

Larner College of Medicine Department of Pediatrics
The University of Vermont Children's Hospital



2018 Annual Report

It gives me great pleasure to introduce this year's annual report for the Department of Pediatrics at the Robert Larner, M.D. College of Medicine and The University of Vermont Children's Hospital.



Lewis First, M.D.

2019 MARKS THE START OF my 25th year having the privilege and honor of serving as chair of our Department of Pediatrics at the University of Vermont (UVM) Robert Larner, M.D. College of Medicine and chief of our UVM Children's Hospital. I can't think of a better way to celebrate that milestone than by sharing the accomplishments of our faculty, trainees, and staff who oversee the many programs and services that make our department and children's hospital a local, national, and international leader in improving the health of children and families. This report covers the period from January through December 2018 and details how we have evolved since the founding of this department by Dr. R. James McKay in 1950 to provide the highest quality comprehensive and collaborative patient- and family-centered clinical care possible, while also strengthening our educational, research, and advocacy missions.

This past year, the department continued to grow not only in terms of faculty and staff, but also in new programs and facilities.

We have started or strengthened new interprofessional and interdisciplinary programs in behavioral and mental health, in the diagnosis and prevention of child abuse and neglect, and in transitioning the care of adolescents and young adults with chronic illness. We have focused our advocacy efforts on narrowing the gaps in the social determinants of health that can affect the well-being of our patients and their families. Key to the success of many of the initiatives, programs, and facilities you will read about in this report are our more than 50 patient and family advisors who volunteer their time to enhance the programs and services we provide.

This year we dedicate our annual report to the memory of Dr. Carol Lee Phillips, Professor Emerita and former chair of our department (1983-1993) who passed away on December 28, 2018. Dr. Phillips was a champion for furthering the mission of our department to improve the health of children we serve locally in ways that can be shared with others throughout the country and the world. We will miss her, but know that her

legacy carries on in the stories and articles you will find in this report.

I want to once again thank Sue Victory, senior administrative coordinator for our children's hospital, for superbly compiling and editing this year's report. As our department and children's hospital continue to achieve metrics of success such as those captured in this report, I hope you will view what you read as an indicator of our overall wellness and of our sustainability, thanks to the dedication of our pediatric faculty, staff, and trainees who make our department and children's hospital so extraordinary in what we accomplish each and every day.

A handwritten signature in black ink that reads "Lewis R. First".

LEWIS R. FIRST, M.D.

Professor and Chair
Department of Pediatrics
UVM Larner College
of Medicine
Chief of Pediatrics
UVM Children's Hospital

Table of Contents

2 Facts and Figures

4 The Children's Hospital Without Walls

6 Treating Patients, Finding Cures

8 Perinatal-Neonatal Fellows Improve Care, Empower Families

10 National Recognition for VT Lend

12 2018 Year in Giving

14 General Pediatric Divisions and Programs

Primary Care

Adolescent Medicine

Cardiology

Child Abuse Prevention/
ChildSafe Program

Children's Developmental Evaluation
Services

Endocrinology

Gastroenterology, Hepatology
and Nutrition

Genetics and Dysmorphology

Hematology/Oncology

Infectious Disease

Pediatric Critical Care Medicine

Pediatric Hospital Medicine

Neonatology

Nephrology

Palliative Medicine

Pulmonology

Rheumatology

23 Other Pediatric Specialties

Anesthesiology

Dermatology

Emergency Medicine

Neurology

Orthopedics

Pathology

Psychiatry

Psychology

Radiology

Women's Care and
Pediatric Service

29 Pediatric Surgical Specialties

General Surgery

Neurological Surgery

Ophthalmology

Otolaryngology

Pediatric Plastic Surgery

Urology

32 Faculty and Community Faculty

On the cover: L.E. Faricy, M.D.

9,000
Pediatric emergency
room visits per year

2,200
Babies born each year
at UVM Children's
Hospital

4,850
Number of NICU
patient days in 2018

55
Pediatric Patient and
Family Advisors to
ensure care is child-
and family-centered

1,350
Pediatric admissions
per year to our
inpatient floor

25,000
Patient visits to
Children's Specialty
Center per year in 15
specialty programs

“When a child comes to me, they’re coming because something really scary has happened in their family. While children are often more resilient than adults, resilience doesn’t happen in a vacuum. It happens because the right support was put into place.”

– Ali Waltien, M.A., CCLS, child life specialist focused on supporting children through the experience of their parent or guardian’s critical illness or traumatic injury



The Children's Hospital Without Walls

Hospitalist Service Extends to Champlain Valley Physicians Hospital



FOR SOME PEDIATRIC

hospitalists, a ferry ride across Lake Champlain is now part of their regular commute.

Beginning in 2017, UVM Medical Center established a pediatric hospitalist service at Champlain Valley Physicians Hospital (CVPH) in Plattsburgh, N.Y., on the western shores of Lake Champlain. Since then, four physicians have been recruited to work primarily at CVPH, with 25 percent of their time allocated to service at UVM Children's Hospital. Six hospitalists based at UVM Children's Hospital also rotate through shifts in Plattsburgh. The shortest distance between the two cities is a 20-minute ferry ride, so the hospitalists are crossing the lake regularly. Karen Leonard, M.D., director of the Division of Pediatric Hospital Medicine, says the goal is integration, with both institutions now members of the UVM Health Network.

"Everyone who works over there works here too, so that we can understand systems between the two hospitals," she says.

CVPH hospitalists admit pediatric inpatients, care for all newborns, assist with deliveries, provide consultation in the emergency department, and provide inpatient consultation to subspecialty services. The exchange between Vermont and New York provides opportunities for education in both directions: Plattsburgh-based hospitalists have the chance to work with residents and fellows in Burlington, while Burlington-based hospitalists experience what it's like to provide care at a community hospital.

The new hospitalists—including Jana Lichtenfeld, M.D.; Andrea Reed, M.D.; Stephanie Ryan, M.D., M.P.H.; and Benjamin Littleman, M.D.—bring fresh enthusiasm and strong credentials to the team. They’re doing important work on a range of initiatives, including spearheading quality improvement projects, developing curricula for residents and medical students, and researching barriers to immunization and other topics.

The new service also offers opportunities for collaboration and growth. UVM’s Clinical Simulation Lab provides leading edge inter-professional training for pediatric hospitalists and nurses. An expansion of telemedicine capabilities—allowing specialists in Burlington to consult on patients in Plattsburgh—may be possible. Also in the works: Adapting some of the quality improvement work already happening at UVM Medical Center to a community hospital setting.

Patients have responded well to the integration of the two institutions, says Leonard, and community pediatricians as well as nurses at CVPH benefit from the shared services.

“They have a skilled, dedicated group of nurses who have embraced our presence,” says Leonard. “It’s a lovely community to work in.” Lake Champlain and state borders aside, the goal is top notch family-centered care.

Lewis First, M.D., chief of pediatrics for UVM Children’s Hospital and the Department of Pediatrics, says he is “delighted that we can extend the high-quality, child-friendly pediatric

The Power of Patient- and Family-Centered Care

Over 55 patient and family advisors—individuals who have had children receive care and would like to give back—are engaged in work across six pediatric advisory councils and myriad other quality improvement committees and workgroups at UVM Children’s Hospital. In a process led by project manager James Goldsmith, patient and family advisors are informing the design of the new neonatal intensive care unit to enhance quality, safety, and the experience of providers, patients, and families. The Patient- and Family-Centered Care Program has also been recognized as a model for helping to create trans-inclusive health care services. In June of 2018, the Transgender Youth Program Advisory Council presented at the Institute for Patient- and Family-Centered Care’s International Conference. A team that included Charlotte Safran, patient- and family-centered care program coordinator; Theresa Emery, the Trans Youth Program social worker; and three patient and family advisors, also presented at the University of Vermont’s Translating Identity Conference.

Pediatric Phlebotomy Lab Opens

Children who need to have blood drawn or other labs performed at UVM Children’s Hospital now have

a dedicated space that caters to their specific needs. The result of more than 18 months of planning from patients, parents, providers, phlebotomists and nurses, the pediatric phlebotomy lab is four times larger and has three more draw stations, two pediatric-friendly private draw rooms, on-site registration, extended weekend hours, and two waiting areas, including a private waiting area for families with children. A child-life specialist and nurse will be dedicated to the new space to support patients and families.

ImproveCareNow Forms Strategic Alliance

The ImproveCareNow network, led by president and executive network director Richard Colletti, M.D., continued to improve the health and care of children with Crohn’s disease and ulcerative colitis in 2018. ImproveCareNow has formed a strategic alliance with IQVIA, one of the largest contract research organizations and data analytics companies in the world, to create the first clinical trials network for pediatric inflammatory bowel disease. More than half of the children in the United States with Crohn’s disease and ulcerative colitis are cared for by a pediatric gastroenterologist at an ImproveCareNow center. Jillian Sullivan, M.D., leads the UVM ImproveCareNow team. Colletti co-authored two publications and gave presentations at several national and international meetings.

care of the UVM Children’s Hospital to CVPH so we truly become a children’s hospital whose ‘walls’ are

those of the Network itself. This will let us make local pediatric care the best it can be.” ■

Left: Jana Lichtenfeld, M.D., at UVM Health Network—Champlain Valley Physicians Hospital



Treating Patients, Finding Cures



Left to right: Jessica Heath, M.D., Jonathan Flyer, M.D., FACC, Benjamin Lee, M.D.

THE UNIVERSITY OF VERMONT has a long history of leading-edge research in pediatrics. Meet some young physician-scientists who are already contributing new knowledge to the field.

Jessica Heath, M.D.

For some children diagnosed with aggressive childhood leukemia, the standard course of chemotherapy doesn't offer much hope for remission or cure. UVM Assistant Professor of Pediatrics and Biochemistry Jessica Heath, M.D., wants to change the prognosis for these kids by identifying new treatment options.

Her work began as a fellow at Duke University, and it continues at UVM where she's assembled an interdisciplinary team with expertise in genomics and molecular biology. "Eighty percent of what you do in the lab doesn't work," says Heath. "But sometimes there's a spark—a discovery—that leads to a new path."

One path Heath is exploring: How the bone marrow microenvironment affects leukemia cells. She has pinpointed two proteins that are altered in patients who have an aggressive leukemia due to a specific genetic mutation within the leukemia cells. Understanding the way that mutation alters these proteins may help identify existing drugs that can be used as targeted therapies.

With funding from organizations including the Pediatric Cancer Research Foundation, the Emily M. Lyman Pediatric Leukemia Research Fund, Alex's Lemonade Stand, and the UVM Cancer Center, she recently applied for her first K08 from the National Institutes of Health. In the past year, she's had publications in the *Journal of Pediatric Hematology/Oncology* and *Molecular and Cellular Biology*.

Although the bench science yields insight, she finds inspiration in the

clinic. "Everything that we do in the lab is with the idea that we ultimately want to help patients," she says.

Jonathan N. Flyer, M.D., FACC

Up to 50 percent of heart transplant patients may suffer from a common arrhythmia—called supraventricular tachycardia (SVT)—that can result in organ rejection and other complications. The standard treatment, a medication called adenosine, had long been considered unsafe for transplantation patients, but the evidence was scarce beyond the anecdotal. As a pediatric cardiology fellow at Columbia University, Jonathan N. Flyer, M.D., FACC, decided to question the conventional wisdom in the name of improving patient care. He designed and led the first prospective clinical study that showed adenosine in low doses is a safe and effective therapy for SVT in pediatric and young adult patients with transplanted hearts.

UVM Children's Hospital Supports State-of-the-Art Pediatric Clinical Research

In 2016, UVM Assistant Professor of Pediatrics Kelly Cowan, M.D., received a \$1.84 million four-year grant to establish UVM as an IDeA States Pediatric Clinical Trials Network (ISPCTN) site, with a goal to develop a state-of-the-art pediatric clinical research network and improve access to clinical trials for children in rural and underserved areas. Now, the infrastructure made possible by that grant is yielding results, with several studies in progress. A project called Advancing Clinical Trials in Neonatal Opioid Withdrawal Syndrome (ACT NOW) has entered its second phase. UVM Assistant Professor of Pediatrics and principal

investigator Leslie Young, M.D., has designed a clinical trial focused on improving protocols in the NICU for infants with opioid withdrawal syndrome, based on a survey of NICU practices across the network and a retrospective chart review at sites. Another study, Vitamin D Supplementation in Children with Obesity-Related Asthma (VDORA1), investigates the pharmacokinetics of vitamin D therapy in children with asthma and elevated BMI, with UVM Assistant Professor of Pediatrics L.E. Faricy, M.D., as principal investigator. ISPCTN is part of the Environmental Influences on Child Health Outcomes program, a seven-year initiative from the National Institutes of Health.

That work, published in *Circulation* in June of 2017, earned him accolades from the American Heart Association Council on Cardiovascular Diseases in the Young. In 2016, he was named a finalist for the early career investigator award and presented at the AHA pediatric cardiology final plenary session. Flyer joined UVM as an assistant professor of pediatrics and pediatric cardiologist that same year, and quickly began building partnerships. Through the Vermont Oxford Network, he's studying congenital heart disease in low-birth weight babies. He's also co-chairing a group within the New England Congenital Cardiology Association focused on the management of aortopathies, and was recently elected to the organization's executive board. In March of 2017, he was named a fellow of the American College of Cardiology, bringing opportunities to influence the national conversation.

"UVM offers the opportunity to be a pediatric cardiologist, an educator and a researcher," he says. "I'm excited to collaborate with others

at UVM and build relationships across New England."

Benjamin Lee, M.D.

In the United States and other high income countries, vaccines effectively protect many children from rotavirus, which is the leading cause of death due to infectious diarrhea in young children worldwide. For some reason, those same vaccines work about half as well in the developing world. Benjamin Lee, M.D., assistant professor of pediatrics and microbiology and molecular genetics, is working on figuring out why.

"One important step is understanding the pathogenesis of the disease," he says. "This will help to understand why different populations respond differently to the vaccine, which is live-attenuated and designed to cause an asymptomatic infection."

He's collaborating with the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) on a rotavirus vaccine clinical trial to determine whether

a higher dose will help make the rotavirus vaccine more effective. A Child Health Research Award from the Charles H. Hood Foundation helps to fund the study. Lee is also a co-investigator on a \$2.2 million research award from the Bill & Melinda Gates Foundation focused on better understanding vaccine underperformance.

One exciting development at UVM: The Translational Global Infectious Disease Research Center (TGIR), announced in October of 2018 and funded through a \$12.3 million COBRE award. Lee is one of four TGIR junior faculty who will benefit from mentorship by scientific advisors from three UVM colleges. Opportunities to harness computational predictive modeling, which Lee characterizes as "one of the paradigms of the future," will help push boundaries.

"Rotavirus is not something that can be controlled through hygiene and sanitation alone," he says. "My hope is that our work can help to protect vulnerable children." ■



Perinatal-Neonatal Fellows Improve Care, Empower Families

BEFORE SHE BECAME A NEONATAL fellow at The University of Vermont Medical Center, Adrienne Pahl, M.D., practiced as a primary care pediatrician in Vermont for three and a half years. Through this work, she got to know parents of babies who were exposed to opioids during development, witnessing how these families faced not only the usual pressures of caring for a newborn but also the challenges of a child with serious medical problems.

Pahl, a Larner College of Medicine graduate who did her pediatrics residency at UVM Medical Center, had those families in mind when she returned to the university in 2017 for a fellowship in perinatal-neonatal medicine. “I really enjoy taking care of acutely ill babies and supporting their families,” she says.

Pahl is one of three UVM fellows specializing in care of critically ill newborns. In the three-year Perinatal-Neonatal Medicine Fellowship Program, they handle problems that arise at the time of delivery or within four weeks after it. These might include premature births, emergencies such as uterine rupture during labor or surgery to correct abnormal organ development—anything that puts the child at risk.

“We are there to provide therapy for the baby, so we can get the best outcome for the parents,” says Deirdre O’Reilly, M.D., M.P.H., fellowship director and assistant professor of pediatrics and neonatology at the Larner College of Medicine. UVM launched its fellowship in the 1980s, when Jerold Lucey, M.D.,

internationally renowned pediatrician and neonatologist, was chair of newborn services. He recognized the need for expertise in this area, O’Reilly says. Last year, the program expanded from two fellows to three.

O’Reilly, who did her fellowship at Harvard University’s neonatal-perinatal medicine training program, says UVM’s program benefits from a close-knit professional community and an emphasis on evidence-based medicine. “It has the strength of bigger academic centers but the ability to work one-on-one with attendings who are nationally and internationally known,” she says.

Each month, one fellow is on service in the neonatal intensive care

unit with attending physicians and residents. They are an integral part of the family-centered care model, performing physical examinations, formulating differential diagnoses, and advising parents on the best ways to meet their child's needs. Recently, parents wanted to take home a newborn patient who wasn't eating well, and a fellow worked with the family's pediatrician to develop a plan for the child, O'Reilly says.

"We train our fellows to be experts in the field and provide these types of resources to parents and pediatricians," she adds.

In their non-service time, fellows develop a quality improvement

project, seeking to enhance treatment for patients and their families, and complete a research project. They do a rotation in cardiac surgery at Boston Children's Hospital. They also work with the Vermont Oxford Network, a Burlington-based nonprofit organization that Lucey founded in 1988 to encourage neonatal professionals worldwide to collaborate and share data to improve outcomes.

Pahl's quality improvement effort and research both focus on babies born exposed to opioids during development. For quality improvement, she is working with a multidisciplinary group to implement a new assessment tool for infants suffering from opioid withdrawal.

Traditional evaluation involves a check of physical symptoms, which requires "disturbing the baby" every three to four hours, Pahl says. The new tool does not require this step. Instead, it goes beyond these markers to assess the child's responses to eating, sleeping and consoling—crucial aspects of normal infant function, she says.

"What I hope to offer through my work in fellowship is to improve the experience for families and to really empower parents to help their children through what is a very stressful time," Pahl says. "It is a big deal for families and for babies." ■



Lewis First, M.D., accepts the Clinical Department of the Year Award from the UVM Larner College of Medicine Class of 2018 during Honors Night. From left to right: Andrea Green, M.D., Christa Zehle, M.D., Lewis First, M.D., Dean Rick Morin, M.D., and Paul Baresel, M.D.'18

Pediatrics Garner Medical Education Award

Medical student education is a core mission of the Department of Pediatrics, with faculty participating in all levels of the Vermont Integrated Curriculum. In the Foundations level, faculty direct courses, lead active learning sessions, and facilitate groups in the Professionalism, Communication and Reflection course. The seven-week Pediatric Clerkship includes inpatient and outpatient experiences at UVM

Children's Hospital and affiliate sites in Connecticut and Florida. Graduating medical students have selected Pediatrics as Clinical Department of the Year on multiple occasions. During Advanced Integration, the department offers one-month acting internships at UVM Children's Hospital in neonatology, intensive care medicine, and pediatric hospital medicine, a longitudinal skills-based preparation for residency course, and a host of electives.

Residency Program: Emphasis on Quality Improvement

The pediatric residency program has a long history of teaching excellent general pediatrics within a collaborative community of pediatricians, and it has developed an outstanding national reputation for the caliber of its graduates. Every

resident who graduates from the three-year program completes a community-based project; recent topics have included "Confronting Child Abuse in an Underserved Area" and "Primary Care and Special Olympics—Expanding the Medical Home." Residents also complete a longitudinal quality improvement project as part of a population health curriculum. Residents go on to highly competitive fellowship programs as well as positions in academic health centers and primary care practices across the country. Within the graduating class we have three physicians entering competitive fellowships, including Pediatric Emergency Medicine at University of New Mexico; Pediatric Endocrinology at Stanford University, and Pediatric Nephrology at Boston Children's Hospital.



National Recognition for VT LEND:

Improving Care for Children with Neurodevelopmental Disabilities

THE VERMONT LEADERSHIP

Education on Neurodevelopmental Disabilities (VT LEND) program sets the standard nationally for how to train culturally competent health professionals who are prepared to go out into the world and improve healthcare systems for children with developmental and intellectual disabilities.

VT LEND's flagship training accepts 12 individuals annually—a cohort drawn from the ranks of allied health fields, parents of children with disabilities, and individuals with disabilities themselves—all of whom learn through the nine-month, 300-hour program how to forge community partnerships, advocate at the state and federal

level, and collaborate across disciplines in service to children.

"They're trained as culturally responsive change agents," says program director Maria Mercedes Avila, Ph.D., associate professor of pediatrics. "They gain a better understanding of health disparities and the role that providers can play to advocate for change."

In November of 2018, the 14-member VT LEND team garnered national attention: They received the Multicultural Council Award for Leadership in Diversity from the Association of University Centers on Disabilities, the premiere organization for university centers and federally-funded programs

focused on improving care for individuals with developmental and intellectual disabilities.

VT LEND was recognized for the "clear example" it sets on how to "diversify a LEND program at all program levels: faculty/staff, trainees and curriculum."

For the federally-funded program, the focus on diversity within VT LEND has been intentional: In 2012, the program set specific goals. They wanted at least 60 percent of the trainees to be racially diverse, says Avila. For the faculty, they aimed to have at least 40 percent of the group from diverse backgrounds. The result has been a training that thrives on a robust exchange of experiences and ideas. Our content is more expansive so that it includes more perspectives," says Mary Alice Favro, M.A., CCC-SLP, associate professor and VT LEND clinical and training director. Cultural competency and health equity issues are embedded into the curriculum. In choosing journal articles and other material, attention is paid to author diversity. The program has introduced adjunct faculty who are Navajo; through distance education they reach trainees in the U.S. Virgin Islands and have accepted their first student from the St. Regis Mohawk Tribe in upstate New York. For their work training individuals with disabilities to become change agents, Green Mountain Self-Advocates named VT LEND 2018 Ally of the Year.

As a result of their leadership on diversity and inclusion, VT LEND has become a sought-after

2018 VT LEND graduates

From left to right:
Tui pate Mubiay
Mariana Munoz
Karen Topper
Nicole LeBlanc
Moriah Anderson
Alexandra Patch
Rachel Wetchi
Pari Motia
Jessica Nason



national advisor. Of the 52 LEND programs in the United States, VT LEND has provided consultation and training for 20 of them over the past year on topics including social justice in health care, addressing health disparities, and cultural and linguistic competence. This is on top of the 63 continuing education activities involving over 2,500 participants, as well as 598 direct clinical activities. New grant funding promises to broaden the scope of their activity. Two SAMHSA grants, received in partnership with Vermont Care Partners and Spectrum Youth and Family Services respectively, will expand Mental Health First Aid (MHFA) training and Screening Brief Intervention and Referral to Treatment (SBIRT) programs in refugee and immigrant communities. In cooperation with Andrea Green, M.D., and Stanley Weinberger, M.D., VT LEND has received grants to improve well-child care for immigrant families as well as behavioral health in these communities.

“We’ll be hiring a multicultural outreach professional to help identify and screen youth and young adults at risk for suicide or substance use,” says Avila.

Here in Vermont and across the country, VT LEND graduates continue to have a ripple effect. Students have gone on to graduate work in public health; they’ve started community-based organizations; some return to their work better able to serve children with disabilities. “They make systems work better,” says Favro, “and advocate for change in a strategic and dynamic way.” ■

Assessing Impacts of Opioid Prescribing Policy Changes

Valerie Harder, Ph.D., MHS, director of the Health Services Research Team at the Vermont Child Health Improvement Program (VCHIP), has received federal funding to research the impact of new prescribing policies in Maine and Vermont on the opioid epidemic and, specifically, opioid overdoses. Dr. Harder based her successful proposal on analysis of administrative claims and electronic health record data in Maine and Vermont, as well as engagement with community organizations and clinical advisors in both states. Previous collaboration with the Northern New England Clinical & Translational Research Network helped to lay the foundation for her research.

Vermont Oxford Network Focuses on Social Responsibility

The Vermont Oxford Network (VON), a collaboration of health professionals from over 1,200 hospitals around the world, is dedicated to improving the quality and safety of health care for newborn infants and their families. The database the network maintains now enrolls nearly 90 percent of all very low birth weight infants born in the United States each year and a growing proportion worldwide. In partnership with the Centers for Disease Control, VON recently conducted a collaborative involving over 180 teams which reduced unnecessary use of antibiotics for newborn infants by 34 percent. VON also supports

the Ethiopian Neonatal Network, the first such quality improvement collaborative in Africa. VON members understand that the social determinants of health are just as important as medical interventions in determining long-term health and well-being. As a result, VON has challenged its members to “follow through, not just follow up,” with an understanding that our responsibility is not limited to the NICU or follow-up visit.

Injury Prevention the Focus for Safe Kids Vermont

For nearly 30 years, Safe Kids Vermont has been dedicated to preventing unintentional injuries in children. UVM Children’s Hospital serves as the lead



organization for the non-profit, which is a member of Safe Kids Worldwide. Through a grant from Safe Kids Worldwide, the Vermont organization recently hosted 11 events to distribute nearly 200 car seats to families in need. Through the New American Safety Fair, Safe Kids VT has provided over 200 car seats and conducted over 400 car seat inspections since the event’s inception in 2014. Safe Kids VT has also distributed bike helmets at recent events.



2018 YEAR IN GIVING

Tiny Babies, Big Commitment

New England Federal Credit Union CEO John Dwyer (far right) presents a ceremonial \$1 million check to UVM Children's Hospital Chief of Pediatrics Lewis First (far left) at an announcement event for the NICU project.

DALTON DRAPER, a 13 year-old Wolcott resident, was born prematurely at 32 weeks and spent the first 29 days of his life in the NICU at UVM Children's Hospital. Now he's happy, healthy and excited to give back to the institution that helped him thrive after his rocky start to life.

Draper was one of several former patients, clinicians and hospital leaders to pay tribute to the life-saving care the NICU provides

during a recent event celebrating the kick-off of a major renovation for the NICU. A generous \$1 million gift from New England Federal Credit Union (NEFCU) promises to get the project off to a positive start.

John Dwyer, president and CEO of NEFCU, announced the gift on behalf of the organization's members, and noted that NEFCU has been involved with the UVM Children's Hospital for more than a decade. "We've come to understand the exceptional work that all of the professionals here perform, which has an impact that lasts the entire lives of these tiny patients," he said. "When we heard that they were preparing to renovate their NICU, we wanted to kick off the fundraising for the project in a significant way."

Chuck Mercier, M.D., chief of neonatology and professor of pediatrics, and Michele Bouchard, R.N., nurse manager for the NICU, spoke together about the need for renovating the NICU to improve the family experience. "This is about improving the family experience, and it's a powerful opportunity for us to match the high quality of care we provide to our NICU patients with a truly supportive environment for their families," Mercier said.

"There's no place to simply go, hold your baby and close the door," Bouchard added.

Gifts of all sizes are helping to make the sole Level III NICU in Vermont and northern New York a reality for newborns and their families. ■





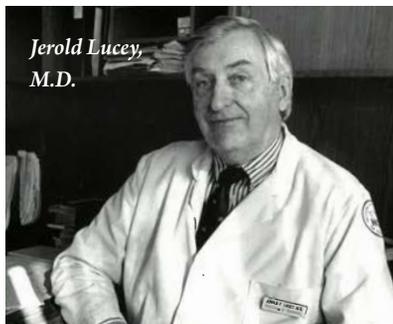
Celebrating 25 Years of Leadership

The 2018 UVM Medical Center Gala included a Broadway-style performance by local LyricKids musical theater summer camp attendees, a special moment of recognition of UVM Children's Hospital patients and families and lively celebration of Dr. First's many years of service and leadership.



Lucey's Life and Legacy Celebrated through New Endowment

When UVM Professor Emeritus of Pediatrics Jerold Lucey, M.D., died on December 10, 2017, at the age of 91, former students and colleagues from across



Jerold Lucey, M.D.

the generations remembered his gift for teaching, his patience and good humor, and his pioneering innovations in premature infant care. Lucey's widow, Ingela Lucey, as well as former students, friends and colleagues have come together to raise \$300,000 for an endowment to encourage innovation in pediatrics and neonatal medicine. The endowment fund, known

as the Lucey Prize, will recognize trainees who are exploring new horizons in the field just as Lucey did

during his storied career. Memorial contributions in Dr. Lucey's memory may be made by visiting: go.uvm.edu/lucey

Pioneering Neonatal Care

Dr. Lucey's storied research career helped to cement UVM Children's Hospital as a leader in neonatal intensive care. Among the innovations Dr. Lucey pioneered:

- Phototherapy for jaundiced premature infants
- Transcutaneous oxygen monitoring
- Surfactant therapy to treat respiratory distress
- Founder of the Vermont Oxford Network, an international collaborative of NICUs dedicated to improving care and home to the largest database for pre-term infants in the world

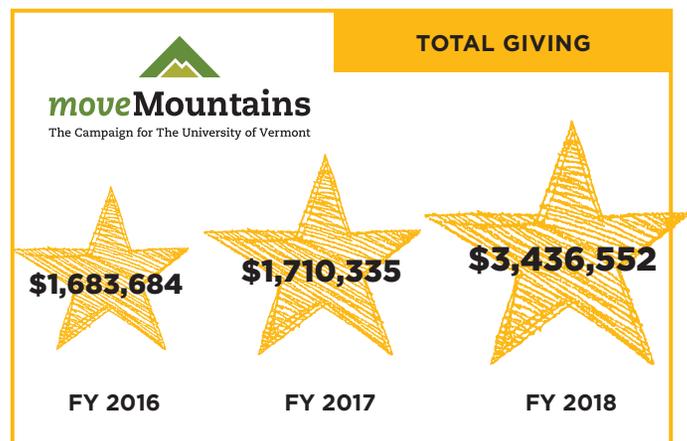


Children's Miracle Network Hospitals

In 2018, through CMN Hospitals' corporate partnerships and fundraising events such as Big Change Roundup for Kids, Miracle Network Dance Marathon and Extra Life, more than \$1 million was raised to support infants, adolescents and teens at the UVM Children's Hospital.



Children's Miracle Network Hospitals



GENERAL PEDIATRICS DIVISIONS AND PROGRAMS

Pediatric Primary Care

**ACADEMIC
GENERAL
PEDIATRIC
DIVISION CHIEF
JERRY LARRABEE,
M.D.**

**PRIMARY CARE
DIVISION CHIEF
STANLEY
WEINBERGER, M.D.**

Pediatric Primary Care is a nationally recognized comprehensive, family-centered medical home for a diverse population of children and adolescents. A faculty of 15, including our three new faculty, Matt Saia, M.D., Michelle Shepard, M.D., and Libby McDonald, PNP, are situated across two sites in Burlington and Williston. All faculty engage in teaching pediatric, family medicine and psychiatry residents, as well as clerkship students.

Dr. Saia and Libby McDonald, PNP, provide care and coordination for patients at five school-based health clinics in partnership with the Burlington School District, and Heather Link, M.D., provides care at the Winooski school-based health clinic. We screen for food insecurity, economic stress and parental depression, and collaborate with community partners to assist families. Adolescents are screened for mental health or substance use concerns. Stanley Weinberger, M.D., and Heather Link, M.D., provide medication-assisted therapy to adolescents with opiate use disorder.

The Pediatric New American Program, directed by Andrea Green, M.D., is a nationally recognized, equity-oriented medical home for all new pediatric refugees in Vermont. Dr. Green also runs the New American Safety Fair. She serves on the American Academy of Pediatrics Council on Community Pediatrics Executive Board and is co-authoring the Immigrant Policy Statement.



Quality Initiatives

- Stanley Weinberger, M.D., and Michelle Shepard, M.D., are the Vermont Child Health Improvement Program (VCHIP) faculty lead for this year's VCHIP Child Health Advances Measured in Practice (CHAMP) quality improvement projects addressing adolescent mental health and substance use and provider wellness.
- Pediatric Primary Care saw an 80 percent increase in families screened for social determinants of health last year through efforts with VCHIP.

Recent Awards

- Barbara Frankowski, M.D., was awarded the 2018 Vermont Medical Society's Physician of the Year Award for her many years of service to Vermont's children.

- Eliot Nelson, M.D., received the 2018 Vermont Medical Society's Founders Award for his advocacy around suicide prevention and gun control.
- Andrea Green, M.D., was inducted into the Gold Humanism Honor Society at the Larner College of Medicine and received the Patricia O'Brien Global Health Leadership and Humanitarian Award.

Adolescent Medicine

DIVISION CHIEF ERICA GIBSON, M.D.

Erica Gibson, M.D., continues to provide adolescent medicine specialty care in the outpatient and inpatient settings as well as some adolescent primary care. She also serves as the consulting physician for the Woodside Juvenile Rehabilitation Facility, and is one of the few pediatric Suboxone prescribers in Vermont. In August 2018, Dr. Gibson took over as medical director of the Transgender Youth Program. In 2019, a psychologist and social worker will join her to expand outpatient eating disorder care.

Dr. Gibson continues to work with the Vermont Child Health Improvement Program (VCHIP) and the Vermont Department of Health (VDH) on a variety of grants addressing teen pregnancy prevention, prescription opioid use prevention, adolescent well visits and youth advocacy. In collaboration with the VCHIP Youth Health Initiative team and the VDH, she helps to run the Vermont RAYS, a newly created youth health advisory council. This year she began working with the Vermont HPV Vaccine Stakeholder Group, the UVM Medical Center Opioid Taskforce and the Vermont School-Based Health Center Peer Collaborative. On a national level, she is a member of the American Academy of Pediatrics Executive Committee for the Council on School Health, and the Sexual and Reproductive Health Committee for the Society for Adolescent Health and Medicine. She also serves as faculty for the national Physicians for Reproductive Health Adolescent Sexual and Reproductive Health Education Project.

Cardiology

DIVISION CHIEF SCOTT YEAGER, M.D.

The Division of Pediatric Cardiology provides a full range of clinical services, including fetal diagnosis, outpatient and inpatient management of congenital and acquired heart abnormalities, outreach clinics, and diagnostic and interventional catheterization. The division hosts 12 to 20 students and residents annually for one-month electives. Organized formal lecture series are presented to students, pediatric residents, and neonatal and obstetrical fellows.

The division participates in a variety of quality initiatives. Jonathan Flyer, M.D., co-directs a regional evaluation of current practices in the management of aortopathies. Nancy Drucker, M.D., works with the Vermont Child Health Improvement Program on projects addressing assessment, documentation and intervention in childhood obesity, and on programs for transitioning adolescents from pediatric to adult services. Niels Giddins, M.D., is coordinating with a regional group creating a pacemaker registry and monitoring service.

Pediatric Cardiology has been involved in two regional clinical studies titled "A cross sectional study of dyslipidemia among adults with congenital heart disease," and "Living With Congenital Aortic Stenosis: Exercise Restriction, Patterns of Adherence, and Quality of Life." Both projects have resulted in manuscripts currently in preparation. Dr. Giddins is co-author of "Optimizing the Follow-Up of Pediatric Patients with Pacemakers or Defibrillators within the New England Community," to be presented at the American Heart Association meetings in November of 2018. Dr. Flyer and Scott Yeager, M.D., are co-authors on an abstract titled "Ectopia Cordis: Survival and Outcomes of a Neonatal Multicenter Cohort" submitted to the American College of Cardiology annual meeting in 2019.



Child Abuse Prevention/ChildSafe Program

DIVISION CHIEF
JAMES METZ, M.D.,
M.P.H.

The Pediatric Forensic Nurse Examiners (FNE) and ChildSafe Programs coordinate to provide comprehensive medical services for child victims of physical abuse, sexual abuse, medical child abuse, emotional abuse and neglect. On November 1, 2018, the program welcomed Dr. James Metz, M.D., M.P.H., F.A.A.P. as its new director. Dr. Metz is board-certified in child abuse pediatrics and a full-time faculty member.

ChildSafe Clinic has been staffed by pediatricians Joseph Hagan, M.D., F.A.A.P., and Karyn Patno, M.D., F.A.A.P. Pediatric FNE services are accessed via Provider Access Services or through the UVM Medical Center Emergency Department and are available at any time for consultation. The ChildSafe clinicians and Pediatric FNE nurses work closely with community partners including the Vermont Department for Children and Families (DCF), children's advocacy centers, law enforcement, and others to provide high-quality, compassionate, and coordinated care to children who have been victims of abuse, and their families. Drs. Hagan and Patno serve on the DCF Citizens Advisory Board. Pediatric FNEs host a monthly empaneled child protection team meeting for UVM Children's Hospital staff and community partners. They are recognized subject matter experts and teach a biennial Pediatric Sexual Assault Nurse Examiner Program for nurses in New England.

Children's Developmental Evaluation Services

DIVISION CHIEF
ELIZABETH FORBES,
M.D.

This new program offers comprehensive developmental evaluations for children with a chief concern of developmental delay, autism spectrum disorder, and/or intellectual disability. The program is a partnership between three clinical services: Developmental Behavioral Pediatrics at the UVM Children's Hospital, the Vermont Center for Children, Youth and Families' Autism Assessment Clinic at UVM Children's Hospital, and the Child Development Clinic at the Vermont Department of Health. An individualized intake process allows patients to be referred to the program that best meets their needs. In addition to evaluation services, the Developmental Behavioral Pediatrics Program also offers telemedicine, care coordination and short-term follow-up care.

Endocrinology

DIVISION CHIEF
PAUL ZIMAKAS,
M.D.

The Division of Pediatric Endocrinology provides ambulatory and inpatient care for patients with a variety of complex endocrine disorders. Using a family-centered approach, patients receive the highest quality of care from a multidisciplinary team consisting of physicians, certified diabetes educators, an endocrine nurse, a pediatric dietician, a social worker and a pediatric psychologist. This September, Jennifer Todd, M.D., joined the division as a full-time board-certified pediatric endocrinologist.

The Pediatric Diabetes Clinic is recognized by the American Diabetes Association as a center of diabetes education. Division endocrinologists are consultants to the Vermont Department of Health Newborn Screening Advisory Committee, working to develop, expand and maintain guidelines for screening of congenital endocrine disorders.

In collaboration with the Vermont Child Health Improvement Program, this program has developed a comprehensive database registry for patients with diabetes mellitus, ensuring that quality of care standards are being met. The collaboration has produced several quality improvement projects, such as improving influenza vaccination rates as well as adherence with the recommended complication-screening guidelines, screening and counseling regarding smoke exposure in children with diabetes, and further improving the transition of patients from pediatric to adult endocrine care.

The division also provides clinical educational experiences for pediatric residents, adult endocrinology fellows, and reproductive-endocrinology fellows. Paul Zimakas, M.D., lectures in several courses in the Vermont Integrated Curriculum.

Gastroenterology, Hepatology and Nutrition

**DIVISION CHIEF
MICHAEL D'AMICO,
M.D.**

The Division of Pediatric Gastroenterology, Hepatology and Nutrition provides care for children with a variety of disorders of the GI tract, liver and pancreas, as well as problems with nutrition and growth, obesity, feeding, and lipid disorders. Division Chief Michael D'Amico, M.D., heads the Healthy Living Program, a weight management clinic for overweight children and adolescents. He also co-directs the Pediatric AeroDigestive Program and is involved with the Pediatric Spina Bifida Program. The department is very active in research and clinical care of cystic fibrosis and inflammatory bowel disease, hunger prevention, and medical student and resident training initiatives. Jill Sullivan, M.D., is co-director of the Pediatric Cystic Fibrosis Program and is the site leader for ImproveCareNow, an international, multi-centered collaborative chronic care network focusing on Crohn's disease and ulcerative colitis in children and adolescents. This award-winning program, founded and directed by the division's Richard Colletti, M.D., is considered one of

JILL SULLIVAN, M.D.



the premiere quality improvement initiatives nationally. Pamela Puthoor, M.D. sits on the board of Hunger Free Vermont and will be its executive chairperson next year. She also works with a consortium to improve the care of our local refugee population and develops teaching curricula at the medical school. Our nursing staff remains involved in nursing education, particularly with the Vermont School Nurses Association.

Genetics and Dysmorphology

DIVISION CHIEF LEAH BURKE, M.D.

The University of Vermont Medical Center Clinical Genetics Program provides genetic and metabolic services, and remains committed to staying abreast of the rapid changes in genetics and genomics. Robert Wildin, M.D., has been working with the Genomic Medicine Laboratory to develop a pharmacogenetic program as well as begin a pilot program in genome sequencing as a preventative health measure. He taught an online course in genetics and genomics for nursing students and developed a didactic session in genetics for pediatric residents. Dr. Wildin has been working with EPIC staff on the integration of genetic and genomic results in the EMR. As a member of the executive committee of the Council on Genetics for the American Academy of Pediatrics, Leah Burke, M.D., helps to develop and revise clinical practice guidelines for the care of children and adolescents with genetic conditions. She was elected as council chair beginning in 2019. Dr. Burke also acts as the American College of Medical Genetics and Genomics advisor to the American Medical Association Specialty RVS Update Committee. Through a collaborative effort between the New England Regional Genetics Network and the Weissman Institute, Dr. Burke provides didactic education and case-based learning as a core faculty member in Project ECHO on their Complex Integrated Pediatrics Program. Dr. Burke collaborated with pathologists at UVM Medical Center to publish a case report of a patient with an unusual presentation of a cytogenetic abnormality. She also presented the case at the 39th annual David W. Smith Workshop on Malformations and Morphogenesis. She collaborated with geneticists around the country to publish a review of genotype-phenotype correlation in neurofibromatosis type 1.

Hematology/Oncology

DIVISION CHIEF ALAN HOMANS, M.D.

The Pediatric Hematology/Oncology Program provides comprehensive care in the inpatient and outpatient setting for a full range of pediatric oncologic and hematologic disorders. The division is also active in basic and translational science research as well as projects focused on clinical outcomes and quality of life. In September of 2018, our division hosted the semi-annual Consortium for New England Childhood Cancer Survivors (CONNCCS) meeting. We had a presentation on potential pulmonary toxicity issues. Jessica Heath, M.D., is involved with several research studies related to the pathobiology of pediatric leukemia and potential novel therapeutic targets, with support from the Lake Champlain Cancer Research Organization, Alex's Lemonade Stand Foundation, the Emily M. Lyman Pediatric Leukemia Research Fund, the Pediatric Cancer Research Foundation, the Keegan Bradley Charity Golf Classic, and the Northern New England Clinical Translational Research Network. Heather Bradeen, M.D., continues to attend and coordinate our efforts on behalf of children with sickle cell anemia and related disorders. Various research projects from our division have been presented at the Children's Oncology Group, The American Society of Hematology and the American Society of Pediatric Hematology/Oncology. We have had peer reviewed publications in *Blood*, *Pediatrics*, *Blood and Cancer*, *Haematologica*, and the *Journal of Association of Genetic Technologists*.

Infectious Disease

DIVISION CHIEF WILLIAM RASZKA, M.D.

The Division of Pediatric Immunology and Infectious Disease provides inpatient, outpatient, and telephone consultation services for acute and chronic infectious disease issues. The service is active at all levels of medical student and resident education, as well as in infection control policy design, surveillance, and resource utilization. The service provides consultation to the state legislature and testifies on a variety of issues including vaccine safety and vaccine requirements for school entry. The service plans to begin a telemedicine travel and infectious disease consult service in 2019.

Benjamin Lee, M.D., conducts vaccine research with the University of Vermont Vaccine Testing Center and Translational Global Infectious Diseases Research Center, where he has an active research program studying rotavirus, the leading cause of infectious diarrhea and death due to dehydration among children worldwide. Dr. Lee is principal investigator on a rotavirus vaccine trial currently underway in Dhaka, Bangladesh. Closer to home, he is working to characterize the human B lymphocyte response to rotavirus. This work may ultimately lead to new strategies and tools to help reduce the burden of rotavirus diarrhea among children around the world.

Pediatric Critical Care Medicine

**DIVISION CHIEF
AMELIA HOPKINS,
M.D.**

The Pediatric Critical Care Medicine Division, staffed by five board-certified pediatric intensivists, provides care for children with life-threatening illnesses or injuries 24 hours a day. Amelia Hopkins, M.D., and Iris Toedt-Pingel, M.D., now share medical directorship of the Pediatric Intensive Care Unit (PICU). The Virtual PICU Systems, LLC (VPS) database has continued to demonstrate that for a PICU our size, we consistently take excellent care of very ill children with a lower than expected mortality rate. In addition to clinical care, division members participate in multi-center research projects, engage in medical student and resident education, and present Continuing Medical Education sessions locally and nationally. Barry Heath, M.D., continues to work with ThinkMD to develop solutions for the shortage of healthcare professionals around the world. Dr. Toedt-Pingel continues to lead the division in the multi-center NEAR4kids trial that aims to improve safety and standardization of pediatric intubations. She also runs simulation programs. Elizabeth Ulano, M.D., draws on her expertise in neurocritical care and revises protocols and manuals for the division. Rebecca Bell, M.D., serves as vice president for the Vermont chapter of the American Academy of Pediatrics and is involved in advocacy efforts locally and nationally. Dr. Hopkins is the associate program director for the pediatric residency program.

Pediatric Hospital Medicine

**DIVISION CHIEF
KAREN LEONARD,
M.D.**

The Pediatric Hospitalist Program, which includes thirteen full- and part-time pediatric hospitalists, provides hospital-based care 24 hours a day, seven days a week for pediatric inpatients and newborns. Over the past year, three new pediatric hospitalists have joined the program. We also now provide inpatient pediatric care 365 days a year at the University of Vermont Health Network Champlain Valley Physicians Hospital in Plattsburgh, New York. The pediatric hospitalist division is involved in research, education, and quality improvement projects



MOLLY RIDEOUT, M.D.

locally and nationally. In the past year, two division members were named Frymoyer Scholars. Jana Lichtenfeld, M.D., M.P.H., is creating a teaching kitchen elective for medical students. Molly Rideout, M.D., is developing a longitudinal curriculum in pediatrics for fourth-year medical students planning to attend a pediatric residency. Leigh-Anne Cioffredi, M.D., M.P.H., received a UVM Medical Center Innovation Grant for research to improve care for adolescents and young adults with substance use disorders. Molly Moore, M.D., had two publications in Pediatrics on Global Health and successfully developed a Global Health Scholar Track for medical students. Valerie Riss, M.D., collaborated with our respiratory therapy team to successfully initiate the use of high flow nasal cannula on our pediatric floor. The division also participates in national research and quality consortiums, including the Pediatric Research in Inpatient Settings Network and Solutions for Patient Safety Network.

Neonatology

**DIVISION CHIEF
CHARLES
MERCIER, M.D.**

The Division of Neonatal Perinatal Medicine provides medical care to premature and sick newborns, including inpatient intensive and convalescent care, acute infant transport, and outpatient prenatal consultation, medical follow-up, and standardized neurodevelopmental assessment. The division includes six board-certified neonatologists, three neonatal perinatal medicine fellows, and ten advanced practice providers including eight neonatal nurse practitioners and two physician assistants. In 2018, our division welcomed Whittney Barkhuff, M.D., Ph.D.; Meagan Oakes, P.A.; and Morgan Nealy, NNP.



DANIELLE EHRET, M.D., M.P.H.

The 29-bed NICU is the only level III unit in Vermont. Renovations to create a single room-based unit are in the planning stage, with a goal to support exemplary family-centered care and high staff satisfaction. Our neonatal perinatal subspecialty fellowship training program, directed by Deirdre O'Reilly M.D., M.P.H., welcomed Delia Horn, M.D., and Adrienne Pahl, M.D., to their second year of fellowship, and Anna DiCarlo, M.D., to her first year of fellowship.

Scholarly activities are critical to the mission of the division. Roger Soll, M.D., remains editor of the Neonatal Collaborative Review Group and president and director of clinical trials at Vermont Oxford Network (VON). As director of global health at VON, Danielle Ehret, M.D., M.P.H., has developed a VON database for resource-limited settings. On the leadership team for the NIH-supported Advancing Clinical Trials in Neonatal Opioid Withdrawal Syndrome Collaborative, Leslie Young, M.D., serves as principal investigator for a multicenter clinical trial assessing a new regional care model for neonatal opioid withdrawal syndrome management. Dr. O'Reilly is implementing with a team real-time telemedicine at community hospitals to help assess newborn infants at risk for hypoxic encephalopathy.

Nephrology

DIVISION CHIEF
LIZ HUNT, M.D.

The Division of Pediatric Nephrology treats children with kidney disease, hypertension, incontinence, genitourinary malformations, and acute kidney injury, and manages pediatric kidney transplant patients. The Spina Bifida Coordinated Care Clinic continues to be organized out of our division and will transition leadership to Rebecca Turner, R.N. We have expanded apheresis services, and thanks to the dialysis and apheresis nursing team, we are providing regular red blood cell exchanges in addition to acute and chronic dialysis. The division continues to participate in the North American Pediatric Renal Trials and Cooperative Studies group. We joined the Midwest Pediatric Nephrology Consortium this year and will be participating in research through this national group as well.

Recent Publications and Presentations

- Sheward, L, Hunt, EAK, Twichell, SA, MacLean, CD. How often are pediatric providers assessing high risk children under age 3 for hypertension? Poster presented at the Pediatric Academic Societies meeting May 6, 2018.
- Twichell, SA, Hunt, EAK, Martz, K, Somers, MJG. Effects of adult erythropoietin dosing regimens on transfusion in pediatric dialysis patients: findings from North American Pediatric Renal Trials and Collaborative Studies (NAPRTCS). Poster presented at the Pediatric Academic Societies meeting May 5, 2018.
- Hunt, EAK & Ferguson, MA (2018). Pediatric Acute Kidney Injury: Diagnosis, Epidemiology, and Treatment. In Waikar SS et al (Ed), *Core Concepts in Acute Kidney Injury* (pp. 237-246). New York, NY: Springer

Palliative Medicine

DIVISION CHIEF
ROBERT
GRAMLING, M.D.

Palliative Medicine was established as an academic division within the Department of Family Medicine in 2016. During this past year, our team was consulted 1,640 times to care for seriously ill adults and children. We also offer teleconsult follow-up home visits and outpatient consultations at Milton Family Practice and UVM Cancer Center. Our teaching programs include inpatient observerships for first-year medical and nursing students, elective clinical rotations for medical students and residents, and a required 40-hour palliative medicine course for medical students. The Vermont Conversation Research Lab, established in 2017, seeks to understand and promote high quality communication in serious illness. More than 90 clinicians and 200 medical students and residents completed a workshop through *TalkVermont*, a new UVM Health Network communication initiative. We also obtained three extramural grants to study the effectiveness of palliative care teleconsultation and telecoaching in a large rural setting.



Selected Recent Publications

- Gramling R, Gajary-Coots E, Cimino J, Fiscella K, Epstein R, Ladwig S, Anderson W, Alexander SA, Han PK, Gramling D, Norton SA. Palliative Care Clinician Overestimation of Survival in Advanced Cancer: Disparities and Association with End-of-Life Care. *Journal of Pain & Symptom Management*. 2018. Oct (epub ahead of print)
- Gramling R, Ingersoll L, Priest J, Berns S, Cheung K, Anderson W, Norton SA, Alexander SC. End-of-life treatment preferences, prognosis conversations, and hospice enrollment in palliative care: a direct observation cohort study among people with advanced cancer. *Journal of Palliative Medicine*. 2018. Dec (epub ahead of print)
- Ingersoll L, Alexander S, Anderson WG, Ladwig S, Norton SA, Gramling R. Benchmarking the Inpatient Palliative Care Heard & Understood Quality Indicator among Patients with Advanced Cancer. *Journal of Pain & Symptom Management*. 2018. Aug;56(2):239-244

Pulmonology

**DIVISION CHIEF
THOMAS LAHIRI,
M.D.**

The Pediatric Pulmonology Division provides outpatient and inpatient care to children with a variety of respiratory and airway disorders. Our cystic fibrosis (CF) program is accredited by the CF Foundation (CFF) and has received the Quality Care Award. The division participates in several multidisciplinary clinics to treat aerodigestive disorders, neuromuscular diseases, and patients with tracheostomies and those who require non-invasive and invasive assisted mechanical ventilation. The Pediatric CF Program is one of the top centers in the U.S. for pediatric lung function and for meeting recommended guidelines as reported in the national CFF Patient Registry. Several quality improvement initiatives to improve CF pulmonary and nutritional outcomes, asthma and tracheostomy care are in progress. The division continues to participate in several multi-center CF clinical research trials as a Therapeutic Development Center as awarded by CFF Therapeutics, Inc., as well as in asthma trials through the American Lung Association in conjunction with the Vermont Lung Center.



JULIE HOUNCHELL, M.D.

Recent Highlights

- Kelly Cowan, M.D., is the principal investigator for the NIH-funded IDEa States Clinical Trials Network.
- Thomas Lahiri, M.D., is president of the Pediatric Pulmonology Division Directors Association of the American Thoracic Society.
- L.E. Faricy, M.D., is the Diversity and Inclusion Champion for the Department of Pediatrics at the Larner College of Medicine.

Publications and Abstracts

- Rhein L, Feldman H, Meyer K, Hartman T, Sheils C, Rosenkrantz T, Abu Jawdeh E, Procaskey A, White H, Treager N, Lahiri T, Simoneau T, Kremer T, Sankaran K. The optimization of home oxygen weaning in premature infants trial: design, rationale, methods, and lessons learned. *Contemp Clin Trials* 2018 (Accepted)
- Robinson KJ, Prior C, Lahiri T. Food insecurity screening in a cystic fibrosis clinic. North American Cystic Fibrosis Conference, Denver, CO, October 2018. Abstract published in *Pediatr Pulmonol* 2018

Rheumatology

**DIVISION CHIEF
MATTHEW
HOLLANDER, M.D.**

The Division of Pediatric Rheumatology provides subspecialty care to children with a variety of rheumatic diseases, including juvenile idiopathic arthritis, juvenile dermatomyositis, lupus, scleroderma, vasculitis and other autoimmune disorders. Quality improvement is core to our mission, with a goal to exceed expectations. Current team efforts include ensuring families have a positive experience during and after their appointment, and partnering with our patients so they have the knowledge and confidence for a successful transition to an adult system of care.

The division recruits patients for national study groups and cohorts. These activities help advance understanding of what treatments are most effective for childhood arthritis, facilitate long-term medication safety surveillance, and help us collaborate with centers across the country to share lessons and provide state-of-the-art care. Division Chief Matthew Hollander, M.D., is a researcher for the Vermont Child Health Improvement Program, and a member of the UVM Children's Hospital Quality Council, American Academy of Pediatrics, Pediatric Academic Society and Childhood Arthritis and Rheumatology Research Alliance Steering Committee.

OTHER PEDIATRIC SPECIALTIES

Anesthesiology

**DIVISION CHIEF
ANN LAWRENCE,
D.O.**

The Department of Anesthesiology, Division of Pediatrics, provides anesthetic care to children of all ages and medical complexities. In the pediatric preoperative area and in our pediatric sedation center, the Comfort Zone, we cultivate a family-friendly atmosphere through a dedicated team of nurses and child-life specialists. Individualized plans we develop for patients focus on emotional, behavioral, social and medical



needs. The same family-centered approach is used in the operating room, with parental presence endorsed for many pediatric patients over the age of 1. The newest toy we have available to help distract and reduce anxiety is our child-sized sports car, allowing our younger patients to drive straight into the operating room. We are excited to announce four new division members: Emmett Whitaker, M.D.; Rebecca Evans, M.D.; Marian Murphy, D.O.; and Brian Waldschmidt, M.D. We would also like to recognize our newly retired pediatric anesthesiologists, Eva Fraser-Harris, M.D., and Joseph Kreutz, M.D.

Highlights

- Ann Lawrence, D.O., guided the development and installation of a family-centered, pediatric preoperative space in the new Miller Building.
- Emmett Whitaker, M.D., established a new laboratory in conjunction with the Department of Neurological Sciences. He was awarded a \$50,000 UVM Medical Group grant for “Effects of major surgical stress on neurodevelopment in neonatal piglets.”
- Robert Williams, M.D., became director of research for the Department of Anesthesiology.

Dermatology

**DIVISION CHIEF
KEITH MORLEY,
M.D.**

The Division of Pediatric Dermatology is now entering its second year, continuing to serve children with a variety of skin conditions ranging from common complaints of eczema, hemangiomas, moles and acne to rarer diseases such as ichthyoses, pigmentary diseases, neurocutaneous disorders, and vascular malformations. Procedural services available include pulsed dye laser treatment of vascular birthmarks, simple excisions, and diagnostic skin biopsies. Dermatology and pediatric residents and medical students are exposed to outpatient and inpatient pediatric dermatologic issues and didactics. The division maintains a close relationship with the American Academy of Dermatology in their Camp Discovery program, which provides children with chronic skin conditions an all-expense paid week-long summer camp experience.



KEITH MORLEY, M.D.

Selected Publications

- Peterman CM, Morley KW, Yan AC, Castelo-Soccio LA, Liang MG. Holmes heart and tetralogy of Fallot in association with PHACE. *Pediatr Dermatol.* 2018;35(1):e39-e41

- Song H, Morley KW, Trowbridge RM, Butler DC, Liang MG, Gellis SE, Huang JT. Herpes zoster at the vaccination site in immunized healthy children. *Pediatr Dermatol*. 2018
- Robbins AB, Bui MR, Morley KW. The Dangers of Black Salve: An Unregulated, Commercially Available Caustic Agent. *JAMA Dermatol*. 2018

Emergency Medicine

**DIVISION CHIEF
RAMSEY
HERRINGTON, M.D.**

The Pediatric Emergency Department (ED) provides a dedicated space for children, including specialized equipment, treatment protocols, and staff focused on child-centered care. A new, larger pediatric space is under development. Joseph Ravera, M.D., continues as the director of pediatric emergency medicine. We look forward to the start of our emergency medicine residency in July of 2019. Our residents will receive excellent training through contact with patients in the ED and through rotations on the pediatric inpatient and PICU services.

Multiple quality improvement projects have been developed with the pediatric residency program. Metrics tracked include adherence to the most recent standards of pediatric emergency medical care, the quality of resident and medical education, and assessment of the family experience at the pediatric ED. We're also working with community physicians and those at referring medical centers to improve communication and access to appropriate outpatient follow-up, and we're exploring the integration of pediatric point of care ultrasound into clinical training and practice.

This year, Dr. Ravera updated a chapter on pediatric head trauma for *Berkowitz's Pediatrics: A Primary Care Approach*. He has also given lectures on pediatric dysthymia, pediatric fever, pediatric DKA, and several cased-based lectures.

Neurology

**DIVISION CHIEF
PETER BINGHAM,
M.D.**

The Division of Neurology provides family-centered care for children with known or suspected neurologic conditions. In addition to general child neurology, our group has expertise in palliative and neonatal care (Lisa Anne Rasmussen, M.D.), autism (Deborah Hirtz, M.D.), epilepsy (Gregory Holmes, M.D., and Rodney Scott, M.D.), headache (Bradley Clopton, CNP), and neuromuscular disorders (Peter Bingham, M.D.). The neuromuscular clinic serves over 70 children in Vermont and northern New York with muscular dystrophy and other neuromuscular conditions. Advocacy work includes participation in the LetsGrowKids organization, and education to counter stigma associated with chronic pain and epilepsy. In addition to laboratory and clinic-based research into epilepsy and cognitive impairment associated with epilepsy, other research has focused on symptom recognition for children with asthma using spirometer games.

Recent Highlights

- New biofeedback technology in addition to biofeedback, hypnosis, and guided imagery for children with chronic pain
- Research on effects of music on brain waves (EEG) in children, and development of a musical "voice reflection" toy for hospitalized children
- Expanding integrative health coaching for children with chronic pain or neuropsychiatric disorders
- Offering pediatric neurology assessment via telemedicine

Orthopedics

**DIVISION CHIEF
JENNIFER LISLE,
M.D.**

The Division of Pediatric Orthopedics provides advanced care for infants, children and adolescents with all types of musculoskeletal problems including bone and joint infections, fractures, hip dysplasia, clubfeet, bone tumors, upper and lower extremity problems, neuromuscular disorders, scoliosis and other orthopedic conditions. The division works closely with other pediatric specialty divisions to provide multidisciplinary care to children with cerebral palsy, myelomeningocele, muscular dystrophy and other neuromuscular disorders. Faculty are involved in research as well as education of medical students and orthopedic surgery residents. As a university hospital, our treatments are backed by research-based expertise, and patients have access to the latest pediatric orthopedic treatments and therapies available. Our physicians are board-certified orthopedic surgeons with additional specialty training in pediatrics.

Pathology

**DIVISION CHIEF
MARCIA WILLS,
M.D.**

Teamwork plays a vital role in diagnosis and treatment of patients and support for families. In the last year, a team that includes maternal/fetal medicine, neonatal intensive care, OB/GYN, and pathology have hosted family meetings following completion of an autopsy examination. Parents and family members have the opportunity to meet the clinical team, ask questions, and discuss with the pathologist autopsy findings. This dynamic addition helps to serve as closure for families, and contributes to ongoing efforts to provide the highest quality care possible. Research projects that begin from the pathology examination are helping to increase our knowledge of childhood disease process. Information and concepts presented at national meetings help drive the care offered by UVM Children's Hospital to new and exciting levels.

Psychiatry

**DIVISION CHIEF
JAMES HUDZIAK,
M.D.**

The Vermont Center for Children, Youth, and Families (VCCYF), an internationally known Division of Child and Adolescent Psychiatry, is home of the Vermont Family Based Approach, a health promotion, illness prevention, and family wellness approach to the care and well-being of all families. This year the VCCYF team partnered with Stanley Weinberger, M.D., and the outpatient team to perform a large clinical



JEREMIAH DICKERSON, M.D.

trial providing evidence that the Vermont Family Based Approach, applied in a pediatric office setting, can lead to better health outcomes for children and parents. The VCCYF has robust academic research programs in epigenetics and neuroplasticity of trauma, adverse childhood experience research (ACES), psychophysiology, neuroimaging, multicultural assessment, temperament, epidemiology, and public health. The UVM Wellness Environment, a health promotion and illness prevention program for transitional age youth (college students), has received national media attention, including a segment on *CBS This Morning*. William Copeland, Ph.D., joins us as director of research. He comes from Duke University and is a top five percent-cited research scientist in developmental psychopathology. We look forward to working with David Rettew, M.D., in his new position of medical director, Division of Child and Family Services, Vermont Department of Mental Health. Maya Strange, M.D., is now director of the VCCYF Child and Adolescent Psychiatry Fellowship. Micheal Hoffnung, M.D., has joined Jeremiah Dickerson, M.D., in the VCCYF Autism Center. The center had over 28 publications in peer-reviewed journals this past academic year.

Psychology

**DIVISION CHIEF
MARLENE MARON,
PH.D.**

The Pediatric Psychology Service cares for children, adolescents, young adults and families referred by pediatric specialty clinics, inpatient general and intensive care pediatric units, and community providers. The department also trains child psychiatry fellows and clinical psychology practicum students. After receiving approval to renew American Psychological Association internship training, two full-time interns are anticipated for 2019-2020.

Recent Highlights

- Courtney Fleisher, Ph.D., completed an 18-month learning collaborative to integrate child parent psychotherapy into her treatment of young children-caregiver dyads who have experienced trauma. She is now a registered child-parent psychotherapy clinician.
- Marlene Maron, Ph.D., and Kimberlee Roy, Ph.D., participated on the Transgender Provider Advisory Committee. Dr. Maron also served on the LBGQT EPIC Advisory Committee.
- Drs. Maron and Fleisher reviewed inpatient care plans with pediatric hospitalists and nursing leadership to improve the care of children and adolescents with psychiatric challenges who require medical stabilization. Dr. Fleisher chaired a national committee charged with identification of best practices. Behavioral guidelines to standardize care and a revised plan of care of young people with disordered eating are underway and will be evaluated as quality improvement initiatives.

Radiology

**DIVISION CHIEF
TIMOTHY HIGGINS,
M.D.**

Pediatric Radiology uses state-of-the-art technology to obtain the highest possible image quality, while maintaining safety and comfort for the child. The pediatric radiology department works closely with pediatric subspecialty physicians to tailor radiology examinations to answer the relevant clinical questions. Whenever possible, ultrasound and magnetic resonance imaging are used, including contrast enhanced ultrasound for the evaluation of liver lesions and vesicoureteral reflux. Child-life specialists contribute greatly to the comfort of children undergoing more challenging examinations. The department performs high quality skeletal surveys in the evaluation of child abuse in Vermont and northern New York to assist our ChildSafe colleagues. Education of radiology residents, medical students and residents from other specialties is an important function of the department, as is collaboration in research with other specialties. This past year Timothy Higgins, M.D., made a second trip to Cambodia to assist and teach pediatric radiologists at Angkor Children's Hospital in Siem Reap, Cambodia.

Women's Care and Pediatric Service

**DIRECTOR
LAUREN
TRONSGARD-
SCOTT, R.N., BSN,
MSOL**

The Women's Care and Pediatrics professional nursing service line provides patient- and family-centered care along the continuum from birth to adolescence. The nurses are involved in decision making at the bedside as they work with the physician team to ensure the highest care is delivered, with particular focus on quality and safety measures.

Inpatient Pediatric Unit

The Inpatient Pediatric Unit received a donation from Fiddlehead-Mastermind After Dark and the Extra Life Foundation to create a high-tech space for adolescents. A design team included family advisors, nursing staff and child-life specialists. As a result of this and other generous donations, there is also new play space for younger children. In addition, the Ronald McDonald Family Room is undergoing renovation.

Comfort Zone

An enhanced service of the Department of Anesthesiology, the Comfort Zone serves as an outpatient pediatric sedation home, providing outpatient pediatric procedural support. We offer family-centered, individualized and coordinated care. The Comfort Zone staff has been involved in planning the pediatric lab, which opened in February.

Mother Baby Unit

The Inpatient Mother Baby Unit provides skilled nursing care to post-partum mothers and newborns as well as high risk antepartum patients. We continue to use donor human milk as a temporary measure to support a parent's decision to exclusively provide breast milk in instances when a mother's milk is not available or there is a medical indication to supplement the newborn. This year we implemented Eat, Sleep, and Console as an innovative clinical initiative that in July expanded to our Neonatal Abstinence Syndrome newborns.

The unit participated in a nurse-led initiative to provide consistent safe sleep education. Through a partnership with Cribs for Kids, a national Infant Safe Sleep Initiative, all families receive "sleep sacks" for their infants, and eligible families receive portable Cribettes. This was made possible by a grant from The Children's Miracle Network and The Fraternal Order of Eagles. The hospital's efforts have earned the National Infant Safe Sleep Initiative's highest designation: Gold Safe Sleep Champion Hospital.

Neonatal Intensive Care Unit

The NICU received an endowment to establish a Reach Out and Read Program, allowing parents access to books so they can read to their baby at the bedside. Research has shown that reading to babies improves neurodevelopmental outcomes.

The NICU is utilizing a new model for family advisors that includes meeting on weekends to support flexible participation. Family advisors accompanied hospital staff on visits to three NICUs to gather ideas for the design of a new NICU slated to open in 2021.

PEDIATRICS SURGICAL SPECIALTIES

General Surgery

**DIVISION CHIEF
KENNETH
SARTORELLI, M.D.**

Staffed by two board-certified pediatric surgeons, James Murphy, M.D., and Kenneth Sartorelli, M.D., the Division of Pediatric Surgery provides comprehensive surgical care for children from the newborn period through early adolescence. The division treats a range of congenital and acquired surgical conditions of the head and neck, chest, abdomen, and genitourinary system. We work closely with our pediatric anesthesia colleagues to provide surgical care for infants under regional anesthesia when appropriate, avoiding the need for general anesthesia. The division performs approximately 600 operative procedures annually, and oversees trauma care for injured children in our American College of Surgeons-verified pediatric trauma center. Our faculty are active in a several national pediatric surgical organizations.

Neurological Surgery

**DIVISION CHIEF
SUSAN DURHAM,
M.D.**

Pediatric Neurosurgery provides comprehensive, patient- and family-centered care for conditions such as brain and spine tumors, craniosynostosis, tethered spinal cord, Chiari malformation, peripheral nerve injuries and tumors, hydrocephalus and spina bifida. Pediatric Neurosurgery participates in several multidisciplinary clinics including pediatric neuro-oncology, spina bifida and concussion clinics. The Heads Up Clinic, established in 2018 in collaboration with pediatric plastic surgeon Thomas Willson, M.D., specializes in craniosynostosis and other congenital cranial conditions.

In collaboration with the Jeffords Institute for Quality, the Neurosurgery Surgical Site Infection Prevention Bundle was implemented in 2018. Pediatric Neurosurgery presented at the Northern New England Critical Care Conference on “The Head-Injured Child” as well as at the American Society of Pediatric Neurosurgeons annual meeting on “U.S. Trauma Systems and Pediatric Neurosurgery Advocacy.” Active research projects include a multi-center clinical trial on the surgical treatment of Chiari malformation and the development of clinical guidelines on the treatment of spina bifida.

Ophthalmology

**DIVISION CHIEF
SUJATA SINGH,
M.D.**

The UVM Pediatric Ophthalmology and Strabismus Clinic completed its inaugural year in 2018. It provides comprehensive ophthalmic evaluations for children, amblyopia therapy, and surgical treatment for pediatric



ophthalmic diseases. The service is now building a partnership to advance pediatric ophthalmology in Gambia. UVM providers plan to work with Gambian eye healthcare professionals as clinical preceptors, as well as deliver lectures on general and pediatric ophthalmology to students in the eye healthcare training program. We also seek to implement a vision screening program for Gambian children. The goal is to expand this education program to include ophthalmic surgical skills and the expertise of our colleagues from other specialties, such as pediatric medicine, surgery, and anesthesia.

Otolaryngology

**DIVISION CHIEF
WILLIAM
BRUNDAGE, M.D.**

The section of Pediatric Otolaryngology in the Division of Otolaryngology provides comprehensive pediatric otolaryngology care. The section is comprised of two fellowship-trained pediatric otolaryngologists, Richard Hubbell, M.D., who trained under the renowned Dr. Robin Cotton at Cincinnati Children's Hospital, and Heather Herrington, M.D., who completed her training at Boston Children's Hospital. The section is involved in several quality projects, including a multidisciplinary UVM Medical Center initiative to improve the care of children with tracheostomies in and out of the hospital. In conjunction with the National CMV Foundation, UVM Medical Center hosted the national Congenital Cytomegalovirus (CMV) Public Health and Policy Conference in September. Drs. Hubbell and Herrington, along with other UVM Children's Hospital physicians, are advocating at the state level for universal newborn CMV screening.

Recent Publications and Presentations

- Herrington H. "Pediatric Otolaryngology MOC Review," oral presentation at American Academy of Otolaryngology, Head & Neck Surgery Annual Meeting and OTO Expo, Atlanta, Ga., Oct. 2018
- Herrington H. "Pediatric ENT Foreign Bodies," oral presentation at American College of Surgeons Clinical Congress, Boston, Mass., Oct. 2018
- Grohmann N, Herrington H. Second branchial cleft anomalies. *Operative Techniques in Otolaryngology-Head and Neck Surgery*. 2017; 28(3):156-160.

Pediatric Plastic Surgery

**DIVISION CHIEF
THOMAS
WILLSON, M.D.**

The Division of Plastic, Reconstructive, and Cosmetic Surgery provides comprehensive craniofacial and pediatric plastic surgery care, including pediatric facial trauma care. Thomas Willson, M.D., trained at the



THOMAS WILLSON, M.D.

University of California Los Angeles fellowship founded by Henry Kawamoto, M.D. Kristen Daniels, P.A., previously worked as the lead physician assistant on the Texas Children's Hospital cleft and craniofacial team.

We are transitioning care for children with cleft and other craniofacial differences from the Vermont Department of Health to UVM Children's Hospital. The new Cleft & Craniofacial Clinic is a multidisciplinary endeavor involving Pediatrics, Plastic Surgery, Genetics, Otolaryngology, Audiology, Speech and Language Pathology, Social Work, Orthodontics, and Dentistry. We will see our first patients in January 2019. A second multidisciplinary clinic for children with head shape and other combined neurosurgical and craniofacial conditions opened this fall. The Heads Up Clinic sees patients with craniosynostosis, plagiocephaly, hemangiomas, sinus pericranii, and other conditions.

Urology

**DIVISION CHIEF
GERALD MINGIN,
M.D.**

Pediatric Urology diagnoses and treats children with a wide range of congenital and acquired conditions involving the genitourinary tracts. The team includes a fellowship-trained, board-certified pediatric urologist supported by the full range of pediatric specialists. Services include a multi-specialty voiding dysfunction clinic with a special emphasis on children with developmental disabilities such as autism, active participation in the multidisciplinary myelomeningocele clinic, and robotic minimally invasive surgical treatment for routine problems and complex reconstructive procedures. We have a robust relationship with pediatric urology at Children's Hospital of Philadelphia. This includes participation in clinical care conferences and the ability to offer access to world-class expertise for the most complex urologic conditions. Pediatric Urology received a prestigious NIH R01 award to study the effect of stress on bladder function in children.

Recent Publication

- Tykocki NR, Heppner TJ, Erikson CS, van Batavia JP, Vizzard MA, Nelson MT, Mingin GC. Development of stress-induced bladder insufficiency requires functional TRPV1 channels. *Am J Physiol Renal Physiol*. 2018 Aug 8. doi: 10.1152/ajprenal.00231.2018. [Epub ahead of print]

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