Faculty in the Department of Anesthesiology have been active in all areas of the mission, with several main themes developing in research and education, including anesthetic neurotoxicity in children, perioperative and practice management, multicenter perioperative outcomes, and medical simulation.

Robert Williams, M.D., has initiated a second major investigation into the cognitive impact of anesthetic drugs administered during infancy. This large-scale, multi-year study will examine the effect of multiple anesthetic exposures in childhood.

The scope of projects by Mitchell Tsai, M.D., M.M.M., includes application of time-driven activity-based costing to look for savings in various surgical procedures, including interventional cardiac procedures with Jacob Martin, M.D.; multi-state surveys of how hospitals govern their operating rooms; and the effectiveness of a web-based tutorial to train anesthesia residents in perioperative management. Dr. Tsai also offers a popular reading elective on medical leadership to fourth-year medical students. This one-month course is designed to expand students’ understanding of conceptual frameworks of leadership, management, and organizational change, aiming to foster growth in critical analytic skills.

Another popular course is the Perioperative Bridge Week, taught by Kathleen MacDonald, M.D. This program combines clinical simulation and hands-on experiences to give third-year medical students an exposure to acute care medical skills such as airway management, invasive and non-invasive monitoring, and cardiovascular support, as well as communication and teamwork skills that will be useful in any medical discipline. Vincent Miller, M.D., continues his work as associate director of anesthesia simulation for UVM’s Clinical Simulation Laboratory, where he is developing an operating room simulator as well as establishing an ultrasound curriculum.

Interim Chair David Adams, M.D., with colleagues from the Departments of Psychiatry and Obstetrics, Gynecology, and Reproductive Sciences, have developed an educational project to improve our learning environment for residents and medical students as well as faculty, allied practitioners, and staff. The team created a professional-quality film, background materials, and a discussion guide, presenting them at well-received grand rounds lectures in 13 departments over the past year. The film and related materials are available on MedEdPortal.
The Department of Family Medicine is providing transformative advances in biomedical research and education. Faculty and students are collaborating with colleagues throughout the College of Medicine; the University and The University of Vermont Medical Center to conduct leading-edge research and educate the next generation of scientists. In education, Paula Tracy, Ph.D., and Stephen Everse, Ph.D., have been instrumental in developing a team-based, interactive learning curriculum for medical students as well as for the biotechnology and pharmaceutical industries. Biochemistry faculty are science policy advisors for foreign governments, and serve on editorial boards for major biomedical research journals.

investigators who are initiating collaborative cancer research programs. Biochemistry investigators are making prominent contributions to the mechanistic understanding and clinical treatment of cancer and cardiovascular diseases, providing breakthroughs in genetic and epigenetic parameters of cell cycle and growth control, characterization of stem cells, the biology and pathology of coagulation and thrombosis, cancer metastasis to bone, genomic instability, and metabolic regulation.

The Department of Biochemistry is actively engaged in community education and advocacy for cancer and cardiovascular disease prevention, early detection, treatment and survivorship. Service to the national and international biomedical research communities includes leadership for NIH and disease-based foundation research grant review panels, membership on executive committees for professional organizations, membership on editorial boards for biomedical research journals, and service on scientific advisory boards for cancer centers as well as for the biotechnology and pharmaceutical industries. Biochemistry faculty are science policy advisors for foreign governments, and serve on editorial boards for major biomedical research journals.

SELECTED HIGHLIGHTS

* Gang Stein, Ph.D., was awarded an honorary professorship at the University Andres Bello in Chile.
* Many Biochemistry faculty have been awarded NIH funding for their research, including Christopher Francklyn, Ph.D., Janet Stein, Ph.D., Brian Sprague, Ph.D., Kenneth Mann, Ph.D., Kathleen Brunner-Ziedins, Ph.D., Jane Lian, Ph.D., and Gang Stein, Ph.D.

* The Department of Biochemistry has successfully launched a Biochemistry Master’s Program, providing students both a theoretical and practical knowledge of fundamental biochemical concepts while preparing students for careers in research.

The Department of Family Medicine continues to thrive in all areas of our mission. Our medical student education programs consistently receive excellent evaluations from students. Faculty are dedicated to teaching medical students on campus, at their practice sites, and in the hospital, with over 150 Family Medicine physicians, residents and allied health professionals participating in Foundations, Clerkship, and Advanced Integration Level activities. Family Medicine faculty are education leaders at all levels of the medical curriculum, and provide leadership with interprofessional education. Newer faculty include Jennifer Bamford, M.D., Katherine Marianis, M.D., Megan Malgeri, M.D., and Patricia Whitney, M.D.

The Family Medicine TOMPED curriculum [Team-Oriented, Patient-Centered Medical Education], supported by a five-year Health Resources and Services Administration grant, has been integrated in all four years at the College, inspiring students to appreciate and practice TOMPED principles. Students, residents and faculty regularly present their scholarly work at regional and national conferences, and participate on national curricular boards.

Our clerkship and our regional affiliations have created opportunities for innovation and enhanced curricular elements. Within the clerkship, we have developed an effective skill and knowledge building week to prepare students to be engaged and competent at their preceptor sites. The clerkship allows students to appreciate two key aspects of Family Medicine — comprehensiveness and continuity. Our residency thrives with innovations in quality improvement curriculum, and the adoption of competency-based Family Medicine Milestones. We began the implementation of the first Patient Accountable Care Unit this fall at The University of Vermont Medical Center. Family Medicine established a second family medicine residency in northern New York in conjunction with The University of Vermont Health Network. The first four residents are expected in June 2016. Residents present regionally and nationally on sports medicine, men’s health, and quality improvement initiatives. The department continues to develop the palliative care service and division to support clinical care, education, workforce development, and scholarship.

Family Medicine Continuing Medical Education (CME) includes the Family Medicine Review Course, Cultural Awareness Workshop, Sports Medicine Conference, regional CME and academic detailing presentations, and the Bridging the Divide collaborative care conference. Family medicine faculty scholarship includes projects in the delivery of behavioral medicine, nutrition, promotion of breastfeeding, pediatric obesity, motivational strategies for chronic disease, community wellness, and screening brief intervention and referral to treatment for alcohol and substance abuse.

Our Transforming Primary Care results have been presented at the UVM Medical Center Quality Forum, the Conference on Practice Improvement, as well as at the University Health Consortium. Faculty and staff support the community through free clinics, wilderness rescue, boards and foundations service, and invited lectures and articles on topics from lactation medicine to palliative care medicine. The department’s five patient-centered medical homes practices have maintained National Committee for Quality Assurance Level 3 recognition. Our Urgent Care has gone through a Quality Improvement Process, resulting in dramatic reductions in visit duration. Family Medicine directs the UVM Office of Health Promotion Research, which focuses on cancer registry research.

For three years, students have selected the Family Medicine Clerkship as the Best Clerkship in Vermont and Maine.

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SELECTED HIGHLIGHTS

- Family Medicine faculty receiving recognition this year include: Nellie Winig, M.D., as the Faculty, Teacher of the Year; and Clara Kogo, M.D., and Caroline Silverstein, M.D., as Residency Preceptors of the Year. Rodger Keesler, Ph.D., Nellie Winig, M.D., and Simer Khan, M.D., were promoted to Associate Professor. Alyson Dobbs, M.D., received the College of Medicine Alumni Association Service to Medicine and Community Award. David Little, M.D., was the Vermont Medical Society’s Physician of the Year.

- Rodger Keesler, Ph.D., and his colleagues in internal medicine secured a major five-year Patient Centered Outcome Research Institute (PCORI) contract to investigate behavioral health collaborative integration with primary care practices across the country. (Ben Littenberg, M.D., Primary Investigator, Internal Medicine).
The Department of Medicine had another excellent year with significant contributions in all areas of our mission. To support all of those missions we continue to grow. This year, we welcomed new faculty in Cardiology, Dermatology, Hematology/ Oncology, Immunology, and Primary Care Internal Medicine, new residents in Internal Medicine and Dermatology, fellows in all of our subspecialties areas, and graduate students and post-doctoral trainees in our laboratories.

The department expanded its clinical practice to include our University of Vermont Health Network partners in Cardiology, Critical Care, Hematology/Encology, and Bone Metabolism, and we expanded our partnership with the Burlington veteran’s administration clinic to include Dermatology. New clinical programs at The University of Vermont Medical Center include several multidisciplinary clinics, an interventional pulmonology program, and a multi-disciplinary lung cancer screening program. The Diabetes Care Pathway, created by the faculty in Endocrinology and Primary Care, was extended to all of the Medical Home sites. Faculty in Pulmonology and Primary Care are developing similar initiatives focused on asthma and COPD. Dermatology faculty and residents volunteer at the Community Health Center Free Clinic, and hosted a teledermatology rural hospital outreach program. The UVM High Yakan Care (previously known as Choosing Wisely) Initiative continues to expand.

This year, Danbury and Norwalk Hospitals joined to form the Western Connecticut Health Network with an acting clerkship in Medicine serving as the first new opportunity for our Network with an acting clerkship in Medicine joined to form the Western Connecticut Health Network with an acting clerkship in Medicine serving as the first new opportunity for our Network with an acting clerkship in Medicine. The department has a vibrant graduate program with 15 Cell and Molecular Biology doctoral students, teaches medical students in the Vermont Integrated Curriculum, and offers two undergraduate degrees, one in microbiology and the other in molecular genetics, with a total of 134 students. The department has three principal research foci, microbiology and microbial pathogenesis, where faculty interact with adjunct MMG faculty from Infectious Diseases and work together in the Immunology and Infectious Disease COBRE Program, Protein-Nucleic Acid Transactions, where faculty interact with adjunct MMG faculty from Biochemistry.

The Department of Microbiology and Molecular Genetics and its 16 faculty members play important roles in the research and educational missions of the College and the University. The department has a vibrant graduate program with 25 Cell and Molecular Biology doctoral students, teaches medical students in the Vermont Integrated Curriculum, and offers two undergraduate degrees, one in microbiology and the other in molecular genetics, with a total of 134 students.

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The Department of Molecular Physiology & Biophysics continues to garner international recognition and success in the areas of cardiovascular research, cell division, and protein structure and function. A common research focus is directed at understanding the molecular basis of cellular movement, whether associated with cell division or muscle contraction. By studying genetic alterations in cellular movement, special emphasis is directed at defining normal and diseased contractile function of the heart, blood vessels, and processes associated with cell division, e.g. chromosome segregation during mitosis. The department is considered the premier center of excellence in protein molecular structure, with expertise in high resolution three-dimensional electron microscopy.

The department faculty is involved with two highly prestigious NIH Program Project Grants to study genetic forms of heart failure and aortic aneurysms. These multi-investigator grants are on protein molecular structure, with expertise in high resolution three-dimensional electron microscopy.

The department is considered the premier center of excellence in protein molecular structure, with expertise in high resolution three-dimensional electron microscopy.
The Department of Obstetrics, Gynecology and Reproductive Sciences has seen a change in divisional leadership in the last year. Elisabeth Wegner, M.D., has taken over the Gynecology division, replacing Robert Haywood, M.D., who served as interim director for two years.

Anne Dougherty, M.D., M.A., is in the second year of her Frymoyer Scholar Award focusing on developing a global women’s health education program. Along with Marjorie Meyer, M.D., and Cheung Wong, M.D., they have been instrumental in developing the ultrasound and surgical skills of resident and junior attending physicians at Makerere University in Uganda. In June, Mulago National Referral Hospital in Kampala performed their first laparoscopic surgery for the treatment of an ectopic pregnancy under the direction of Drs. Dougherty and Wong. In addition, Dr. Dougherty was appointed to the Association of Professors of Gynecology and Oncology Global Health Committee to work on development of national global women’s health competencies for medical students.

In Uganda, Dr. Dougherty and Cheung Wong, M.D., have been instrumental in developing the ultrasound and surgical skills of resident and junior attending physicians at Makerere University in Uganda. In June, Mulago National Referral Hospital in Kampala performed their first laparoscopic surgery for the treatment of an ectopic pregnancy under the direction of Drs. Dougherty and Wong. In addition, Dr. Dougherty was appointed to the Association of Professors of Gynecology and Oncology Global Health Committee to work on development of national global women’s health competencies for medical students.

The Department of Obstetrics and Gynecology experienced a very productive academic year in 2015. Recruitment, promotions, and awarded grants reflect the ongoing excellence within the department.

David Holley, M.D., and Adam Shalit, M.D., were promoted to the rank of Professor in the Clinical Scholar Pathway. Jennifer Liss, M.D., was promoted to Associate Professor in the Clinical Scholar Pathway. These individuals have distinguished themselves nationally, and continue to focus a spotlight on the academic excellence of the department.

S. Elizabeth Aimes, M.D., our Orthopaedic Surgery Residency Program Director, has assumed the post of Chair of The American Orthopaedic Association’s Council of Orthopaedic Residency Directors (CORD). This is a position that will significantly influence Orthopaedic Surgery Graduate Medical Education. Dr. Aimes continues to refine the educational structure for first-year resident curriculum at The University of Vermont Medical Center. The residency program continues to draw from a national pool of highly qualified candidates.

We have been fortunate to recruit two new junior faculty, Nathan Morrel, M.D., [hard and upper extremity] and Patrick Schottel, M.D., [orthopaedic trauma] will complement the growing cadre of young faculty members who represent the future of the department.

Timothy Tourville, Ph.D., was awarded a K08 award from the National Institutes of Health. Along with his co-investigators, Michael Tath, Ph.D., and Bruce Beginn, Ph.D., he will investigate skeletal muscle size after ACL injury. James Sauterbeck, M.D., was awarded a research grant from the Orthopaedic Research and Education Foundation (BREF) to evaluate the efficacy of the FIFA 11+ injury prevention program on lower extremity injuries in high school athletes.

Clinically, the Physical Medicine and Rehabilitation faculty have been instrumental in developing the ultrasound and surgical skills of resident and junior attending physicians at Makerere University in Uganda. In June, Mulago National Referral Hospital in Kampala performed their first laparoscopic surgery for the treatment of an ectopic pregnancy under the direction of Drs. Dougherty and Wong.
The Department of Pathology and Laboratory Medicine has had a productive year providing patient care at the University of Vermont Medical Center and regional hospitals, training graduate students, post-doctoral fellows, medical students, residents, and clinical fellows, conducting basic science and clinical research, and providing leadership through participation on local and national committees. Faculty have published 106 peer-reviewed papers, seven textbook chapters and one book, have given 68 presentations and 23 posters at conferences, submitted 42 funded grant applications, and taught 19 courses. The department offers degree-granting research opportunities, a 12-month clinical training fellowship for UVM medical students (since 1955), a medical student and resident exchange program with four medical schools in Japan, and a research and education affiliation with the University of Massachusetts.

Our department faculty and staff continue to receive accolades. Lin Kristensen, MT (ASCP), received the UVM Medical Laboratory and Radiation Sciences Program Breen Award for excellence in medical technologist student teaching. The College of Medicine Class of 2027 recognized Rebecca Wilcox, M.D., with the Foundations Teaching Award, and Pamela Gibson, M.D., with the American Medical Women’s Association Gender Equity Award. Deborah Cook, M.D., was named the Connections Course Director, and Dr. Wilcox was named the Nutrition, Metabolism, Gastrointestinal System in Health and Disease Course Director. Dr. Wilcox and Tamara Williams, Ph.D., became Fogarty Scholar for integrating genomics into the Vermont Integrated Curriculum. Department faculty comprise about a third of UVM College of Medicine Teaching Academy members, with Dr. Gibson and Doug Stajich, Ph.D., inducted as Distinguished Educators, the highest level of achievement. Don Dukette from our Autopsy Service received a UVM Medical Center Vision Award for his care of our deceased patients and their families. Christina Wojewoda, M.D., was named an American Society for Clinical Pathology Top 40 Under 40 Pathologist. Russell Tracy, Ph.D., received the Distinguished Scientist Award from the American Heart Association. Finally, Debra Leonard, M.D., Ph.D., received the College of American Pathologists’ Lifetime Achievement Award.

Our faculty has obtained over $9 million in grant funding to study redox biology and pathology, asthma, pulmonary fibrosis, mesothelioma, breast cancer, thrombosis, cardiovascular disease, and improving laboratory test utilization. Nationally, faculty serve on the American Council for Graduate Medical Education, American Association of Blood Banks, American Heart Association, American Society of Clinical Pathology, American Society of Cytopathology, College of American Pathologists, Institute of Medicine, NHLBI, and NIH committees.

SELECTED HIGHLIGHTS

• Faculty published in such journals as the New England Journal of Medicine, Journal of the American Medical Association, American Journal of Surgery/Pathology, Diabetes Care, and Annals of Internal Medicine.

• New extramural grants were received from the Department of Defense, the National Heart, Lung and Blood Institute, Vanderbilt University, and the University of Washington.

• Several faculty have received notable awards this year: Christina Wojewoda, M.D., was named an American Society for Clinical Pathology Top 40 Under 40 Pathologist. Russell Tracy, Ph.D., received the Distinguished Scientist Award from the American Heart Association; and Debra Leonard, M.D., Ph.D., received the College of American Pathologists’ Lifetime Achievement Award.

During the past year, the Department of Pediatrics and the University of Vermont Children’s Hospital maintained and enhanced its academic mission of improving the health of children through clinical, research, educational, and service activities that make a difference for those living in our community, and in turn can be shared with others throughout the country and the world.

Educationally, our department continued to teach actively in all four years of the Vermont Integrated Curriculum. We were fortunate to have our department honored for the third year in a row by the graduating class as Clinical Department of the Year. It was wonderful to see three-fourths of our house staff and a number of our faculty be nominated for the Gold Humanism Award, and to see one of our house staff, Mark Shwayder, M.D., and a faculty member, Alicia Viet, M.D., receive this award. It was also nice to see a third of our house staff nominated for Clinical Resident Teacher of the Year, and again multiple faculty members be named finalists for Clinical Teacher of the Year with Chief of Pulmonology, Thomas Lahiri, M.D., receiving the Graduate Medical Education Teacher of the Year Award. We also awarded second-year resident, Aaron Burley, M.D., the Ann Guiltich Prize in Resident Teaching. The first year this award has been given in honor of Dr. Guiltich’s superb quarter-century of being our residency program director.

In addition, the number of fourth-year students choosing pediatrics as a career was 15 percent (above the national average of 10 percent), and the number of applicants to our residency program increased another 25 percent over the prior year’s record-breaking increase. Our nationally-judged Continuing Medical Education course, the Vermont Pediatric Summer Seminar, sold out again, and brought attendees from all over the country to Vermont. Nationally, our faculty continue to serve in leadership roles in all major pediatric educational organizations. We continue to serve for the 45th year in a row as the editorial home of the American Academy of Pediatrics journal Pediatrics, the national and international leading peer-reviewed pediatric journal.

From a research perspective, we continue to be fortunate to receive significant federal, state, and foundation grant funding, especially in the area of health services research. The Vermont Oxford [Neonatal] Network, ImproveCareNow, the AAP’s Pediatric Research in Office Settings, and the Vermont Child Health Improvement Program (VCHIP) expanded their projects and programs. Translational research also flourished in areas such as metabolism, nutrition, and cystic fibrosis, with additional growth noted in the areas of infectious diseases and hematology-oncology. Our efforts in health services research were rewarded with VCHIP Executive Director, Judith Shaw, Ed.D., M.P.H., R.N., accepting the national Health Care Delivery Award from the Academy of Academic Pharmacists on behalf of the National Improvement Partnership Network that she also oversees at a national level.

Advocacy efforts also thrived as faculty and house staff participated in numerous community service efforts to overcome food insecurity, improve health care access to immigrant populations arriving into Vermont. Students, residents, and faculty also worked in partnership with families to lobby the state legislature for the philosophical exemption on vaccines. Inpatient and outpatient services demonstrated quality improvements in every clinical area. The initiation of 24/7 hospitalist coverage, combined with a strong emphasis in implementing new initiatives in patient- and family-centered care, led to record highs of patient and faculty satisfaction, as well as improved quality metrics in our intensive care, inpatient, subspecialty, and primary care divisions.

The department welcomed eight new faculty in 2015, with new faculty joining us in the upcoming year in hematology-oncology, infectious diseases, neonatology, neurology, emergency medicine, pulmonology and quality sciences, and child psychiatry.

We look forward to continuing to foster our educational, research, clinical, and advocacy missions in 2015–2016.

SELECTED HIGHLIGHTS

• Faculty published in such journals as Pediatric Pulmonology, Pediatric Medicine and Care, and Pediatrics.

• Maria Avila, Ph.D., received the University of Vermont Krocges-Maurice Excellence in Teaching Award.

• Judith Shaw, Ed.D., M.P.H., R.N., executive director of the Vermont Child Health Improvement Program, was the recipient of a National Health Care Delivery Award from the Academy of Academic Pharmacists.
The Department of Pharmacology, with its international reputation in neuroscience research, continues to play important roles in the research and educational missions of the College of Medicine and the University. Faculty members have been invited to present at important international meetings and academic institutions around the world. The department hosted two international research meetings at UVM for the Foundation Leducq study of cerebral small vessel disease, co-led by Mark Nelson, Ph.D.

Research highlights included the identification of an enzyme, phosphodiesterase 9b, by Wolfgang Dostmann, Ph.D., and collaborators from John Hopkins University as the missing culprit in the faulty molecular messaging system that leads to heart failure. A collaboration between Frances Carr, Ph.D., the chair of the new Vermont Psychiatric Care program, for UVM undergraduate students. Faculty published research in such journals as Nature, American Journal of Geriatric Pediatrics, The American Journal of Psychiatry, and Addiction Science and Clinical Practice.

SELECTED HIGHLIGHTS

• Mark Nelson, Ph.D., was honored as the Kakey Lecturer and awarded the American Physiological Society’s Reviewer Award at Experimental Biology 2016.


The past academic year saw the opening of the new Vermont Psychiatric Care Hospital (VPCH), under the medical directorship of Isabelle Desjardins, M.D. UVM psychiatrists are now staffing the UVM Medical Center, VPCH, and the Central Vermont Medical Center (CVMC). Justin Knapp, M.D., Jessica Rho, M.D., and David Mooney, M.D., all joined the faculty this year at CVMC.

Also joining the faculty were Elizabeth Jensen, M.D., for an expansion of the Seneca Intensive Outpatient Program; Sanjib Maruti, M.D., for the psychiatry inpatient service and addiction services; and Andrew Rosenfeld, M.D., for child psychiatry.

A new research grant was awarded to Hugo Garavan, Ph.D., to continue his work on functional imaging and genetic correlates of addiction. The neuroimaging group, which also includes Alexi Potter, Ph.D. and Julie Dumas, Ph.D., focuses on impulsivity, the aging brain, development of substance use in adolescents, and risk and resilience in children. Each laboratory has post-doctoral fellows, graduate students, and/or undergraduate students designing and carrying out their own projects utilizing the MRI Center. In addition, Psychiatry faculty continue to mentor junior faculty in other College of Medicine and UVM departments as they learn to apply MRI methods to their own research. Magdalena Naujok, M.D., Ph.D., and her graduate students published and presented extensively on intrinsic brain connectivity changes associated with chronic pain, and its treatment with cognitive behavioral therapy.

The Vermont Center for Children, Youth, and Families, under the direction of James Hudziak, M.D., launched a new residential life program, called the Wellness Environment program, for UVM undergraduate students. Members include Diann Gaaelma, Ph.D., Sarah Hsi, Ph.D., John Hughes, M.D., and Stacey Signor, Ph.D. Among the new grants is a study to help mothers stop smoking and reduce second-hand smoke exposure to children. The VCBH hosted its second annual interdisciplinary conference October 2-3, 2014, to discuss and share strategies for changing the personal behavior patterns that increase health risks and contribute to health disparity problems. More than 150 participants came to Burlington, Vermont from around the country to hear leading scholars share their research.
The Department of Radiology continues to gain national and international prestige through cutting-edge quality improvement programs, clinical excellence, technological advancement, radiology educational innovation, and global health initiatives. The department represents the only 24/7 subspecialty radiology referral center in the region, staffed by fellowship trained board-certified radiologists in all subspecialties of radiology. Our radiologists participate in over 60 interdisciplinary conferences per month at our institution, serve in leadership roles on many internal and external committees, and during the past year have been invited speakers at numerous conferences. We have a strong and competitive residency training program with 24 residents. This year, we developed a plan with the Office of Medical Student Education to integrate radiology early in the medical student curriculum, with lectures in the Human Structure and Function course and hands-on imaging workshops in the Cardiovascular, Renal and Respiratory Systems course.

The department has expanded its imaging “high reliability” program. In addition to a computed tomography (CT) monitoring system that tracks the perioperative radiation dose for patients, the department is in the process of integrating a decision support software tool into the radiology test ordering process that helps providers know which radiology test is the most appropriate for the disease condition or clinical question being asked. New software in interventional radiology has reduced radiation exposures by up to 50 percent. The department is also using new processes to monitor outcomes for patients when a follow-up radiology test is recommended — all of these measures help to ensure the highest level of quality and safety.

The department has experienced clinical advancements in the last year. In breast imaging, the department has experienced clinical advancements in the last year. In breast imaging, the Department of Radiology has been at the forefront of clinical advancements and technological innovations, which have significantly improved patient outcomes and streamlining of care.

SELECTED HIGHLIGHTS

- Radiology faculty have been lead authors on peer-reviewed papers published in international journals such as Radiology, Radiographics, the Journal of Magnetic Resonance Imaging, and the Journal of Nuclear Cardiology.
- The UVM MRI Center was selected to be the lead Philips site for a large $200 million NIH-funded multi-center study of “Adolescent Behavior and Cognitive Development.” The study includes 10,000 children followed over a period of 10 years. Last summer, faculty members from Radiology and Cardiology collaborated to deliver an echocardiography program for detection of rheumatic heart disease to clinicians in rural Uganda. As key thought leaders and scientists for industry partners, we inform state-of-the-art imaging technology and advance the field of radiology.
- Radiology faculty and residents are academically active, presenting abstracts at national and international meetings, co-authoring textbooks, and publishing widely in academic journals. Department faculty collaborated with the departments of Pediatrics, Neurology, Psychology, Psychiatry, Surgery, Anesthesiology, and the University of Vermont Cancer Center. The UVM MRI Center was selected to be the lead Philips site for a large $220 million NIH-funded multi-center study of “Adolescent Behavior and Cognitive Development.” The study includes 10,000 children followed over a period of 10 years.
- Twenty-two faculty members serve on national committees or associations.
- The UVM Radiology Lung Cancer Screening Program has provided a means for detection of early-stage lung cancer with improved survival. The Lung Cancer Screening Program has been successfully coordinated with the UVM Lung Transdisciplinary Team, offering patients a wide array of treatment options and clinical trials for lung cancer. The UVM Department of Radiology was one of the first sites in the nation to receive the American College of Radiology Designated Lung Cancer Screening Certification, which distinguishes this service to patients and providers as providing high quality lung cancer screening services. This service was extended to examinations performed at Central Vermont Medical Center.
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The Emergency Medicine Research Associate Program (EMRAP), run by Dr. Freeman, has expanded to include three courses that introduce UVM students to the Emergency Department of our level 1 trauma center. Students learn the basics of clinical research while providing an infrastructure to support ongoing research studies at UVM and the UVM Medical Center. Staff member and instructor Mike O’Keefe of the EMRAP program is the author of the book titled Emergency Care, which is in its 13th edition and widely used by EMT programs nationwide.

The Transplant Division has developed a new program called the Vermont Antibody Working Group (VAMG). VAMG establishes a collaboration capable of bridging basic and clinical immunology, developing meaningful protocols that will impact clinical outcomes while contributing to the knowledge base of humoral immunity and transplantation.

The Department of Surgery continues to play an important role in the research and education missions of the College of Medicine and the University of Vermont. Surgery faculty published 69 peer-reviewed articles that span clinical, translational, and basic research. The significance of research being conducted in the department is underscored by the increasing level of extramural funding. Highlights this year include a $3.0 million, multi-year National Institutes of Health (NIH) Collaborative Research Grant awarded to Brian Sprague, Ph.D., a Komen Foundation and a Magi Kay Foundation Grant awarded to Tom Ahern, Ph.D.; a two-year NIH Exploratory/Developmental Research Grant awarded to Jon Bogun, Ph.D.; and a two-year NIH High Priority/Short Term Project Grant awarded to Peter Zvara, M.D., Ph.D. In addition, our clinical trials program is expanding with clinical trials awarded to Julie Adams, M.D., Daniel Bertges, M.D., Peter Cataldo, M.D., and Kalen Freeman, M.D., Ph.D. The Division of Surgical Research, led by Dr. Boyson, has implemented a new research curriculum this year, which includes bi-weekly seminars led by research professionals in the College of Medicine.
The Center for Clinical and Translational Science (CCTS) is dedicated to the pursuit of transdisciplinary research that translates knowledge from the cellular and molecular level into interventions for individuals and populations. The center offers a Certificate, a Master of Science, or a Doctor of Philosophy degree under the auspices of the CCTS Educational Program led by Benjamin Littenberg, M.D. Four faculty members engage in research. They are Indra Neel Sarkar, Ph.D. and Elizabeth Chen, Ph.D., bioinformatics, Christopher Jones, D.P.H., health care economist, and Thomas Simpatico, M.D., public psychiatry and medical director of the Vermont Medicaid Program. Combining their skills they have forged novel interdisciplinary interactions with others at the University, the UVM Medical Center and throughout the state.

Dr. Sarkar is an ad hoc member of five National Institutes of Health (NIH) study sections, and received three years of NIH funding for his grant “In Silico Identification of Phyto-Therapeutics.” Dr. Chen is principal investigator on an NIH grant, “Leveraging the EHR to Collect and Analyze Social, Behavioral & Familial Factors,” and is an ad hoc member on five NIH study sections. Dr. Jones is a pilot investigator on Dr. Higgins’ Vermont Center on Behavior and Health grant. He reviews for the International Society for Pharmacoeconomics and Outcomes Research, and the Society for Medical Decision Making. Dr. Simpatico is principal investigator on a Department of Veterans Affairs grant, “Supportive Services for Veteran Families.” These four investigators, along with Russell Tracy, Ph.D. who directs both the Laboratory for Clinical Biochemistry Research and Translational Technologies in the CCTS, also make their unique skills available to other investigators within the University.

In May of 2015, the UVM Board of Trustees approved the re-alignment of the CCTS to the Office of Clinical and Translational Science. Its mission remains the same.

A 35% decrease in hospitalization rates was found following the initiation of our Vermont Center on Behavior and Health (VCBH) in 2013. This was significant given the challenges posed by Vermont’s aging population and its health care delivery system. The VCBH is developing and sustaining a vibrant interdisciplinary center of research excellence focused on greater scientific understanding of the mechanisms underlying risk behaviors, and more effective interventions to promote behavior change. Investigators approach these challenges from a behavioral economics conceptual framework through interdisciplinary collaborations within UVM and our community, as well as five other universities — Brown, Kentucky, Wisconsin, Brandeis and Johns Hopkins.

The VCBH, established in 2013, is sponsored in part by a Centers of Biomedical Research Excellence (COBRE) Award from the National Institute on General Medical Sciences, and a Centers of Tobacco Regulatory Science (CTORS) Award from the National Institute on Drug Abuse. VCBH was awarded two new grants this fiscal year, including a $2.9 million RO1 grant from the National Institute on Drug Health and Human Development to study 250 women and their children to help mothers to quit smoking, and to decrease secondhand smoke exposure among their young children. VCBH faculty published approximately 75 articles in scientific journals, and their work was featured in several national media outlets. A letter to the editor from Stacey Tignon, Ph.D., (in response to an article about heroin addiction in Vermont) was published in the New York Times. The VCBH continued to host its annual national, interdisciplinary conference, with more than 150 attendees. U.S. Senator Patrick Leahy of Vermont sent a personal video message of support.

VCBH’s Lecture Series brought eight speakers to campus. In late July 2014, VCBH trainees participated in a day long retreat. Congress granted the Vermont Cancer Center (UVMCRC) some $35 million of federal funding, a huge increase over the $25 million received in the last five years. Congress also gave Vermont the ability to choose how to spend the money, allowing the UVMCRC to pursue areas not typically supported by the National Cancer Institute; and growth of the University of Vermont and partnering institutions. The Center, as well as across the University of Vermont, has grown in the last year from 1,250 members to just over 150 members — an 80% increase. UVMCRC investments in infrastructure and administrative services, the recruitment of new administrative director Kate Webster, BA, CRA; a major restructuring of the CCTS to the Office of Clinical and Translational Science; and support.

Investments in infrastructure and administrative services include the recruitment of new administrative director Kate Webster, BA, CRA, a major restructuring of the clinical research and clinical trials waiting area.

SELECTED HIGHLIGHTS
- Elizabeth Chen, Ph.D., et. al. published “The effect of a mobile health decision support system on diagnosis and management of obesity, tobacco use, and depression in adults and children” in The Journal for Nurse Practitioners.
- Indra Neel Sarkar, Ph.D., et. al. published “Managing interpretability and complexity in health systems” in Methods of Information in Medicine.

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- The VCBH published its second special supplemental issue of Preventative Medicine with 11 of the 19 articles authored by VCBH researchers.
- VCBH researchers published in such journals as Addiction, Journal of the American Medical Association, and JAMA Psychiatry.
- Philip Adams, M.D., VCBH associate director and professor of medicine, was named one of four 2015–2016 University Scholars at UVM.

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Vermont Lung Center

Charles Irvin, Ph.D., Director

The Vermont Lung Center (VLC) at the University of Vermont College of Medicine was established in 1975. Funded by the National Institutes of Health (NIH), the VLC first focused on understanding the fibrotic scarring processes in the lung that lead to restrictive lung disorders and death. Fibrotic lung process is still a current theme of research interest of the center.

Today the center has a number of foci of research that include epithelial biology, immunity/immunity, cell signaling, regenerative medicine, microbial pathogenesis, lung cancer, medical communications, obesity and lung mechanics for which VLC researchers have developed a robust national and international reputation.

This past year has seen the VLC host two international meetings, "Stem Cell Conference" hosted by Dan Weiss M.D., Ph.D. and "Obesity and Metabolism: An Emerging Frontier in Lung Health and Disease" hosted by Anne Dixon, M.D. bringing national and international investigators to Vermont.

Multiple members of the VLC serve on NIH review panels, with Charles Irvin, Ph.D., Yvonne Janssen-Henringer, Ph.D. and Albert van der Vliet, Ph.D. chairing study sections this year. Dr. Polly Parson finished her term on the Advisory Council for NHLBI at NIH. VLC members published 53 peer-reviewed papers during 2015 in high impact journals.

The center’s current NIH T32 training grant, that supports four predoctoral and three postdoctoral fellows, was recently renewed with a perfect score. Training grants are given to programs that provide outstanding training in developing a research career in pulmonary sciences and lung disease. Faculty continue to enjoy robust extramural research support from NIH and the private sector. The center’s third and final funding cycle as a NIH NIGMS Center of Biomedical Research Excellence (COBRE) was successfully completed in 2015. The Center is now sustained by a robust portfolio of extramural support with 30 externally sponsored grants and nine internal grants plus philanthropy that established a visiting professor lecture series. Eleven of the external grants are sponsored by foundations and 19 are sponsored by NIH or DOD. The grants from the NIH include: eight R01s and two R25s as well as a U13, R13, T32, F31, F32, and K99/R00. Lastly, we have a robust clinical research program with 56 open protocols that involves patients with asthma, COPD, acute lung injury, cystic fibrosis, idiopathic pulmonary fibrosis and lung cancer in cutting edge clinical trials to better understand lung disease pathogenesis and develop better treatments.

Vermont Center for Immunology and Infectious Diseases

Ralph Budd, M.D., Director

The Vermont Center for Immunology and Infectious Diseases (VCID) is a multidisciplinary team of scientists and clinicians elucidating microbial pathogenesis and the immune response to infections. Our goal is to devise new strategies for the detection, prevention, and treatment of infectious and inflammatory diseases. Our research is also highly relevant to other diseases, such as cancer, autoimmune disorders, and atherosclerosis. The VCID comprises 26 faculty in eight departments in four UVM colleges who interact on a daily basis through weekly joint research-in-progress meetings. Recent breakthroughs include:

- Genes on the Y chromosome can affect susceptibility of female mice to a model of multiple sclerosis.
- Identification of genes critical for the sporulation of Clostridium difficile, a serious hospital-acquired infection.
- A novel protein known as MC1 regulates mitochondrial function that can affect several cell functions, including the immune response during infections.
- Identification of a subset of Th lymphocytes known as MCT cells are important for control of lung infection with Pseudomonas aeruginosa.

Clinical investigations of infectious diseases are conducted through the College of Medicine’s Division of Infectious Diseases, and for autoimmune and rheumatic diseases through the Division of Rheumatology and Clinical Immunology. An important development in 2015 was the opening of the new Vermont Department of Health Building at the UVM Colchester Research Facility, which includes a joint research laboratory with UVM investigators to study complicated infectious organisms. The center’s vibrant research training program for undergraduate and graduate students and postdoctoral fellows is supported by funds from a National Institutes of Health (NIH) COBRE Center of Biomedical Research Excellence (COBRE) Grant and an NIH Training Grant.

An active seminar series brings to campus outstanding investigators in immunology and microbiology. The center also supports core facilities in next-generation sequencing, microarray, bioinformatics, proteomics, cell imaging, and flow cytometry.

The VCID is affiliated with the UVM Vaccine Testing Center (VTC), a research team committed to deceasing the global burden of infectious diseases. The VTC performs clinical trials of candidate vaccines and monitors the human immune response, and also conducts international field trials of vaccines and therapeutics for infectious diseases. Current vaccine research at the VTC focuses on Dengue, West Nile virus, rotavirus, polio, and cholera.