

# VERMONT MEDICINE

THE ROBERT LARNER, M.D. COLLEGE OF MEDICINE AT THE UNIVERSITY OF VERMONT

FALL 2019

## ADVOCATES & ADVISORS

LONGITUDINAL INTEGRATED  
CLERKSHIP STUDENTS DELVE DEEP  
INTO THE PATIENT EXPERIENCE.

ALSO FEATURED:

**OPEN-ACCESS  
RESEARCH**

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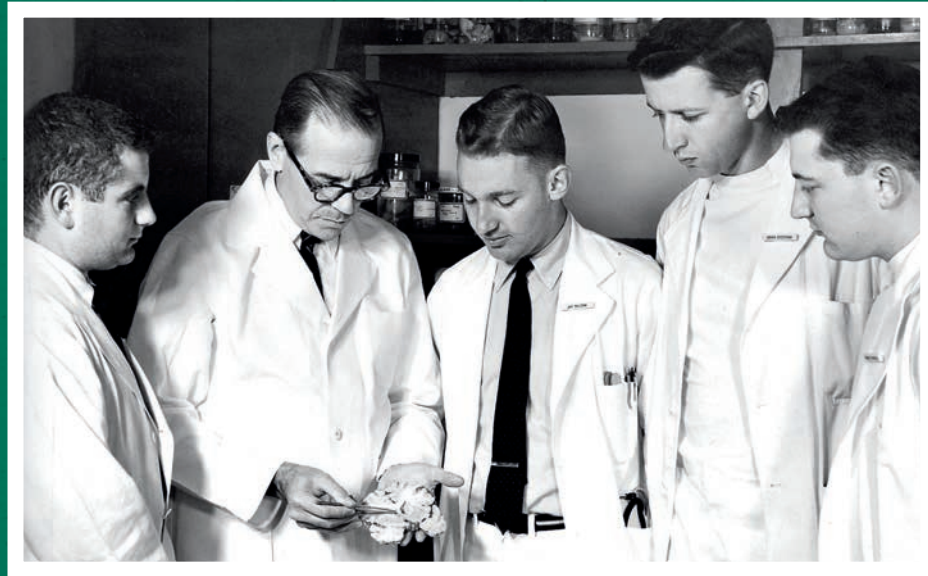
**REUNION 2019**





**PROFILE IN GIVING**

**Honoring a Pioneer  
in Neurosurgery**



Dr. Donaghy, professor of neurosurgery, with members of the classes of 1959 and 1960



As a medical student at UVM in the 1960s, **RONALD J. FAILLE, M.D.'69** had the opportunity to learn from a legend in the field of microvascular neurosurgery: **RAYMOND M.P. "PETE" DONAGHY, M.D.** A faculty member and chair of neurosurgery at the UVM Larner College of Medicine, Donaghy revolutionized how cerebrovascular disease is treated and developed the operating microscope that is still used in neurosurgical procedures today. In gratitude for the opportunity he had to be mentored by Donaghy, Faille has established the **RAYMOND M. DONAGHY ENDOWMENT FUND** to benefit the Division of Neurosurgery. **SUSAN DURHAM, M.D.**, chief of the Division of Neurosurgery, says that the gift is a fitting tribute to a groundbreaking researcher and teacher. "We still use Dr. Donaghy's lab and have preserved some of his equipment, including one of the original microscopes and even his white coat," she says. "His legacy remains strong here at UVM and I want to ensure that all future generations of neurosurgeons at UVM remember his contributions to our field."



THE UNIVERSITY OF VERMONT LARNER COLLEGE OF MEDICINE

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The UVM Medical Center, like other hospitals across the United States, holds honor walks to show respect to patients at the end of life who are donating organs to others. BY TIM LAHEY, M.D., M.M.SC.



**Web Extras**

See more online at [med.uvm.edu/vtmedicine/web-extras](http://med.uvm.edu/vtmedicine/web-extras) including videos, photos, and blog posts.

On the cover: Jordan Munger '21, a Longitudinal Integrated Clerkship student, examines a young patient at Queensbury Family Health. Photo: David Seaver





Here in Burlington we have enjoyed another gorgeous autumn. While the fall is often thought of as a time to put the garden to bed and stack wood for the winter, the fall semester is a time for new beginnings at the Larner College of Medicine. As our academic year opened, I had the great pleasure to welcome, for the first time since becoming dean, a new class of medical students on their first day on campus.

A few weeks later, I congratulated each of those first-year students as they stepped across the stage of Ira Allen Chapel in their crisp, new white coats. From their very first “day of school,” I emphasized to the Class of 2023 that the road ahead is not easy, but they are not alone. Their success is a key part of our mission, and the entire College stands ready to see them through their path as future physicians.

A clear vision of the pathway for all our missions—education, research, and patient care—is vital to our College. This is why, with the start of this new year, I have engaged the Larner community in a strategic planning exercise called Vision 2025: A Unified Strategic Plan for the Larner College of Medicine. This work will set clear goals and guide decision-making for the College. Our last five-year planning cycle began in 2015, so this is the right time for us to be talking about our goals, strategies and priorities looking ahead for the next five years. This will build on our previous plan, and will incorporate elements of strategic plans for areas within our College that have been developed more recently.

Strategic planning will help guide us through another important effort now underway at the College: our preparation for reaccreditation. The Liaison Committee on Medical Education (LCME) will be performing a site visit at our College in April 2021, as part of our reaccreditation survey. This once-every-eight-year event is critical to our very existence, certifying that our medical education program meets prescribed standards for all U.S. and Canadian medical schools. Our last site visit was in 2013, when the College received a full reaccreditation. As part of the current process, over these 18 months we will conduct a self-study to critically examine our curriculum, resources, procedures, faculty, and students. This stage of self-study will allow us to examine every facet of our institution.

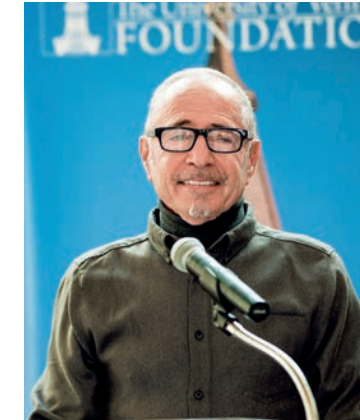
I see preparation for our accreditation site visit as a wonderful opportunity to self-evaluate and make ourselves better, for the sake of our students. Even more than undergoing this periodic assessment, we are initiating an ongoing effort to continually evaluate our college and improve, through a new Committee for Continuous Quality Improvement. This committee will continually prepare us for our next accreditation site visit, all the while allowing for ongoing assessment and positive change through every season.

**RICHARD L. PAGE, M.D.**  
Dean, The Robert Larner, M.D. College of Medicine at The University of Vermont

## Alumnus Gift Leads Research Building Plans

Steve Firestone, M.D. '69 has been an annual donor to the UVM Larner College of Medicine since the 1970s, and in the early 2000s donated artwork to help enhance the students' learning environment. When plans began to take shape for a new biomedical research facility at the College, Dr. Firestone was inspired to step forward with his first major gift to the University. And, as over 200 attendees learned in a ceremony October 3, that gift is an important one.

Pending completion of the fundraising for the project, Dr. Firestone's leadership gift—the fourth largest in the history of the College—will help construct a laboratory building on



I shared an extraordinary experience and I hope that this building memorializes that formative time.”

the University's campus. The new facility will be named the Dr. Frederick and Mrs. Bobbie Firestone Medical Research Building, in honor of his parents. “Lifesaving treatment modalities will be discovered here over the coming years,” said Dr. Firestone. “This building is going to hugely benefit the College of Medicine, the University, and the city of Burlington.”

With his gift, Dr. Firestone has chosen to recognize his peers in the Larner College of Medicine Class of 1969, who celebrated their 50th reunion this year. “I felt very fortunate to be accepted into medical school at UVM and I've been grateful ever since,” he added. “My classmates and

**Notable**



## Carney Honored with Prestigious ACP Mastership

Jan K. Carney, M.D., M.P.H., MACP, professor in the Division of Pulmonary Disease and Critical Care Medicine, has been awarded Mastership in the American College of Physicians (ACP). Mastership recognizes outstanding and extraordinary career accomplishments and notable contributions to medicine. Carney, who is also UVM's associate dean for public health and health policy, is a national leader and innovator; she developed Vermont's first Master of Public Health degree and other online graduate public health programs. Carney recently served as vice chair of ACP's Health and Public Policy Committee and was governor of the Vermont ACP chapter from 2015 to 2019. From 1989 to 2003, she served as Vermont Commissioner of Health.



### Move Mountains Campaign Success

**\$125 million**  
CAMPAIGN GOAL

SURPASSED BY \$80 MILLION

OVER 30  
NEW ENDOWED  
SCHOLARSHIP  
FUNDS

NEARLY 40  
NEW ENDOWED  
FACULTY  
POSITIONS

## VERMONT MEDICINE

THE ROBERT LARNER, M.D. COLLEGE OF MEDICINE  
AT THE UNIVERSITY OF VERMONT

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Richard L. Page, M.D.

INTERIM SENIOR ASSOCIATE DEAN FOR  
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Christa Zehle, M.D.

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Gordon Jensen, M.D., Ph.D.

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Notable



**JENSEN APPOINTED TO NEW RESEARCH DIRECTOR ROLE**

**Gordon Jensen, M.D., Ph.D.**, professor of medicine and senior associate dean for research, has been appointed to a parallel role as University of Vermont Health Network Director of Research. This new leadership position was collaboratively created by the UVM Health Network, the UVM Health Network Medical Group and the Larner College of Medicine with a goal of expanding opportunities for cutting-edge research and enhancing the partnership and collaboration between the College and all of the UVM Health Network partner sites. In

this new role, Jensen will oversee research throughout the Network.

“It is exciting to see our plans to consolidate and focus our research efforts across the College and the Network to benefit our community, and I appreciate the collaborative efforts of Dr. John Brumsted and Dr. Claude Deschamps, president of the UVM Health Network Medical Group, in bringing this to fruition,” said Larner College of Medicine Dean Richard L. Page, M.D.



**TANDOH JOINS VERMONT BOARD OF MEDICAL PRACTICE**

Assistant Professor of Surgery and Associate Dean for Diversity and Inclusion **Margaret Tandoh, M.D.**, was recently appointed by Governor Phil Scott to the Vermont Board of Medical Practice. The board’s makeup and mission are set by statute, with the law providing that there are 17 part-time members—all appointed by the Governor—including nine M.D.s, one physician assistant, one podiatrist, and six public members who have no close ties to the practice of medicine. Terms are five years long, and the law limits members to two consecutive

full terms. The primary goal of the board is to keep the public safe through licensing and discipline. The board oversees the practice of medical doctors (M.D.s), podiatrists, physician assistants (PAs), anesthesia assistants, radiology assistants, as well as medical and podiatry residents.



**DIXON NAMED DIRECTOR OF VERMONT LUNG CENTER**

**Anne Dixon, M.A., BM BCh**, professor of medicine and division chief of pulmonary disease and critical care medicine, has been named the new director of the Vermont Lung Center.

A fellow of the American Thoracic Society, Dr. Dixon joined the UVM faculty in 2001 and has served as director of clinical research at the Vermont Lung Center for the past 18 years. She is a nationally and internationally recognized expert in the areas of asthma and lung disease related to obesity and metabolic dysfunction, and a current and past member of

several National Institutes of Health (NIH) and Veterans’ Affairs study sections, national guideline panels, and the American Lung Association’s national Board of Directors. Dr. Dixon takes the reins from **Charles Irvin, Ph.D.**, professor of medicine and associate dean for faculty affairs, who served as the Vermont Lung Center’s director since 1998. During his tenure, he led the center to become a Center of Biomedical Research Excellence, securing 15 years of funding from the NIH’s National Institute of General Medical Sciences. The center was also named one of only 15 American Lung Association Airways Clinical Research Centers in the country.



**LARNER FACULTY EARN AAMC CHALLENGE GRANT**

A work group, led by **Stephen Berns, M.D.**, associate professor of family medicine, was awarded one of ve \$25,000 grants from the Association of American Medical Colleges’ (AAMC) Opioid Education Challenge Grant Program: Responding to the Training and Development Needs of Aca-

ademic Health Centers. The “Opioids Education Work Group at the Larner College of Medicine,” also includes

**Karen Lounsbury, Ph.D.**, professor of pharmacology, **Elly Riser, M.D.**, clinical instructor in medicine, **Martha Seagrave, PA-C**, associate professor of family medicine, and collabora-

tors in the Department of Psychiatry, the Teaching Academy, the Office of Primary Care, and Champlain College.

Their goal is to develop an integrated pain management curriculum throughout medical school and residency that addresses clinicians’ discomfort with prescribing opioids and the challenge of geographically scattered faculty members. To bridge this gap, the grant will be used to develop interactive, online modules containing case studies and assessments that will help clinicians apply skills to real world situations.

The team will partner with Champlain College’s Emergent Media Center™ to develop the modules.

Larner By The Numbers

**NEW PH.D. STUDENTS**

in programs affiliated with the UVM Larner College of Medicine

**66**  
CELL, MOLECULAR AND BIOMEDICAL SCIENCES

**7**  
CLINICAL AND TRANSLATIONAL SCIENCE

**23**  
NEUROSCIENCE GRADUATE PROGRAM

**2**  
BIOENGINEERING



**Sigmon Receives \$6.7 Million Grant to Establish UVM Center on Rural Addiction**

**Research** The University of Vermont has received a three-year, \$6.7 million grant to establish the UVM Center on Rural Addiction (CRA), one of three new national Centers of Excellence made possible through the Health Resources and Services Administration’s Rural Communities Opioid Response Program. Led by Associate Professor of Psychiatry



**Stacey Sigmon, Ph.D.**, the UVM Center on Rural Addiction will serve as a resource for scientific and technical assistance, and will provide information and training to clinicians, programs, and policymakers seeking guidance on how to address substance use disorder challenges in their rural communities. During its initial three years, the center will focus on disseminating evidence-based practices to rural counties in Vermont, New Hampshire, and Maine, relying on partnerships with collaborators throughout New England. With Sigmon as

director, Professor of Psychiatry **Sarah Heil, Ph.D.**, will serve as the center’s associate director. Vermont Center on Behavior and Health Director and Professor of Psychiatry **Stephen Higgins, Ph.D.**, Professor **Richard Rawson, Ph.D.**, Associate Professors **Andrea Villanti, Ph.D., M.P.H.**, **Valerie Harder, Ph.D.**, and **Diann Gaalema, Ph.D.**, and Assistant Professors **Allison Kurti, Ph.D.**, and **Kelly Peck, Ph.D.**, will serve as UVM CRA core directors and faculty. Associate Professor of Obstetrics, Gynecology and Reproductive Sciences **Marjorie Meyer, M.D.**, Assistant Professor of Psychiatry **Sanchit Maruti, M.D.**, and Associate Clinical Professor of Psychiatry **John Brooklyn, M.D.**, will lead the UVM CRA Physician Advisory Group.

**“When we followed up with these participants in adulthood, we found these children had higher levels of anxiety and substance use disorders and were also more likely to have a felony charge, spend time in prison, not complete high school and experience significant financial strain.”**

– Professor of Psychiatry William Copeland, Ph.D., commenting on a study he led published in *JAMA Network Open* that examined outcomes for offspring of incarcerated parents.





### COMMITTING TO GENDER EQUITY

A special signatory ceremony, marking the Larner College of Medicine and College of Nursing and Health Sciences' commitment to the TIME'S UP Healthcare core commitments to bring safety, equity, and dignity to the healthcare workplace, was held on September 27, in the Hoehl Gallery in the Health Sciences Research Facility. Dozens of members from the Larner College of Medicine and College of Nursing and Health Sciences communities witnessed and celebrated Deans **Richard L. Page, M.D.** and **Scott Thomas, Ph.D.**, signing each school's respective signatory pledge letter.

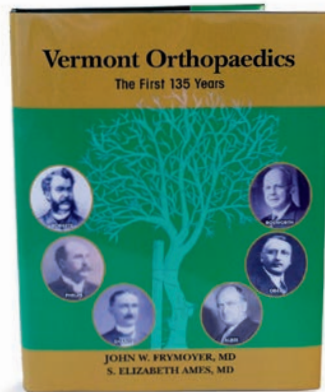
Deans Page and Thomas (at center) were joined by (from left) UVM faculty members Friederike Keating, M.D., Anne Dougherty, M.D., Stuart Whitney, Ed.D., R.N., and Margaret Tandoh, M.D.

Literature

## NEW BOOK FOCUSES ON THE HISTORY OF ORTHOPAEDICS AT UVM

A new book co-authored by **John Frymoyer, M.D.**, former dean of the College of Medicine and former chair of the Department of Orthopaedics and Rehabilitation,

and **S. Elizabeth Ames, M.D.'96**, professor and director of the orthopaedic surgery residency program, chronicles the history of orthopaedics at the University of Vermont. Titled *Vermont Orthopaedics: The First 135 Years*, the coffee table-style book features archival photography and stories about the evolution of the specialty, from the founding of the New York Orthopaedic Dispensary by a graduate of the program in the 1800s to the founding of the residency program in the 1960s and beyond.



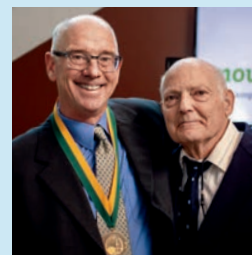
### College Hosts Investitures for Green and Gold Professorships

The UVM Larner College of Medicine recently celebrated two new Green and Gold professorships, funded by generous donors who are former faculty members and researchers at UVM. These endowed professorships recognize excellence as well as honor and support the work of faculty pursuing important research.



**Mark K. Fung, M.D., Ph.D.**, professor of pathology and laboratory medicine, was invested as the inaugural **Roy Korson, M.D. and Lorraine Korson, M.S. Green & Gold Professor of Pathology** on August 5, 2019.

The professorship was established by the late Roy and Lorraine Korson, both of whom enjoyed long careers at UVM. Lorraine was a researcher in the Departments of Biochemistry and Pathology, while Roy worked as a clinical pathologist and maintained an active research program after serving in the U.S. Army Medical Corps during WWII and the Korean War. A nationally recognized expert in transfusion medicine, Fung is the editor-in-chief of the leading textbook in his field, has dozens of peer-reviewed publications, and has published six book chapters.



**Robert K. Williams, M.D.**, professor of anesthesiology and pediatrics, was invested as the inaugural **Chris Abajian, M.D.'69 and Margaret Abajian Green & Gold Professor in Pediatric Anesthesiology** on June 24, 2019. Family and friends of Chris and Margaret, as well as faculty and staff in the Department of Anesthesiology, made generous gifts to permanently endow the position, which honors Chris and Margaret's

many contributions to UVM as well as Chris' leadership in the field of pediatric anesthesiology. Williams has carried on the tradition set by Abajian, conducting leading edge research on anesthesia in children. He's also a dedicated teacher and mentor.



## Joining Team Heart

Open Heart Surgery in Rwanda

**Andrea Steely, M.D.'12**, recently traveled to Rwanda with UVM Professor of Surgery **Bruce Leavitt, M.D.'81**, and **Team Heart**, an organization dedicated to increasing access to cardiac surgery in locations where rheumatic heart disease is rampant. Dr. Steely wrote about her experience for the Larner College of Medicine blog.

Growing up in southern California with two parents in the movie industry, I never imagined I would one day become a cardiac surgeon. I grew up drawing and painting—always being creative. In fact, I had planned to become an artist until science caught my interest in high school. Fast forward a few years later and I found myself interviewing for medical school.

I absolutely loved the Larner College of Medicine when I interviewed—it was exactly what I had been looking for—it was a small and friendly medical school where the students and faculty knew each other by name. While at UVM, I found the mentors I had hoped for. I was lucky enough to match at UVM for general surgery residency and spent the first four and a half years gearing up for a career in vascular surgery. But when I scrubbed my first cardiac surgery case—a coronary artery bypass grafting—I was mesmerized by every step of the operation. For the first time since starting residency, I thought that maybe vascular was not the path for me. I ultimately realized that cardiac surgery was exactly what I wanted to do.

My interest in cardiac surgery helped me to become involved in some incredible international work. I had the opportunity to work alongside and be mentored by Dr. Chip Bolman and Dr. Bruce Leavitt, also a UVM Larner College of Medicine alum from the Class of 1981 and now a cardiothoracic surgeon at UVM Medical Center. Dr. Bolman

and his wife, Ceeya, started a non-profit organization called Team Heart, now 12 years ago, to help increase access to cardiac surgery in developing nations like Rwanda where rheumatic heart disease is rampant. Despite the high prevalence of cardiac disease, there are only a handful of cardiologists in the country and not a single cardiac surgeon. I had the opportunity to travel with this group, including Dr. Leavitt and Dr. Bolman, for their annual trip to Kigali as a general surgery resident in my final year of training in 2018. The experience was incredible and I found myself trying to find a way back. Dr. Leavitt helped me find a thoracic surgery foundation scholarship that supports the travel of cardiac surgery fellows and young attendings to international sites like King Faisal Hospital in Kigali, Rwanda.

I was lucky enough to win this award and had the opportunity to travel to Kigali again this past February. During the 12 days that I spent in Kigali, we reviewed 40 cases, paired down from the 100-plus that had been screened across the country the week prior, and selected just 16 patients for surgery. We operated on two patients each day for eight days in a row—weekends and

weekdays—these were all surgery days. We brought our own pharmacists, intensivists, nurses, anesthesiologists, and perfusionists and gave these 16 patients a second chance at life. Most of our patients received a single heart valve replacement but about one-third of them had two valves replaced. Our patients ranged from 11 to 47 years old and were incredibly grateful for every aspect of their care.

Performing operations in a developing country is challenging, but doing open heart surgery in this setting, with no resources other than what we've brought, is incredible—it's amazing what a group of people with a shared mission can accomplish. While it is the routine and methodical nature of cardiac surgery that allowed us to be so successful in Rwanda, participating in trips like this, which are hardly routine, reminds me of why I wanted to go to medical school in the first place—to make a difference in the lives of my patients in a unique way.

I am now finishing up my first of two years of cardiothoracic surgery fellowship at Beth Israel Deaconess Medical Center in Boston, Massachusetts. I remain mesmerized with cardiac surgery and cannot imagine doing anything else. I feel incredibly fortunate and privileged to do the job I get to do everyday. I am excited

about the next phase of my career and I feel nothing but gratitude to have taken the path that I did because it got me to exactly where I am today. VM



L to R: Bruce Leavitt, M.D.'81, Marc Tischler, M.D. and Andrea Steely, M.D.'12



# FROM MARINE TO DOCTOR:

Jose Calderon '22 aspires to help communities in need



Jose Calderon '22

**W**hen Jose Calderon '22 was six years old, his mother began exhibiting symptoms of schizophrenia. As he watched her cycle in and out of psychiatric units—sometimes enduring run-ins with law enforcement and negative encounters with neighbors and members of their church—he came to understand how the stigma associated with mental illness can devastate a family already struggling to cope with a brutal disease.

Years later, fresh out of high school, he joined the U.S. Marine Corps and went on to serve two tours of duty, one a combat mission in Afghanistan. Peers were killed in action, and others returned home only to suffer through post-traumatic stress disorder.

These two seminal experiences helped to propel him on a career path that led to UVM's Lerner College of Medicine. "I'm a first-generation college student, first-generation medical school student," he says. "I came here fresh and with an open mind, willing to adapt and overcome."

It wasn't an easy path: Growing up in a low-income neighborhood in Houston touched by crime and gang violence, there weren't many role models. His father instilled in his three children a love of learning and a strong work ethic, despite his own education in El Salvador ending at the third-grade level.

"I remember him expecting us to have our homework done by 8 p.m.," he says. "It was a matter of being accountable to ourselves. He really valued education."

Calderon's father came to the U.S. from El Salvador as a teenager, desperate to escape the vicious civil war unfolding in that country. He found work as a construction worker and met Calderon's mother, also a native of El Salvador, in Houston. Calderon's first language was Spanish; he learned English when he entered elementary school. His older twin brothers helped to keep Calderon focused on achieving his goals.

"It was a challenging childhood," he says. "I owe a lot to them being on the right path, and me trying to emulate them."

Calderon's decision to enter the Marine Corps was a tough one for his father, who, after witnessing the devastation war brought to his home country, struggled to understand why his youngest child would volunteer to put himself in harm's way.

But Calderon says his military service gave him courage

and confidence. On his first tour of duty, he traveled around the world, improving military training and tactics while also conducting humanitarian missions in far-flung locations like East Timor, Thailand, Djibouti, and Kuwait. As he painted primary schools alongside local residents and helped to distribute potable water, he realized just how much he had to contribute, especially in communities with the greatest need.

Serving in Afghanistan strengthened his resolve to make a difference.

"I think you're forced to mature at a young age," he says. "You learn to value life differently than others at that age. It's a powerful experience, being there and doing your best to handle stressful situations."

His time in a combat zone also gave him a window into the medical field. He remembers a time when his unit was being hit particularly hard by enemy fire, and personnel were asked to gather at a medical site to give blood. As he waited, an injured Marine arrived by helicopter. A roadside bomb had exploded while he was on patrol with his platoon; he had suffered traumatic injuries including three amputated limbs. Calderon remembers the seamless communication and sharp decision-making of the surgical team as they saved the Marine's life. Watching those surgeons work was key to sparking his interest in medicine, he says.

After his four years of military service, Calderon studied psychology at the University of Southern California. A minor in healthcare studies, an assistantship in USC's Culture and Mental Health Research Lab and volunteer work in the emergency department at L.A. County General Hospital in East Los Angeles all helped him prepare for the career he envisioned.

The decision to come to UVM's Lerner College of Medicine was based in part on the school's mission statement and emphasis on active learning in medical education, but even more on the sense of community he experienced when he visited the campus and Burlington.

Although he has yet to decide on a specialty—he's considering psychiatry, family medicine and emergency medicine—Calderon is committed to serving where he is needed the most. "I want to work in an underserved, low-income, urban community, and I want to work with a Spanish speaking population," he says. "I think I can make the biggest impact there." **VM**

**"I'm a first-generation college student, first-generation medical school student. I came here fresh and with an open mind, willing to adapt and overcome."**





September 8: Students, faculty and staff march in the 2019 Pride Vermont Parade.



July 2: Caroline Vines '20 works with Sarah Schlein, M.D.'10, during her emergency medicine clerkship.



August 13: Class of 2023 students complete community service with Burlington Parks and Recreation during Orientation.



August 15: Farrah Khan, M.D. (at left), and Mary Cushman, M.D., M.Sc., at the American Heart Association Cycle Nation fundraising event.



September 7: The Department of Pediatrics celebrates Lewis First, M.D., who has been chair of the department and chief of UVM Children's Hospital for 25 years.



September 6: Students in the SMILE DOCS Student Interest Group visit Mater Christi School.



Labor Day Weekend: Class of 2023 students hike Stowe Pinnacle at sunrise.

## Totman Fund Fuels Cerebrovascular Research

**M**alone native Ray W. Totman spent the bulk of his professional life concerned with fuel—namely, gasoline and oil that propelled daily life and commerce for thousands of people in the north country. Today, more than 30 years after his death, the philanthropic vision of Totman and his wife, Ildah, continues to power work in a different realm: groundbreaking cerebrovascular research at the University of Vermont concerned with the mechanisms that fuel the human brain—research that points the way toward improvements in care for stroke patients and others throughout the region and beyond.

The Ray W. Totman and Ildah Totman Medical Research Fund was established shortly after Ray Totman's death in 1988 at age 92 (Ildah Totman had predeceased him, in 1977). Totman had worked since the 1920s as a key part of the fuel delivery system of northern New York. His Rae Oil Company began in Malone in 1926, and expanded across the region over the next six decades. Totman was also a founder in 1941 of the Empire State Petroleum Association, a trade group that is still going strong as the Empire State Energy Association.

The Totman Fund, under the board of trustees that has guided its philanthropic work, made its first gift of \$150,000 to fund medical research at the University of Vermont in 1988. That initial gift was quickly followed by more funding, and in 1990 the Totman Laboratory for Cerebrovascular Research was founded in the Department of Pharmacology at what is now the UVM Larner College of Medicine.

The lab was first directed by the late John A. Bevan, M.D., and his wife, Rosemary D. Bevan, M.D. Since 1996 it has been directed by the current Chair of the department, **Mark Nelson, Ph.D.** Nelson is a University Distinguished Professor at UVM (one of only ten faculty members currently so honored), a Fellow of the American Heart Association and the Biophysical Society, a recipient of the prestigious National Institutes of Health MERIT award and an Outstanding Investigator Award from the National Heart, Lung and Blood Institute, and a 2019 inductee to the National Academy of Sciences—the later recognized as among



Mark Nelson, Ph.D.

the greatest honors a U.S. biomedical scientist can receive.

"The Totman Fund's existence gives this laboratory a nimbleness that is really crucial in the field of scientific discovery," says Nelson. "We are able to use the Totman support to fund pilot projects and new areas of research. That gives us a flexibility we need when exploring one of the most complex mechanisms on Earth—the human brain."

The level of that support has been significant. Over the course of the last three decades, the Totman Fund has provided more than \$4 million in funding for cerebrovascular research at UVM. That seed funding has played a major part in securing \$94 million in grants received from the National Institutes of Health and other national and international funding agencies. Those studies have resulted in more than 425 scientific publications by Totman Lab researchers.

Today, the Totman Lab is one of the nation's premier research centers focusing on brain blood vessels—studying them from the most basic molecular level with the aim of finding new clinical applications.

"We're trying to solve a mystery—how do our brain cells communicate to get blood, glucose, and other vital resources to precisely the right place in the brain at exactly the moment they are needed?" asks

Nelson. Those resources are needed in the brain at a vastly disproportionate scale: the brain is 2 percent of average body weight, but consumes 20 percent of the body's energy.

"The brain is a 'just-in-time' machine," Nelson explains. When neurons in a certain area of the brain are active, they send signals to nearby blood vessels to which they are electrically coupled, which then send signals to the surface of the brain to open up arteries and deliver blood within seconds to those active neurons. This happens across the 1,000 miles of blood vessels contained in the brain. Finding the mechanisms for this communication, and ways to enhance it, or repair it when it goes wrong, are key to Nelson's work that the Totman Fund supports.

"Our first step is understanding the normal functions in the brain," says Nelson. "We're developing what is basically a map of the brain. That can lead us to ways to correct deficits in blood flow that cause stroke, dementia, and other cerebrovascular diseases."

The Totmans' great foresight, Nelson says, was in realizing that investing in this kind of basic research taking place in their "backyard" could result in great benefits for everyone.

"Ray and Ildah left a lasting legacy," he says. "And we take fulfilling that legacy very seriously." VM





Erin Bingham, APRN, leads a session for Comprehensive Pain Program participants.



“While we won’t be surprised that some participants experience significant relief during their time in the program, our focus is on optimizing function, as well as comfort.”

– Jon Porter, M.D.

## ALTERNATIVES TO OPIOIDS

A UVM Medical Center program offers safer approaches for patients with chronic pain.

Catherine Huskisson spent about three years living with severe pain from fibromyalgia. She never liked taking medications and wanted to stay away from opioids to treat her pain. So she asked her primary doctor, “What else can you do for me?”

Ultimately, the doctor referred Huskisson to the new Comprehensive Pain Program at the University of Vermont Medical Center. Over eight weeks this past summer, she participated in group sessions, learned mindfulness exercises and received acupuncture and massage therapy.

Each visit to the clinic, she says, gave her a day with less pain. “That’s huge if you’re in this situation,” Huskisson says.

“I wanted it to give me strategies for dealing with my pain.”

The Comprehensive Pain Program (CPP) began in September 2018 as an integrative approach to addressing chronic pain, one of the first of its kind in the country. The program combines traditional methods of pain management with group psychology sessions, group medical visits, culinary medicine demonstrations and therapies including massage, Reiki, yoga, physical and occupational therapy, and acupuncture.

The CPP offers alternatives to pharmaceuticals for managing not only pain but the complications it causes for those suffering from it. Chronic pain can aggravate many facets of a person’s life and is often

associated with mental health challenges such as anxiety and depression. With that added stress, it’s hard for a person to reach an optimal level of comfort and function.

Some participants, like Huskisson, come to the program because they want to relieve their pain as much as possible without relying on highly addictive, prescription opioids.

Others in the CPP have taken opioids or other pain medications for years, some at very high doses to be effective. Many of them will continue to do so, even as they add the program’s therapeutic components.

The program optimizes the use of traditional medical treatment and give participants insights and awareness strategies to help them “reframe” their approach to life with chronic pain, says UVM Assistant Professor of Family Medicine Jon Porter, M.D., the CPP’s medical director and a pain specialist. A key goal is to enhance participants’ sense of self-agency and ability to manage better while living with, in many cases, extreme discomfort.

“Pain is a medical term,” Porter says. “It doesn’t begin to capture the experience of individuals who have chronic pain in terms of the impact it has on so many aspects of their lives. We think the word ‘suffering’ better describes the experience of our participants, and that’s a universal human experience.”

That understanding informs the CPP’s holistic approach, he says.

“While we won’t be surprised that some participants experience significant relief during their time in the program, our focus is on optimizing function, as well as comfort.”

About four years ago, UVM Medical Center convened a planning group to talk about non-opioid options for managing patients with chronic pain. The group found no other comprehensive programs specifically for pain across the country, so the medical center came up with this unique approach.

“We knew we needed to try something different,” says Maureen Leahy, a planning group leader and the medical center’s

director of neurology and psychiatry.

At the time, primary care physicians had few tools to help patients with chronic pain—other than more opioids—and little chance of making them better, Porter says. They were frustrated with writing multiple prescriptions for these patients while seeing them for 15-minute visits—too short a time to adequately address the challenges they faced, Porter says. This “transactional” approach, he says, has failed patients and providers.

“It’s not that everybody’s not doing the best they can,” Porter says. “We’re just not getting the best outcomes for our patients.”

Most people with chronic pain who use opioids are taking them as prescribed and aren’t addicted or using illegal drugs, though they may be dependent on them. And these medications present serious consequences to their health. If patients try to go off their medication or reduce the dose, they risk possible psychological instability, along with multiple physiological withdrawal symptoms. Doctors must work with these patients with thoughtful care and collaboration, Porter says.

The chance to give other pain sufferers an alternative to starting down that opioid path is the biggest benefit of the CPP, Leahy says.

“What we’re finding is that it’s more of an opportunity, if introduced early enough, to keep people off and it may help people reduce” opioid use, says Laurel Audy, a registered nurse and Reiki practitioner, and a CPP group co-facilitator who prescreens program participants.

At the clinic on Tilley Drive, designed with pastel colors and low lighting for those with sensitivity, the group sessions drive the structure. The CPP takes patients only on referral from their primary care doctors in the UVM Health Network. To qualify for referral, a participant must have experienced at least three months of pain that has interfered with at least one aspect of life—such as causing family stress, an inability to work or isolation.

The CPP has about 50 participants in two tracks, which last either eight or 10 weeks. It’s likely to increase capacity in the coming months, Porter says.

“We do feel confident that people can function better and find more ways to do what they want to do,” he says, “with genuine support, optimizing medical treatment and making use of integrative therapies not formerly used in traditional medical settings.” VM



## CLASS OF 2023 CELEBRATES WHITE COAT CEREMONY

Since arriving at the Larner College of Medicine in August, students in the Class of 2023 have been quietly transforming into true physicians-in-training. On October 4, 2019, they donned the outward symbol of that role—their first doctors' coats, during the ceremony in UVM's Ira Allen Chapel. Following a welcome from Interim Senior Associate Dean for Medical Education and Associate Dean for Students **Christa Zehle, M.D.**, and remarks from **Dean Richard L. Page, M.D.**, UVM Health Network Medical Group President and CEO **Claude Deschamps, M.D.**, and UVM Medical Center Interim President **Stephen Leber, M.D.'90**, attendees heard a Humanism in Medicine keynote address from Leonard Tow Humanism in Medicine Awardee and Assistant Professor of Obstetrics, Gynecology and Reproductive Sciences **Lauren MacAfee, M.D.** She talked about the importance of students finding an inner force to help guide them through the years ahead.

"Passion serves as the guiding light that we all should strive to capture and embrace every day such that in doing so we can provide the best patient care and maintain our resiliency," she said. "We all enter medicine with different experiences that shape not only who we are but the path we choose to take. Inherent to this journey is the need to find our passions and cultivate them."

In keeping with a tradition established several years ago at the College, each student received in the pocket of their new white coat a note of encouragement from a Larner College of Medicine alum. With Medical Reunion coinciding with the ceremony this year, alums also had the opportunity to attend the ceremony. **WM**



Elizabeth Barker '23 shakes the hand of Dean Richard Page, M.D., at the College's White Coat Ceremony in Ira Allen Chapel.