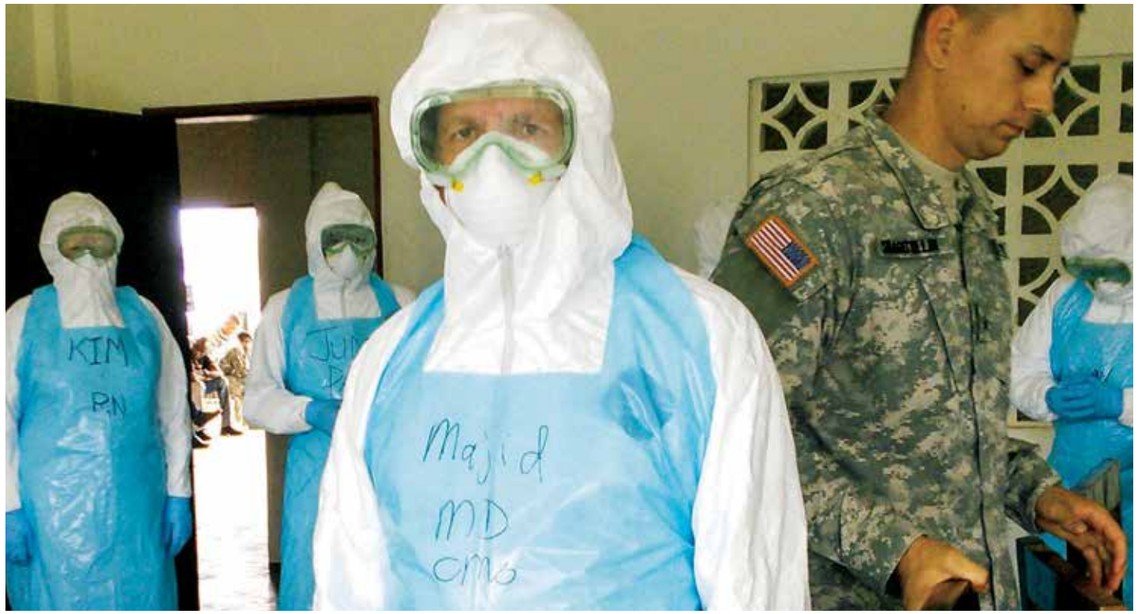
PATIENT CARE

The patient is at the core of our education of future physicians, from the first days in the lecture hall and anatomy lab to that moment four years later when those new physicians head into residency. And in research, our faculty and graduate students always work toward results that improved patient care.



Associate Professor of Medicine Majid Sadigh, M.D., in full protective gear at the clinic in Liberia where he treated Ebola patients.

Fighting Ebola on the Frontlines

In late 2014, **Margaret Tandoh, M.D.,** and **Majid Sadigh, M.D.,** traveled to Liberia to treat Ebola patients at the height of the epidemic in West Africa. They spent countless hours in the Ebola treatment units hastily set up to handle the influx of people seeking care, tending to the sickest patients despite a lack of basic resources. For their efforts, they were part of the group named by *Time* Magazine as 2014 People of the Year.

Tandoh, an assistant professor of surgery and associate dean for diversity and inclusion, and Sadigh, a UVM associate professor of medicine and director of the Global Health Program at UVM and clinical teaching partner Danbury Hospital/Western Connecticut Health Network, both had experience with dire situations prior to traveling to Liberia. As a trauma surgeon and infectious disease expert respectively, they took a certain amount of knowledge and understanding with them to Buchanan, a port city where they helped to set up a treatment unit. Still, the devastating impact of the epidemic challenged them in ways they had not experienced before.

"With the backing of decades' worth of medical knowledge crafted by scientists and health care workers internationally on the subject of Ebola, we are all of us still in training, trying to grasp the totality of our roles," said Sadigh in a blog post reflecting on his time in Liberia. "For one, we are not only physicians and health care workers charged with the task of providing care to the sick, but we are public health officers who must preserve the health of the community."

Margaret Tandoh, M.D., speaks with Liberian children.

Courtesy Majid Sadigh, Margaret Tandoh

Tandoh also struggled with the gravity of the situation. "It was very difficult to see the sicker patients because there was nothing you could do," Tandoh wrote in an email from Brussels, Belgium, where she stayed during a quarantine period after she left Liberia. "You knew they were going to die. As a surgical intensivist, I'm trained to place large IV lines, provide intubation and all kinds of medications to save a patient's life. In this situation, you cannot offer any of those."

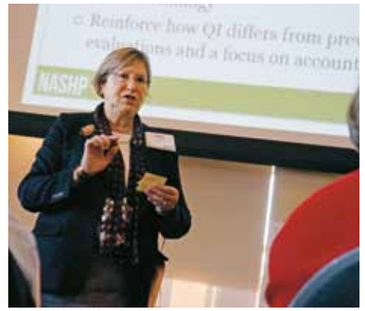
Despite the many challenges, Tandoh and Sadigh left a lasting impact: The Ebola treatment unit they helped to set up had 151 national staff shortly after they left the country, and much more of the fundamental equipment necessary for treatment. Still, they have said they deserve no glory for their work. Sadigh credited those fighting the disease in their home countries while losing family members and living in poverty with the true hero status.

"I admire the resiliency of the West Africans," said Sadigh shortly after his return. "Despite being at the epicenter of Ebola, their life continues. I learned so much from that nation."

Tandoh, a native Liberian, has been equally humble. "People are willing do what it takes to see their fellow human get better," she said during a local television interview after her arrival back in Vermont.

Improving Care for Children in Vermont

As the proverb goes, "It takes a whole village to raise a child." Associate Professor of Pediatrics **Judith Shaw, Ed.D., M.P.H., R.N.,** has been working tirelessly for over 15 years to make sure Vermont — and the nation — has that village at the ready. On behalf of the National Improvement Partnership Network (NIPN), a multi-state coalition of child health care programs that she leads, she accepted the 2015 Health Care Delivery Award from the American Pediatric Association. Housed at UVM, NIPN works to advance quality and transform healthcare for children and their families by establishing partnerships between public and private entities, focusing on issues like immunizations, obesity, asthma, and others. Since 1999, Shaw has also been executive director of the Vermont Child Health Improvement Program (VCHIP), an organization that in 2015 garnered the Outstanding Collaboration Award from the KidSafe Collaborative of Chittenden County. The collaborative noted VCHIP's varied efforts, including initiatives to prevent suicide, lead poisoning, and abusive head trauma, and to promote safe sleep, gun safety and a protective environment. VCHIP has become the "go-to" resource for any efforts to improve pediatric care in Vermont, says Shaw. She spends much of her time bringing together various entities invested in the well-being of Vermont's youth — state health officials, physicians, UVM researchers and faculty, Medicaid representatives and potential funding sources — and figuring out ways to enhance their care of children. "Doctors don't get paid to stop and measure how they're doing and think about how to improve it," she explains. "What we do in VCHIP is help the physicians look at the systems obstacles that stand in the way."



Judith Shaw, Ed.D., M.P.H., R.N., addresses the NIPN conference at UVM in November 2015.

New Family Medicine Residency Program in Upstate New York

For physicians looking for leading edge training while practicing medicine in a close-knit community, there's a new opportunity just a short ferry ride across Lake Champlain from Burlington, Vt. This year marked the launch of a new family medicine residency training program at UVM Health Network — Champlain Valley Physicians Hospital in Plattsburgh, N.Y. The program received accreditation July 1, 2015, and the first four residents begin their training in June of 2016. The three-year curriculum includes rotations in a variety of specialties, including emergency medicine, sports medicine, and surgery,

UVM President Tom Sullivan and UVM Health Network President and CEO John Brumsted, M.D., at the network rebranding announcement, at which the new Family Medicine residency effort was also announced.

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in addition to adult family medicine and women and children family medicine. Residents will have opportunities to focus on areas on special interest through several longitudinal curriculum options, including health systems management, behavioral science, maternal-child health, and others. CVPH, one of four hospitals in the UVM Health Network, serves patients in northern New York and Vermont. Plattsburgh, a city of about 20,000, is located on the shores of Lake Champlain about 20 miles south of the Canadian border.

The UVM PCORI team: (left to right) Constance Van Eeghen, Dr.P.H., Assistant Professor of Medicine, Benjamin Littenberg, M.D., Henry and Carleen Tufo Chair in General Internal Medicine,and Rodger Kessler, Ph.D., Associate Professor of Family Medicine.

Integrating Behavioral and Medical Care

What are the benefits of fully integrating behavioral health care with medical care? How are patient outcomes affected? Those are the questions a team of College of Medicine researchers led by **Benjamin Littenberg, M.D.,** the Henry and Carleen Tufo chair in general internal medicine, are exploring after receiving $18.5 million in funding from the Patient-Centered Outcomes Research Institute (PCORI), a Washington D.C.-based non-profit organization. The five-year research project, titled "Integrating Behavioral Health and Primary Care," was selected as one of four out of 124 original applications to receive funding. Littenberg's UVM colleagues **Rodger Kessler, Ph.D.,** associate professor of family medicine, and **Constance Van Eeghen, Dr.P.H.,** assistant professor of medicine, will help lead the project as co-principal investigator and project director respectively. The goal is to study whether patients with both medical and behavioral problems do better when their primary care physicians work in combination with behavioral health professionals including psychologists and social workers. This means going beyond co-locating in a space to full integration, which may include sharing notes, nursing and support staff, and even coordinating their appointment and billing offices. The researchers propose to include 30 practices nationwide and as many as 60 patients at each, for a total of 1,800 cases. The group will compare the integrated practices to those using the co-located model. The project team also includes three patients who will serve as funded co-investigators — not just as consultants or advisors — and who have dealt with their own or a family member's chronic illness and behavioral health problems. The patients, who all live in Vermont, will sit alongside medical and academic professionals in guiding the study's progress. "At every turn, we want to be able to get their input," Littenberg says. "We need them to keep us focused on what's important to the patients all along. To do that, they need to be at the table as we're making decisions." Because of its patient-oriented mission, the inclusion of patients on the investigation team isn't unusual for studies funded by PCORI. However, it is a new concept for health research in general. "This study is among those that are really leading the way and demonstrating how the patients can be partners and not just subjects," says Christine Stencel, the institute's associate director of media relations. To measure the integrated systems, Littenberg's team will rely on the patients themselves: how they're doing; how successfully they get treatment for their problems, and how much those problems, their daily lives, and their health improve. If the study can help remove some hurdles for these hard-to-treat patients, it could provide insights into ways to increase efficiency, cut costs and improve patient outcomes across the entire health care system. "The question here is really about how to design the systems for better care," says Littenberg.

Professor of Medicine Peter Spector, M.D., (center) is recognized for his recent patented work at UVM's Invention to Venture Conference. With him is Provost David Rosowsky, Ph.D., (right) and Vice President for Research Richard Galbraith, M.D., Ph.D.

Curing a Common Heart Rhythm Disorder

UVM cardiologist, heart rhythm specialist, and Professor of Medicine **Peter Spector, M.D.,** has described atrial fibrillation (AF) — a common heart rhythm disorder affecting millions of Americans — as a "tornado" of disorganized electricity that spreads through the heart, causing anxiety and in some cases life-threatening complications. By harnessing the power of computer modeling, and aided by a $1 million grant from Vermont residents Tom and Mary Evslin, Spector is on the path to curing the disorder. Past treatments for AF have been 'one size fits all' ventures — either medication or catheter ablation, a procedure that creates scar tissue in the heart to stop the errant electricity in AF from spreading. Sometimes the procedure works, sometimes it doesn't, in part because there hasn't been a reliable method to pinpoint specific areas of the heart to treat on a patient-by-patient basis. Until now: Spector and colleagues have developed a computer model of the heart's electrical activity, using this to help identify what they believe is responsible for perpetuating AF. The modeling has led to the creation of a patient-specific target tool — catheters and a mapping system capable of locating the sites responsible for AF. Although not yet ready for human trials, animal model studies have shown promising results. "If our therapy is even 10 percent more effective, it will help an enormous number of people," says Spector.

Spector's work has led to creation of an impressive intellectual property portfolio. Over the past nearly three years, Spector has worked with the UVM Office of Technology Commercialization to develop a patent portfolio of both U.S. and international patent applications covering the catheters, signal processing algorithms and other aspects of his research. He was awarded the first of these U.S. patents in November 2014, and as of January 2015, a second patent application has been allowed. UVM has separately entered a collaborative research agreement with California-based Biosense Webster, Inc., the global leader in developing medical technology for the diagnosis and treatment of heart rhythm disorders. Spector's research is also yielding new ways to teach the next generation of physicians about the inner workings of the human heart. He's founded a private company — Visible Electrophysiology, LLC — which focuses on the development of educational tools that use interactive modeling to enhance learning of clinical electrophysiology.

Ryan Nichols '17 chats with a resident of Starr Farm Nursing Home during a trip to the Burlington facility as part of the Generations course in the Vermont Integrated Curriculum.

Introducing Medical Students to Elder Care

The Generations course — part of Level 1 of the Vermont Integrated Curriculum — introduces medical students to the complexity of the human lifespan. Coursework covers human life cycle development, the male and female reproductive system, age related illnesses, and diversity with respect to LGBTQ health and disability. When it comes to elder care, students leave the classroom behind to get a first-hand look at the options available to seniors. During Generations, students fan out to a dozen locations in the Burlington, Vt. area to meet with residents of skilled nursing and assisted living facilities, and visit participants in adult day care programs. They also tour facilities, and have the opportunity to meet staff members. Generations Course Director and Associate Professor of Family Medicine **Charlotte Reback, M.D.,** says the elder care facilities event is designed to introduce students — prior to clerkships — to this growing patient population, as well as get them thinking about the varying needs of this group and the different levels of care available.

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David Seaver