

# School of Medicine

## Executive Summary

### Annual Report 2015-2016

## Instruction and Enrollment

### A RECORD NUMBER OF APPLICATIONS

There were once again a record number of 9,469 applicants this year to the medical school, eclipsing the 9,006 applications from the previous year. The Virginia pool represented 12.65% of the total. This year's entire applicant pool was 44.6% female. The 2015 matriculating class of 216 students has an average GPA of 3.67 and ranges in age from 21 to 39 years.

	<b>Fall 2015</b>
Applications	9,469
Offers Made	391
Offers Accepted	216
First Year Students Enrolled	216

#### Enrollment

	Fall 2014	Fall 2015
Master's	139	137
Doctoral	249	252
First Professional	790	811
Grad Post-Bacc Cert	<u>93</u>	<u>101</u>
Total	1271	1301

#### Degrees Conferred

	2014-15	2015-16
Master's	81	63
Doctoral	40	39
First Professional	200	182
Certificate	<u>63</u>	<u>71</u>
Total	384	355

\*All degrees are STEM-H

### SUCCESSFUL LCME ACCREDITATION VISIT

In February 2016, visitors from the Liaison Committee on Medical Education arrived for a four day visit. This followed an intense year of self-study and data collection. The school received full accreditation for eight years, with only a few findings which required continued monitoring. Two reports are to be submitted to report progress in these areas. Most of the findings were expected due to the circumstance that the new curriculum is still in transition and an evaluation of the curriculum as a whole hasn't been completed.

### USMLE EXAMINATION PERFORMANCE MIRRORS NATIONAL AVERAGES

The Class of 2017, the first class to matriculate into the new curriculum, took Step 1 of the United States Licensing Examination in the 2014-2015 Academic year. The average score was 230, with a 98% first time passing rate as compared to national averages of 229 and 96% respectively. The Class of 2018 has just completed Step 1 examinations. The average score remains at 230, with a first-time pass rate of 97%. The national data is not yet available. The mean Step 2 examination scores for the class of 2016 increased slightly to 241, with a first-time pass rate of 93% (same as previous year), compared to national average of 241 and first time pass rate of 96%. The first time pass rate for Step 2 Clinical Skills (CS) was 93%, compared to a national average of 97%. We are taking steps to advise students who are at risk for not passing Step 2 CK on the first attempt so we can improve our first-time pass rates for this examination. In

addition, we are developing a series of OSCE stations to prepare students for Step 2 CS. These stations will be piloted at the conclusion of the M3 year for the Class of 2017.

### **EXCELLENT MATCH FOR CLASS OF 2016**

The School of Medicine had one of its most successful matches in its history in the 2016 Main Residency Match. Prior to the Supplemental Offer and Acceptance Program (SOAP), 97.0% of our seniors had matched into a PGY-1 position, which is much higher than the national average of 93.8%. At the conclusion of SOAP, over 99% of our graduating seniors had obtained a position in a residency training program. Seventy students (41.2%) matched into primary care specialties: 33 in Internal Medicine; 18 in Pediatrics and 19 in Family Medicine. We are pleased that 15 of our students matched into Ob-Gyn; 12 into Anesthesiology; 11 into Emergency Medicine; 10 each into Diagnostic Radiology and Psychiatry; seven into General Surgery; four each into Dermatology and Orthopedic Surgery; three into Otolaryngology, Integrated Plastic Surgery, and Physical Medicine and Rehabilitation; and one each into Integrated Vascular Surgery and Radiation Oncology. We had two students match into combined programs, one each into Internal Medicine/Emergency Medicine and Emergency Medicine/Family Medicine. Thirty students will be staying at VCU Health System (including VCU-affiliated Family Medicine residency programs) for the duration of their residency training, with an additional 13 students completing preliminary training here in either Internal Medicine or General Surgery. When including early match results with four students matching into Urology and two in Ophthalmology, and 11 into military programs, the Class of 2016 achieved exceptional outcomes in increasingly competitive residency match process.

The rising senior students are the first class to complete the C<sup>3</sup> curriculum. They have had an advantage over previous classes in that they have already completed or are in the process of completing their last core clerkships, earlier than any class previously, and have had the opportunity to explore other specialties with foundational electives during their M3 year.

Another change in the upcoming residency match process is that students were allowed to select an adviser in more than one specialty area. Early in the year, students may still be deciding between specialties; by assigning them multiple advisers, they can get career-specific advice while they are still trying to narrow their career choice down. The Associate Dean for Student Affairs either met with or provided online information to these advisers to ensure that they would have the latest information about the Match process, statistics in their field and other information necessary to give our students the greatest advantage in the Match that we can achieve.

### **UPDATE ON THE NEW CURRICULUM**

In keeping up with new trends in education and technology, we're adding a bedside ultrasound longitudinal course starting with the Class of 2020. It is predicted that a bedside ultrasound probe will be to the physical examination of the future what the stethoscope is now. We're introducing this tool with the incoming students. They will learn how to use bedside ultrasound along with their other physical diagnosis tools throughout the preclinical curriculum. In the third year clerkships, the use of ultrasound in each clerkship will be reinforced. In their senior year, students will be able to take an elective in bedside ultrasound to improve their skills. It's not the intention of this course to make the students experts, but to introduce them to a valuable tool that they will likely be learning more about during their residencies.

The first cohort of students has completed their M3 clerkships. We were able to accommodate additional learners during the overlap between new and old curriculum through the development of foundational electives, a new ambulatory clerkship, consolidated clerkships in three disciplines (Medicine, Pediatrics, and Psychiatry), and a deferred start to the M4 phase.

The Ambulatory clerkship was a resounding success in the first year with students as well as preceptors. The clerkship has allowed students opportunity to pursue rotations that are of interest for their career development while incorporating more ambulatory-based care to the curriculum. The clerkship will continue to be one of the core clinical clerkships for M3 students.

In the advanced clinical phase (M4), there have been several changes made. Major technological revisions were developed and implemented to allow a more user-friendly and technologically robust method for students to navigate elective offerings, add/drop courses, and review and assign evaluations. The M4 Capstone course was also substantially revised to incorporate specialty-specific “boot camps” to better prepare graduates for their transition to internships. Finally, with the establishment of two new Course Directors for Acting Internships, new more stringent guidelines for acting internships have been established in keeping with the Core entrustable professional activities (EPAs) that we expect graduates to have at the time they start their PGY-1 year. These are the core objectives for the acting internship:

1: Gather a history and perform a physical examination

Core competencies:

- a. Demonstrate ability to independently and efficiently perform both a comprehensive and focused history and physical
- b. Display proficiency in performing physical examinations and identifying abnormal findings

2: Develop a differential diagnosis following a clinical encounter

Core competencies:

- a. Independently develop and prioritize differential diagnoses
- b. Show ability to explain rationale behind differential
- c. Provide evidence-based support for the differential

3: Recommend and interpret common diagnostic and screening tests

Core competencies:

- a. Identify appropriate diagnostic and screening test to substantiate diagnoses
- b. Understand and incorporate results of diagnostic tests to the clinical presentation

4: Enter and discuss orders and prescriptions

Core competencies:

- a. Understand core admission orders and complete admission orders within EMR or prose
- b. And/or enter orders alongside the supervising physician as allowed by the facility in which they are training.
- c. Prioritize and complete daily patient-care orders via EMR

5: Document a clinical encounter in the patient record

Core competencies

- a. Write comprehensive admission H&Ps with documented decision-making
- b. Compose succinct daily progress notes (including transfer and procedure notes, status updates) with independently formulated plan
- c. Explain medical decision-making thought-process/rationale within the medical record
- d. Comprehend essential components of a discharge summary and demonstrate proficiency in completing discharge summaries independently

6: Utilize effective communication in the clinical setting

Core competencies:

- a. Perform accurate, concise, hypothesis-driven clinical presentations on rounds

- b. Communicate effectively with patients and family members in an understandable manner, avoiding medical jargon
- 7: Form clinical questions and retrieve evidence to advance patient care  
Core competencies:
- a. Utilize the literature to help guide decision-making process and diagnosis
  - b. Recognize the utility and limitations of protocols and/or clinical guidelines
- 8: Give or receive a patient handover to transition care responsibly  
Core competencies:
- a. Understand essential components to providing an effective and safe written sign out/handoff
  - b. Show how to perform verbal and written sign out/handoff utilizing IPASS as a template
  - c. Directly facilitate longitudinal transitions of care (inpatient to outpatient/facility and outpatient to inpatient)
- 9: Collaborate as a member of an interprofessional team  
Core competencies
- a. Communicate directly and effectively with nurses, patients and healthcare team members including social workers and care coordination
  - b. Understand roles of each team member within an interprofessional team
  - c. Explain when consults are needed and demonstrate how to effectively call consults
- 10: Recognize a patient requiring urgent or emergent care and initiate evaluation and management  
Core competencies:
- a. Recognize patients with unstable vital signs
  - b. Identify patients that requires immediate attention by a supervising physician (upper level resident and/or Attending)
  - c. Assist and understand initial steps to manage a patient with an urgent condition or change in clinical status
  - d. Understand when to call and how to activate a Rapid Response and Code Blue
  - e. Appropriately triage patients on cross-cover and resolve common cross-cover issues
  - f. Realize self-limitations and when to seek additional assistance and escalate care
- 11: Performing tests and/or procedures  
Core competencies:
- a. Identify indications for common procedures
  - b. Recite risks, benefits, and indications of these procedures to patients and families in an easily understood fashion in order to obtain informed consent
  - c. Understand, assist, and perform appropriate procedures under supervision
- 12: Identify system failures and contribute to a culture of safety and improvement  
Core competencies:
- a. Recognize situations that could lead to adverse-events in patient care
  - b. Articulate steps to correct potential patient safety issues
  - c. Demonstrate ability and rationale for reporting a patient safety issue or event
- 13: Identify potential complications of care or disease related complications  
Core competencies:
- a. Anticipate potential pitfalls in patient care decisions and its impact on patient outcomes
  - b. Understand advantages and disadvantages of high-risk treatment options and incorporate this into management plan decisions
  - c. Identify strategies to minimize risk of complications

14. Demonstrate professionalism and maturity in all aspects of patient care
  - a. Display integrity, compassion, respect, altruism, and empathy when interacting with all members of the health care team including patients and their families
  - b. Show respect for patient confidentiality
  - c. Incorporate cultural considerations into patient care plans

There are similar objectives/competencies that have been developed for a required critical care selective with the following additions:

Understand etiology, diagnosis and treatment of complex ICU diseases

- a. Pulmonary disease
  1. Indications for intubation and use of non-invasive positive pressure ventilation
  2. Understand basic ventilator settings
  3. Demonstrate ability to describe the pathophysiology, diagnosis, and treatment of Ventilator-associated and hospital-acquired pneumonia
- b. Cardiovascular disease
  1. Identify indications for invasive and non-invasive cardiovascular monitoring
  2. Analyze and apply data from cardiovascular monitoring to patient care
  3. Identify pathophysiology of shock
    - a. differentiate between types of shock in ICU patients
    - b. understand management of different types of shock
  4. Understand vasopressor and inotropic physiology
    - a. identify common indications for vasopressor use
- c. Infectious disease
  1. Understand treatments of common ICU-related infections (pneumonia, blood stream, intra-abdominal, urinary)
  2. Tailor broad spectrum antibiotics to treat common ICU pathogens
  3. Describe indications for catheters and associated risk of infection
  4. Implement early goal directed therapy for the septic patient
- d. Gastrointestinal
  1. Identify nutritional needs of the ICU patient
  2. Understand indications and risks associated with parenteral vs. enteral nutrition
  3. Recognize patients who will benefit from gastrointestinal ulcer prophylaxis based on recent guidelines
- e. Endocrine System
  1. Apply guidelines for glucose management of ICU patients
- f. Renal System
  1. Understand pathophysiology of acute kidney injury in the ICU patient
  2. Recognize indications for acute dialysis

VCU SOM was one of only 10 institutions chosen by the AAMC to pilot curriculum and assessment of the Core EPAs. Our early work in this initiative has included the development of a simulation-based transition to clerkship curriculum, refining assessments in the Practice of Clinical Medicine course, and incorporating handoff assessments into the Acting Internships. Future initiatives include the addition of formal EPA-based assessments throughout the clerkships and as part of the cumulative OSCE stations at the conclusion of the M3 phase of training. Finally, 50 students and 5 faculty were recruited to participate in a pilot to assess the efficacy of providing a structured “coaching” relationship over the course of medical school.

## **LONGITUDINAL CURRICULUM IN THE THIRD YEAR**

The Physician Patient and Society (PPS) and Population Health courses were further developed this past year to include a longitudinal component in the clinical phase. These courses build upon the foundations provided in the first two years by providing application and reflection from students' experiences in the clinical clerkships. In the PPS course, students address core LCME content areas through reflective writing, small group learning, and discussion board posts. In the Population Health course, students learn to apply evidence-based medicine principles to patients and scenarios they encounter during the core clerkships.

## **CURRICULUM MANAGEMENT AND EVALUATION**

The Curriculum mapping and curriculum tagging are in their final stages of completion. These tools are very helpful to curriculum council in the reviews of the curriculum to ensure horizontal and vertical integration of the curriculum. Now that the first cohort of students is ready to complete the curriculum, we are gearing up to prepare a comprehensive evaluation of the curriculum, including data we currently collect routinely as well as survey data of both students and faculty that will be collected especially for this purpose. A plan for continuous quality improvement will be in place by the end of the academic year so that this curriculum will continue to improve and grow as the challenges of medicine evolve.

## **SIMULATION AS A CORE COMPONENT OF MEDICAL EDUCATION**

In 2015-16, the VCU Center for Human Simulation and Patient Safety continued to work with School of Medicine faculty to increase the use of simulation in the UME curriculum. The MS 2B to M3 transition simulations were updated to include accessing the electronic medical record through a Cerner platform. Continued work with the capstone courses is in process. For 2016-2017, the Simulation Center will be housing the longitudinal point of care ultrasound course as part of the UME curriculum, under the direction of course directors Sammy Pedram, MD, and Michael Joyce, MD. The Center also hosted a portion of the 2016 Latino Medical Student Association – Southeast meeting.

We are now provisional members of the Mid-Atlantic Consortium of Standardized Patients, joining schools of Eastern Virginia Medical School, Georgetown University School of Medicine, George Washington University Medical Center, Howard University College of Medicine, Johns Hopkins Medicine, University of Maryland School of Medicine, University of Virginia School of Medicine, and Uniformed Services University of the Health Sciences. One of the main goals of the Mid-Atlantic Consortium is to use standardized cases and grading systems across the included schools for OSCE cases.

The AAMC has undertaken a project to define how medical schools can implement training and assess performance in the thirteen Core Entrustable Professional Activities for Entering Residency. VCU is one of 10 medical schools chosen by the AAMC to work on developing and piloting instructional methods and assessments for these activities. Dr. Mike Ryan is the PI on the VCU team, which is charged with addressing four of the EPAs:

- EPA 3: Recommend and interpret common diagnostic and screening tests
- EPA 4: Enter and discuss orders and prescriptions
- EPA 5: Document a clinical encounter in the patient record
- EPA 8: Give or receive a patient handover to transition care responsibility

The Simulation Center is working with Drs. Ryan, Carter, Call, Trimble and others on the team on developing methods to teach and assess these EPAs.

Major projects with the Health System have included observational assessments for Unique Pathogens Preparedness; workflow simulation and observation for pediatric emergencies within the new pediatrics' hospital, including transfer to the emergency department and then subsequently to the PICU; sedation complication simulations in the privileging process for procedural sedation providers; and continued work on standardization of central line insertion training for new providers in the Health System.

For GME, the Center continues to support the revisions, implementation and evaluation of the Walk the Walk curriculum, with a major focus this year on handoffs during simulation. Multiple modules for technical skills mastery have been added to the surgical GME curriculum. Internal Medicine has also added several modules to ensure standardization of procedural teaching for the internal medicine residents, including central line, paracentesis, arthrocentesis, LP. Team training continues in perioperative and resuscitation teams (interprofessional teams including residents, nurses, pharmacy, respiratory therapy) within the center and including in situ training in the pediatric ICU. Trauma team simulations continue for pediatrics.

The Center continues to be an approved site, through the Society of American Gastrointestinal Endoscopic Surgeons, for testing for Fundamentals of Laparoscopic Surgery (FLS), Fundamentals of Endoscopic Surgery (FES), and this year added Fundamental Use of Surgical Energy (FUSE). Furthermore, the Center was accredited by the American College of Surgeons Accredited Education Institutes program.

**Academic year 2014-2015 Simulation use in undergraduate curriculum**

M1	MS-2A,B	M3	M4
Orientation Simulations – Begin the Walk	SP Clinical Skills	Psychiatry OSCE	Emergency medicine toxidromes
SP Interviewing	SP Mental Health	Family Medicine OSCE	Integrated Critical Care (4 modules)
SP Phys. Exam	SP Chronic Disease	Internal Medicine OSCE	Surgical skills Gyn
SP Musculoskeletal	SP Advanced Interviewing	Pediatric Emergencies	Multiple simulations in capstone courses for procedural and technical skills, and for critical thinking in diagnosis and management (central line, thoracentesis, paracentesis, delivery, pediatric arrest, NRP)
SP Observed H&P	Sim Pelvic Exam	Lumbar Puncture	Anesthesiology elective airway management and anesthesia management simulations
SP Cardiovascular	Cardiovascular pathology	Foley, NG tube insertion workshops	Surgical Skills Elective – added simulations in resuscitation, content in ventilator management, increased technical skills
SP Geriatric	Pharmacology simulations	Gyn - Pelvic Exam, vaginal delivery, breast exam, surgical skills	
SP Breast Exam	Behavioral Medicine simulations	Surgery – surgical skills	
Cardiovascular pathology	Cardiovascular physiology classroom software simulations	Cardiovascular pathology	
	Cardiology clinical simulations	Pediatric Family Centered Rounds Training	
	Phlebotomy		
	MS 2B to M3 transition – intro to inpatient medicine		

### Simulation Center (MMEC) Usage

Number of learners by category:

	UME	GME	VCUHS	SON	OTHER
June 2015-Dec 2015	6213	1179	456	118	456
Jan 2016-June 2016	4063	348	262	82	76
Total:	13,253				

Curriculum Development:

Neifeld J, Brock E. Surgical Skills M4 Revision. Month long elective with focus on technical skills acquisition, operating room safety, management of perisurgical complications.

Bodamer, C, Bishop S. Internal Medicine M4 Capstone Course

Grossman C, Iden T. Central Line Insertion for new VCUHS providers.

Brock E, Shepherd R, Buffa P. Procedural sedation simulations for privileging

Grossman C, Brock E, Bodamer C. Transition to Inpatient Clinical Medicine.

Bodamer C, Williams D. Pediatric resuscitation

### **KEEPING STUDENT DEBT IN CHECK**

There is continued national concern about rising student debt associated with undergraduate medical education. The School of Medicine has worked diligently to keep the cost of education down and to increase the amount of Scholarship funds. Work in this area over the past few years has had an appreciable impact on our students' debt at graduation and we have been able to keep our students' indebtedness at either below or the national average level.

In the fall of 2015, 81.3 % of our students applied for financial aid by filling out FAFSA 2015-2016. 52.8 % of our students received grant and scholarship funds totaling \$ 2,772,519 .The Class of 2016 had 183 graduates. The Class of 2016 had 43 students who had no student loan debt. The following chart summarizes average debt at the time of graduation, including federal and private student loan debt.

	Class of 2011	Class of 2012	Class of 2013	Class of 2014	Class of 2015	Class of 2016
In-State Students	\$ 140,484	\$ 126,267	\$ 121,499	\$ 135,446	\$ 133,381	\$ 111,859
Out-of-State Students	\$ 168,290	\$ 154,621	\$ 182,475	\$ 161,433	\$ 149,723	\$ 190,608
Overall Average	\$ 151,990	\$ 137,277	\$ 145,515	\$ 147,762	\$ 140,644	\$ 149,358

For comparison purposes, based on data from the AAMC (2014-2015), the average graduate medical school debt for graduates from public schools was \$ 172,751; private schools, \$193,483; and overall debt, \$ 180,726 (based on AAMC October 2015 Medical Student Education: Debt, Costs and Loan Repayment Fact Card). The new data for the Class of 2016 will be available on October 2016.

## Faculty

### Recruitment and Retention

During FY16, Faculty Affairs recruited a number of highly talented new faculty to the School. The Office of Faculty Affairs provided support to departments for coordination of all phases of the recruitment and hiring process, as evidenced in the accompanying chart on faculty recruitment. A total of 89 full-time new faculty members joined the School of Medicine, including those dually employed by the Health System and the VAMC. Nine of the new hires were tenure eligible.

FACULTY RECRUITMENT	Full-time*	Tenure Eligible
Teaching/Research	25	5
MD Clinical	52	4
Non MD	6	
Administrative/Professional	6	
<b>Total</b>	<b>89</b>	<b>9</b>

\* includes dually employed

During FY16, the Office of Faculty Affairs supported searches within the School for the Chair, Department of Radiation Oncology (internal search, 1 applicant); Chair, Department of Health Behavior and Policy (8 applicants); Senior Associate Dean for Finance and Administration, School of Medicine and Executive Director, MCV Physicians (23 applicants); and the Senior Associate Dean for Research and Research Training (23 applicants). We continue to serve as a resource for all departments by providing guidance in conducting faculty searches within departments and centers.

### Faculty Promotion and Tenure

The University Promotion and Tenure Committee approved revisions to the School of Medicine's Faculty Promotion and Tenure Policy and Procedures effective July 2014. Faculty members who have been at VCU for more than three years prior to July 2014 have a choice to follow the new guidelines or those in effect since 2009 until 2018, after which time all faculty will follow the newer guidelines. The School received 37 applications for promotion and/or tenure during FY16 and all were successful. Of the eight petitions that were reviewed under the 2014 guidelines, all were approved. Thirteen faculty members received tenure and 29 received promotions: Professor (11), Associate Professor (15) and Assistant Professor (3). Nineteen promotions were in the Term (collateral) Track.

#### Faculty Counts FY16

<b>FULL-TIME FACULTY</b>	
Teaching/Research	317
MD Clinical	560
Non MD	65
Administrative/Professional	31
<b>TOTAL FULL TIME FACULTY</b>	<b>973</b>
<b>OTHER FACULTY CATEGORIES</b>	
MCVP Full-time Affiliates	93
MCVP Other Affiliates	102
Part-time VCU	72
VAMC	200
Inova Full-time	498
Inova Part-time/Affiliates	115
External Affiliates	1175
Internal Affiliates	425
<b>TOTAL OTHER FACULTY</b>	<b>2,680</b>
FULL-TIME FACULTY SEPARATIONS	72
FULL-TIME FACULTY RETIREMENTS	15

The Office of Faculty Affairs implemented a new, electronic faculty promotion and tenure system during FY16. The P&T system allows departments to indicate candidates going up for promotion and/or tenure review and provides them with the list of members on the Peer Review Committee for each candidate to approve. Once approved in the system, an email is automatically generated notifying the candidate, the department, and committee members of the approval. A new requirement has been put in place to assist in the creation of a consistently organized Curriculum Vitae, which Peer Review Committees and the School P&T Review Committee can use to view candidate dossiers. The new system is designed to streamline the process of promotion and tenure review and provide for consistency across departments in the manner in which documentation is presented to the review committees. Candidates going up for review in FY17 will be among the first to use the new system.

### **Faculty Evaluation and Reporting of Activity (FARES)**

The web-based, annual faculty performance evaluation and activity reporting system, FARES, has been in place for several years to provide systematic data collection for evaluating faculty productivity and documenting work-related activities according to teaching, research, service, and professional development effort. The goal of FARES has been to establish an annual review of performance and provide an electronic database to facilitate performance feedback and discussion for the upcoming academic year. Clinical faculty members complete FARES reports on an annual calendar year basis, and Teaching/Research/Administrative and Professional faculty follow a fiscal year reporting schedule. The successfulness of the FARES system is such that it has now been adopted by other schools on the MCV Campus.

Overall reporting that includes both calendar year reports for clinical faculty and FY16 reports for Teaching/Research/Administrative and Professional faculty consisted of 1050 potential School of Medicine faculty submitters of FARES activity reports, of which 984 represent completed faculty submissions. Of these, 856 evaluations had been reviewed with the faculty member by supervisors as of the date of this report. The submission rate of faculty was 94%, with a completed reviewer evaluation rate of 81%.

When broken into subcategories (clinical and non-clinical), we received 707 faculty submissions from clinical faculty. Of these, 695 were completed submissions and 665 included a reviewer's evaluation, yielding a faculty submission rate of more than 98%, and an evaluation completion rate of 94%. The reporting cycle for FY16 Teaching/Research/Administrative and Professional faculty is currently underway and not yet complete. As of the end of July, there were 343 submitters, with 289 complete submissions, and 191 reviewer evaluations. The current rate of faculty submissions is 84% with 55% completed evaluation reviews.

### **Industry Disclosure of Financial Relationships**

The Physician Payments Sunshine Act, effective August 2013, requires applicable manufacturers of drugs, devices, biologicals, or medical supplies covered by Medicare, Medicaid or the Children's Health Insurance Program (CHIP) to report annually to the Department of Health and Human Services Centers for Medicare and Medicaid Services certain payments or transfers of value provided to physicians or teaching hospitals. Data are provided to CMS, then made publicly available on a website: [www.CMS.gov](http://www.CMS.gov).

The **VCU Office of Research** now administers the *Activity Interest Reporting System (AIRS)* in which physicians report their financial relationships and compensation from outside entities. The Community can

make inquiry to the Office regarding specific physician activity and payments involving industry. The **Outside Professional Activity** approval process continues to be handled on the CP-1 Form. The CP-2 Form disclosure has been replaced by AIRS. An earlier website on industry relationships maintained by the School of Medicine for the community was discontinued two years ago.

### University and School of Medicine Service

All faculty were invited to submit nominations for members and alternates for nine University and SOM committees. After review by the SOM Nominating Committee, 38 faculty were found eligible to be nominated to fill positions that provide valuable service to VCU. Elections took place in July 2016.

### Faculty Awards and Recognition

During this fiscal year, 15 faculty members were nominated for the following University-level and extramurally-sponsored awards in recognition of their outstanding academic and leadership accomplishments. Among our award winners are **Lawrence Schwartz, MD, PhD**, recipient of a State Council on Higher Education for Virginia (SCHEV) Outstanding Faculty Award, and **Matthew Banks, PhD**, recipient of the VCU Outstanding Early Career Faculty Award.

### Faculty Excellence Awards

Since 1999, the Office of Faculty Affairs has sponsored the School of Medicine’s **Faculty Excellence Awards Program**. In our 17<sup>th</sup> year, 81 faculty members, including those honored for high course or clerkship evaluations, have been recognized for outstanding teaching, research, innovation, mentoring, and leadership in clinical and classroom settings within the School of Medicine and the VCU Health System. The annual awards day ceremony and luncheon have become an important tradition to honor faculty accomplishments each year.

#### Faculty Award Nominations FY16

- 7 Nominated for election into the National Academy of Medicine (formerly IOM)
- 3 Nominated for the State Council on Higher Education for Virginia (SCHEV) Outstanding Faculty Awards
- American Board of Psychiatry and Neurology Faculty Innovation in Education Award
- American College of Physicians Mastership Status
- Blavatnik Award for Young Scientists
- Drukier Prize in Children’s Health Research
- The John P. McGovern Compleat Physician Award
- Medical Society of Virginia Salute to Service Award
- Science Museum of Virginia Outstanding Scientist Award
- VCU Presidential Awards for Community Multicultural Enrichment
- VCU Distinguished Faculty Award for Excellence
- VCU Distinguished Faculty Award for Scholarship
- VCU Distinguished Faculty Award for Service
- VCU Distinguished Faculty Award for Teaching
- Women in Science, Dentistry, and Medicine (WISDM) Professional Achievement Award

## FY16 Excellence Awards

The Enrique Gerszten MD Faculty Teaching Award	Recognizes extraordinary accomplishment in all aspects of education and is the School of Medicine's highest recognition for teaching.
The Irby-James Award for Excellence in Clinical Teaching	Recognizes a faculty member for superior teaching and professionalism in clinical medicine taught in the last two years of medical school and residency training.
The Educational Innovation / Educational Research Award	Given annually to an individual faculty member, a group, a program, or an academic unit for significant educational innovation or educational research.
The Distinguished Mentor Award	Recognizes a faculty member for significant contributions to the career development of others.
Best Teacher in the Course and Clerkship Awards	Generally, a single faculty member from each course and clerkship in the M1, M2, and M3 years is recognized through student and course director evaluations as the best teacher.
Faculty with High Evaluation Awards	Faculty who teach in courses or clerkships are considered for high evaluation awards. Recipients must receive a ranking of excellent or higher on student evaluations.
Outstanding Teacher Awards in Health Science Education Departmental Awards	Recognizes outstanding teaching in areas other than physician training through departmental awards.
Leadership in Graduate Medical Education Awards	Managed by the Office of Graduate Medical Education, awards are for Leadership demonstrated by a Program Director, Fellowship Director, and Program Coordinator in GME.
Leonard Tow Humanism Award (The Arnold P. Gold Foundation)	Recognizes a graduating medical student and a faculty member nominated and selected by their peers who consistently demonstrates compassion and empathy in the delivery of patient care and shows respect for everyone he/she comes in contact with in the course of daily work.
Women in Science, Dentistry, and Medicine (WISDM) Professional Achievement Award	The WISDM Award is announced in the Spring at the WISDM annual leadership conference to recognize a woman who is a role model and mentor, promoting the professional development of other women faculty.
MCV Distinguished Physician Award	Recognizes clinical excellence among faculty at the VCU Medical Center.

## Professional Instruction and Faculty Development

School of Medicine faculty continue to take advantage of a wide range of opportunities for faculty development through workshops, teaching intensive boot camps, graduate courses, seminars, and Lunchtime Learning sessions to develop skills as teachers by promoting engaged and self-directed learning in clinical and classroom settings.

The Office of Faculty Affairs held 19 formal faculty development workshops, seminars, and conferences, including 4 professional development sessions, each with an average attendance of 41. Three of these were accessible from the VAMC via videoconference. We also led two sessions for the Inova Fairfax campus promoting the use of digital media technologies for teaching with an Educational Grand Rounds, *Unpacking the Physicians' Digital Toolkit with Apps for Medical Educators*, and a session at the Inova Faculty

Development Summit. In addition, five, 3-hour, half-day professional development and basic teaching skills workshops were held for new faculty with an average attendance of 34.

## Lunchtime Learning

FY16 featured ten of our 90-minute Lunchtime Learning workshops that have become popular among classroom and clinical faculty in the School of Medicine and among faculty in other Schools on the MCV Campus, particularly Nursing and Dentistry. These informal sessions provide an opportunity for faculty to enjoy lunch and engage with speakers that included faculty development presenters, SOM teachers, and outside guest facilitators, including those from the AAMC. Increased demand for topics and skills related to use of digital media technologies for teaching

prevailed this year, along with a focus on presentation skills for classrooms and conferences, and techniques to engage learners by making lectures interactive. An ongoing need for improved feedback for learners gave us the opportunity to redefine the traditional feedback “sandwich” of compliment, critique, and another compliment to illustrate how to make feedback in the clinical setting more digestible and actionable every time it is delivered.

## Speed Orienting for New Faculty

Forty-eight new faculty members participated in our novel approach of introducing a wide array of topics in the time-efficient manner that we call “speed orienting” in New Faculty Orientation in FY16. Speed Orienting is an adaptation of the Speed Designing strategy we developed two years ago to introduce faculty to new interactive techniques for engaged learning. With this method, small groups of faculty have the opportunity to rotate among tables in our Learning Studios to meet and talk with speakers from the University and the School to learn about their new work environment in ways that were never possible in a large lecture hall. Personal interaction is the hallmark of Speed Orienting, with new faculty members in the School of Medicine getting to know their colleagues in other specialties and disciplines they learn about University Relations and the Monroe Park Campus, the history of the MCV Campus, research at VCU, Tompkins-McCaw library resources, and opportunities for professional and faculty development, as well as an overview of the undergraduate medical school curriculum. Two highlights of the session: an opportunity to hear Dr. Michael Rao, University President, speak to the group, and a chance to “press flesh” with the Dean.

Workshops designed especially for new faculty during FY16 included *Getting Started in Research in the SOM*, *Leveraging Library Resources for Teaching and Research*; *Policies Guiding and Governing Faculty including Outside Professional Activities and Effort Reporting*; *Alternative (non-NIH) Funding Opportunities for Research*; and *Basic Teaching Skills for New Faculty and Faculty New to Teaching*.

### FY16 Lunchtime Learning Workshops

Teaching with Process-Oriented Guided Inquiry Learning: Success Stories in the Classroom

23 More Presentation Secrets to Wow! Your Audience

Discovering Images for Teaching in Medical Education

Speed Designing with Innovative Strategies to Enhance Learning

To Lecture or Not to Lecture? Hamlet’s Dilemma

Speed Designing with Digital Media Technologies

Tastier Feedback Sandwiches and More

Points Empowered: Best Practices for Slides and Presentations

Converting Teaching and Assessment Materials into Educational Scholarship through AAMC’s MedEdPORTAL

Mobile Apps in Medical Education

## **Women in Science, Dentistry, and Medicine (WISDM)**

The Women in Science, Dentistry, and Medicine (WISDM) faculty organization led a professional development seminar this year on Family Planning: *So You Are Ready to Start a Family, What Happens When Your Plans Change?* Forty-one attendees, including many medical school students, participated in the session to hear how successful VCU physicians and healthcare professionals managed work and parenthood to strive for balance in their lives.

This year's 24<sup>th</sup> annual WISDM Leadership conference was held on April 8 in the Larrick Center with Matthew Freeman, MA, from TMI Consulting in Richmond, VA as keynote speaker. The conference theme of *What's in Your Leadership Toolbox: Do You Have the Essentials?* brought together 74 participants from the MCV and Monroe Park Campuses to participate in leadership topics that ranged from mentoring to behavioral based interviewing and the topic of unconscious bias. Mr. Freeman's keynote on the topic of unconscious bias heightened awareness of this widely-discussed topic in the media today. The annual WISDM conference was sponsored by the VCU Schools of Medicine and Dentistry, VCUHealth, and the McGuire Veteran's Affairs Medical Center. Annual WISDM Professional Achievement Awards were made to recipients in the School of Medicine and Dentistry.

## **Teaching Interest Groups**

Teaching Interest Groups (TIGs) have also become part of what we offer faculty to learn about new instructional strategies in an informal discussion setting with their peers. Teaching Interest Groups explored the use of digital technologies for teaching, case-based learning, Process-Oriented Guided Inquiry (POGIL), Team-Based Learning (TBL) and Just-in-Time Teaching (JiT) strategies this year. Faculty development staff, as well as faculty experts in classroom and clinical teaching, host the sessions which are offered on a rotating basis throughout the year. These are advertised ahead of time and faculty can participate or drop in on these sessions as schedules permit.

## **Development of Medical Educators as Teachers, Scholars, and Role Models in Medical Education**

The Teaching in Medical Education Faculty Fellows Program, known internally as TiME, graduated 12 additional faculty members this year to earn the Post-Baccalaureate Graduate Certificate in Medical Education from the School of Education at VCU, bringing the total number of faculty to earn this degree to 22 in the past two years since the program received approval from the State Council for Higher Education in Virginia (SCHEV). Each faculty member who graduated from the program spent at least 180 hours in classroom instruction, and a significant amount of time outside of the classroom in graduate study, to further develop skills as teachers and scholars in medical education. Graduates included residency program directors and assistant directors, course directors, fellowship program directors and assistant directors, and core educators, as well as Medical Education Curriculum Office leadership. These individuals have the potential to make a large impact on preclinical and clinical teaching for the School of Medicine, and many have become Teaching Excellence Award recipients in recent years.

## Enrollment in Teaching in Medical Education (TiME) Program Courses in FY16

Graduate Course	Faculty Participants
Theory and Practice of Adult Learning for Medical Educators (June-July 2015)	20
Teaching as Scholarship in Medical Education (Fall 2015)	18
Digital Media Technologies for Teaching in Medicine (Fall 2015)	15
Curriculum Design in Medical Education (Spring 2016)	19
Performance Feedback and Simulation (Spring 2016)	14
Reflective Practice for Medical Educators (June-July 2016)	11
Total number of Enrolled Faculty Learners in courses*	97

\*many faculty learners complete are enrolled in multiple courses to earn the graduate certificate, which they are generally able to complete in two years.

## DEPARTMENTAL STRUCTURE

The merger of the Departments of Social and Behavioral Health and Healthcare Policy and Research to form the new Department of Health Behavior and Policy was completed and approved by SCHEV. The permanent chair of the Department, Vanessa Sheppard, Ph.D. was recruited from Georgetown University. A cancer control and prevention researcher, she will assume the chair position on September 1<sup>st</sup>, 2016. Dr. Sheppard is the first African American woman to be named a chair in the School of Medicine's history.

## RESEARCH

### RESEARCH FUNDING: MODEST INCREASES CONTINUE IN FY2016

The School of Medicine received \$131,569,054 in total award dollars in FY16, an increase over FY15 by 2%. The School's total funding from NIH in FY16 was \$65,552,476 (exclusive of awards to Massey Cancer Center), an even greater 6.5% increase from FY15.

In addition to this overall increase in research funding, three of the School's departments experienced significant growth over the past year.

**Microbiology & Immunology: increase of \$1.8 million over previous year.** A large NICHD grant for the multi-omic analysis of the vaginal microbiome during pregnancy (PIs Buck, Jefferson and Strauss) continued and received a significant supplement from the NIH in FY16.

**Orthopedic Surgery: increase of \$1.3 million over previous year.** The Department of Orthopedic Surgery has seen exponential growth over a relatively short period of time. The arrival of Dr. Stephen Kates as Department Chair has helped reinvigorate their research program. Dr. Jonathan Isaacs' was awarded a Department of Defense grant for over \$700,000 - "Follistatin: A Potential Anabolic Treatment for Re-innervated Muscle" - and expects to receive further Defense funding in FY17.

**Physiology & Biophysics: increase of \$1.4 million over previous year.** Investigators in the Department of Physiology & Biophysics were awarded 6 new R01 NIH research grants in FY16, altogether contributing \$4.4 million in new award dollars to the department.

Prominent proposals submitted in FY16 include a multi-PI proposal (PIs Buck, Fettweis, Jefferson and Strauss) entitled “Childhood Health Impacts of the Microbiome and Exposome ‘CHIME’” application which was submitted to NIH with a proposed total budget of \$75 million. Dr. Judith Voynow in the Pulmonary division of Pediatrics submitted a P01 program proposal with a proposed total budget of \$12.7 million to the NHLBI to study a novel anti-inflammatory therapy for cystic fibrosis. Additionally, Dr. Francesco Celi in the Department of Internal Medicine submitted a large \$11.8 million proposal to the Patient Centered Outcomes Research Institute (PCORI) to fund a comparative effectiveness trial on thyroid hormone replacement therapy.

The translational research successes of School of Medicine investigators in FY16 have been impressive. In FY16 alone, Medicine investigators have submitted 51 invention disclosures, 25 patent applications, and executed 2 licensing agreements.

Nine doctoral students were recipients of NIH individual fellowships (F30 or F31) and one postdoctoral fellowship was awarded (F32) in FY16. Three young investigators received NIH career development awards (K99, K12, and K01). Additionally, doctoral students and postdoctoral trainees were supported by nine ongoing NIH training and education grants.

The School of Medicine also played a key role in the establishment of two new research centers in FY16. The VCU Johnson Center for Critical Care and Pulmonary Research fosters collaborative translational research by serving as a catalyst for advanced research in critical care medicine and pulmonary disease. The Center focuses on two-way research: bench-to-bedside and bedside-to-bench. Also established in FY16, the Weil Institute of Emergency Medicine and Critical Care has the stated goal of discovering and developing concepts and methods for more beneficial life-saving medical management. The Weil Institute will help facilitate access to critical, emergency, and resuscitation care, especially for life or death conditions.

The School of Medicine received \$548,568 in research and instructional HEETF funding for FY16.

**Sponsored Programs FY2016\***

Anatomy and Neurobiology – 3,707,877
Anesthesiology – 244,708
Biochemistry and Molecular Biology – 7,549,749
Biostatistics – 1,320,710
Center on Health Disparities – 1,728,202
Deans Office – Medicine – 6,883,315
Emergency Medicine – 168,651
Family Medicine - Epidemiology – 7,626,030
Healthcare Policy and Research – 2,471,619
Human and Molecular Genetics – 3,326,720
Inst. For Drug & Alcohol Studies – 4,094,846
Internal Medicine – 25,292,738
Microbiology and Immunology – 7,833,760
Neurology – 2,395,060
Neurosurgery – 729,313
Obstetrics and Gynecology – 977,538
Office of Health Innovation – 41,481
Orthopedic Surgery – 1,596,469
Otolaryngology – 5,000
Parkinson’s Center of Excellence – 2,217,481
Pathology – 1,446,184
Pediatrics – 4,473,898
Pharmacology and Toxicology – 12,017,446
Physical Medicine and Rehabilitation – 15,204,331
Physiology and Biophysics – 5,753,431
Psychiatry – 1,186,086
Radiation Oncology – 337,649
Radiology – 126,667
Surgery – 2,771,785
VCU Johnson Center – 106,526
VIPBG – 7,934,072

Total: 129,171,859

\*As of 8/4/2016

## **Graduate Education**

Enrollment for the Fall 2015 term included 251 Ph.D., 136 Masters, and 102 Certificate students registered. The enrollment data do not include an additional 14 Ph.D. students in the MD/PhD program who are enrolled in the Clinical/Translational Science program. Financial support for these students comes from School of Medicine resources and the students are performing their research in the laboratories of School of Medicine faculty members.

During the year, students enrolled in the School of Medicine programs secured 15 individual training awards from the NIH (F30 or F31 awards). The School of Medicine awarded 41 Ph.D., 64 Masters and 71 certificate degrees during the 2015-16 academic year.

### **POST-CANDIDACY TUITION RELIEF FOR INVESTIGATORS**

In 2015-16, efforts made by the School in cooperation with the VCU Graduate School to reduce the tuition cost to extramural awards secured by members of the faculty were partially realized and implemented. Once a student achieves Doctoral Candidacy, investigator-funded tuition costs are reduced by 62% (from the payment of 21 credit hours annually to 8 credit hours). The balance is paid by roughly equivalent contributions from the VCU Graduate School and the School of Medicine.

### **INCREASED STIPEND LEVEL**

With the advent of significant savings to investigators, the School of Medicine increased the twelve month stipend for doctoral students to \$27,000 for all enrolled students. This is a key step in maintaining a competitive position in our efforts to attract the highest quality students.

### **PROGRAM DIRECTOR POSITION**

The School of Medicine has initiated a review of the department level practices/understanding of the function, time commitment and reward system for individuals who serve as Graduate Program Directors. Graduate Program Directors play an essential role in monitoring the performance of faculty and students engaged in graduate training and serve as key liaison between participants in a program and the School and University. While recognizing that there will be differences in workload for individuals holding this position, the School is examining current practices with a view to creating a statement of explicit expectations to ensure consistent practice within the School.

### **IMPACT OF INSTITUTIONAL TRANSITIONS**

The Office of Graduate Education and the Program Directors of academic have had added time commitments owing to a number of transitions taking place in the administration of graduate education at the institutional level. The University has implemented new software systems for monitoring student progress to degree completion and the Application to Graduate (“DegreeWorks”), submitting proposals for new courses and programs and the submission of materials for inclusion in the University Bulletin (“CourseLeaf CIM”). We have been working with a new Director for Graduate and International Admissions in the Office of Strategic Enrollment Management, following the sudden resignation of the previous Director in August of last year. As these transitions have taken place we have made an effort to

establish a functional connectivity between relevant institutional offices and the MD program which will be impacted by these modifications.

### **EMERGING ISSUES**

Career Planning - The School of Medicine has continued its partnership with the VCU Career Center to expand activities which provide our trainees (at the graduate and post-doctoral level) with information and opportunities to develop an enhanced approach to determining their career objectives and the skills needed to be successful in achieving their aims. New activities this year have included training in the use of the Individual Development Plan (now required of all School of Medicine PhD students); “Rams on the Road,” a two day trip to the D.C. area to visit the NIH, a private sector firm and professional societies in cooperation with School of Medicine graduate alumni serving as hosts; and a networking development exercise, an event held with the cooperation of VABio, the biotechnology professional society in Virginia, providing students with guidance in networking strategies followed by a networking opportunity with the private sector at a reception where students are challenged with the objective of networking with VABio members. These activities were added to the other events held during the year and will be repeated in the coming academic year.

Quantitative Skill Development – There has been an increased recognition of the importance of quantitative skills in biomedical research from the perspectives of study reproducibility, analytical rigor, and opportunities afforded by the generation of large data sets (“big data”). The programs in the School of Medicine have long been served by a two-course sequence offered by the Department of Biostatistics, BIOS 543 and BIOS 544, Statistical Methods I and Statistical Methods II respectively, which have provided a foundation in this area. These courses had not been reviewed in some time and the Department undertook a comprehensive examination of the two-course sequence and have brought a series of recommendation for modifications forward for consideration. The Graduate Program Directors will be meeting early in 2016-17 to review these changes and examine the need for additional opportunities for quantitative training relevant to the anticipated expectations of biomedical scientists in the future.

Internships - The School of Medicine has coordinated several internship activities for doctoral students providing direct experience in a non-academic setting. Doctoral student interest in such experiences is clearly increasing. Accordingly, we are initiating a project to develop guidelines for students, faculty and non-academic organizations to provide a structured framework for such activities. We are fully sensitive to the nature of biomedical research and the need to ensure that the research programs of faculty are not compromised by participation, while providing our student populations with practical experience that can enhance their ability to secure employment.

### **DEVELOPMENT OF ELECTRONIC GRADUATE EDUCATION FORMS**

To improve the management of the administration of graduate programs, the School is partnering with the Graduate School to perform the programming needed to transform existing hard-copy forms employed by the Graduate School into electronic documents. This project will improve the efficiency of completing and transmitting these forms and enhance accuracy of the information provided. We anticipate that the project will be completed early in the 2016-17 academic year.

### **PARTNERSHIP WITH THE OFFICE OF PLANNING AND DECISION SUPPORT TO POPULATE TRAINING GRANT TABLES**

The School strongly encourages the submission of applications for federal support of training programs to the National Institutes of Health and the National Science Foundation. The advantages of securing such

awards, both in terms of prestige as well as providing a more stable funding base for doctoral education, are evident.

A serious impediment to the preparation of such applications lies in the need to complete a variety of tables documenting the numbers, quantitative attributes and demographics of applicant and enrolled student information, information on faculty participants in the program and other related information over a 10-year period. The Office of Graduate Education has initiated planning to work with the Office of Planning and Decision Support (OPDS) to annually generate data fields that would facilitate the population of such tables as a service to academic programs on both campuses.

## **DEVELOPMENT**

### **FY 16 GOAL EXCEEDED BY 33%**

Gifts and pledges to the School of Medicine for the fiscal year ending June 30, 2016 totaled \$39.7 million, surpassing the \$30 million goal by 33%. The five year history of gifts and pledges is noted below. Fundraising totals have grown in response to the expansion of personnel and resources. The School of Medicine's most recent five-year average of \$34.8 million represents a 24% increase over the previous five years.

FY12	\$46.2M
FY13	\$23.7M
FY14	\$20.9M
FY15	\$43.5M
FY16	\$39.7M

#### **Gift Type**

Cash Gifts and Pledges Including realized bequests	\$28.5M
Planned Gifts	\$3.5M
Philanthropic Grants	\$7.7M

#### **Gift Source**

Alumni	\$19.2M
Non-Alumni Individuals	\$4.1M
Corporations and Foundations	\$6.5M
Other	\$9.9M

Reunion Weekend attracted over 200 Medicine alumni and guests back to campus.

Major gift officers continue to travel around the country engaging alumni in ever-increasing numbers. In addition to Virginia, major gift officers are assigned to the following states where concentrations of well-rated prospects reside: North Carolina, South Carolina, Tennessee, Georgia, Florida, New York, Illinois, Pennsylvania, California, Massachusetts, Colorado, Washington, Arizona, Maryland, District of Columbia, Texas, West Virginia, and Mississippi. Gifts of which we are particularly proud this past year include:

- Ken Wright \$16,000,000
- Pauley Family Foundation \$4,000,000
- The United Company \$1,000,000

The University will announce a University-wide campaign in September. The School of Medicine will have a goal in that campaign of \$300 million. The School has raised a total of \$170.1 million toward that goal, leaving about \$130 million to be raised by the close of the campaign on June 30, 2020.

Four issues of the School of Medicine alumni magazine (*12<sup>th</sup> & Marshall*) have been published to the rave reviews of Medicine alumni around the country.

## **Facilities**

### **CONTINUED RENOVATION AND CONSTRUCTION**

The School of Medicine continues to pursue an aggressive renovation and capital construction program for its educational and research facilities. The projects include the completion of the first phase of the 4-phase Sanger Hall renovations for the 4<sup>th</sup> and 5<sup>th</sup> floors, Sanger Hall - B3 administrative and research space, West Hospital renovation projects for key faculty recruits, and the design of a number of research, administrative, and student spaces.

The Sanger Hall – Phase I was completed in the spring of 2016. This provided both wet bench research and administrative space for the Department of Pathology. The remaining three phases were put out for re-bid by University Facilities. Phase II Lab renovations project initiated by the University to address the research needs for the School began in July 2016 and is projected to be completed by February 2017. This \$25 million effort will modernize the existing space by creating an open lab floor plan for enhanced collaboration and ultimate flexibility to meet future grant and research demands. The project was divided into 4 distinct parts (A, B, C, D) for design and budget purposes. Completion of all four phases is anticipated to be May 2018.

The renovation of Sanger Hall - B3 wet bench research and administrative spaces represents the final stages of the Sanger Hall Flood Recovery. This newly renovated space accommodated the recent addition of the Weil Institute to the School of Medicine. Both wet bench research/surgery space and administrative offices were made available to meet the needs of the Weil Institute.

The Center for Molecular Imaging (CMI) acquired a state of the art PET/CT System to support in vivo molecular imaging. Located near the MRI on Sanger B3, this will be the first installation of this system in the United States, representing the School's commitment to the University's Quest for Distinction. Original plans were modified to include the CMI operations from the Gateway Hospital and will be completed by February 2017.

Sanger Hall B3 will become a major research hub that will integrate the Weil Institute, the CMI, and the research efforts of Dr. Greg Hundley. In addition, the Department of Animal Resources (DAR) will have a new shared animal surgery suite that is projected to be completed by December 2016. State regulations mandated some modifications of the usage of chemicals on a subfloor facility. To address compliance, oxygen and carbon dioxide supply will need to be engineered from the above Sanger Hall B2. This project will enable all surgery and research labs to have access to the needed chemicals. Projected completion of this project is October 2016.

Relative to the School's departments' administrative needs, West Hospital continues to be the center point for a number of current and future projects. While addressing the facility's aging and neglected HVAC challenges, we continue to utilize a modern approach to space planning by incorporating workstations in lieu of offices to maximize square footage. The projects in West Hospital include Radiology (WH-2 North

Wing) and Transplant Surgery (WH-15 North Wing), Surgery (WH-15 West Wing and 16 South Wing) Orthopedics (WH-9 multiple wings), and Dr. Greg Hundley/Pauley Heart Center (WH-8, North and West Wings). The Radiology project was completed in December 2015. Transplant Surgery will be completed by March 2017 while the remaining Surgery renovations should be completed by December 2016. The Orthopedic project will involve strategic renovations to existing space in multiple wings on the 9<sup>th</sup> floor. Facility Planning and Design will work with the Department Chair to finalize this project by May 2017. With Dr. Greg Hundley serving as a consultant, planning and design can commence on the renovations of the two wings on the 8<sup>th</sup> floor. Both wings should be completed by August 2017.

In regards to academic support spaces, the School committed to renovating an existing student study space to accommodate a new Genetic Counseling study space, coupled with an adjacent study space to meet LCME requirements. The project was completed in February 2016.