

R E H A B

PROGRESS

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Message From the Chair

Dear Colleagues,

I am happy to share with you some recent updates from our Department of Physical Medicine and Rehabilitation at the University of Pittsburgh School of Medicine and the UPMC Rehabilitation Institute.

First, for those who were able to attend our reception at last year's American Academy of Physical Medicine and Rehabilitation Annual Assembly, thank you for taking the time to visit with us. It is always a pleasure to reconnect with colleagues, alumni, and collaborators. We saw more than 100 of you at the event and even more during the conference.

Our faculty made a number of presentations and discussed their research at last year's annual meeting. A recap is included in this issue of *Rehab Progress* for those who want to learn more or get in touch with faculty about their work.

Also in this issue of *Rehab Progress*, we discuss some of the work **Fabrisia Ambrosio, PhD, MPT**, is doing in the world of regenerative rehabilitation, as well as the expanding world of the UPMC Inpatient Rehabilitation Network.

Lastly, I am excited to share that our Department and collaborators from orthopaedic surgery and across the University of Pittsburgh were recently awarded a new NIH U19 grant called LB³P MRC to create a chronic low back pain research center designed to improve targeted and personalized treatments while reducing the use of opioids.

The ongoing efforts of our clinicians, staff, and researchers make it possible for us to work toward the future of rehabilitation while simultaneously celebrating the accomplishments of today.



Gwendolyn Sowa, MD, PhD

Chair, Department of Physical Medicine and Rehabilitation,
University of Pittsburgh School of Medicine
Director of the UPMC Rehabilitation Institute



Affiliated with the University of Pittsburgh School of Medicine, UPMC Presbyterian Shadyside is ranked among America's Best Hospitals by *U.S. News & World Report*.

UPMC LIFE CHANGING MEDICINE

NIH Awards \$16.8 Million to Establish Low Back Pain Research Center at the University of Pittsburgh

More than 80% of adults experience low back pain at some point in their lives. For many of them, that pain becomes chronic, and treatment outcomes vary widely.

To address this issue, researchers from the University of Pittsburgh and UPMC were recently awarded a five-year, \$16.8 million U19 grant from the National Institutes of Health (NIH) to establish the Low Back Pain: Biological, Biomechanical, Behavioral Phenotypes Mechanistic Research Center (LB³P MRC). Using a wide variety of data to categorize patients into chronic low back pain (CLBP) subgroups, the center aims to improve targeted and personalized treatments while reducing the use of opioids.



“Numerous factors contribute to low back pain, and because every patient is unique, they do not respond to treatments in the same way. Opioids are not necessarily the answer for this type of chronic pain,” says **Gwendolyn Sowa, MD, PhD**, LB³P MRC director, chair of the Department of Physical Medicine and Rehabilitation at the University of Pittsburgh School of Medicine, and director of the UPMC Rehabilitation Institute.

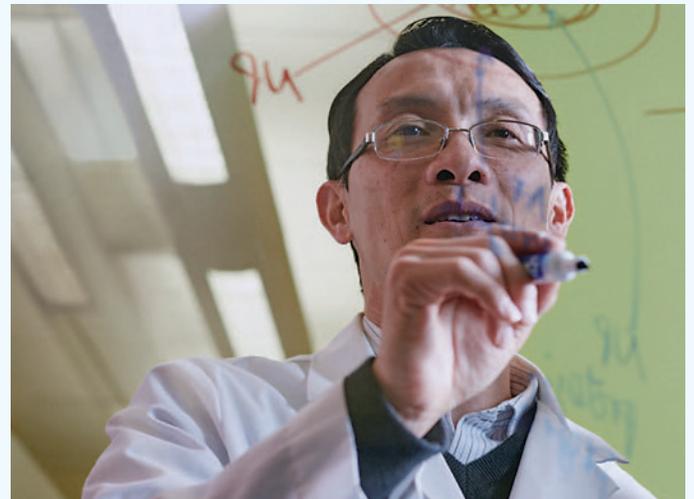
“Prior efforts to individualize treatments have been based on isolated characteristics,” she continued. “Our approach of integrating the biological, biomechanical, and behavioral contributors to CLBP, combined with novel mathematical modeling, will provide predictive tools to help personalize treatments like never before.”

The LB³P MRC was established with NIH funding from its Helping to End Addiction Long-term Initiative (HEAL), which launched in April 2018 to improve treatments for chronic pain, curb the rates of opioid use disorder and overdose, and achieve long-term recovery from opioid addiction.

Researchers from the University of Pittsburgh Schools of Medicine, Health and Rehabilitation Sciences, Engineering, and Education will contribute to the new center.

The LB³P MRC will collect and analyze data related to patients’ biomarkers, biomechanical movement patterns, behaviors and clinical characteristics in connection to CLBP. Administrative, clinical, and informatics support, all guided by University of Pittsburgh and UPMC leaders, will organize, process, and integrate the data, ultimately developing a comprehensive characterization of patients with CLBP and their responses to various medications and non-medication-based treatments, which will help personalize treatments for this common and debilitating condition.

“It has become evident that CLBP is incredibly complex and comes in different shapes and sizes, like cats. We wouldn’t treat a tiger the same as a house cat even though they are both technically felines, and for



this same reason, we should not treat all CLBP human patients the same,” says **Nam Vo, PhD**, LB³P MRC co-director and associate professor of orthopaedic surgery. “We have the infrastructure, the clinical and scientific resources and, now, the funding to address this problem with a truly multidisciplinary approach.”

This research is funded by NIH grant 1U19AR076725-01. Eight other University of Pittsburgh and UPMC projects were funded as part of the HEAL initiative.

UPMC Inpatient Rehabilitation Network

The UPMC Rehabilitation Network is comprised of 13 adult inpatient rehabilitation units within 10 hospitals, in addition to one pediatric unit. With 251 total beds, this is the largest rehabilitation network in western Pennsylvania and one of the largest in the United States. The Network includes specialized units and programs, such as spinal cord injury, brain injury, and stroke. Utilizing a team of 15 Nurse Rehabilitation Coordinators, four Clinical Liaisons, two Rehabilitation Admission Coordinators, five Prospective Payment System Data Coordinators, and Rehabilitation Coders, the Network manages the admission process, ensures compliance with regulatory standards, tracks outcomes, and accurately codes encounters in order to maximize length of stay and reimbursement.

In 2018, physical medicine and rehabilitation (PM&R) physicians throughout the Network treated 4,585 patients during their inpatient rehabilitation stays. The average functional independence measure (FIM) change was 31.5, compared to a national average of 29.1 for similar units. Nearly 70% of patients returned to their home or community upon discharge. Patients seen throughout the inpatient UPMC Rehabilitation Network are more complex cases compared to the nation as a whole, with an average case mix index of 1.45 vs. 1.34.

The Pre-Admission Screen, required by the Centers for Medicare and Medicaid Services (CMS), transitioned to an electronic format in 2017,



allowing physicians to view and sign on their mobile device to increase efficiency. Per CMS guidelines, physicians are required to sign the document prior to the inpatient rehabilitation admission. With this new process, 99% of preadmission screens are signed within two hours of the Rehabilitation Coordinator sending it to the physician. This project, which was a collaboration with the UPMC Community Provider Services (CPS) Division information technology team, won the Innovation Award at the annual CPS Quality Fair in 2018.

(Continued on Page 6)

Sports Ultrasound Advances at UPMC

Save the Date: Sports Ultrasound Summit 2020



On June 11–13, 2020, UPMC and the University of Pittsburgh Department of Physical Medicine and Rehabilitation will host a Sports Ultrasound Summit in Pittsburgh, Pennsylvania.

Conference faculty hail from the United States, Japan, Italy, Canada, and Chinese Taipei.

Kentaro Onishi, DO, assistant professor of physical medicine and rehabilitation, is the course

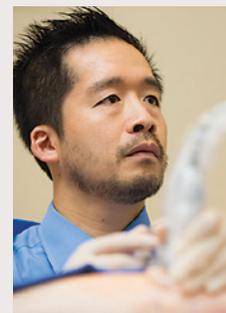
director for the conference. “This is truly one of a kind, a dream team of sports ultrasound,” says Dr. Onishi.

There is an optional preconference lecture available for all participants covering basic knowledge for those who are new to sports ultrasound.

Sports Ultrasound Making Waves in Musculoskeletal Care

The use of ultrasound imaging in sports medicine is on the rise, and Dr. Onishi is one of the earlier adopters and proponents for the expansion of its use in the clinic. He continues to train in the area, and with the Sports Ultrasound Summit and lectures at national conferences such as AAPM&R, is active in educational activities with both physical medicine and rehabilitation physicians and orthopaedic surgeons.

Dr. Onishi recently completed a traveling fellowship to Japan through the American Medical Society for Sports Medicine. He was one of three fellows selected to participate in the program to share research and explore common clinical interests among sports medicine leaders.



Dr. Onishi noted, “I was told about 80% of orthopaedic surgeons in Japan use ultrasound in the clinic. I believe numbers are increasing in America, but I do not believe it is currently at 80%.”

One of the hospitals Dr. Onishi visited keeps anterior cruciate ligament (ACL) surgery patients for four weeks to provide intensive rehabilitation. “Doctors we met would keep athletes until they are able to demonstrate a certain level of cardiovascular fitness. The

hypothesis is poor cardiovascular fitness results in heightened risk of ACL re-injury,” says Dr. Onishi.

Dr. Onishi also volunteered as a physician during the 2018 Winter Olympic Games in South Korea, and he will serve on the International Olympic Committee medical team during the 2020 Summer Olympic Games in Japan.

2019 AAPM&R Presentations and Workshops

Faculty from the Department of Physical Medicine and Rehabilitation were well-represented in presentations, lectures, and poster presentations at the 2019 American Academy of Physical Medicine and Rehabilitation annual meeting. Below is a summary of Department faculty participation.



Michael C. Munin, MD

- Intervention Spasticity: Case Based Assessment and Skills Training Precourse
- Ultrasound Guidance for Chemodenervation Procedures: Upper Limb
- Ultrasound Guidance for Lower Limb Chemodenervation Procedures
- Ultrasound Guidance for Head and Neck Chemodenervation Procedures



Kentaro Onishi, DO

- Fundamental Ultrasound of the Lower Extremity
- Meniscus Update: Evolving Research Models and Clinical Practice
- Advanced Sports Ultrasound Pearls



Amy Houtrow, MD, PhD, MPH

- PM&R Bold Project for PRM — Present Results from the Pediatric Rehabilitation Medicine Practice Survey



James Eubanks, MD

- PHIT Fire: Rapid Fire Presentations on Uniting PM&R
- Manual Medicine Treatment for Low Lumbar, Sacroiliac, and Pelvic Dysfunction



Kevin Franzese, DO

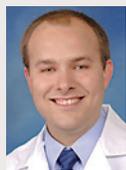


Gary Galang, MD

Mark Linsenmeyer, MD

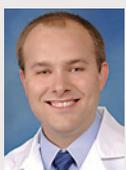
Amy Wagner, MD

- More Than Just “Dispo”: Using Evidence and Best Practice to Integrate Physiatry into the Neurologic Intensive Care Unit



Allison Bean, MD, PhD

- Feeding the Fire: Finding Solutions to the Burnout Epidemic in PM&R
- Everyone’s A Little Bit Biased (Even Physiatrists)



Mark Linsenmeyer, MD

- Resident Bootcamp 3: Spasticity Management — Reviewing Chemodenervation Techniques Including the Use of Ultrasound Guidance and Baclofen Pump Management

2019 AAPM&R Posters

Resident	Title
Lauren Desmarais, DO	Post-Operative Zolpidem for Treating CNS Hypotension Induced Brain Injury.
James Eubanks, MD	Prolotherapy for the Treatment of Osteoarthritis and Sports-Related Injuries.
James Eubanks, MD	When to Consider Intra-Articular Platelet-Rich Plasma (PRP) Injections for the Treatment of Knee Pain: A Narrative Review.
Michael Guthrie, MD	The Effect of Distraction on Intracortical Brain-computer Interface Performance.
Alexander Lloyd, MD	Prolotherapy Salvage for Chronic Groin Pain Persisting After Surgery: A Case Report.
Romer Orada, DO	Treatment of Breast Lymphedema in Breast Cancer — A Case Series.
Allison Schroeder, MD	Calcific Insertional Peroneus Brevis Tendinosis Treated with Percutaneous Ultrasonic Tenotomy: A Case Report.
Allison Schroeder, MD; Jenna Meriggi, DO	Informational Patient Handouts for Procedures Performed in Sports Medicine Clinic: A Quality Improvement Project.
Matthew Sherrier, MD	A Curious Case of Acute Onset Bilateral Hand Weakness in a Youth Hockey Player.
Joseph Staszal, MD	Not Always as It Seems: A Case of Ascending Paralysis.

Regenerative Rehabilitation



In July 2015, the National Institutes of Health (NIH) funded the University of Pittsburgh to create the Alliance for Regenerative Rehabilitation Research and Training (AR³T). This NIH center grant created a multi-institutional resource center to develop research collaborations, provide educational opportunities, and fund pilot projects and technology

development projects that will benefit the research community and facilitate the translation of this knowledge into the clinic. This partnership includes the University of Pittsburgh, Stanford University, Mayo Clinic, and the University of Texas at Austin. The goal is to support expansion of education and research in the field of regenerative rehabilitation. The alliance has more than 20 laboratories in place to support these efforts.

Fabrisia Ambrosio, PhD, MPT, associate professor of physical medicine and rehabilitation at UPMC and core faculty at the McGowan Institute for Regenerative Medicine, says, “Technologies using

biomaterials and cellular therapies to heal the body are in clinical trials and in the clinical practice across the country. Regenerative rehabilitation combines these discoveries with rehabilitation research, propelling the translation into functionally relevant treatments and transforming the future of health care.”

The 8th Annual International Symposium on Regenerative Rehabilitation was held October 24–26, 2019 in Charlottesville, Virginia. Approximately 130 people attended the symposium to learn about the latest developments in regenerative rehabilitation, participate in discussions that fostered cutting-edge ideas, and create sustainable collaborations. World-renowned researchers and clinicians presented on scientifically rigorous research and clinical management, focusing on new and innovative approaches that combine discoveries in tissue engineering, medical devices, and cellular therapies with mechanotransductive and rehabilitative protocols.

This year’s symposium will be held December 3–5, 2020 in Austin, Texas.

New Faculty



Molly Krause, DO, joins us as an assistant professor providing clinical service to our acute inpatient rehabilitation and consult services at the 28-bed inpatient rehabilitation unit at UPMC St. Margaret. Dr. Krause has a clinical interest in wound care and attended Pennsylvania State University (Biology) in State College, Pennsylvania, and the Lake Erie

College of Osteopathic Medicine in Bradenton, Florida. She received residency training at East Carolina University in Greenville, North Carolina. When asked why she chose UPMC, Dr. Krause commented, “UPMC is a system that will allow me to provide high value care to my patients while also providing me the opportunity to collaborate with faculty who are on the forefront of research in not only rehabilitation, but all fields of medicine.”



Debbie Tan, MD, joins our Department as an assistant professor. She graduated with a bachelor’s degree in physical therapy and a medical degree from the University of Santo Tomas in Manila, Philippines. Dr. Tan received residency training in internal medicine at St. Elizabeth Health Center in Youngstown, Ohio, and physical medicine and rehabilitation training at

the University of Washington in Seattle. Dr. Tan also completed a spinal cord injury fellowship at the University of Washington. “I am excited to be part of a dynamic group of talented physicians with diverse experiences, whose collective goal is to provide excellent patient care in a collaborative effort. I am happy to be back in the academic setting and have the opportunity to work with residents and fellows,” says Dr. Tan.



Jerrold Yeo, PsyD, joins our adult neuropsychology division as a clinical assistant professor. Dr. Yeo has an interest in neurorehab and will work on the spinal cord injury and traumatic brain injury units at UPMC Mercy. Dr. Yeo completed his postdoctoral fellowship in neurorehabilitation psychology at the University of Kansas Medical Center in Kansas City,

Kansas. “The UPMC system has endless opportunities to pursue my own personal and professional growth, and an excellent group of professionals to provide state-of-the-art and compassionate care to patients. The fact that care delivery and the extensive research to inform best practices are the main focal points of UPMC made it a natural fit for me,” says Dr. Yeo.



Janelle Hurd, CRNP, joins us as a clinical instructor in PM&R providing clinical services to our outpatient clinic and consult team with a focus in general rehabilitation, musculoskeletal rehabilitation, and pain management. She received both her Bachelor of Science in Nursing and Master of Science in Nursing (Family Nurse Practitioner) at Carlow

University in Pittsburgh, Pennsylvania. “I was initially attracted to this position because of my first-hand experience working on the inpatient rehab unit at UPMC Montefiore. After getting to meet some of the faculty, I was attracted to the Department’s holistic approach to care. Aligning myself with a team that values the personal experience of each individual is what motivated me to join the PM&R team,” says Ms. Hurd.

UPMC Inpatient Rehabilitation Network *(Continued from Page 3)*

A new Central Admissions Office (CAO) for the UPMC Rehabilitation Network is currently in development. This office will streamline and standardize the referral and admissions process across the Network. It involves a partnership with a variety of teams within UPMC, including TeleTracking (bed management), CPS, Patient Access (registration), inpatient PM&R physicians, and nurse unit directors. The UPMC Rehabilitation Network receives more than 12,000 referrals per year. Referrals can be made by calling 1-877-AT-REHAB.

UPMC Physical Medicine and Rehabilitation also coordinates care at 16 physician outpatient clinics throughout 11 different locations. There were over 18,000 total completed visits in the past year. UPMC Centers for Rehab Services currently has 73 outpatient locations and employs 881 therapists.



[UPMCPhysicianResources.com/Rehab](https://www.upmcphysicianresources.com/Rehab)



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A \$20 billion health care provider and insurer, Pittsburgh-based UPMC is inventing new models of patient-centered, cost-effective, accountable care. The largest nongovernmental employer in Pennsylvania, UPMC integrates 89,000 employees, 40 hospitals, 700 doctors' offices and outpatient sites, and a nearly 3.6 million-member Insurance Services Division, the largest medical insurer in western Pennsylvania. In the most recent fiscal year, UPMC contributed \$1.2 billion in benefits to its communities, including more care to the region's most vulnerable citizens than any other health care institution, and paid \$587 million in federal, state, and local taxes. Working in close collaboration with the University of Pittsburgh Schools of the Health Sciences, UPMC shares its clinical, managerial, and technological skills worldwide through its innovation and commercialization arm, UPMC Enterprises, and through UPMC International. *U.S. News & World Report* consistently ranks UPMC Presbyterian Shadyside on its annual Honor Roll of America's Best Hospitals and ranks UPMC Children's Hospital of Pittsburgh on its Honor Roll of America's Best Children's Hospitals. For more information, go to [UPMC.com](https://www.upmc.com).

ABOUT THE DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION

- UPMC Presbyterian Shadyside is ranked by *U.S. News & World Report* as one of the nation's best hospitals for rehabilitation.
- The Department of Physical Medicine and Rehabilitation is consistently a top recipient of NIH funding for rehabilitation-related research.
- The Spinal Cord Injury Program at UPMC is one of only 14 in the country selected by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) as a model for other rehab providers.
- Department clinicians lead UPMC's rehabilitation network of more than 90 inpatient, outpatient, and long-term care facilities — one of the country's largest.