


# RESEARCH HIGHLIGHTS:

## FY22 EXTRAMURAL RESEARCH FUNDING HIGHLIGHTS

RESEARCH GRANT TITLE	PRINCIPAL INVESTIGATOR	SPONSOR
<b>RHEUMATOLOGY &amp; IMMUNOLOGY</b>		
The Role of Hormonal Dysregulation in Systemic Sclerosis	Dr. DeAnna Baker Frost	Rheumatology Research Foundation
The Role of Estrogen Receptor Alpha Variant Size and Localization in Modulating TLR7-Induced Inflammation	Dr. Melissa Cunningham	NIH/NIAMS
Development of Proteomic-Based ECM Signatures for Lung Fibrosis	Dr. Carol Feghali-Bostwick	NIH/NIAMS
Targeting Pathogenic Endothelial Dysfunction in Lupus Nephritis	Dr. Jim Oates	Lupus Research Alliance
Targeting Pathogenic Endothelial Dysfunction in Lupus Nephritis	Dr. Jim Oates	Ralph H. Johnson Veterans Medical Center (VAMC)
Social Factors, Epigenomics, and Lupus in African-American Women (SELA)	Dr. Paula Ramos	NIH/NIMHD
The Role of Polyamine Catabolism in the Development of Lupus	Dr. Betty Tsao	Lupus Research Alliance

## DEPARTMENT OF MEDICINE K TO R INVESTIGATORS



### **Melissa Cunningham, M.D., Ph.D.**

Dr. Cunningham received an R01 : The Role of Estrogen Receptor Alpha Variant Size and Localization in Modulating TLR7-Induced Inflammation from the National Institute of Arthritis and Musculoskeletal and Skin Diseases - NIH/NIAMS.



### **Paula Ramos, Ph.D.**

Dr. Ramos received an R01: Social Factors, Epigenomics, and Lupus in African-American Women (SELA) from the National Institute on Minority Health and Health Disparities from the National Institute on Minority Health and Health Disparities - NIH/NIMHD.



### **Andrew Schreiner, M.D., MSCR**

Dr. Schreiner received an R03: Improving the Diagnosis and Fibrosis Risk Assessment of Nonalcoholic Fatty Liver Disease in Primary Care Patients with Abnormal Liver Chemistries from the National Institute of Diabetes and Digestive and Kidney Diseases - NIH/NIDDK.

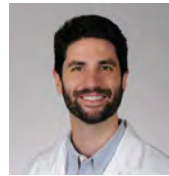
# RESEARCH HIGHLIGHTS:

## ACTIVE K AWARDS



### Deanna Baker-Frost, M.D., Ph.D.

K08: The Role of Hormonal Dysregulation in Systemic Sclerosis from the NIH.



### Brian Hess, M.D.

K12: Improvement of Outcomes in DLBCL and Hodgkin Lymphoma through Novel Therapeutic Clinical Trials from Hollings Cancer Center.



### Toros Dincman, M.D., Ph.D.

KL2: PCBP1 in Colorectal Cancer Treatment and Pathogenesis from SCRT (internal).



### Diane Kamen, M.D.

K12: Environmental Determinants of Lupus among African Americans from the NIH.



### Carol Feghali-Bostwick, Ph.D.

K24: Scleroderma Twin Study and analysis of Estrogen in patients with dcSSc from the NIH.



### Andrew Schreiner, M.D.

K23: Improving the Diagnosis of Liver Disease in Primary Care Patients with Abnormal Liver Function from the NIH.



### Adam Fox, M.D.

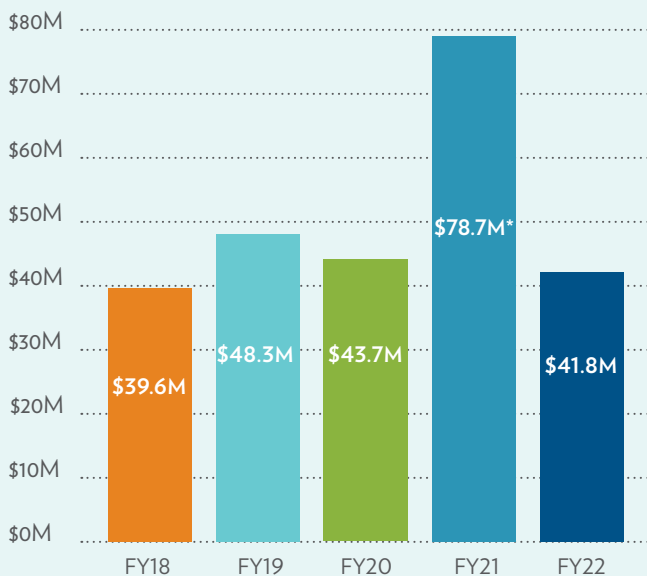
K12: Reflex Biomarker Testing to Increase Use of Targeted Therapies in Lung Cancer Proposed Didactic Course of Study: Selected Courses from Hollings Cancer Center



### John Wrangle, M.D.

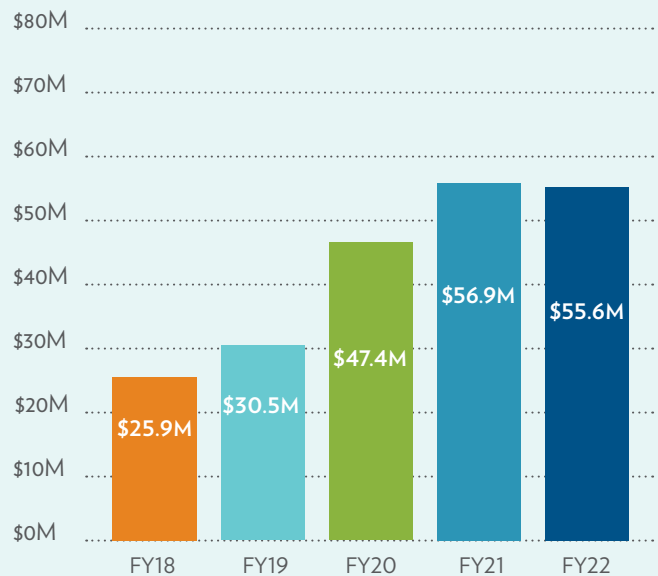
K12: MUSC/HCC Paul Calabresi Clinical Oncology Career Development Program from the NIH.

## Department of Medicine FYTD Research Awards



\*includes \$33.9M in COVID clinical trials

## Department of Medicine FYTD Research Expenses



# MEDICAL EDUCATION

*The Department of Medicine continues its intensive investment in advancing educational programs at both the graduate and undergraduate levels. Department faculty contribute extensively to medical student education in both the basic science and clinical clerkship years and directly supervise the training of over 200 house officers and fellows each year.*

## UNDERGRADUATE MEDICAL EDUCATION

The Department of Medicine faculty remain strongly engaged in medical student training and serve as mentors and teachers, contributing countless hours of teaching time to over 300 third- and fourth-year medical students each year. **Marc Heincelman, M.D., MPH**, interim director of Hospital Medicine, serves as the clerkship director, and **Kathryn Anderson, M.D.**, serves as associate clerkship director.

There were many notable successes over the past academic year in undergraduate medical education, including the following:

- The internal medicine residency match was yet again incredibly successful with 18% of students choosing categorical internal medicine, med-peds, or med-psych specialties. Additionally, every student who applied to internal medicine successfully matched with several students matching into top programs nationally.
- A point-of-care-ultrasound pilot curriculum, under the leadership of **Maggie Thomas, M.D.**, was expanded within the IM Clerkship with plans for sustainability.
- A lectureship was created under the leadership of **Natalie Freidin, M.D.**, with a focus on race-based equations in medicine. Many Department of Medicine faculty members were instrumental in MUSC's adoption of the new eGFR equation that has removed race.

## NEW INITIATIVES

Moving forward, the Department of Medicine has set goals to continue to increase the number of students entering internal medicine to meet the shortage of IM-trained physicians in primary care and certain subspecialties. Additionally, the Department of Medicine plans to explore the participation of students in telemedicine.

## MEDICAL EDUCATION LEADERSHIP

**Ashley Duckett, M.D.**  
*Program Director, IM Residency*

**Benjamin Kalivas, M.D.**  
*Program Director, Medicine/  
Psychiatry Residency*

**Sarah Mennito, M.D., MSCR**  
*Program Director, Medicine/  
Pediatrics Residency*

**Marc Heincelman, M.D., MPH**  
*Clerkship Director*

**Kathryn Anderson, M.D.**  
*Associate Clerkship Director*

**Brad Keith, M.D.**  
*Associate Program Director*

**Aundrea Loftley, M.D.**  
*Associate Program Director*

**Chelsey Petz, M.D., FACP**  
*Associate Program Director*

**Samuel Schumann, M.D.**  
*Associate Program Director*

**William Shelley, M.D.**  
*Associate Program Director*

**Maggie Thomas, M.D.**  
*Associate Program Director*





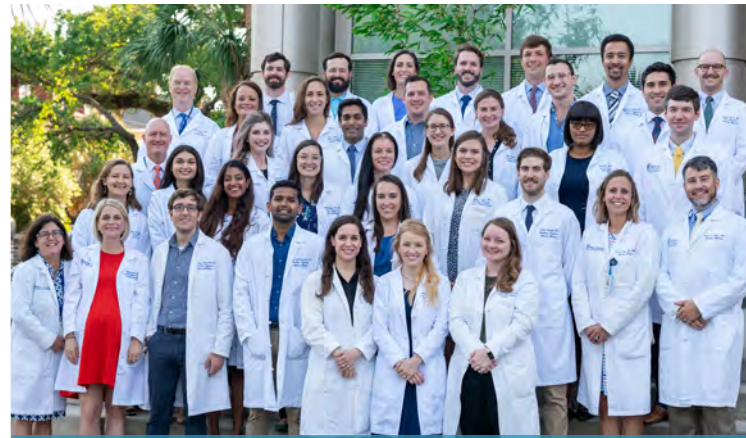
# MEDICAL EDUCATION

## GRADUATE MEDICAL EDUCATION

The Internal Medicine Residency Program led by **Ashley Duckett, M.D.**, enjoyed many successes and continued to innovate during the 2021-2022 academic year. In FY22, the residency program trained 106 residents, including 16 medicine-pediatrics residents, and nine medicine-psychiatry residents. MUSC's Internal Medicine Residency (IM) program prioritizes collaboration, autonomy, and scholarship, and facilitates learning about highly diverse patients and diseases in a number of practice settings.

Our residents continue to succeed in academic careers, successfully competing for the most prestigious and rigorous fellowships or preparing for life as general internists. The 2021 fellowship match (for the July 2022 start) successfully matched 20 residents into many of the most competitive and premier fellowship programs in the country, including nine who continued their training at MUSC.

All DOM training programs continue their recovery from the pandemic's impact on educational activities. Towards the end of FY22, many teaching conferences were able to be transitioned back to in-person which was a welcomed change from the prior two years. We are exceptionally proud of our residents, who have demonstrated great resilience and commitment to caring for patients, and caring for one another, despite the ongoing presence of the pandemic.



2021-2022 graduating class.

## 2021-2022 Successes and Highlights:

- Appointed new associate program director **Aundrea Loftley, M.D.**, who also serves as the vice chair for diversity and inclusion in the Department of Medicine. Dr. Loftley was instrumental in MUSC's residency recruitment during the 2021 interview season. Her efforts improved underrepresented minority (URM) faculty participation and placed increased emphasis on GME diversity recruitment sessions with a goal of matching a diverse group of students from MUSC and across the country.
- Chief residents developed more specific education on health care disparities and a new curriculum which were incorporated into academic half day.
- In FY22, the residency program welcomed an exceptional intern class of 36 trainees, including 25 categorical IM residents, five preliminary year residents, four medicine-pediatrics interns, and two medicine-psychiatry interns.

## POST-RESIDENCY CAREER PATHS

(2021-2022 Graduating Class)



10 Entered Clinical Practice

8 Hospitalists/2 Primary Care

16 Entered Fellowships (7 at MUSC)



*VIDEO: Department of  
Medicine Internal Medicine  
Residency Program*



# MEDICAL EDUCATION

## RESIDENTS RECEIVE TOP RECOGNITIONS AT THE 2022 ACP SOUTH CAROLINA CHAPTER MEETING



At the 2022 ACP South Carolina Chapter Meeting, many of our IM residents presented posters and oral presentations and we received five awards:

### Resident Clinical Vignette:

**Rosemary Moak, M.D.**, PGY-3, "Non-HIV Associated Pneumocystis Jiroveci Pneumonia: a Case for Prophylaxis" (2<sup>nd</sup> place)  
**Taelor Weaver, M.D.**, PGY-2, "But Did You Ask About a Tick Bite? A Rare Case of Ehrlichiosis" (3<sup>rd</sup> place)

### Resident Research:

**Ruth Bishop, M.D.**, PGY-1, "Impact of Payer Status on Stage III/IV Small Cell Lung Cancer Survival" (1<sup>st</sup> place)  
**Justin Durland, M.D.**, PGY-2, "Inpatient Sleep Studies and Future Outcomes in Hospitalized Heart Failure Patients—a Broken Heart and Windy Nights" (2<sup>nd</sup> place)

### Best Resident OVERALL:

**Ruth Bishop, M.D.**, PGY-1, "Impact of Payer Status on Stage III/IV Small Cell Lung Cancer Survival"

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## FELLOWSHIP TRAINING

The Department of Medicine offers fellowship programs across nine divisions to provide extraordinary subspecialty training with a focus for clinical, clinician-educator, and research careers. Department faculty trained 103 fellows in 16 accredited fellowship programs in FY22. Our fellows are trained as future opinion leaders who will advance clinical care and push the boundaries of scientific knowledge.

**16**  
Accredited Fellowship  
Programs across 10 divisions





# 2021-2022 INTERNAL MEDICINE HOUSESTAFF



## Internal Medicine Chief Residents (L-R):

Hampton Sasser, M.D.  
Jensie Burton, M.D.  
Susan Evenhouse, M.D.  
Jon Puchalla, M.D. (VA Chief)

## PGY-1 Interns

Duaa Alkhader, M.D.  
Thomas Brenzel, M.D. (Med-Peds)  
Michael Byrd, M.D. (Prelim)  
Zachary Crowther, M.D.  
Alec Davila, M.D., Ph.D.  
Alex Drohan, M.D. (Prelim)  
Justin Durland, M.D.  
Shane Fiust-Klink, M.D.  
Zola Francis, M.D. (Med-Psych)  
Samantha Friday, D.O.  
Stephen Fuller, M.D.  
Andrew Gentuso, M.D. (Med-Peds)  
Chandler Graf, M.D.  
Catherine Jameson, M.D.  
Addison Johnson, M.D.  
Kolby Johnson, M.D.  
Sean Jones, M.D. (PSTP)  
Andrew Kern, M.D. (Med-Psych)  
Megan Carey, M.D. (Med-Peds)  
Courtney Kramer, M.D.  
Justin Kusiel, M.D.  
Taylor Moore, M.D.  
Andrew NeSmith, M.D.  
Krunal Patel, D.O.  
Saloni Patolia, M.D.  
Zac Pulliam, M.D.  
Syed Quadri, MBBS  
Myra Quiroga, M.D.  
Riddhi Ramanlal, D.O.  
Rock Savage, M.D. (Prelim)  
Austin (AJ) Smith, M.D. (Med-Peds)  
Sarah Smith, M.D.  
Jameson Sorrels, M.D.  
Caroline Spitznagel, M.D.  
Robert Stroud, M.D. (Prelim)  
Taelor Weaver, M.D.

## PGY-2 Residents

George Adly, M.D.  
Matthew Alias, M.D.  
Alexander Baradei, M.D. (Med-Psych)  
Sarah Barbina, M.D.  
John Bobo, M.D.  
George Book, M.D. (Med-Psych)  
Benjamin Bortner, M.D.  
Dominique Bultsma, M.D.  
Allison Cipriani, M.D.  
Garrett Cole, M.D.  
William Dungan, M.D.  
Nancy Hagood, M.D. (Med-Peds)  
Samiha Karim, M.D.  
Afifah Khan, M.D.  
Monica Klaybor, M.D.  
Luana Kohnke, M.D.  
Alexandra Lopez, M.D.  
Brandon Miller, M.D.  
Oliver Mithoefer, M.D.  
Joshua Mixson, M.D.  
Rosemary Moak, M.D.  
Joseph Moore, M.D.  
Andres Ospina, M.D.  
Nelson Reed, M.D. (Med-Peds)  
Maggie Roth, M.D. (Med-Peds)  
Jake Seltman, M.D. (Med-Peds)  
John Thiele, M.D.  
Sean Tyler, M.D.  
Rashi Vora, M.D.  
Rachael Werner, M.D., Ph.D.  
(PSTP)  
William Wheless, M.D.

## PGY-3 Residents

Samuel Adams, M.D.  
Jake Altier, M.D.  
Emily Amador, D.O. (Med-Psych)  
Fatmata Bah, M.D.  
Dena Blanding, M.D.  
John Bowman, IV, M.D. (Med-Peds)  
Alexander Bray, M.D.  
Matthew Bruner, M.D.  
Avery Chisholm, M.D.  
Kimberly Cichelli, M.D.  
Anurag Deconada, M.D.  
Erin Fankhanel, M.D.  
Rayphael Hardy, M.D.  
Prarthana Jain, D.O.  
Robert James, M.D. (Med-Psych)  
Ethan Joseph, M.D.  
Umakanthan Kavin, M.D. (Med-Peds)  
Christina Kearse, M.D.  
Denise Kimbrough, M.D., Ph.D. (Med-Peds)  
Ellen Nielsen, M.D.  
Jacob Read, M.D.  
Ashley Reluzco, M.D.  
Scott Sands, M.D.  
Meg Scott, M.D.  
Shenia Singleton, M.D., Ph.D.  
Abigail Southard, M.D.  
Romik Srivastava, M.D.  
Spenser Staub, M.D.  
Michael Sutton, D.O.  
Victoria Sweetnam, M.D.  
Elena Vlachos, D.O.  
Laurel Wolf, M.D. (Med-Peds)

## PGY-4 Residents

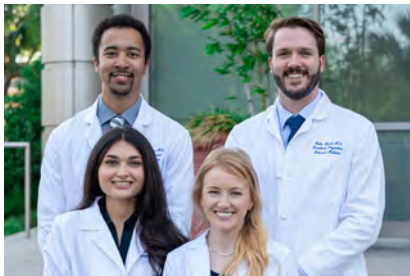
Emily Bay, M.D. (Med-Psych)  
Charish Buffa, M.D. (Med-Peds)  
Laura Smallcomb, M.D. (Med-Peds)  
Jordan Spencer, D.O. (Med-Psych)  
Molly Stone, M.D. (Med-Peds)  
Sophia Urban, M.D. (Med-Peds)

## PGY-5 Residents

Chelsea Shepherd, D.O. (Med-Psych)



# 2022-2023 INTERNAL MEDICINE HOUSESTAFF



## Internal Medicine Chief Residents (L-R):

Rayphael Hardy, M.D.  
Jacob Read, M.D. (VA Chief)  
Dena Rhinehart, M.D.  
Meg Scott, M.D.

## PGY-1 Interns

Tamman Alanazi, MBBS (Prelim)  
Nicholas Angeloni, M.D.  
Liam Bendig, M.D.  
Mitchell Benton, M.D.  
Alec Biscopink, M.D.  
Ruth Bishop, M.D. (Med-Psych)  
Sean Brady, M.D. (Prelim)  
Joshua "Josh" Bridgewater, M.D.  
Jordan Chamberlin, M.D. (Prelim)  
Rachael Crenshaw, M.D.  
Jerome Deas, M.D.  
Andrew "Drew" Dorsey, M.D.  
Natalie Dorsey, M.D.  
Jay Gopal, M.D.  
Robert "Ty" Higginbotham, M.D.  
Brooke Hisrich, M.D. (Med-Peds)  
Franklin Irvin, M.D.  
Ilgizar Khairutdinov, M.D.  
Margaret Kimzey, M.D.  
Austin Lewis, M.D. (Med-Peds)  
Caleb Max, M.D.  
William "Billy" McEver, M.D.  
Britton McGlawn-McGrane, M.D.  
Elizabeth Mellencamp, M.D. (Prelim)  
Linnea Mitchem, M.D. (Med-Peds)  
Summer Morrisette, M.D.  
Ryan O'Leary, M.D.  
Erik Olsen, M.D. (Med-Psych)  
Kush Patel, M.D.  
Danielle Rangel Paradela, M.D. (Med-Peds)  
Sanjay Saha, M.D.  
Brenna Sanders, M.D.  
Jered Schenk, M.D.  
Ryan Schexnaildre, M.D.  
Nicholas Smith, M.D.  
Drew Stone, M.D.  
Annie Yan, M.D. (Prelim)

## PGY-2 Residents

Duaa Alkhader, M.D.  
Thomas Brenzel, M.D. (Med-Peds)  
Zachary Crowther, M.D.  
Alec Davila, M.D., Ph.D.  
Justin Durland, M.D.  
Ari Faber, M.D. (Med-Peds)  
Shane Fiust-Klink, M.D.  
Zola Francis, M.D. (Med-Psych)  
Samantha Friday, D.O.  
Stephen Fuller, M.D.  
Andrew Gentuso, M.D. (Med-Peds)  
Chandler Graf, M.D.  
Catherine Jameson, M.D.  
Addison Johnson, M.D.  
Kolby Johnson, M.D.  
Sean Jones, M.D. (PSTP)  
Andrew Kern, M.D. (Med-Psych)  
Megan Kern, M.D. (Med-Peds)  
Courtney Kramer, M.D.  
Justin Kusiel, M.D.  
Taylor Moore, M.D.  
Andrew NeSmith, M.D.  
Krunal Patel, D.O.  
Saloni Patolia, M.D.  
Zac Pulliam, M.D.  
Syed Quadri, MBBS  
Myra Quiroga, M.D.  
Riddhi Ramanlal, D.O.  
Sarah Smith, M.D.  
Jameson Sorrels, M.D.  
Caroline Spitznagel, M.D.  
Taelor Weaver, M.D.

## PGY-3 Residents

George Adly, M.D.  
Matthew Alias, M.D.  
Alexander Baradei, M.D. (Med-Psych)  
Sarah Barbina, M.D.  
John Bobo, M.D.  
George Book, M.D. (Med-Psych)  
Benjamin Bortner, M.D.  
Dominique Bultsma, M.D.  
Allison Cipriani, M.D.  
Garrett Cole, M.D.  
William Dungan, M.D.  
Nancy Hagood, M.D. (Med-Peds)  
Samiha Karim, M.D.  
Afifah Khan, M.D.  
Monica Klaybor, M.D.  
Luana Kohnke, M.D.  
Alexandra Lopez, M.D.  
Brandon Miller, M.D.  
Oliver Mithoefer, M.D.  
Joshua Mixson, M.D.  
Rosemary Moak, M.D.  
Joseph Moore, M.D.  
Andres Ospina, M.D.  
Nelson Reed, M.D. (Med-Peds)  
Maggie Roth, M.D. (Med-Peds)  
Jake Seltman, M.D. (Med-Peds)  
John Thiele, M.D.  
Sean Tyler, M.D.  
Rashi Vora, M.D.  
William Wheless, M.D.

## PGY-4 Residents

Emily Amador, D.O. (Med-Psych)  
John Bowman, IV, M.D. (Med-Peds)  
Robert James, M.D. (Med-Psych)  
Umakanthan Kavin, M.D. (Med-Peds)  
Denise Kimbrough, M.D., Ph.D. (Med-Peds)  
Laurel Wolf, M.D. (Med-Peds)

## PGY-5 Residents

Emily Bay, M.D. (Med-Psych)  
Jordan Spencer, D.O. (Med-Psych)

# 2021-2022 SUBSPECIALTY FELLOWS

## Cardiology

Devin Blankinship, M.D.  
Matthew Evans, M.D.  
Zain Gowani, M.D.  
Cory Jackson, M.D.  
Jessica Kaczmarek, M.D.  
Carson Keck, M.D.  
Payton Kendersky, M.D.  
Sayyad Kyazimzade, M.D.  
John LeCluyse, M.D.  
Matthew Long, M.D.  
Steven Maurides, M.D.  
Prabodh Mishra, M.D.  
William (Tripp) Mostertz, M.D.  
C. Anderson Obi, M.D.  
Sam Powell, M.D.  
Shane Reighard, M.D.  
Shailee Shah, M.D.  
Molly Silkowski, D.O.

## Adult Congenital Heart Disease

Aniqa Shahrier, M.D.

## Advanced Heart Failure & Transplant Cardiology

Jessica Atkins, M.D.  
Sheng Fu, M.D.

## Cardiac Electrophysiology

Ahmadreza Karimianpour, D.O.  
Leah John, M.D.  
Andin Mullis, M.D.  
Daniel Levin, M.D.  
Chau Vo, M.D.

## Interventional Cardiology

Katrina Bidwell, M.D.  
Mohammad Mathbout, M.D.  
Megan Sattler, M.D.

## Endocrinology

Eliana Milazzo D'Attoma, M.D.  
Gowtham Gannamani, M.D.  
Otto T. Gibbs, M.D.  
Kathrin Tofil, M.D.

## Gastroenterology & Hepatology

Yadis Arroyo, M.D.  
Kevin Douglass, M.D.  
Isaac Jaben, M.D.  
Sebastian Larion, M.D.  
Tasnia Matin, M.D.  
Margaret Morrison, M.D.  
Sagar Patel, M.D.  
Shaurya Prakash, M.D.  
Jonathan Reichstein, M.D.  
John Romano, M.D.  
Faith Villanueva, M.D.  
Cameron Wilhoit, M.D.

## Geriatric Medicine

Abigail Dy, M.D.  
Lauren Visserman, M.D.

## Hematology & Oncology

Zaheer Ahmed, MBBS  
Jonathan Alexander, M.D.  
James Kalmuk, M.D.  
Jonathan Keegan Bakos, M.D.  
Sarah Mushtaq, M.D.  
Yadav Pandey, MBBS  
Mal Prophet, M.D.  
Christopher Rangel, M.D.  
McKenzie Sorrell, D.O.  
Kiran Uppaluru, MBBS  
Arash Velayati, M.D.  
Sariya Wongsangsak, M.D.

## Infectious Diseases

Rebekka Killinger, M.D.  
Jessica Klesmith, D.O.  
Davis Mann, D.O.  
Austin "Chandler" Nicholson, M.D.  
Christopher Wexler, M.D.

## Nephrology

Ahmed Abdelkader, M.D.  
Maria Browne, M.D.  
Sean Durkin, M.D.  
Megan Goff, D.O.  
Joshua Harbaugh, D.O.  
Rohan Kataria, MBBS  
Dariush Liske-Doorandish, M.D.  
Waleed Elsheikh Mohammed, MBBS  
Jozef Schmidt, M.D.  
Genta Uehara, M.D.

## Palliative Care

Richard Thompson, M.D.  
Brandon Washington, M.D.

## Pulmonary & Critical Care

Jamie Allen, D.O.  
Brent Bermingham, M.D.  
George Carter, M.D.  
Travis Ferguson, M.D.  
Samuel Friedman, M.D.  
Margaret Hay, M.D.  
D. Jameson Dennis, M.D.  
Kathryn Long, M.D.  
Jessica Lozier, M.D.  
J.M. Connor Sweetnam, M.D.  
Lauren Miles, M.D.  
Tejaswi Nadig, MBBS  
Mutaz Ombada, MBBS  
Ravi Patel, D.O.  
Stephen Sexauer, M.D.  
Nihar Shah, MBBS  
Sushmita Shrestha, MBBS  
Harrison Smith, M.D.  
Megan Veglia, M.D.

## Rheumatology & Immunology

Sean Carter, M.D.  
Bradley Collins, D.O.  
Whitney Elg-Salsman, D.O.  
Jessica English, M.D.  
Jennifer Schmidt, M.D.  
Ana Tucker, M.D.

# 2022-2023 SUBSPECIALTY FELLOWS

## Cardiology

Thomas Bigham, M.D.  
Devin Blankinship, M.D.  
Cole Buchanan, M.D.  
Zain Gowani, M.D.  
Cory Jackson, M.D.  
Jessica Kaczmarek, M.D.  
Carson Keck, M.D.  
Payton Kendersky M.D.  
Sayyad Kyazimzade, M.D.  
Steven Maurides, M.D.  
Matthew Long, M.D.  
C. Anderson Obi, M.D.  
JR Peacock, M.D.  
Neil Phillips, M.D.  
Kirsten Raby, M.D.  
Safanah Siddiqui, M.D.  
Molly Silkowski, DO  
R. Andy Sims, M.D.  
Brett Tomashitis, M.D.

## Adult Congenital Heart Disease

Aniqa Shahrier, M.D.

## Advanced Heart Failure & Transplant Cardiology

Jagpreet Grewal, M.D.  
Michael A. Rofael, M.D.

## Cardiac Electrophysiology

Daniel Levin, M.D.  
Fergie Ramos, M.D.  
George Waits, M.D.  
Chau Vo, M.D.

## Interventional Cardiology

Matthew Evans, M.D.  
Samuel Powell, M.D.  
Shane Reighard, M.D.

## Endocrinology

Eliana Milazzo D'Attoma, M.D.  
Gowtham Gannamani, M.D.  
Otto T. Gibbs, M.D.  
Khaled Hashem Alhbshi, M.D.  
Darell Caesario, M.D.

## Gastroenterology & Hepatology

Cameron Wilhoit, M.D.  
Shaurya Prakash, M.D.  
Jonathan Reichstein, M.D.  
Yadis Arroyo, M.D.  
Faith Villanueva M.D.  
Margaret Morrison, M.D.  
Isaac Jaben, M.D.  
Sebastian Larion, M.D.  
Nida Choudry, M.D.  
Hampton Sasser, M.D.  
Romik Srivastava, M.D.  
Jake Wilson, M.D.

## Geriatric Medicine

Erin Gee, M.D.  
Jessica Li Eason, M.D.

## Hematology & Oncology

Zaheer Ahmed, MBBS  
Jonathan Alexander, M.D.  
Abed Aljamal, M.D.  
James Kalmuk, M.D.  
Jonathan Keegan Bakos, M.D.  
Yadav Pandey, MBBS  
Sushma Pavuluri, D.O.  
McKenzie Sorrell, D.O.  
Aswani Thurlapati M.D.  
Arash Velayati, M.D.  
Shobi Venkatachalam, MBBS  
Sariya Wongsangsak, M.D.

## Infectious Diseases

Helen "Jensie" Burton, M.D.  
Adero Francis, M.D.  
Rebekka Killinger, M.D.  
Davis Mann, D.O.  
Austin "Chandler" Nicholson, M.D.  
Christopher Wexler, M.D.

## Nephrology

Ahmed Abdelkader, M.D.  
Kevin Bodker, D.O.  
Ahmed Daoud, M.D., Ph.D.  
Sean Durkin, M.D.  
Waleed Elsheikh Mohammed, MBBS  
Eily Hayes, D.O.  
Thien Ho, D.O.  
Rohan Kataria, MBBS  
Erik Mai, M.D.  
Monica Marton-Popovici, M.D.  
Jozef Schmidt, M.D.  
Salem Vilayet, M.D.

## Palliative Care

Victoria Sweetnam, M.D.  
Sophia Urban, M.D.

## Pulmonary & Critical Care

Jamie Allen, D.O.  
Vidhya Aroumougame, M.D.  
J.M. Connor Sweetnam, M.D.  
Abigail Dy, M.D.  
Samuel Friedman, M.D.  
Margaret Hay, M.D.  
Andrew Hinson, M.D.  
D. Jameson Dennis, M.D.  
Kathryn Long, M.D.  
Tejaswi Nadig, MBBS  
Brady Otten, M.D.  
Ravi Patel, D.O.  
Stephen Sexauer, M.D.  
Nihar Shah, MBBS  
Spenser Staub, M.D.  
Alison Travers, M.D.  
Megan Veglia, M.D.  
Elena Vlachos, D.O.

## Rheumatology & Immunology

Jake Altier, M.D.  
Lauren Berry, M.D.  
Sean Carter, M.D.  
Bradley Collins, D.O.  
Jessica English, M.D.  
Rachael Werner, M.D., Ph.D.



## MUSC IBD EXPERT AWARDED INAUGURAL ENDOWED CHAIR

*Erin Forster, M.D., MPH, awarded Marvin Jenkins Family Endowed Chair for IBD*

Thanks to a generous gift from the Marvin Jenkins family, the Division of Gastroenterology and Hepatology at the Medical University of South Carolina (MUSC) has established The Marvin Jenkins Family Endowed Chair for Inflammatory Bowel Disease.

The gift will secure permanent leadership and additional clinical support needed to establish a new Inflammatory Bowel Disease (IBD) medical home at MUSC. Mr. Jenkins was inspired to create the endowment after his own family member's struggle to navigate care for a chronic bowel disease. This experience highlighted the importance of developing a patient-centered IBD medical home.

"We are truly grateful for Marvin's commitment to advancing IBD research and the care of patients faced with challenging illnesses," said Ben Clyburn, M.D., chair of the Department of Medicine. "His support with prior philanthropic gifts has been instrumental in establishing a new IBD medical home at MUSC, and his continued generosity ensures that our teams can provide the highest level of coordinated care to patients across South Carolina and beyond."

**Erin Forster M.D., MPH**, director of the Inflammatory Bowel Disease Center at MUSC, has been appointed the first physician to hold the Marvin Jenkins Family Endowed Chair for IBD, which recognizes her leadership and expertise in advancing IBD care and research. With this endowed chair, Dr. Forster and her team will ensure that MUSC's patients continue to have access to the most advanced treatment options and quality care for generations to come.

Chronic diseases like Crohn's disease and ulcerative colitis, collectively known as inflammatory bowel diseases, have a high degree of complexity, with a multitude of diverse medical, physical, behavioral, and sometimes surgical impacts. As such, its treatment can be complicated and fragmented.

To address the specific needs of this IBD population, the MUSC Division of Gastroenterology and Hepatology



L-R: April Reeder, Dr. Ben Clyburn, Dr. Brenda Hoffman, Dr. Erin Forster, and Marvin Jenkins.

is instituting a new model of care for patients with IBD: the IBD medical home. The idea is to gather caregivers around the patient in the coordinated delivery of care, rather than leave the patient to navigate between caregivers in a disjointed continuum of services. The goal of the program is to take a multidisciplinary and personalized approach to each patient to determine what works best for that individual.

The IBD medical home will bring together IBD experts from multiple specialties, including gastroenterologists, advanced practice providers, a nurse navigator, a behavioral health social worker, a dietitian, clinic coordinators, and medical assistants. The gastroenterologist becomes the principal care provider for this patient cohort and coordinates the total care of each patient. The IBD medical home also works with colorectal surgeons to provide early cancer detection screening, as well as access to new diagnostic and surgical techniques and clinical trials focusing on novel therapies such as stem cell therapies for perianal Crohn's disease.

"This multi-year investment has already made a difference for the people most important to us, our patients," said Dr. Forster. "To date, we have hired a behavioral health social worker (BHSW) who has enabled us to identify significant social and mental health issues in our IBD clients that otherwise may have gone undetected. Additionally, our newly-hired IBD nurse navigator has helped give a better understanding of the needs we can expect to encounter as the program matures, as well as how our team and workflows might be best built to achieve the highest levels of efficiency and efficacy. These insights provide us with a treasure trove of information as we continue to grow this program to best meet the needs of our IBD patients."

"We are extremely grateful to Mr. Jenkins' commitment and generosity in spearheading this movement to create a better patient journey for people living with inflammatory bowel disease," said Dr. Forster.

## ENDOWED CHAIRS HONORED

During a combined MUSC Department of Surgery and MUSC Health Heart & Vascular Center Endowed Chair dinner, **Dr. Prabhakar Baliga**, Chair of the Department of Surgery, and **Dr. Tom DiSalvo**, Chief of the Heart and Vascular ICCE, celebrated six new endowed chair holders. Throughout the evening, honorees and leadership recognized the significance of the collaborations between cardiology, cardiothoracic surgery, and vascular surgery to create strong, innovative teams to improve patients' lives, made possible through the generous philanthropic support of donors. Honorees from the Department of Medicine/Heart & Vascular Center include:



**Daniel P. Judge, M.D.**

*Edwin W. and Teresa H. Rogers Endowed Chair in Cardiovascular Research*



**Daniel H. Steinberg, M.D.**

*Michael R. Gold, M.D. Endowed Chair in Structural Heart Disease*



**Ryan J. Tedford, M.D.**

*Peter C. Gazes Endowed Chair in Heart Failure*



**Jeffrey R. Winterfield, M.D.**

*Hank and Laurel Greer Endowed Chair in Electrophysiology*

Generous donors and leadership within the MUSC Department of Surgery and the MUSC Health Heart & Vascular Center have come together to ensure a steadfast commitment to achieving optimal patient care.

### Department of Surgery Honorees:

Arman Kilic, M.D. *John M. Kratz, M.D. Endowed Chair in Cardiac Surgery and Research*

Ravi Veeraswamy, M.D. *Elliott-Robison Endowed Chair in Vascular Surgery*

## SUPPORT THE DEPARTMENT OF MEDICINE

There are many philanthropic opportunities to support our mission, and each gift to the department makes an impact on our daily efforts. We hope that you will partner with us to advance education, expand research, and improve excellence in patient care.

### Nat Howe

Director of Development  
Department of Medicine  
Office: 843-792-4280  
Email: [howen@musc.edu](mailto:howen@musc.edu)

### Leslie Brady, MSW

Director of Development  
MUSC Health Heart & Vascular  
Center & MUSC Medical Center  
Office: 843-876-5190  
Cell: 843-637-5640  
Email: [bradyl@musc.edu](mailto:bradyl@musc.edu)

[give.musc.edu/medicine/ar](https://give.musc.edu/medicine/ar)



# FY22 SELECTED PUBLICATIONS

## Cardiology:

Lindenfeld J, Zile MR, Desai AS, Bhatt K, Ducharme A, Horstmanshof D, Krim SR, Maisel A, Mehra MR, Paul S, Sears SF, Sauer AJ, Smart F, Zughaib M, Castaneda P, Kelly J, Johnson N, Sood P, Ginn G, Henderson J, Adamson PB, Costanzo MR. Haemodynamic-guided management of heart failure (GUIDE-HF): a randomised controlled trial. *Lancet*. 2021 Sep 11;398(10304):991-1001.



**Remillard TC**, Cronley AC, Pilch NA, Dubay DA, **Willner IR**, Houston BA, Jackson GR, Inampudi C, Ramu B, Kilic A, Fudim M, Wright SP, Hajj ME, **Tedford RJ**. Hemodynamic

and Clinical Determinants of Left Atrial Enlargement in Liver Transplant Candidates. *Am J Cardiol*. 2022 Jun 1;172:121-129.

*Pictured: Ryan Tedford, M.D.*

El Hajj EC, El Hajj MC, **Sykes B**, **Lamicq M**, **Zile MR**, Malcolm R, O'Neil PM, **Litwin SE**. Pragmatic Weight Management Program for Patients With Obesity and Heart Failure With Preserved Ejection Fraction. *J Am Heart Assoc*. 2021 Nov 2;10(21):e022930.

van Assen M, Duguay TM, **Litwin SE**, **Bayer RR 2nd**, Nance JW, **Suranyi P**, De Cecco CN, Varga-Szemes A, Jacobs BE, Johnson AA, Tesche C, Schoepf UJ. The Feasibility, Tolerability, Safety, and Accuracy of Low-radiation Dynamic Computed Tomography Myocardial Perfusion Imaging With Regadenoson Compared With Single-photon Emission Computed. *J Thorac Imaging*. 2021 Nov 1;36(6):345-352.

**Karimianpour A**, Heizer J, Leaphart D, **Rier JD**, Shaji S, Ramakrishnan V, Nielsen CD, **Fernandes VL**, **Gold MR**. Predicting complete heart block after alcohol septal ablation for hypertrophic cardiomyopathy using a risk stratification model and clinical tool. *Catheter Cardiovasc Interv*. 2021 Aug 1;98(2):393-400.

**Neff LS**, **Zhang Y**, **Van Laer AO**, **Baicu CF**, **Karavan M**, **Zile MR**, **Bradshaw AD**. Mechanisms that limit regression of myocardial fibrosis following removal of left ventricular pressure overload. *Am J Physiol Heart Circ Physiol*. 2022 Jul 1;323(1):H165-H175.

Meyer M, LeWinter MM, **Zile MR**. A Targeted Treatment Opportunity for HFpEF: Taking Advantage of Diastolic Tone. *Circulation*. 2021 Oct 19;144(16):1269-1271.

## Endocrinology:

**Solanki AK**, **Arif E**, Srivastava P, Furcht CM, Rahman B, Wen P, **Singh A**, Holzman LB, **Fitzgibbon WR**, **Budisavljevic MN**, **Lobo GP**, Kwon SH, Han Z, Lazzara MJ, **Lipschutz JH**, Nihalani D. Phosphorylation of slit diaphragm proteins NEPHRIN and NEPH1 upon binding of HGF promotes podocyte repair. *J Biol Chem*. 2021 Sep;297(3):101079.

**Lu Z**, **Li Y**, **Yu H**, **Lopes-Virella MF**, **Huang Y**. High-fat diet-induced metabolic syndrome increases ligature-induced alveolar bone loss in mice. *Oral Dis*. 2021 Dec 16.



Thomas EA, Zaman A, Sloggett KJ, Steinke S, Grau L, Catenacci VA, **Cornier MA**, Rynders CA. Early time-restricted eating compared with daily caloric restriction: A randomized trial in adults with obesity. *Obesity (Silver Spring)*. 2022 May;30(5):1027-1038.

*Pictured: Marc-André Cornier, M.D.*

Connell AR, Hookham MB, Fu D, Brazil DP, **Lyons TJ**, **Yu JY**. Comparisons of  $\alpha$ -2-Adrenergic Agents, Medetomidine and Xylazine, with Pentobarbital for Anesthesia: Important Pitfalls in Diabetic and Nondiabetic Rats. *J Ocul Pharmacol Ther*. 2022 Mar;38(2):156-166.

**Li Y**, **Lu Z**, Zhang L, Kirkwood CL, Kirkwood KL, **Lopes-Virella MF**, **Huang Y**. Inhibition of acid sphingomyelinase by imipramine abolishes the synergy between

metabolic syndrome and periodontitis on alveolar bone loss. *J Periodontol Res*. 2022 Jan;57(1):173-185.

Hammad SM, Hunt KJ, Baker NL, **Klein RL**, **Lopes-Virella MF**. Diabetes and kidney dysfunction markedly alter the content of sphingolipids carried by circulating lipoproteins. *J Clin Lipidol*. 2022 Jan 4:S1933-2874(21)00351-2.

## Gastroenterology & Hepatology:

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## Cardiology

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