

2015-2016

ISSUE 8.5

UNLOCKING SECRETS OF HEARTBEAT ■ RURAL ROOTS BECKON "BLACKHAWK DOWN" HERO

EVMS

MAGAZINE

*The future
of Medicine*

3D PRINTING

SCIENCE
is
TECHNOLOGY
is
ART

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3D printing the future of medicine

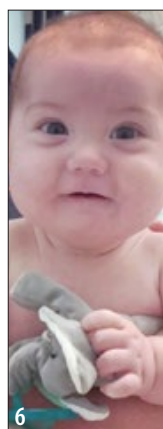
How the fusion of
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A recent *Washington Post* article explored innovative ways that 3D printing is saving lives. However, those lifesaving efforts actually begin in medical schools like EVMS, where this advanced technology is changing how we train medical and health professionals.

For example, we suspend 3D-printed organs in gel for realistic ultrasound training. We produce 3D temporal bones upon which surgery residents practice operative procedures. We also are pursuing grants to partner with a lab that would provide military veterans with 3D-printed orthotics. Discover more about how 3D printing is shaping our region's health care on page 12.

Within this issue, we also highlight other aspects of our positive impact on the health of our community. As the largest class in our history prepares to graduate, meet one student whose lifelong dream of wearing a white coat evolved while growing up nearby in Norfolk's subsidized housing. See her story on page 22.

Our future graduating classes might include some familiar faces if a recent event at a local high school is any indication. On page 10, learn how our M. Foscue Brock Institute for Community and Global Health enabled high-school students to learn about health-care careers.

Earlier this year, I attended the Health Care Heroes awards presented by *Inside Business*. I found myself beaming with pride as EVMS faculty members dominated the ceremony. You, too, can take pride in this and every EVMS achievement, because without your support, those achievements would not be possible. Please accept our gratitude, and be assured that EVMS' first priority is always the community that brought us to life.

Sincerely,

Richard V. Homan, MD

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MODEL MEDICINE

Follow Pathology and Anatomy Intern Katie Van Winkle as she constructs anatomically accurate models in her Lewis Hall lab. Medical and Health Professions students use her creations to better understand human anatomy.

- 1** Katie pours hot ballistic gel into an eye mold to create normal and pathological eyes used in ultrasound training.
- 2** She sculpts a clay mold for a 20-week fetus. The mold is filled with gel around an embedded, 3D-printed plastic skeleton and is used for ultrasound training.
- 3** She uses clay to sculpt and position musculature on a three-foot, pre-made skeleton. The clay muscles help complete an atlas for students learning anatomy.
- 4** She prepares the 3D printer. The printer uses melted plastic to create a model based on a computer-generated diagram.
- 5** She places eyes crafted in stage 1 into a sculpted partial skull. These "ocular pathology trainers" are used to test recognition of the eight most common diseases that affect the eye.



Research being done by Dr. Vitold Galkin (left) and Dr. Howard White might eventually reduce deaths from heart disease.

Scientists unlocking secrets of the heartbeat

Discovery could lead to new treatments for serious heart condition

Scientists at EVMS and the University of Arizona have deciphered the workings of a protein that plays a key role in regulating our heartbeats. Their findings could lead to the development of a treatment for a potentially deadly condition that affects more than six million Americans.

Vitold Galkin, PhD, Assistant Professor of Physiological Sciences, and Howard White, PhD, Professor of Physiological Sciences, working with University of Arizona colleague Samantha Harris, PhD, are studying cardiac myosin binding protein C (cMyBP-C). Mutations in that protein

can lead to sudden cardiac death in young adults and hypertrophic cardiomyopathy (HCM) — a thickening of the heart muscle — in older adults.

Our hearts beat as a result of the interaction of the protein myosin with thin filaments in the heart muscle. This process switches individual heart cells from tension to relaxation in concert with the cardiac cycle, Dr. Galkin says.

“Despite evidence that more than 180 mutations in cMyBP-C lead to HCM,” he says, “the molecular mechanism of its action is unknown even in normal, healthy hearts.”

The team of researchers showed for the first time that one part of cMyBP-C likely activates the heart’s contraction, while a second similar part has the opposite effect. “That suggests that the two parts work in concert to

modulate contraction/relaxation of the cardiac muscle,” Dr. Galkin says.

The discovery, published Feb. 6 in the *Journal of Proceedings of the National Academy of Sciences*, was a result of a multidisciplinary research approach.

“This work has a significant impact on our understanding of the fundamental mechanisms of cardiac muscle regulation and molecular mechanisms that lead to heart disease,” says Gerald Pepe, PhD, EVMS Foundation Chair in Biomedical Sciences and Professor and Chair of Physiological Sciences.

The research was funded by the American Heart Association and the National Heart, Lung, and Blood Institute of the National Institutes of Health. □



To learn more about this research, visit evms.edu/magazine.

Family honors doctor who saved child's life

"You never think it's going to happen to you," Alicia Conrad says. "It was a bomb that was dropped on our lives, an unexpected diagnosis."

Fear overwhelmed Alicia and Joseph Conrad in December 2014 after their third son, Donovan, was born with a cleft palate. At a nurse's recommendation, the Conrads opted to travel from their home in Fredericksburg to the Craniofacial Reconstruction Program at Children's Hospital of The King's Daughters. That's where they met Travis Reeves, MD, and Eric Dobratz, MD (MD '03), both Assistant Professors of Otolaryngology-Head and Neck Surgery at EVMS.

They told the Conrads that along with a cleft palate, Donovan had Pierre Robin Syndrome, which results in a small lower jaw and a tongue that falls back in the throat.

A day after the new diagnosis, Dr. Reeves made a call that likely saved Donovan's life.

"He was concerned about Donovan's breathing," Ms. Conrad says, "and if he couldn't breathe, he couldn't eat. He wanted to admit Donovan for airway management."

Their son needed surgery to pull out the jaw so the tongue could lie down, allowing him to breathe and eat normally. At first they were hesitant because the procedure required a device to be wired to Donovan's jaw. Ms. Conrad says Dr. Reeves was understanding.

"He told us that he looked into Donovan's eyes and could tell that he couldn't breathe and that he was scared. He said that our son deserved a better quality of life, and he was right."



Donovan Conrad, pictured, might have died soon after being born if not for surgery performed by Dr. Travis Reeves and Dr. Eric Dobratz.

One week later, Drs. Reeves and Dobratz performed Donovan's surgery, and he gradually improved. Now he's 18 months old, and Ms. Conrad says you'd never know he was sick.

Not only is he healthy, he's also a proud big brother. Alicia Conrad had her fourth child last fall. When it came time to think of a name, she says it was easy.

"Gabriel Reeves Conrad was born in November," Ms. Conrad says. "Dr. Reeves was such an advocate for Donovan, and we couldn't think of a better way to thank him for saving our son's life." □

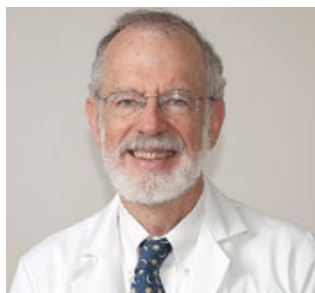


For more photos of Donovan Conrad, visit evms.edu/magazine.

Sleep your way to a healthy life

Sleep is a vital but under-appreciated part of a healthy lifestyle. Studies show that a third of people don't get enough sleep, leading to increased risk for diabetes, heart disease and other serious health problems.

Catesby Ware, PhD, the John and Lillian Norfleet Professor in Internal Medicine



Catesby Ware, PhD

and Chief of Sleep Medicine — with 45 years' experience — the dean of sleep specialists in Hampton Roads, spoke with local news media, including *The Virginian-Pilot*, in the weeks leading up to Daylight Saving Time. Many of his recommendations are helpful any time of year, such as getting up at the same time each day. A regular sleep schedule is important, so he



recommends sleeping at the same time on the weekend as during the work week. Seven hours of sleep is ideal for most adults. Morning exercise will help you get to sleep, while

late-afternoon and early-evening exercise deepens sleep. □



For more advice on getting a good night's sleep, visit evms.edu/magazine.

Largest class ever will graduate May 21

EVMS celebrates its largest commencement to date May 21 as more than 400 students cross the stage to enter careers in health and medicine. The graduates include those from a new master's-level program within the School of Health Professions: Laboratory Animal Science.

In a nod to the challenges these newest graduates will face, guest speaker Eliso Perez-Stable, MD, will focus on his passion for improving the health of poor and minority patients.

Dr. Perez-Stable is Director of the National Institute on Minority Health and Health Disparities at the National Institutes of Health. He oversees the institute's efforts to conduct and support research, training and public education with a primary focus on improving minority health and reducing health disparities. A leader in Latino health and disparities research, his research focuses on smoking cessation and tobacco-control policy in the U.S. and Latin America.

The commencement ceremony, which begins at 10 a.m. Saturday, May 21, at the Norfolk Scope Arena, concludes several days of graduation-related ceremonies. The high-profile events include the annual white-coat retirement ceremony for graduating medical



This year's commencement includes the first graduates of EVMS' Laboratory Animal Science program.

students, the Military Commissioning and Recognition Ceremony, awards ceremonies for various degree programs and receptions for the MD and Health Professions programs. □



For coverage of commencement activities, visit evms.edu/magazine.

EVMS dominates 2016 Health Care Heroes Awards

The Booker T. Washington Student Care Center, led by the EVMS M. Foscue Brock Institute for Community and Global Health, along with 10 EVMS faculty members are among 2016 Health Care Heroes awarded by “Inside Business.”

The Brock Institute established the student care center at the high school through a partnership with Norfolk Public Schools, United Way of South Hampton Roads, United for Children, Optima Health and EVMS Family and Community Medicine.

The 10 faculty members named 2016 Health Care Heroes are listed below by category:

Physician-Internal Medicine:

Ian Chen, MD, MPH

(Internal Medicine Residency '96, MPH '05), Professor of Internal Medicine

Specialist-Ear, Nose and Throat:

Joseph Han, MD

Professor of Otolaryngology-Head and Neck Surgery

Physician-Obstetrics and Gynecology:

Margarita de Veciana Haugh, MD, MS
Professor of Obstetrics and Gynecology



Physician-Dermatology:

Antoinette Hood, MD

Professor of Dermatology

Physician-Leadership:

Christine Matson, MD,

The Glenn R. Mitchell Chair in Generalist Medicine; Chair and Professor of Family and Community Medicine

Physician-Gerontology:

Hamid Okhravi, MD

The Rosemary Fenton and Garnett Jordan Professor in Geriatrics; Assistant Professor of Internal Medicine

Physician-Palliative Care:

Deborah Morris, MD

Assistant Professor of Internal Medicine

Physician-Neonatology:

Brett Siegfried, MD

Associate Professor of Pediatrics

Specialist-Radiation Oncology:

Mark Sinesi, MD, PhD

Assistant Professor of Radiation Oncology and Biophysics

Public Health:

Kelli England Will, PhD

Associate Professor of Pediatrics. □

Integrating psychology into primary care earns national recognition

Barbara Cubic, PhD, Professor of Psychiatry and Behavioral Sciences, was awarded the 2016 Presidential Citation by the American Psychological Association (APA) in recognition of her work to integrate psychology into primary-care medicine. The APA referred to Dr. Cubic as a “trailblazer” and a central force in training psychologists to serve as clinicians, faculty, researchers and leaders in primary-care settings.

“Dr. Cubic has brought both prestige and reputational advantage to our school as a leader of promoting the integration of behavioral health and primary care in an academic health center,” says Stephen Deutsch, MD, PhD, the Anne Armistead Robinson Chair in Psychiatry of EVMS and Chair and Professor of Psychiatry and Behavioral Sciences. “I am delighted that she is the recipient of the presidential citation, a recognition that she so

richly deserves.”

Dr. Cubic has a long history of leading the charge for integrating behavioral health trainees into the primary-care setting. For more than a decade, she has served as the principal investigator on multiple U.S. Department of Health and Human Services Administration grants to explore models of training for integrated practices. □



Barbara Cubic, PhD



To learn more about Dr. Cubic, visit evms.edu/magazine.



Fourth-year students celebrate a great match

This spring, graduating EVMS medical students joined others across the nation in celebrating Match Day by opening their envelopes and learning where in the country they will spend their residency.

According to the Association of American Medical Colleges, nearly 30,000 U.S. and international applicants matched to residency training positions at the nation's teaching hospitals this year. At EVMS, 130 students participated in Match Day and are headed to some of the nation's most prestigious

residency programs including Vanderbilt University Medical Center, Mayo Clinic College of Medicine and Johns Hopkins Medicine — to name a few.

"This is an exciting time in the lives of our medical students," says Ronald Flenner, MD (MD '89), the James E. Etheridge Jr. Distinguished Professor and Vice Dean of Academic Affairs. "We are very proud of the work and dedication our students have put forth to get to this point in their medical school careers." □

EVMS BY THE NUMBERS:

- Students matched in 15 specialties
- 42 percent of the class is pursuing primary care
- 25 percent of the class will stay in Virginia for at least their first year of residency
- The top represented specialties were internal medicine at 17 percent, surgery at 12 percent and family medicine and emergency medicine each at 11 percent

Norfolk high-schoolers learn about health-care career options

Eight of the top 10 jobs in the U.S. are in health care, according to “U.S. News & World Report.” On Saturday, March 19, students from Norfolk’s public high schools talked directly with EVMS faculty and students about the growing array of health-care careers at the first annual Health-Care Career Exploration Event.

Held at Booker T. Washington High School, the event was produced by



Dr. Paul Aravich talked about how the brain functions.

the EVMS M. Foscue Brock Institute for Community and Global Health. It provided high-schoolers an opportunity to learn about the brain, robotics and bystander CPR, along with careers as surgical assistants, physician assistants, physicians and other health professionals. Also on hand were representatives from Tidewater Community College’s nursing program.

While students explored their futures, parents received helpful information on college applications and



A lesson in bystander CPR gave the teens an idea of what it's like to save lives.



Students were even able to practice intubating manikins, thanks to the staff of the Sentara Center for Simulation and Immersive Learning at EVMS.

financial aid. Rounding out the day was a presentation by Christopher Meeks, DO, a graduate of Booker T. Washington

High School who is now a pediatrician with Pediatric Associates, a practice of CHKD Medical Group. □

EVMS research could lead to treatment for ALS

When Edward Johnson, PhD, Professor of Microbiology and Molecular Cell Biology, identified the Pur-alpha protein more than 20 years ago, he didn't know that his discovery might eventually lead to a treatment for amyotrophic lateral sclerosis (ALS). Fast-forward to 2016, and his findings have become instrumental in groundbreaking research involving this debilitating disease.

ALS, sometimes called Lou Gehrig's disease, is a neurological disorder that causes motor nerve cells, or neurons, to degenerate or die, which means they stop sending messages to muscles. Most people with ALS die from respiratory failure in three to five years after the onset of symptoms.

With the help of Dr. Johnson and his EVMS team, a group of researchers from several schools, including LSU Health New Orleans and the University of Pittsburgh, determined that the



Edward Johnson, PhD

alpha to inhabit the body of the cell instead of the nucleus where it should be.

Their study determined that providing external Pur-alpha protein suppressed motor-neuron degeneration, and they believe it could serve as a novel therapeutic target for developing a treatment for ALS patients. Their findings were published in the journal *Acta Neuropathologica* in January.

Dr. Johnson worked with Earl Godfrey, PhD, Professor of Pathology and Anatomy, and Dianne Daniel, PhD, Associate Professor of Microbiology and Molecular Cell Biology, to provide the researchers the required Pur-alpha materials for the study. The EVMS investigators are now testing a synthetic version of the protein designed by Drs. Daniel and Johnson to duplicate the effects of Pur-alpha. □

ALS, sometimes called Lou Gehrig's disease, is a neurological disorder that causes motor nerve cells, or neurons, to degenerate or die, which means they stop sending messages to muscles.

Pur-alpha protein could protect against the degeneration of motor neurons in diseases like ALS.

The researchers found that cell protection is compromised in ALS patients because mutations cause Pur-

Check the pulse of EVMS

Soon you'll find the latest EVMS headlines and news in our brand-new digital newsroom, EVMS Pulse.

Look for evms.edu/pulse to launch in mid-July.

SCIENCE
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3D

A 3D printer does not place ink onto a flat surface like paper, but rather it prints in layers and three dimensions. The “ink” itself becomes surface and substance all in one. The type of ink used varies by what is being printed and the complexity of the machine. Objects can be made with a variety of materials, including plastics, metal and rubber.



PRINTING

THE FUTURE OF MEDICINE

The delicate skeletal structure of a fetus at 12 weeks rests on a table in the lab. Its tiny ribs — smaller than the tip of a fingernail — curve toward chest and back bones. Beside the model sits an adult inner-ear, or temporal, bone, twice the size of the fetus, yet still intricate in detail.

Here, in this lab, science is technology is art. And at its very center sits Miro Kirov.

“This is artistry,” he says. “We make beautiful things.”

Always interested in the human form, Mr. Kirov, MPS, is a sculptor. But today he isn’t using clay. He demonstrates his talents in a much different medium: 3D printing.

“I must find every intricate detail, every curve and turn, and then teach the printer how to create it,” he explains.

He talks without looking up from his computer screen, where he is bringing a virtual model of a temporal bone to life. As he clicks here, then there, the shape zooms in and out. The low hum of a printer fills the silence between his sentences.

“This is the fusion of art and science,” Mr. Kirov says, “with the added complexity of the human form.”



It's revolutionary, yet it is not new technology.

In fact, 3D printing has been around since 1987 and was first used by car and airplane manufacturers to design complicated parts and then print out prototypes. Today, inexpensive 3D printers are commonplace and can be used at home to make screws, ear buds and even toys.

Stories of how 3D printing is changing the landscape of medicine are now also commonplace. At many hospitals, surgeons use 3D renderings of a patient's unique anatomy to practice procedures before they enter the operating room. And 3D printers are being used to custom fit parts, such as prosthetics and knee implants.

Yet there is still much to discover in this marriage of technology and medicine.

"The way we see, understand and then interpret human anatomy for teaching and inevitably for patient care has changed," says Craig Goodmurphy, PhD, Professor of Pathology and Anatomy and Director of the EVMS 3D printing lab.

X-rays, CT scans and handheld ultrasound were all game changers. So, too, he says, is 3D printing.

"This is complex medical engineering, and the possibilities are endless."

Dr. Goodmurphy employs various 3D projects in his lab that allow students and residents to perfect their techniques. For example, he is developing model temporal bones — a

cost-effective option that would enable residents more frequent practice with drilling techniques. Additionally, life-sized eye models can be filled with gels and liquids to simulate human tissue for suturing practice.

Much of his focus is combining 3D-printed items with other materials to enhance ultrasound practice. Several of his research projects are being field-tested at medical schools across the country, including the University of Virginia School of Medicine and Vanderbilt School of Medicine.

"And all this is being done with a less expensive 3D printer," Dr. Goodmurphy says. "Imagine what could be accomplished with more funding."

1. Skull
2. 12-week fetal skeleton
3. Eyeball with optic nerve and lens
4. 20-week fetal skeleton
5. Aortic aneurysm
6. Ocular portion of face



The science of 3D printing is evolving at a rapid pace and so, too, is its applicable use in the field of medicine. The market for 3D-printing technologies in the health-care industry is expected to exceed \$2.3 billion by the year 2020, according to a recent report published by Allied Market Research.

Practice makes perfect

The human body has always been the best teacher. Technology, however, is expanding the ways we can teach future health and medical professionals about it.

Human anatomy hasn't changed," says Carrie Elzie, PhD, Assistant Professor of Pathology and Human Anatomy. "The way we look at it has."

Dr. Elzie, Director of the Contemporary Human Anatomy Program, a new master's program that enrolls its first class this summer, says 3D printing, alongside skills such as plastination (*See Plastination sidebar on next page*) and virtual dissection, will certainly have its

place in the new curriculum.

And Dr. Goodmurphy is working to include elements of 3D printing in his anatomy courses.

"We have the opportunity to create models that are specific to complicated pathology, and we can do it in a more cost-effective way," he says. "While the use of cadavers is still very important, 3D printing can enhance those lessons and allow for multiple exposures and repetitive practice."

Take, for example, a 3D-printed fetus suspended in a gel block. This enables students to conduct repeated vaginal ultrasounds to determine the size and age of a fetus without a patient enduring an exam over and over again. Plus, the model

fetuses can depict an array of conditions detectable by ultrasound.

"This doesn't replace live practice," Dr. Goodmurphy says. "It supports it."

Students and residents also are developing research projects using 3D printing. Chelsea Allen, MD Class of 2018, spent last summer working in the lab with Dr. Goodmurphy and Shannon McCole, MD (Ophthalmology Residency '97), Chair of Ophthalmology. The project: to 3D-print molds for models that simulate problems in the eye, which can be found via ultrasound.

These models are inexpensive and eliminate the biohazard issues of using real human or porcine eyes, Dr. McCole says. More important, they give students an opportunity for frequent hands-on practice

early in their medical-school careers.

Ms. Allen agrees.

"EVMS has been on the forefront of ultrasound education," she says, "and I think adding 3D printing as another pillar of our education shows how innovative this school is. The technology is advancing and so is EVMS."

Printing personalized parts

Modern medicine keeps developing technology to rebuild the human body. Earlier this year, a study published in the journal *Nature Biotechnology* outlined the success of bioengineers who used 3D printing to craft an ear from what they called an "integrated tissue and organ printing system." The ear was then implanted under the skin of a mouse. Not only did the 3D-printed ear live for several months, it also grew cartilage tissue and blood vessels.

Another study, this one published in the *Proceedings of the National Academy of Sciences*, details how engineers have 3D-printed tissue that mimics the structure and function of the liver.

"To me, 3D printing was a black box," Barry Strasnick, MD, says, "something that was science fiction. You could make a Match Box car or a cell-phone case, but now we are talking about being able to print actual human replacement parts. That is evolution; it's not a gimmick anymore."

Dr. Strasnick, Professor and Chair of Otolaryngology-Head and Neck Surgery, now embraces the technology and is seeking grants and funding to expand 3D printing at EVMS.

He is collaborating with Dr. Goodmurphy on developing 3D temporal bones so that residents have an endless and more cost-effective supply. On the patient side, he is interested in expanding his 3D projects into bite guards, custom tracheotomy tubes, artificial hearing bones

and CPAP masks. He also wants to explore using 3D-printed tracheas lined with stem cells to spur tissue growth.

"Imagine that we have to remove your mandible," Dr. Strasnick says, "and instead of waiting weeks for a replacement to be perfected to fit, we could print your replacement right there and install it. It's like saying this is your jaw we are taking out and here is an exact copy that we are putting in."

At the Hampton VA Medical Center, Jose Morey, MD, Assistant Professor of Internal Medicine at EVMS, is confident 3D printing could have an immediate impact on the Hampton Roads military community. Dr. Morey and Dr. Goodmurphy are exploring

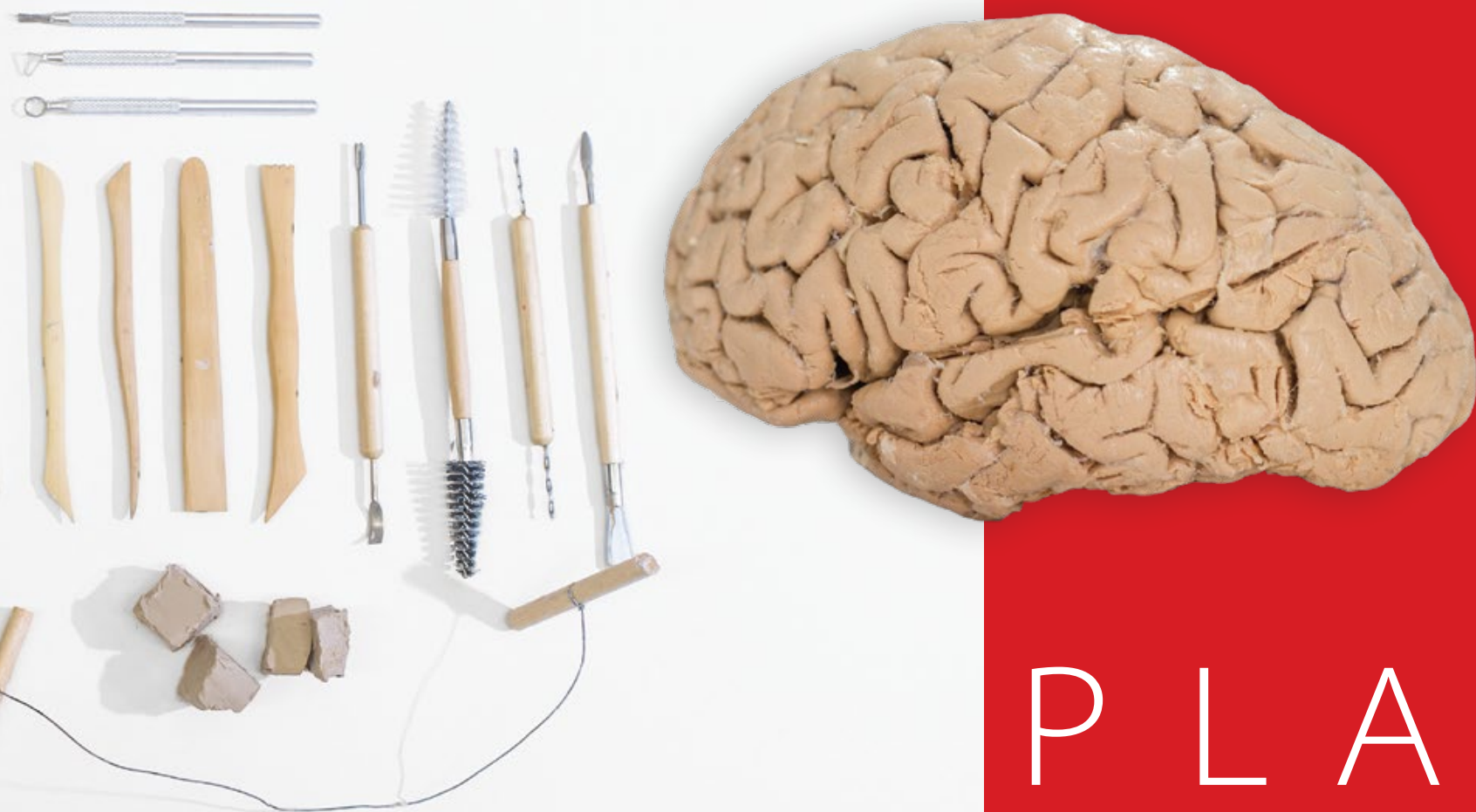
grants and funding that would create a joint manufacturing lab stocked with high-quality 3D printers. This lab would provide veterans with custom-fitted prosthetics.

"Right now, amputees have to wait several months and spend hundreds of thousands of dollars to get their prosthetics," Dr. Morey says. "By using 3D printers, we could reduce the wait time from months down to days and the costs down to just hundreds."

A joint lab would also save agencies like the Veterans Administration millions of dollars.

"We are ready to put the boots on the ground and get to work because we know we can have real-world, immediate





PLASTINATION

impact,” he says.

However, the high cost associated with advanced 3D printers and the lack of structured regulatory frameworks and reimbursement policies are, for the time being, blocking widespread adoption of 3D-printing labs in hospitals.

Still, surgeons like Dr. Strasnick argue that using 3D technology would reduce the duration of surgery and anesthesia exposure, assist in better pre-surgery planning and improve overall practice. Plus, 3D printing on a larger scale could be the answer to remove the one-size-fits-all treatment parameters.

“We could ensure that patients get custom-fit items, not just what the standard size is that we keep on the

shelves,” Dr. Strasnick says. He uses tracheotomy tubes as an example; each tube can cost upward of \$90 and comes in limited sizes.

“If we could print your tubes before you leave the hospital,” he says, “then we don’t have to store all those sizes, and it costs significantly less. We could save the patient money, the hospital money and us money. In the long run, it’s a real win-win-win.”

For Mr. Kirov, the economics and policies related to 3D printing are matters for others to tackle. Here, in this lab, he is an artist, sculpting beautifully delicate models from complex technology.

This is his science, his medium, his art.



To view videos of 3D printing at EVMS, visit evms.edu/magazine.

Plastination is a process developed in 1977 to preserve body parts, in which the water and fat are replaced by specific plastics. This results in body parts that do not smell or decay, retain most properties of the original sample, and can be handled by anatomy students.



After a legendary career in military medicine, Dr. Rob Marsh felt called to return to his rural roots.

Mogadishu to Middlebrook: 1983 graduate answers medical calling

In exam room one, a glossy poster depicting the signs and symptoms of osteoporosis finds its home on a wall next to a drawing of a Delta Force battle. At any other doctor's office, these posters may seem an odd juxtaposition. But here, in this small Virginia town where John O. "Rob" Marsh, MD (MD '83) practices, medicine and military hero are synonyms.

At first glance, Dr. Marsh is like most folks who call Middlebrook, population 215, home. He is a volunteer fireman, Sunday school teacher and farmer. Even in conversation, Dr. Marsh sounds the part, a country boy who traveled to Hampton Roads to earn his medical degree.

"I came to EVMS to learn medicine and to be inspired," he says. The school didn't disappoint. "The focus on community and how medicine can help to serve people helped to shape me as a doctor."

But there is more to this proud country doctor than what you see at first glance. That Delta Force drawing that hangs in exam room one paints a much bigger picture — one depicted on the silver screen.

Don't let the plaid shirt fool you. Dr. Marsh is one of the most decorated military physicians in the United States: He received the Legion of Merit, two Bronze Stars, a Purple Heart, the Department of Defense Meritorious Service Medal and the Army

Meritorious Service Medal.

Yet he is unassuming, almost too shy to talk about the life he once led as a flight surgeon for Delta Force, the Army's Special Forces unit. He gets a little quieter, more reserved, when the conversation turns from his medical school days at EVMS to his mission in the battle of Mogadishu, Somalia, in October 1993.

Back then, U.S. troops had been pinned down during heavy combat in Mogadishu and suffered massive casualties. Dr. Marsh and his fellow medics treated nearly 60 in all. Two days later, he himself was hit when a mortar exploded. Shrapnel pierced the artery in his leg and more ripped through his

abdomen. Still, he cared for those injured around him.

This was not exceptional, Dr. Marsh says. This was his duty.

Not something to boast about.

In fact, when Hollywood producers called during the making of the 2001 blockbuster hit “Blackhawk Down” to ask about his role in the battle, he didn’t answer.

He also didn’t watch the movie. And despite the notoriety that came with it, Dr. Marsh is more focused on his present mission — providing primary care in rural Virginia.

While the outside world may know Dr. Marsh as a war hero, folks in this town see him as a hero for returning to his rural roots to practice medicine. Most patients don’t even make mention of Dr. Marsh’s Hollywood claim to fame. Here, he is just “Doc.”

Today, he operates two primary-care practices: one in Middlebrook, the other at a truck stop in Raphine; conducts rounds at two hospitals; is the sole physician at a long-term-care facility run by Mennonites; and does house calls for patients who can’t get to his office.

“There is a real need here,” Dr. Marsh says of the community where his family has roots dating back more than 250 years. Roots to which he was eager to return.

For Dr. Marsh, being a military doctor was more than a career, it was his calling. Now his calling is rural medicine.

And it’s no less rewarding, Dr. Marsh says.

“Some of my patients live 15 or 20 miles away and don’t have the transportation to



Today, Dr. Marsh provides primary care in a town of 215 people and at an I-81 truck stop.

see me or have medical conditions that prevent them from traveling,” he says. “I like house visits because you get to know patients on a personal level when you visit their homes. You get to see how they live and gain a real appreciation for how your medical care fits into their lifestyles.”

His Interstate 81 truck-stop practice makes him accessible to the nearly 1,000 truck drivers who stop there every night. His plaid shirts and knowledge of crop prices make the community feel comfortable. And his dedication to

hosting medical students on rotation teaches them the importance of rural primary care and makes him an invaluable member of the EVMS alumni community.

“EVMS imparted on me the importance of citizenship and of serving the community,” he says. The school’s focus on providing primary care to communities in need planted the seeds of family medicine that stayed with him and inspired his career.

“I look at my years at EVMS as the best years of my life.” □

Class notes

- **Ashley Bussey** (MPH ’16) recently joined S.L. Nusbaum Realty Co.
- **Phillip Chang, MD** (MD ’99), was selected Chief Medical Officer for the UK HealthCare enterprise.
- **Vijay Sekhon, MD** (Radiology Residency ’09), joined Reno Diagnostic Centers in Reno, Nev.
- **David Michaels, MD** (MD ’03) has joined the faculty of Duke University School of Medicine as a Medical Instructor in the Division of Emergency Medicine, Department of Surgery.
- **Justin Hitt, PA-C** (MPA ’07), and **Scott Kane, PA-C** (MPA ’14), received CAQ certification. □

Photos from the recent community faculty reception, alumni appreciation event, Community Impact Day for Physician Assistants, medical mission trip to the Philippines, dedication ceremony for the David L. Bernd Commons, agreement signing at Virginia Wesleyan College and the Graduate Student Research Conference.



1. Each spring, EVMS Faculty & Administrative Affairs holds a reception to recognize community faculty for their service to the institution. Surgery Chair L.D. Britt, MD, MPH, the Edward J. Brickhouse Chair in Surgery and Henry Ford Professor of Surgery, center, was on hand to congratulate a number of milestone surgery faculty with 25 years or more of service. From left are Joan Rose, MD (MD '87); Guy Trengove-Jones, MBChC; Dr. Britt; Lawrence B. Colen, MD; Charles E. Ives, MD, and Hormoz Azar, MD.

2. In March, EVMS alumni gathered at Town Point Club for the Alumni Appreciation Event. This annual event celebrates alumni who volunteer to serve as Longitudinal Generalist Mentor Preceptors and to participate in programs such as student mock interviews. Pictured from left: Brian Buchberg, MD (MD '06), Carr Kratovil, Melissa Buchberg, MD (MD '05), Kristina Kratovil, MD (MD '05), Jay Kelly, Devon Shick, MD (MD '10), Leslie Shroyer and Michael Shroyer, MD (Otolaryngology Residency '93).

3. Students in the Master of Physician Assistant (MPA) Program hosted Community Impact Day at Tidewater Park Elementary School in Norfolk earlier this spring. From hula hooping to the science behind why you shouldn't pick your nose, PA students provided educational and fun stations for the schoolchildren and their families to visit. The community service project was made possible through a collaboration of EVMS' M. Foscue Brock Institute for Community and Global Health, United Way of South Hampton Roads and Norfolk Public Schools. Community Impact Day introduces the newest members of the EVMS student body to the service-learning practices of the institution.



VISIT www.flickr.com/photos/evms to view more photos from these and other EVMS events.



4



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4. Daniel Karakla, MD, Professor of Otolaryngology-Head and Neck Surgery, led a group of 15 local medical professionals on their fourth-annual medical mission trip to the Phillipines. The local group joined volunteers from Harrisonburg, Va., and Cumberland, Md., to perform surgeries and medical screenings.

5. Richard Homan, MD, President and Provost of EVMS and Dean of the School of Medicine (left), was among the speakers at a March ceremony to dedicate a new labyrinth and green space in honor of David Bernd, Sentara Healthcare's former CEO (right). This outdoor space at Eastern Virginia Medical Center is now known as the David L. Bernd Commons.

6. An agreement signed recently between EVMS and Virginia Wesleyan College (VWC) provides an enhanced opportunity for VWC students to earn graduate degrees in eight EVMS master's programs. Pictured at the signing (front, from left) are Richard Homan, MD, President and Provost of EVMS and Dean of the EVMS School of Medicine, and Scott Miller, PhD, President of VWC; (back, from left) David Waggoner, VWC Vice President for Enrollment Services, C. Donald Combs, PhD, Vice President and Dean of the EVMS School of Health Professions; and Debbie Hicks, VWC Associate Dean for Academic Support.



7

7. EVMS students and scientists talked shop during the 2016 Graduate Student Research Conference. Organizers posed with keynote speaker Christopher Newgard, PhD (back row, center), Director of the Duke Molecular Physiology Institute and the Sarah W. Stedman Nutrition and Metabolism Center and a professor at Duke University Medical Center.



Kenita Jackson's commitment to her surgical assisting studies has inspired her son, who now wants to be an orthopedic surgeon.

Scholarship helps student fulfill lifelong dream

For Kenita Jackson, coming to school at EVMS was a longtime dream — one she's still pinching herself to remember is real. Less than two miles away, she grew up in another world.

As a child, Ms. Jackson lived in subsidized housing in Norfolk. Walking through her old neighborhood — Calvert Square — she remembers what it was like. “We used to use these trees as bases,” she says. “There are good memories, but there are a lot of tough memories, too.”

Like the time she heard a gunshot and came outside to find her friend dead.

“By the time I was 16,” she says, “I’d lost six or seven friends to gun violence.”

Growing up, Ms. Jackson knew that education was her path to a better life. She started at Tidewater Community College and was encouraged to keep

going. She went on to Old Dominion University and majored in biology. And finally, she was accepted into the Master of Surgical Assisting program at EVMS.

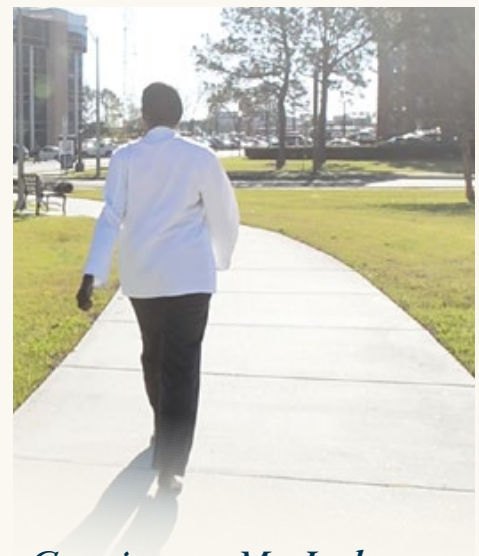
She accomplished all this while raising two sons, ages 17 and 5.

“Now I’m here, and I finally have my white coat,” she says. “It’s what I used to see and always wanted to be.”

Because of the friends she lost, Ms. Jackson wants to work in the field of trauma care. “My major thing,” she says, “is I want to help save lives.”

One day before starting classes at EVMS, she was called to the financial aid office. Worried that she owed money, instead she learned that she had been awarded a full scholarship, the Thomas M. Taylor Surgical Assistant Scholarship.

“I just started crying,” she says. “I believe through me, generations can



Growing up, Ms. Jackson knew that education was her path to a better life.

change after that because my kids have someone that they can look up to.”

Her 5-year-old son, King, wants to be an orthopedic surgeon when he grows up. He is learning to write, but he already knows the bones of the body.

“Just to know that I can accomplish something, and my kids can follow in my footsteps and go farther than me,” she says, “that means a lot.” □



To see a video interview with Ms. Jackson, visit evms.edu/magazine.



CONGRATULATIONS

TO THE STUDENT CARE CENTER AT
BOOKER T. WASHINGTON HIGH SCHOOL
ON ITS 2016 HEALTH CARE HERO AWARD.

The EVMS M. Foscue Brock Institute for Community and Global Health established the Student Care Center through an innovative partnership with Norfolk Public Schools, United Way of South Hampton Roads, United for Children, Optima Health and EVMS Family and Community Medicine.

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Watch a video about the center at
EVMS.edu/btwcare

EVMS also congratulates its 10 faculty members chosen as 2016 Health Care Heroes: Ian Chen, MD, MPH; Joseph Han, MD; Margarita de Veciana Haugh, MD, MS; Antoinette Hood, MD; Christine Matson, MD; Deborah Morris, MD; Hamid Okhravi, MD; Brett Siegfried, MD; Mark Sinesi, MD, PhD; and Kelli England Will, PhD.

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OUR VISION: Eastern Virginia Medical School will be recognized as the most community-oriented school of medicine and health professions in the United States.

Congratulations, EVMS grads!

A group of graduates in black gowns and caps, holding diplomas, celebrating with confetti in the air. The graduates are smiling and looking up, with their arms raised in the air. The confetti is a mix of blue, white, and gold, creating a festive atmosphere. The graduates are wearing black gowns with yellow stoles and black caps. They are holding silver diplomas. The background is a dense cloud of confetti.

Find your memories here: evms.edu/DigitalMagazine
Watch this site for special coverage of graduation-related events.