Message from the Chair

John E. Nestler, M.D., Department Chair

I have started my every-other-year tradition of meeting with each faculty member in the department for a one-on-one discussion of effort allocation, academic progress, long-term career goals, career development and life-work balance. As is always the case, I am impressed by the breadth of talent and diversity of ambitions. The good news is that there is a valued place for all types of careers in the department: dedicated clinician, clinician-educator, physician-scientist or PhD scientist.

It is important for an individual faculty member to identify with one of these career paths, so that proper allocation of efforts can be made and expectations set. The number of dedicated clinicians in the department is few, and their teaching duties limited. Yet they fulfill an important role in the delivery of outstanding and compassionate clinical care, and many are what I would call “Master Clinicians.” Clinician-educators comprise the vast majority of the department’s faculty, and include our core educators, associate program directors, academic hospitalists, generalists and most subspecialists. They primarily lead our educational programs and provide patient care, and there is also an expectation of scholarship. Physician-scientists and PhD faculty are expected to successfully compete for grant funding, conduct quality research, publish and educate our trainees.

Due to expected effort in teaching, service and scholarship, the criteria for promotion and tenure differ among these faculty designations. As an academic faculty, all faculty members are expected to participate in some (continued on page 2)
Rashmi Pershad is Here to Help the Department with Research Administration

Originally from the United Kingdom, Rashmi Pershad came to Richmond by way of Houston, where she worked for the MD Anderson Cancer Center at the University of Texas, and then Charlotte, where she worked for the Carolinas HealthCare System. In June, she joined the VCU Department of Internal Medicine as the associate administrator for research administration. In this role, she supports DOIM faculty by overseeing administrative resources, processes and staff for the divisions. She also helps to prepare grant requests and new proposals, and facilitates other grant-related issues. To this role, Rashmi brings extensive expertise from her prior research experience as well as a unique perspective from the clinical side.

Rashmi has a Master of Philosophy degree in molecular genetics and is a certified clinical research professional (CCRP). She began her career using molecular biology techniques to perform experiments. Then, when she came to Houston, Rashmi worked at the DNA Core Facility at the MD Anderson Cancer Center from its inception, and served as its co-director and genome facility manager for several years. The DNA Core Facility provides genetic sequencing and genotyping, in addition to many other amenities. The facility primarily provides services to its own physicians and researchers, as well as to external users on a limited basis. In the five years that Rashmi directed the facility, it provided service to more than 50 doctors and the work coming out of it was published in more than 100 publications.

While in that position, Rashmi gained valuable knowledge about research, the strategy and psychology of grant writing, and preparing budgets for studies, which led her to switch to administrative research work in subsequent positions. She raised more than $2.5 million in funding from the National Cancer Institute for her own research and has been published multiple times as well.

In her role as research manager at the Carolinas HealthCare System in Charlotte, Rashmi managed the daily operations of all grant-funded research projects and industry-sponsored clinical trials, including budgets, timelines and other deliverables. She was also part of a grant-writing team that secured $13 million of federal, state and foundation funding for rehabilitation research.

After moving to Richmond, Rashmi was looking for a position in academic medicine and was impressed with the interesting, cutting-edge work the VCU DOIM is doing. She is excited to be a part of the department, where she feels she will thrive in the deadline-driven environment of preparing grants.

In her new role, Rashmi looks forward to working with the department’s clinical faculty to help them present the best version of grant proposals for their funding requests. Her calm demeanor and organized approach will certainly be assets to those whom she aids in the grant writing and submission processes. Rashmi enjoys engaging in work that she finds challenging and strives to be a helpful resource to her colleagues.

Rashmi reports to department administrator Al Dunn, who said, “We are very excited to have Rashmi as part of our department management team. She brings extensive experience in all areas of research management, and she is already making a difference in improving our research policies and procedures.”

When she is not working, Rashmi enjoys being immersed in and connecting with nature. Rashmi starts every morning by meditating, and takes walks and hikes whenever possible. Whether she is taking a short walk around the block or a long hike through a state park, Rashmi loves being able to connect with the outdoors. She delights in traveling both throughout the United States and abroad, spending time with her family, which includes her husband and two sons, and making memories in new places.

As her children were growing up, Rashmi enjoyed being involved with their activities such as the Boy Scouts of America and was active on the PTSO at their schools. Always curious about the world around her, Rashmi enjoys watching nature documentaries and reading non-fiction. She enjoys tennis, good dark chocolate and the blooms of spring.

Rashmi’s office is located in the administrative suite on the first floor of Sanger Hall. Please wish her welcome if you are in the area.
Dr. Fowler and His Team Test the Use of Vitamin C to Prevent Acute Lung Injury

Dr. Alpha A. “Berry” Fowler, III is the immediate past chairman of the Division of Pulmonary Disease and Critical Care Medicine and holds the position of director for the VCU Johnson Center for Critical Care and Pulmonary Research. In his role as director of the Johnson Center, he works with many researchers and clinicians to bring ideas and research out of research laboratories to create clinical trials aimed at alleviating or curing certain types of critical illness or pulmonary disease. Dr. Fowler says his team’s work in the Johnson Center is to “harness the brain power” of both VCU campuses to strike at human disease.

The idea to treat acute lung injury due to bacterial sepsis with high doses of vitamin C came to Dr. Fowler and his team as the result of a collaboration focused on a different issue; sometimes proximity is the mother of inspiration. Eight years ago, Dr. Fowler and his team collaborated with Dr. Rakesh Kukreja from molecular cardiology to develop a molecular way to enhance protein concentration in a mouse heart called hypoxia-inducible factor-1 (HIF-1). By increasing HIF-1 to very high levels, they were able to prevent murine hearts from undergoing ischemic heart injury. The team submitted its findings to the journal Circulation Research and received positive feedback. However, one of the reviewers requested that in the team’s next experiment it should save a mouse heart by boosting HIF-1 and then injure it all in the same experiment. Ramesh Natarajan, Ph.D., who has been a part of Dr. Fowler’s team since 1999 had come across a study done in the 1990s which noted that ascorbic acid (found in vitamin C) would knock down the levels of HIF-1. Based on this study, Dr. Fowler’s team gave the mice vitamin C and the result was that the hearts deteriorated. They wrote up their findings, addressed the reviewer’s suggestions for the journal, and the study was published. Dr. Fowler and his team then put aside their few ascorbic acid studies and went on to other unrelated research.

Years later, Dr. Natarajan shared a study he found with Dr. Fowler detailing how Australian investigators had shown that in human sepsis, HIF-1 levels were high. Dr. Natarajan proposed that they do another experiment where they would give ascorbic acid to septic animals to determine if it had an impact.

From this initial idea, Dr. Fowler and his team began to create experiments to study the effects of ascorbic acid on septic mice. They created sepsis in mice by collecting feces from their cages and ultrasonifying it, followed by centrifugation to separate liquid from the solids. They took the liquid, which contained billions of bacteria, refrigerated it overnight and injected 1/10 cc into their mice the next day. All of the mice became profoundly septic. The next step was to produce lung injury with the sepsis and reverse the injury by introducing ascorbic acid into the mice. The team made one cage full of 10 mice septic and another cage of 10 mice septic, but also injected ascorbic acid into the bellies of the mice in the second cage 30 minutes later at 4 p.m. The next morning, one cage was full of dead mice and the other cage was full of mice running around. They started with 200 micrograms of ascorbic acid per gram of mouse body weight and never varied from that because all of the mice were surviving. Over the next six or seven months, the team performed a variety of studies, which resulted in the complete abolishment of lung injuries of septic mice.

To assess the extent of lung injury in the mouse model, the team used broncho-alveolar lavage protein measurements. Normal lung lavage protein is very low. Injured lungs lose the "barrier function" between the alveolar space and the vascular space, causing blood and plasma to move across pulmonary capillaries to cause a protein-rich lavage. They also studied the cell content of the lavage fluid. The septic injury leads to many blood white cells (which are activated and cause damage) to move across capillary walls and get into the normally dry alveolar space. This causes deterioration of blood gases and, in the case of the mice, resulted in feces-induced peritonitis. They also studied lung histology to assess the presence or absence of characteristic findings of lung-injured animals.

In March 2010, several months into the intense study of ascorbic acid on septic mice, Dr. Natarajan emphatically appealed to move to studying ascorbic acid in human sepsis. In the United States alone, the latest estimate is that 795,000 people develop sepsis annually, and, of that number, about 40 percent or 318,000 will develop lung injury from it.
meningitis and intravenous line infections.

In light of the need to combat sepsis in the human population, Dr. Fowler wrote an IRB protocol proposing to give vitamin C to patients with sepsis. He also connected with Robin Sculthorpe, B.S., R.Ph., who is the coordinator for the investigational drug service at VCU. After Dr. Fowler explained the proposed trial to her, Ms. Sculthorpe determined that she could provide the vitamin C. Dr. Fowler would need for phase one of his clinical trial at no cost to his team.

Dr. Fowler and his team began a phase one trial to treat lung injury caused by sepsis with a high concentration of vitamin C in the VCU MRICU. They gave patients vitamin C intravenously, which showed a spike in the blood level of vitamin C. In the phase one trial, Dr. Fowler and his team studied eight patients with sugar water given as a placebo, eight patients with a low concentration of vitamin C and eight patients with a high concentration of vitamin C over a four-day period. All of these patients were severely septic and no patients were withdrawn for any safety issue. Patients coming into the ICU typically have a level between 10 and 11 micromolar concentration (normal concentration is between 60 and 80 micromolar). The high dose vitamin C led to a level of 3,000 micromolar of vitamin C. The team used the Sequential Organ Failure Assessment score to evaluate how ill the patients were. SOFA measures the respiratory system, neurological system, cardiovascular system, liver, bone marrow and the kidneys, and depending upon how severely these organs are affected, the patient receives a progressively higher score. If a patient enters the VCU MRICU with a SOFA score of six, he is very ill. The patients Dr. Fowler’s team studied had an average SOFA score of 13. If a SOFA score rises, the patient has a 60 percent chance of dying. The patients who received the placebo had vascular injury from the sepsis, which did not happen in the patients who received the vitamin C. The infused vitamin C reduced organ failure immediately and dramatically.

In 2012, team member Bernie Fisher discovered an NIH program called Novel Therapies for Lung Disease. This program wanted to test a novel therapy in a multi-site study. Dr. Fowler invited Dr. Jonathon Truwit from the University of Virginia, Dr. R. Duncan Hite from Wake Forest University and another colleague from Emory University to participate in a phase two trial. They submitted a grant titled “Vitamin C Infusion for Treatment in Sepsis Induced Acute Lung Injury (CITRIS-ALI)” to the NIH for $3.2 million. They received a 6 percentile score on their grant submission.

The phase two trial began two years ago with several changes in venue. Dr. Hite, who had been at Wake Forest, became Chair of the Department of Critical Care Medicine at the Cleveland Clinic, and Dr. Truwit moved to the Medical College of Wisconsin, so patients have been enrolled at these two institutions rather than at UVA and Wake Forest. In addition, Emory is no longer a part of the clinical trial. At this time, the trial has enrolled 50 patients. The initial proposal was for 170 patients; a year and a half remains for the remaining patients to be enrolled in the trial. Dr. Fowler said he felt this was quite feasible. All three participating institutions see approximately 8,000 septic patients annually from various departments including labor and delivery, surgery, trauma, neuroscience, cardiology and others.

In reflecting on this clinical trial experience, Dr. Fowler said he felt there had never been a roadblock from VCU. He said:

“The VCU Medical Center has been incredibly helpful. I have only gotten encouragement from every corner. Nursing support has been amazing. Investigational pharmacy support has been amazing. The Department of Medicine, School of Medicine, the vice president for research, all have been supportive and positive.”

What is encouraging about Fowler’s vitamin C trials is that acute lung injury due to bacterial sepsis has been studied for about 35 years. There have been around $2 billion from the NIH and industry invested and approximately 15,000 patients studied. There had never been a therapy that reduced lung injury before Dr. Fowler and his team started this trial.

If things proceed well with the phase two trial, Dr. Fowler would like to conduct a phase three trial and enroll several thousand patients. Other studies Fowler and his team would like to conduct relating to vitamin C treatment include how it affects cystic fibrosis; patients coming off cardio-pulmonary bypass after open heart surgery; abnormal heart rhythms; patients with closed head injury, to stop brain swelling; patients following bone marrow transplant, to reduce the incidence of post-transplant graft versus host disease; and patients following atrial ablation procedures to reduce the incidence of post procedure pericarditis. The vitamin C will be flowing for many years to come. IM
In order to better serve patients, Dr. Gonzalo Bearman, chairman of the Division of Infectious Diseases recently redesigned the service lines that the division provides. The Division of Infectious Diseases is clinical with two subgroups: HIV Care and Hospital Infection Prevention and Epidemiology. As a clinical group, the division provides expert services in an inpatient setting with three service lines, two of which have dedicated doctors. The three service lines are: general infectious diseases, transplant infectious diseases with Dr. Oveimar De la Cruz, serving as the dedicated physician, and orthopaedic infectious diseases with Dr. Julie Reznicek serving as the dedicated physician.

The new structure will enable the division to provide consistently high quality critical care through the three service lines, residents and students and will see the lion’s share of patients directed to the division. There will also be a general infectious diseases service staffed by faculty in a limited capacity for consultations Monday through Friday to reduce the academic service’s patient volume.

The division has been undergoing a restructuring process that began about five years ago when then chair Dr. Michael Edmonds saw the need to restructure the transplant service. More recently in December 2014, the orthopaedic infectious diseases service line started because of the volume of referrals with infected bones and joints the division was seeing. This service line works closely with the Department of Orthopaedics to care for patients.

The division’s restructuring has allowed the respective service lines to see a manageable number of patients per day. The transplant service sees 10-14 patients per day. The orthopaedic service line sees 8-12 patients per day. The Richard P. Wenzel Academic Infectious Diseases Service sees 12-16 patients per day, and the faculty infectious diseases service line aims for up to 8 patients per day.

Some of the more common infectious diseases the division encounters include HIV and AIDS-related complications, complicated skin and soft tissue infections such as MRSA, infections from invasive devices and prosthetic valves, as well as some travel-related infectious diseases such (Continued on page 6)
as malaria. One of Dr. Bearman’s favorite parts of working in the Division of Infectious Diseases is that infectious diseases frequently cross disciplines enabling him to work with colleagues from general internal medicine, surgery, orthopaedics, cardiology, ob-gyn and the various ICUs at the VCU Medical Center. In the spirit of collaboration, the division will have its first Gordon Archer Conference on November 23, 2015. This will be a full-day conference in the Larrick Student Center for the division of infectious diseases and the Department of Microbiology and Immunology to share research and learn from colleagues. IM

Dr. Nathanial Warner Receives the Arnold P. Gold Award for Humanism and Excellence in Teaching

Dr. Nathanial C. Warner has the distinguished honor of being named a 2015 recipient of the Arnold P. Gold Humanism and Excellence in Teaching Award.

Dr. Arnold Gold, is a world-renowned pediatric neurologist at Columbia University’s College of Physicians and Surgeons. He and his wife, Sandra, and their colleagues at Columbia began the Arnold P. Gold Foundation in 1988 in order to nurture and preserve the tradition of the caring physician. Dr. Gold feared that scientific discoveries and advances in technology were shifting the focus of medicine from caring for the whole person to an over-reliance on technology.

The Arnold P. Gold Foundation initiated the Humanism in Medicine Awards in 1991 to recognize students and faculty members who best demonstrate the foundation’s ideals of outstanding compassion in the delivery of care, respect for patients, their families and healthcare colleagues, as well as demonstrated clinical excellence.

According to the foundation, “Humanism in health care is characterized by a respectful and compassionate relationship between physicians, as well as all other members of the healthcare team and their patients. It reflects attitudes and behaviors that are sensitive to the values and the cultural and ethnic backgrounds of others.”

Recipients from the VCU School of Medicine must demonstrate compassion and empathy in the delivery of care to patients. They must serve as role models for students and colleagues, and they must be approachable and accessible to students. They must exhibit enthusiasm and skill in professional and personal interactions with students. They must show respect for everyone with whom they come in contact. They must demonstrate cultural sensitivity in working with patients and family members of diverse ethnic or religious backgrounds. In addition, they must display effective communication and listening skills.

Dr. Christopher Woleben is the associate dean for student affairs, an associate professor of emergency medicine and pediatrics, and the VCU School of Medicine faculty liaison with the Arnold P. Gold Foundation. Dr. Woleben said of Dr. Warner, “I am not at all surprised that Nate was selected by our medical students to be a recipient of this award. He demonstrated all of the characteristics of a humanistic physician and teacher while he was a medical student here at VCU School of Medicine. We are all very proud of his continued accomplishments and dedication to excellence in patient care.”

Dr. Nina Olsen, who was a fourth year medical student at the time, nominated Dr. Warner for the award. Dr. Warner was her intern when she was on Internal Medicine Wards rotation and then her second year resident when she was in MICU at the VA hospital. Dr. Olsen said the following in her nomination of Dr. Warner:

Dr. Olsen went on to recall a specific example of the extra level of care Dr. Warner provided for his patients. She said:

“I remember the time when he went out of his way to take care of [a] patient who had come in with a swollen knee that looked like a septic joint… the aspirate came back as negative for infection. Nate did not believe the report, so he personally went downstairs to the lab to look at the slide. He ended up finding Staph aureus in the aspirate! The patient was put on the appropriate antibiotics, and made a successful recovery.”

Dr. Olsen concluded her nomination of Dr. Warner by saying, “[His] dedication to the care of his patients, constant thirst for knowledge, and commitment to teaching definitely make Dr. Warner deserving of this award.”

Nate Warner is an excellent teacher, a dedicated resident and most importantly, just a great human being. No matter how busy it was, he always found time to teach us everything about internal medicine: both theoretically and practically. ...Not only is he a great teacher, he is also a dedicated student. His eternal curiosity about disease processes is contagious. Whenever Nate stumbles upon something he does not know, he always makes sure he reads about it, understands it and teaches what he learned. He is also a devoted physician, making excellent care of his patients his number one priority.

Dr. Warner is originally from Virginia Beach, VA, and attended VMI where he ran track and cross country, was an academic mentor, held cadet rank and was on the honor court his first class (senior year). He attended medical school at VCU School of Medicine and graduated in 2013. Of receiving the Arnold P. Gold Humanism and Excellence in Teaching Award, Dr. Warner expressed that he is honored, and that he loves teaching and sharing his love of medicine with others. With regard to keeping humanism in healthcare, Dr. Warner said, “It is such an honor to care for people when they are most vulnerable. I always try to remember that even when the day is late and there is a lot to do. One of my favorite quotes is … by St. Phillip Augustus, "within whose walls we toiled hard, yet came out feeling we had in some way, helped our Father in saving a life." Dr. Warner looked to his own father as a role model of a doctor stating that he is the most “selfless, dedicated and wisest physician I know.”

Award recipients receive a certificate and lapel pin as well as $250 from the Arnold P. Gold Foundation, and they were featured on the Accreditation Council for Graduate Medical Education (ACGME) website. The VCU School of Medicine gave the recipients a plaque and invited them to share their thoughts on maintaining a sense of humanism in the delivery of patient care with rising M3 students in the Student Clinician Ceremony held at the end of M3 Orientation. Recipients are also listed on the VCU School of Medicine’s website. Congratulations Dr. Warner! IM
Dr. Elizabeth “Betsy” Ripley has the distinct honor of being named the 2015 recipient of the WISDM Professional Achievement Award in the VCU School of Medicine. The WISDM Professional Achievement Award is presented by the Women in Science, Dentistry, and Medicine (WISDM) Faculty Organization of the VCU School of Medicine. Established in 1993, the award acknowledges the contributions and accomplishments of women faculty in the School of Medicine. It seeks to recognize a woman who is a role model and mentor who promotes the professional development of other female faculty. Nominees must have demonstrated excellence in the following five areas: success as a mentor and role model for female faculty, professional excellence, leadership, scholarship and teaching expertise. The colleagues who nominated Dr. Ripley for the WISDM Award shared many stories of how she has educated, helped and cared about them and others through the years.

Dr. Susan DiGiovanni, professor and associate dean for medical education, said of Dr. Ripley, “During her career, Betsy has mentored dozens, if not hundreds, of premedical and medical students, residents and fellows. . . She models the behaviors of an outstanding physician, educator and clinical researcher. She is very giving of her time to all who ask or look like they need to ask.”

Lou Usry, senior nurse manager of Research Conduct and Clinical Research Services for the Center for Clinical and Translational Research recalled of working with her, “In the clinical Research Center, [as] a principal investigator . . . she teamed with the nursing staff, research coordinators and medical students to implement her research, sharing the knowledge of research ethics and principles and assuring that the research procedures and data collection were strictly followed as outlined in the research protocol. . . She attended the nursing unit’s meetings to keep staff informed of the research progress and was always available to trouble shoot issues that would arise. The nursing staff always felt a partnership with her and that their input was encouraged and valued.”

Dr. Shin-Ping Tu, professor and chair of the Division of General Internal Medicine, said in her nomination letter for Dr. Ripley, “Our Division is most grateful to the time, energy, and ‘heart’ that Dr. Ripley invests in our faculty so that we can successfully achieve our mission of excellence in patient care, education, and scholarship.”

Dr. Ripley received her award at the WISDM Leadership Conference on April 24. Please congratulate her on this honor. IM

### Update from the Associate Chair for Quality and Safety

Physician leadership is an essential component of any effective quality and safety program. This year, we are engaging our faculty and learners in new ways to ensure that the physician perspective is represented in every facet of our organization’s improvement efforts. Our department’s drive for innovation is on display as we test tools for promoting patient-centered care, build more reliable care transitions and create meaningful improvements in our daily work environment.

**Improving Care Transitions:** Last year, we tested out a novel rounding strategy paired with a geographic admissions structure on three of our inpatient medicine services. This model encourages effective team communication, incorporates essential elements of discharge planning and promotes engagement of the patient and family in the process. After only a few months, we are already seeing a significant decline in length of stay, a reduction in falls, more efficient discharge planning assessments and an improvement in patient satisfaction on these teams. This year, we are adding to that model with nine other elements of best practice for discharge care transitions. Continued success on these services will build a case to spread these efforts to other areas of the department.

**Voluntary Error Reporting System:** The voluntary error reporting system is a proactive approach to preventing patient harm. There is no better source for this information than the faculty and learners in our department who work hard every day to ensure the best patient outcomes possible. Our safety event reporting system (formerly the Patient Safety Net or PSN, now Safety Intelligence or SI) has undergone a major upgrade recently. Users will notice that the reporting interface is more provider-friendly, but the backend system for analysis has also been given a facelift. The reconfigured tool will allow us to integrate local physician leaders throughout the entire process from reporting to investigation and feedback. We have already started identifying and training SI faculty champions across the department.

**Safer Handoffs:** Ineffective verbal handoffs have been identified as a root cause of error in countless serious safety events at VCUHS and nationally. We are continuing to rollout IPASS, the standardized, evidence-based handoff bundle that aims to reduce medical errors associated with verbal and written miscommunication. We are currently tailoring the tool to fit the MRICU service under the leadership of Dr. Kristin Miller. The process also involves training faculty, fellows and NPs so we all have a common language with the residents when talking about this high-risk process. The enthusiasm of our other services that have requested IPASS implementation has been greatly appreciated. The goal is to eventually roll this tool out to all inpatient services.

Sarah Hartigan, M.D.
Associate Chair for Quality and Safety
Assistant Professor in the Division of General Internal Medicine
Department of Internal Medicine
Assistant Medical Director for Performance Improvement at MCV Hospitals
Welcome to Our Faculty

Deepak Thomas, M.D., M.Phil. joined the Division of Cardiology as an assistant professor and tri-cities interventional cardiologist in August. Dr. Thomas joined the division from the University of Virginia where he was an advanced-fellow in interventional cardiology.

Jeffrey Taylor, M.D. joined the Division of Endocrinology and Metabolism this September as an assistant professor and adrenal physician. Dr. Taylor recently completed a fellowship in endocrinology and metabolism here at the VCU Medical Center.

Congratulations to the Recently Appointed Named Professors in the Department of Internal Medicine

Gonzalo Bearman, M.D. has been appointed to the Richard P. Wenzel Professorship of Internal Medicine, effective August 11, 2015.

John F. Kuemmerle, M.D. has been appointed to the Charles M. Caravati Professorship in Gastroenterology, effective August 11, 2015.

Shin-Ping Tu, M.D. has been appointed to the G. Watson James Professorship, effective August 11, 2015.

Thank you for reading.

For more about the Department of Internal Medicine, please visit us online at:

www.intmed.vcu.edu