POST-COVID CLINIC

DARTMOUTH-HITCHCOCK OPENS CLINIC TO TREAT “LONG-HAUL COVID”

The only post-acute COVID syndrome (PACS) clinic in Northern New England opened in April under the supervision of Jeffrey Parsonnet, MD, a physician in the Section of Infectious Disease and International Health at Dartmouth-Hitchcock (DH) and a professor of medicine at Geisel.

At first, Parsonnet wasn’t sure how much interest there would be in the clinic.

“We put an announcement on the DH website in April, and it was like a dam broke,” he says. “There was a flood of patients—25 or more referrals a week.”

So far, more than 350 people have been referred to the PACS clinic, which serves patients who have survived a COVID-19 infection but are experiencing persistent symptoms at least 12 weeks later. Parsonnet estimates about 10% to 30% of COVID survivors experience debilitating long-term symptoms. That translates to more than 10,000 people in New Hampshire alone.

Continued on page 2
Across the U.S., more men than women are hospitalized and die of COVID-19, but about three-quarters of referrals to PACS clinics nationwide are women. This implies, Parsonnet says, that PACS is an area of interdisciplinary education of learners, the Hospice and Palliative Care Interprofessional Fellowship is presented. This new educational opportunity is directed by Maxwell Vengo, MD, who also serves as the medical director of Dartmouth-Hitchcock interprofessional continuing education and associate dean for continuing medical education at the Geisel School of Medicine. This issue’s focus on research takes us to the rheumatology/immunology laboratories and teamwork between colleagues William Rigby, MD, HS’81-86 and Sladjana Skopelja-Gardner, PhD, Guarini’17 with translational importance for patient care and broad application. We again present some statistics and information on academic achievements of the faculty and trainees, including promotions and research grants.

We are excited to share our stories with you, and we would enjoy hearing yours as well. If you are interested in sharing your stories, or learning more about opportunities to engage with and support our department, please write us at D-H.Alumni.Relations@hitchcock.org

Richard Rothstein, MD Chair, Department of Medicine

MESSAGE FROM OUR CHAIR

I am delighted to share this newsletter highlighting areas of research, teaching, patient care, and culture in the Department of Medicine. I hope you enjoyed our March 2021 issue, which is archived at d-h.org/medicine. Each newsletter shares the clinical and scholarly activities of our faculty and trainees and features various endeavors, which, viewed in aggregate, will show you the exciting journey of our department.

In this issue, with a timely emphasis, we learn from Jeffrey Parsonnet, MD, about the new postacute COVID syndrome clinic, unique in Northern New England. The important recent work within the department around diversity, equity, inclusion, and belonging (DEI) is described and the appointment of Erick Lansigan, MD, as our inaugural principal of DEI is announced.

In the area of global health, we view the work of Brian Remillard, MD, who recently stepped down as the section chief of the Section of Nephrology in order to focus additional time dedicated to the delivery of healthcare in Haiti. To spotlight an area of interdisciplinary education of learners, the Hospice and Palliative Care Interprofessional Fellowship is presented. This new educational opportunity is directed by Maxwell Vengo, MD, who also serves as the medical director of Dartmouth-Hitchcock interprofessional continuing education and associate dean for continuing medical education at the Geisel School of Medicine.

This issue’s focus on research takes us to the rheumatology/immunology laboratories and teamwork between colleagues William Rigby, MD, HS’81-86 and Sladjana Skopelja-Gardner, PhD, Guarini’17 with translational importance for patient care and broad application. We again present some statistics and information on academic achievements of the faculty and trainees, including promotions and research grants.

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Richard Rothstein, MD Chair, Department of Medicine

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COVID CLINIC

“...the majority of patients we’re seeing had mild illness and were not hospitalized,” Parsonnet says. “They recovered from the acute illness, but then they developed post-COVID symptoms that have persisted for months.” As for pulmonary function, some people report having shortness of breath, but diagnostics usually show no problems. Instead, Parsonnet says, it may be a neurological problem—something in the brain telling them falsely they aren’t getting enough air.

“Across the U.S., more men than women are hospitalized and die of COVID-19, but about three-quarters of referrals to PACS clinics nationwide are women. This implies, Parsonnet says, that PACS is an immune disease, as women are more likely than men to have autoimmune diseases, such as lupus and rheumatoid arthritis.

“No one knows why some people have long-term symptoms, and it’s hard to predict who will have them,” he says.

Rather than respiratory problems, the symptom that troubles patients most is fatigue, sometimes so severe that some people have been unable to work. Other common symptoms are depression, anxiety, difficulty with memory, and insomnia. Some patients have been diagnosed with postural orthostatic tachycardia syndrome (POTS), a condition in which someone experiences lightheadedness and rapid heartbeat after standing up from sitting or lying down.

Over time, doctors think most patients with PACS can fully recover. “Most patients we’re seeing now got sick between November and March of this year, but we have seen some who got COVID-19 as long as 16 months ago,” Parsonnet says. “Fortunately, there is no evidence that people have suffered long-term neurologic damage, so that is a basis for optimism.”

HONORING DIVERSITY

DEPARTMENT OF MEDICINE’S NEW LEADERSHIP ROLE FOSTERS EQUITY, INCLUSION, AND CULTURAL COMPETENCE

After Floyd’s death and the riots that followed, the urgency increased and the department moved swiftly, appointing Erick Lansigan, MD, to the position in June 2020 to help foster a more inclusive atmosphere. The Department of Medicine was the first department at Dartmouth-Hitchcock (D-H) to support a paid position to conduct this important work. Since then, Lansigan also became the interim associate dean for diversity, equity, and inclusion (ADDEI) at Geisel School of Medicine, a job he uses to bridge efforts in DEI.

“Building community and cultural competence is critically needed,” said Lansigan, the D-H medical director of inpatient cancer services and the director of clinical trials in hematology. “If we create a community of belonging, we’re more likely to retain staff in health care. And as we start to learn about each other, we become more empathic in how we treat patients of lower economic status, different backgrounds, or different races.”

Among his many endeavors, Lansigan is working on two main projects for the Department of Medicine, supported by three Scholarship Enhancing Diversity and Equity (SEAM) awards. (To learn more about the SEAM awards, see page 10.)

The first project aims to understand the experiences of underrepresented internal medicine residents and trainees. In October, Lansigan’s team began interviewing participants coming from a variety of backgrounds to learn common themes related to their experiences in the workplace. Also within this project, a dozen Dartmouth-Hitchcock Medical Center physicians, nurses, and staff members are participating in a series of storytelling workshops and will narrate their testimonials on the topics of race, class, and health for the broader D-H community. Lansigan sees their collaboration with Papi Hernandez, founder of the local nonprofit organization

Continued on page 7
Brian Remillard, MD (center), joins the team of current internal medicine residents and medical students rotating at Hôpital Universitaire de Mirebalais in Haiti.

The next day, he traveled to the town of Hinche to Hôpital Sainte Thérèse, where he performed the first dialysis outside Port-au-Prince.

“I was working with [critical care nurse] Anne Mrozik to take care of patients who were casualties of the earthquake,” Remillard said. “When we started making rounds on all the wards at the hospital, we saw some young people walking around. I discovered they were doctors doing their one year of social service following medical school. They were helping patients, but their attending didn’t come every day. So, I became their medicine attending, every day.

“It was no different from working with Dartmouth residents,” he said, “except the profound lack of resources.”

Since that first trip, Remillard has visited Haiti several times, most recently in September after a tropical depression and another earthquake ravaged the region. He has also brought medical residents from Haiti to visit Dartmouth-Hitchcock to learn new skills, working with doctors, nurses, and technical staff.

Since retiring from his section chief job, Remillard has more time to spend as the chief of nephrology at Hôpital Universitaire de Mirebalais in Haiti, continuing weekly lectures and visiting several times a year. He taught Haitian doctors how to care for complex renal patients, including dialysis, and his ultimate aim is to teach them to perform kidney transplantations.

“Transplantation is a lofty goal, but it’s the best option for treatment of advanced renal failure,” says Remillard, who is on-call 24/7 for doctors in Haiti. “It’s very expensive in the U.S., but my Haitian colleagues and I believe it can be done much less expensively in Haiti. Much like treatment of HIV and TB in poor countries, we need to challenge the underlying assumptions of cost. That opens it up to poor people.”

Remillard says he would love to bring Dartmouth-Hitchcock residents to Haiti, but it’s simply not safe. Remillard stresses, however, that this doesn’t mean the effort to improve Haitian health care is hopeless. He plans to continue to bring Haitian residents, nurses, biomedical personnel, and others to Dartmouth-Hitchcock to share knowledge and also to support them as friends and colleagues.

“We shouldn’t aspire to do anything less for people in Haiti than we do for any other patient we care for.”

Brian Remillard, MD

INTERNATIONAL PROJECTS IN THE DEPARTMENT OF MEDICINE

Rwanda Highlights

One of the postponed projects is an exchange program with the University of Rwanda. Facilitated by several professors in the Department of Medicine, Dartmouth-Hitchcock Medical Center welcomed Rwandan medicine residents for six- to eight-week rotations, and we have also sent some of our residents and medical students to Rwanda.

Additionally, in partnership with the nonprofit organization GI Rising, the Section of Gastroenterology and Hepatology is creating the first gastroenterology and hepatology fellowship program in Rwanda this year. Steven Bensen, MD, MED’90, HS’90-96 was a leader in founding the Rwanda Society for Endoscopy (RSE), which expands patient care and training for providers. We anticipate resuming our engagement in Rwanda in March 2022.

While the work in Haiti has continued, the COVID-19 pandemic has hindered many of the Department of Medicine’s international projects due to travel restrictions. Starting in spring 2022, we hope to resume our exchanges with our medical school partner institutions in Prishtina, Kosovo; Chongqing, China; Dar es Salaam, Tanzania; and Kigali, Rwanda.

Find out more about these projects on the Center for Health Equity website at www.geiselmed.dartmouth.edu/che.
HOSPICE AND PALLIATIVE MEDICINE FELLOWSHIP ALLOWS PHYSICIANS AND ADVANCED PRACTICE PROVIDERS TO TRAIN TOGETHER—AND ONE ANOTHER

A well-known fact in health care is that physicians, nurses, and physician assistants all bring unique perspectives to patient care. To harness those perspectives, the Dartmouth-Hitchcock Section of Palliative Medicine created a fellowship that puts these health care providers in the same room to learn from each other.

The Hospice and Palliative Medicine Interprofessional Fellowship was established in July 2019 and welcomed its third cohort of three physicians and two nurse practitioners this academic year.

In the program, providers learn to manage complex symptoms, lead advanced goals of care discussions, provide team-based interdisciplinary care, and teach palliative care skills.

“The unique part of this fellowship is that it’s interprofessional education,” says Maxwell Vergo, MD, who leads interprofessional education at Dartmouth-Hitchcock and Geisel School of Medicine. “They’re not just learning in parallel. Instead, these providers—physicians, nurse practitioners, and physician assistants—are all in the same classroom, learning the same material, bringing their own life experiences, and training each other. They are able to share wisdom because they’re in the same room, which enhances their learning experience.”

Hospice and palliative medicine fellowship positions have been available for physicians since 2008, growing from one position annually to three over the first nine years, and now, thanks to the addition of advanced practice providers (APPs), two nurse practitioners and physician assistants are part of this training. To emphasize the interprofessional nature of the fellowship, the program is co-led with Lisa Stephens, APRN, MSN, acting as an associate program director.

Similar to physician education, APPs have both classroom and clinical rotations. But while physicians have residencies, advanced practice providers go directly into the workforce without further training under the mentorship of an experienced practitioner. The fellowship aims to provide that advanced training and fill that educational gap.

In the program, faculty recognize the differences and celebrate the strengths of nurses, physician assistants, and physicians alike. They are treated as equals in the classroom, despite whatever attitudes they may encounter in real-life settings. The goal is to have each leave the fellowship with the same level of competency, regardless of the profession they represent.

“In this fellowship, they are treated the same, and they enrich each other’s education,” Vergo said. “A physician may not know what it’s like to be at the bedside when someone dies, and nurses may not know the nuances of intensive care. But it’s not about deficiency; it’s about how we fill each other’s gaps based on our training and experience. They learn to respect the others’ professions in ways they might not otherwise.”

Vergo explains that his advanced practice colleagues have helped him grow in his profession, and he’s helped them grow, too.

“As a palliative medicine physician, I have worked with nurse practitioners who are as skilled as or more skilled than I am, and together we’re smarter than we are individually,” Vergo said. “It’s a field designed to have interprofessional involvement and growth.”

So far, onethird of graduating practitioners from the fellowship have stayed at Dartmouth-Hitchcock, and twofifths—including 100% of all APP graduates—have stayed in Northern New England to serve patients with serious illness.

Vergo hopes these fellowship graduates—and all health care practitioners—will embrace interprofessional education in clinical settings. He aims to add other providers such as chaplaincy, pharmacy, and social work into the interprofessional fellowship training model.

“This program is an example of what is possible—training alongside other providers serving the same patient population,” Vergo said. “Together, we hone our skills so we can provide better patient care.”

Meet our Hospice and Palliative Medicine Fellows (left to right): Laura Ostapenko, MD, HS’21-22, MPP; Sylvia Christe, ACNP-BC, ACHPN, HS’21-22; Hannah Ruede, AGNPC, HS’21-22; Michael Barkowski, DO, HS’21-22, MA; and Emily Tsanotelis, MD, HS’21-22.
These latter studies arose from the work of another Pseudomonas aeruginosa in patients infected by trying to model this differential effect of specific anti-BPI which part of the molecule is targeted. Rigby is currently to both block and enhance BPI function depending on. Therefore, autoimmunity to BPI has the ability to Pseudomonas aeruginosa infection. CF is an inherited disorder but has contact with BPI in CF patients, which is triggered by Pseudomonas working to characterize the development of autoimmunity. Among the many projects in Rigby's lab, his team is focusing on the pathogenesis of autoimmunity, which has informed his clinical arthritis. After years of study, his focus took a sharp turn to cystic fibrosis (CF), a respiratory disease characterized by chronic infection. This interest arose through the initial work of Skopelja-Gardner as a graduate student and resumed following completion of her postdoctoral fellowship and return to Dartmouth. Together, they have coauthored three papers this year on the role of bactericidal permeability-increasing (BPI) protein, a potent antimicrobial protein, in the innate immune system. Skopelja-Gardner continues her independent work in the Section of Rheumatology and teaches at Geisel, where she is an assistant professor. Among the many projects in Rigby's lab, his team is working to characterize the development of autoimmunity to BPI in CF patients, which is triggered by Pseudomonas aeruginosa. CF patients have sensitivity to ultraviolet (UV) light. Her lab uses mouse models as well as keratinocytes isolated from patient skin, procured by Dorothea Barton, MD, MED’07, HS’07-11, in the dermatology department at Dartmouth-Hitchcock Medical Center (DHMC). They are currently developing autologous skin 3D tissue models in collaboration with Michael Whitfield, PhD, and Patricia Pali, PhD’01, at Geisel to study these mechanisms without exposing patients to UV light. Their goal is to identify targetable pathways that can be exploited to prevent phototoxic reactions in lungs and dermatomysitis. The other project addresses the link between sunlight-induced skin inflammation and kidney disease in people with lupus. Recently, Skopelja-Gardner and her collaborators showed that skin exposure to UV light results in kidney inflammation and injury. This process was mediated by neutrophils, the most abundant leukocytes in human blood and cells activated in lupus patients. These findings were published in the Proceedings of the National Academy of Sciences (PNAS). Under Skopelja-Gardner’s mentorship, Lais Osmani, MD, HS’14-21, an internal medicine resident at DHMC, has extended these studies to demonstrate increased neutrophil levels in lupus patients with concurrent skin and kidney disease. High neutrophil levels were predictive of worse kidney function and linked to increased renal presence of IgA, as they presented at this year’s 21st Century Lupus Conference. Future studies in Skopelja-Gardner’s lab will investigate this curious immunologic relationship between skin and kidney disease in lupus. Rigby, the section chief of rheumatology and a professor of medicine and of microbiology and immunology in the Geisel School of Medicine, has had a long-term interest in the pathogenesis of autoimmune diseases. He has taught me to ask clinically relevant questions, to design experiments with scientific rigor, and to collaborate with scientists across disciplines.”

**William Rigby, MD, HS’81-86, and his former graduate student Sladjana Skopelja-Gardner, PhD, Guarini’17, have become colleagues in the Department of Medicine, each studying aspects of rheumatic diseases in their own labs.**

**Sladjana Skopelja-Gardner, PhD, Guarini’17**

outstanding graduate student, Lynn Theprungsirikul, PhD, in collaboration with Skopelja-Gardner.

“We were a terrific team,” says Rigby, who gives great credit to Skopelja-Gardner’s return after a postdoctoral fellowship at the University of Washington.

Skopelja-Gardner graduated from Dartmouth with a degree in immunology and joined the faculty in October 2020. Since then, she has received research grants from the Department of Defense, the National Institutes of Health, the Hitchcock Foundation, and Geisel to investigate the mechanisms of autoimmunity and organ damage in lupus and dermatomysitis. These diseases usually affect the skin, and most patients have sensitivity to ultraviolet (UV) light, exposure to which can worsen the skin disease and cause systemic flares. Due to unknown mechanisms, therapeutic targets are limited, and there is a critical need to understand pathogenesis in these diseases. Skopelja-Gardner’s lab is working to do that through two main projects.

The first seeks to understand the exaggerated type 1 interferon response in people with dermatomysitis and lupus and what mechanisms fail to regulate this response. Sunlight exacerbes type 1 interferon, causing inflammatory skin sensitivity. In collaboration with Randolph Noelle, PhD, at the Norris Cotton Cancer Center, Skopelja-Gardner proposes targeting the immune-checkpoint regulator VISTA to downregulate this inflammatory signature in skin cells called keratinocytes, which represent the majority of the cells in the epidermis and are a direct target of UV rays. Her lab uses mouse models as well as keratinocytes isolated from patient skin, procured by Dorothea Barton, MD, MED’07, HS’07-11, in the dermatology department at Dartmouth-Hitchcock Medical Center (DHMC). They are currently developing autologous skin 3D tissue models in collaboration with Michael Whitfield, PhD, and Patricia Pali, PhD’01, at Geisel to study these mechanisms without exposing patients to UV light. Their goal is to identify targetable pathways that can be exploited to prevent phototoxic reactions in lungs and dermatomysitis. The other project addresses the link between sunlight-induced skin inflammation and kidney disease in people with lupus. Recently, Skopelja-Gardner and her collaborators showed that skin exposure to UV light results in kidney inflammation and injury. This process was mediated by neutrophils, the most abundant leukocytes in human blood and cells activated in lupus patients. These findings were published in the Proceedings of the National Academy of Sciences (PNAS). Under Skopelja-Gardner’s mentorship, Lais Osmani, MD, HS’14-21, an internal medicine resident at DHMC, has extended these studies to demonstrate increased neutrophil levels in lupus patients with concurrent skin and kidney disease. High neutrophil levels were predictive of worse kidney function and linked to increased renal presence of IgA, as they presented at this year’s 21st Century Lupus Conference. Future studies in Skopelja-Gardner’s lab will investigate this curious immunologic relationship between skin and kidney disease in lupus.

“I am grateful for the opportunity to pursue these questions and build a research team at DHMC. I am here today thanks to the mentorship of Dr. Rigby, who has taught me to ask clinically relevant questions, to design experiments with scientific rigor, and to collaborate with scientists across disciplines,” says Skopelja-Gardner.

“The success of Dr. Skopelja-Gardner as a scientist, teacher, mentor, and role model has given me the greatest pleasure,” Rigby says. “DHMC’s Department of Medicine was so lucky to recognize this talent and recruit her. I am so happy for her and look forward to further achievements with great interest.”

**Rigby and Skopelja-Gardner’s co-authored papers from 2021**


THE DEPARTMENT OF MEDICINE

SCHOLARSHIP ENHANCEMENT IN ACADEMIC MEDICINE (SEAM) AWARDS PROGRAM

The SEAM Awards Program supports academic “dreams.” Successful proposals may include innovations in teaching, discovery/research, publication/presentation, practice improvement, and/or digital scholarly communications, with the ultimate goal of enhanced quality of patient care. The SEAM Awards funding exceeds $1 million since 2018.

Academic Year 2020-2021 SEAM Awards List—Round 2: Spring 2021 Awards

Improving Patient Engagement in Depression Care through Remote Support
Project Leader: Jay C. Buckey, MD, HS’95-96
Professor, Hyperbaric Medicine Biomedical Research
Project Co-Leaders:
Catherine DuBeau, MD
Professor, General Internal Medicine, Professor of Obstetrics and Gynecology, Female Pelvic Medicine and Reconstructive Surgery
Victoria Larasse, APRN
Advanced Practice Nurse in Primary Care

Incorporating Patient Mortality and Supplemental Cancer Outcome Data into the New Hampshire Colonoscopy Registry to Increase the Impact of Its Ongoing Colorectal Cancer Prevention Research and Collaboration with CISNET Microsimulation Modelers
Project Leader: Lynn Butterly, MD
Professor, Gastroenterology and Hepatology
Project Co-Leader:
Joseph Anderson, MD, MHCDS’14
Associate Professor, Gastroenterology, Veteran Administration Medical Center

THE DEPARTMENT OF MEDICINE

RESEARCH IN THE DEPARTMENT OF MEDICINE

The Department of Medicine continues to have a strong commitment to academic success through research scholarships under the leadership of Chair Richard Rothstein, MD, Vice Chair of Research Richard Enelow, MD, and Director of Research Operations Jessica Chevalier, BS, CCRP.

In future newsletter editions, we will continue to highlight areas of active research by our faculty and learners. At right we present our current research portfolio, which includes all academic Department of Medicine faculty activities.

RESEARCH STUDIES

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<thead>
<tr>
<th>Study Status</th>
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<th>Non-Enrolling</th>
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<td>Enrolling</td>
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<td>Total</td>
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Clinical trials statistics are from Jan. 1, 2021 through June 30, 2021

TOTAL ENROLLED PARTICIPANTS

- 271 active trials are treatment trials
- 174 participants enrolled in active studies are on treatment trials

ANNUALIZED REVENUE

$6.8M

Grant statistics are from July 1, 2020 through June 30, 2021
Our faculty members are the foundation of the Department of Medicine. Their dedication and commitment to our mission and their work is exemplary. Being recognized for academic achievement is an honor bestowed upon our clinician-scholars by their faculty peers.

We are excited to announce the following faculty promotions that occurred in calendar year 2021 at time of publication. Congratulations to them all!

Steven Bensen, MD, MED’90, HS’90-96
Professor, Gastroenterology and Hepatology

Charles Brackett, MD
Associate Professor, General Internal Medicine

Gabriel Brooks, MD, MPH
Associate Professor, Medical Oncology

Emily Cohen, MD, HS’05-09, PhD
Associate Professor, Veteran’s Affairs Medical Center

James DeVries, MD, HS’99-06
Associate Professor, Cardiovascular Medicine

Timothy Gardner, MD, HS’00-07, MS’13
Professor, Gastroenterology and Hepatology

Alan Hartford, MD, PhD
Professor, Radiation Oncology

Karen Huyck, MD, PhD, MPH
Associate Professor, Occupational and Environmental Medicine

Edward Merrens, MD, MED’94, MHCDS’13
Associate Professor, Hospital Medicine

Carolyn Murray, MD
Associate Professor, Occupational and Environmental Medicine

Interested in joining or supporting our team?
Find Department of Medicine employment opportunities at www.DHProviders.org.

Contact Megan Dodge in the Office of Development and Alumni Relations at megan.dodge@hitchcock.org to learn more about opportunities to engage with and support our departmental activities.