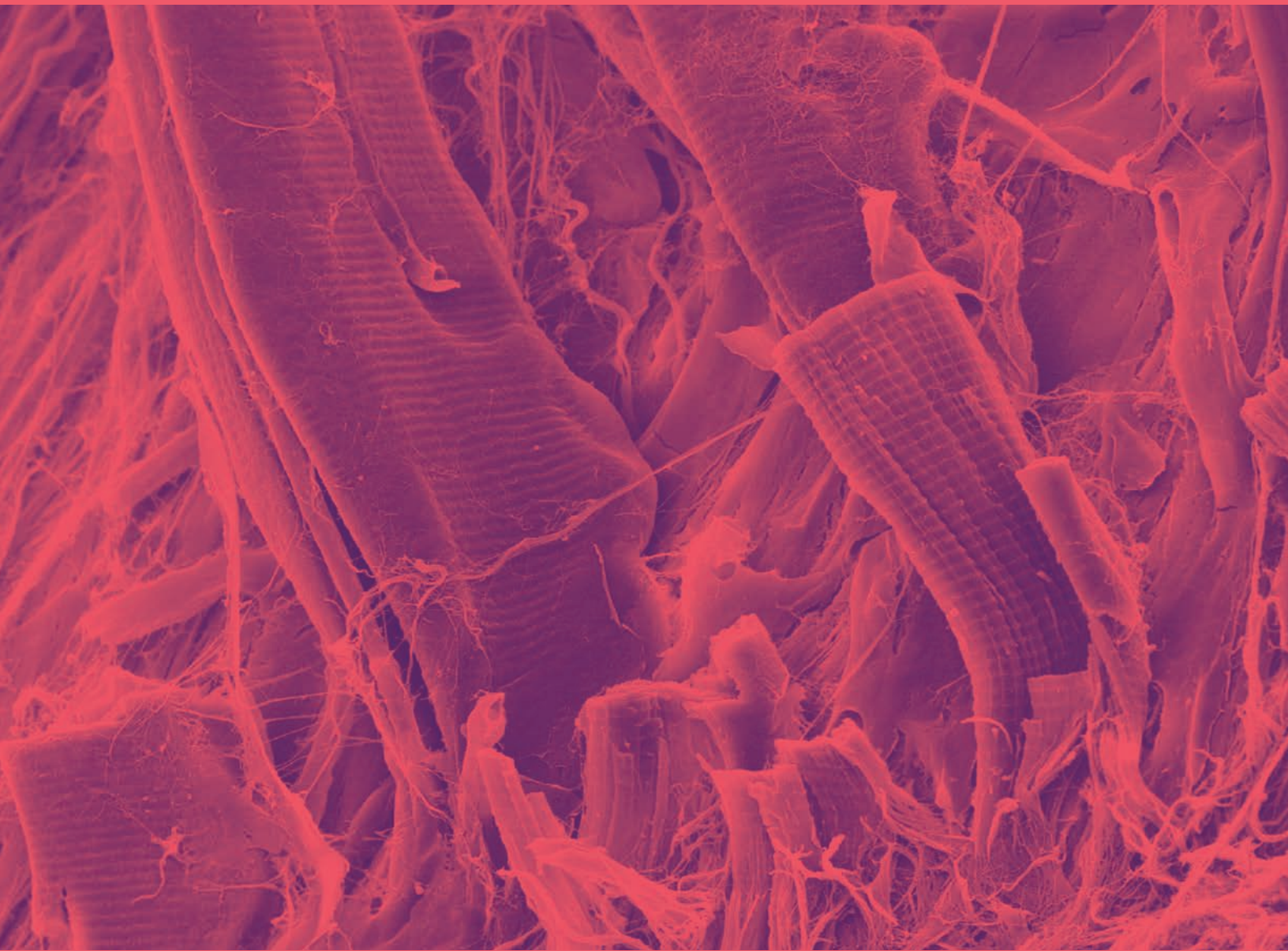




Rusk Rehabilitation

2017 YEAR IN REVIEW



Innovative

EARLY MOBILIZATION
PROGRAM

165+

CONFERENCE POSTERS
AND PRESENTATIONS

Top 10

IN U.S. NEWS &
WORLD REPORT

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MESSAGE FROM THE CHAIR

Dear Colleagues and Friends:

2017 was an exciting year for us at Rusk Rehabilitation. Our annual report highlights some of the recent accomplishments we are most proud of—as well as the dedicated faculty and staff members who made them possible.

We all know that patients today have a better chance than ever to survive medical crises. Our challenge is that these survivors face many obstacles to reestablishing their health, regaining function, and returning to normal life. In this field, we share a similar vision and belief: Involvement of effective rehabilitation care is key to patient success. At Rusk, we are continuing to advance the science of rehabilitation medicine and pioneering new efforts to increase the value of the care we provide.

This year, we continued our strategy in early mobilization that is already delivering significant returns, improving patient outcomes and decreasing costs. Our early mobilization initiative extended to the pediatric intensive care unit and has reduced length of stay and increased home discharge rates for critically ill children. Our team has also had success providing early multidisciplinary rehabilitation care

in challenging cases, including patients on extracorporeal membrane oxygenation and individuals with complicated conditions.

We continued to focus on cutting-edge research. One group of investigators is taking steps forward on a ground-breaking treatment for post-stroke muscle stiffness. Another interdisciplinary team continued to build a strong case for a new biomarker of traumatic brain injury (TBI). Their work may one day identify a new treatment for patients struggling with chronic TBI.

Our team is also dedicated to improving access to rehabilitation care. Rusk was recently awarded a prestigious Traumatic Brain Injury Model System grant. We will use this funding to further break down the barriers to care for TBI patients and families, particularly in diverse communities. Other Rusk innovators are exploring ways to use advanced technology to overcome



STEVEN R. FLANAGAN, MD

A handwritten signature of Steven R. Flanagan, MD, in dark ink.

Howard A. Rusk Professor of Rehabilitation Medicine

Chair, Department of Rehabilitation Medicine

Medical Director, Rusk Rehabilitation

disability and deliver rehabilitation services remotely.

Finally, I must mention a major upcoming milestone for NYU Langone Health, the new Helen L. and Martin S. Kimmel Pavilion. This state-of-the-art hospital has been years in the making, and experts from Rusk were a key part of planning the building's design. From two complete rehabilitation gyms to single rooms enabling patient rehabilitation for patients on acute care units—when the Kimmel Pavilion opens its doors later this year, it will be set to put patients on a trajectory toward a faster recovery.

On behalf of all my colleagues at Rusk, thank you for your interest in our work. We are proud to belong to a worldwide rehabilitation community that is dedicated to making sure patients not only survive, but thrive to achieve their greatest potential.

FACTS & FIGURES

Rusk Rehabilitation

CLINICAL CARE

109

CERTIFIED SPECIALIST PHYSICAL THERAPISTS

accounting for nearly
10% of all certified specialists
in the state of NY

2,100+

INPATIENT DISCHARGES

274,000+

OUTPATIENT VISITS

30

CERTIFIED REHABILITATION REGISTERED NURSES (CRRN)

including two CRRN-certified
nurse managers

RESEARCH & EDUCATION

23

PM&R CHAIRS

around the U.S., both current
and former, who graduated from
Rusk's residency program

\$5M+

TOTAL FUNDED RESEARCH

70,000+

DOWNLOADS OF RUSK INSIGHTS PODCAST

via iTunes and other podcast apps

165+

CONFERENCE POSTERS AND PRESENTATIONS

Acute Care PT Residency

ACHIEVED CAA STATUS

ACCOLADES

Top 10

IN THE COUNTRY FOR REHABILITATION

in *U.S. News & World Report's*
"Best Hospitals"



3-Year

CARF ACCREDITATION

granted in 2016 CIIRP, Pediatrics,
Brain Injury, Stroke, and Limb Loss;
exemplary conformance in research
and community outreach



AACVPR

PROGRAM CERTIFICATION

for Rusk's Joan and Joel Smilow
Cardiac Prevention and
Rehabilitation Center



NYU Langone Health

View of NYU Langone Health's main Manhattan campus, including renderings of the new Science Building (left) and the Helen L. and Martin S. Kimmel Pavilion (right), both set to open in 2018.
(Image credit: Ennead Architects)



#19

IN THE NATION

and nationally ranked in 12 specialties: Rehabilitation, Orthopedics, Rheumatology, Neurology & Neurosurgery, Geriatrics, Urology, Cardiology & Heart Surgery, Gastroenterology & GI Surgery, Diabetes & Endocrinology, Pulmonology, Cancer, and Nephrology



#12

IN THE NATION BEST MEDICAL SCHOOLS FOR RESEARCH

and a leader in innovation in medical education, including accelerated pathways to the MD degree



Leader

IN QUALITY CARE AND PATIENT SAFETY

For the past four years, NYU Langone has received top rankings for overall patient safety and quality of care from Vizient, Inc., formerly the University HealthSystem Consortium. In 2017, NYU Langone received two significant awards from Vizient—the Bernard A. Birnbaum, MD, Quality Leadership Award and the Ambulatory Care Quality and Accountability Award for demonstrated excellence in delivering high-quality, patient-centered outpatient care.

5 Star Rating

FROM CMS HOSPITAL COMPARE

NYU Langone Health is the only full service hospital in New York State and one of 9 percent of hospitals nationwide to receive a five-star rating from the Centers for Medicare and Medicaid Services (CMS). The rating reflects overall safety, quality, and patient experience.

Building on Existing Programs and Forging New Ground

New Kimmel Pavilion to Transform Rehabilitation Care

When the Helen L. and Martin S. Kimmel Pavilion opens its doors in summer 2018, a host of innovative design features, informed by Rusk experts, will help reimagine rehabilitation care at NYU Langone Health. The enhanced features begin with the facility's layout, designed to both accommodate the latest technology and facilitate innovative, recovery-centered clinical practices. Single rooms will enhance infection control and early mobilization, while rehabilitation gyms and outdoor spaces will facilitate faster recovery while encouraging well-being. Throughout the single rooms and shared spaces, advanced technology such as interactive displays will engage patients with rehabilitation-focused educational content and collect outcomes data. The goal of each of these enhancements, note the Rusk leaders at the table for the building's design development, is to set patients on a trajectory toward faster recovery so they can regain their function and return to their lives.

[→ Read more on](#)
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↑ Rendering of the Helen L. and Martin S. Kimmel Pavilion
(Image credit: Ennead Architects)

Leading a Global Conversation on Technology and Rehabilitation

Two Rusk Rehabilitation researchers spoke at an event in June during the 10th Session of the Conference of States Parties to the UN Convention on the Rights of Persons with Disabilities (UN CRPD). The event, organized by the International Council for Caring Communities (ICCC), was held at the United Nations headquarters and focused on advanced technology that may be applied to our global society in order to overcome the barriers of disability.



 Preeti Raghavan, MD

TECHNOLOGY FOR LOW-COST, SUSTAINABLE REMOTE STROKE THERAPY

Preeti Raghavan, MD, associate professor of rehabilitation medicine and vice chair for research, discussed a new device that can be used to provide remote therapy for stroke survivors who have limited function and mobility.

The bimanual arm trainer (BAT) allows a patient to use his or her unaffected arm to “reconnect” the brain


circuitry that controls the affected side, and ultimately help the patient regain arm function.

“The exciting part about this new device is that the patient is the driver of their own rehabilitation. The BAT can be used in the convenience of their own home or a nearby gym. Results can be tracked and reported back in a hospital-

based facility,” Dr. Raghavan says. “The technology can help overcome a major barrier to recovery for stroke survivors all over the world: Affordable access to continuous rehabilitation.”

BREAKING BARRIERS WITH BIONIC SENSORS AND CYBERNETICS



 John-Ross (J.R.) Rizzo, MD

John-Ross (J.R.) Rizzo, MD, assistant professor of rehabilitation medicine and neurology, described how wearable technology can help visually impaired individuals safely navigate their environment and reintegrate back into society in both the developed and developing world.

“The smart wearables combine bionic sensors with powerful onboard computing,” Dr. Rizzo says. “Essentially, they map a low-vision patient’s environment and report

meaningful navigation cues through audio and haptics.”

The core technology derives from the innovative world of driverless cars and pilotless drones (popularly called unmanned aerial vehicles—UAVs). “A drone navigating around trees is analogous to a person with low vision walking through a bunch of scaffolding poles,” he says. “In terms of the underlying technology, navigating around those spatial hazards is exactly the same.”

Grant Drives New Research on Chronic TBI in Diverse Populations

The challenges associated with moderate to severe traumatic brain injury have grown in complexity as TBI patients live longer, and this complexity is multiplied among patients in underserved communities. New Rusk research aims to apply insights about the aging brain and TBI best practices to improve care for culturally diverse, economically disadvantaged, and medically underserved patients. Rusk is one of just 16 nationwide centers funded by the Traumatic Brain Injury Model Systems (TBIMS) program, a federal initiative that fosters innovative brain injury research. With its five-year grant, the research team will study specific challenges associated with chronic TBI for patients and caregivers in the New York City area. This will lead to a toolkit of resources to help patients, caregivers, and clinicians address TBI in a culturally sensitive way. The Rusk project will help to answer critical questions surrounding the care of this aging patient population across cultural and economic barriers.

➔ [Read more on](#)
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40%

OF PTs AT RUSK

have demonstrated
advanced clinical
knowledge and skills in
key specialty areas

Certified Specialist Physical Therapists Up 22 Percent

In 2017, NYU Langone Health had a significant increase in physical therapists (PTs) who achieved specialist certification through the American Board of Physical Therapy Specialties. A total of 28 PTs at Rusk passed their specialist certifications this year. Now, 40 percent of PTs at Rusk have demonstrated advanced clinical knowledge and skills in key specialty areas.

“Across our campuses, we have a total of 109 certified PT specialists, and 10 of these individuals have dual certifications,” says Angela M. Stolfi, PT, DPT, Cert. MDT, director of physical therapy and PT residency and fellowship programs. “It’s an accomplishment that reflects our professional commitment and ultimately makes a big difference in the level of care we are able to provide to our patients.”

Rusk is a leader in New York State, holding nearly 20 percent of newly certified PT specialists in 2017 and 12 percent of all certified PT specialists in the state. That includes 22 percent of all PTs with cardiovascular/pulmonary specialization and 28 percent of all PTs certified in neurology.

↓ **Haleigh Lester, PT, DPT**



ICU Early Mobilization Successes Extend to ECMO

Building on earlier research pointing to enhanced outcomes associated with early mobilization in certain ICU populations, in 2017 Rusk extended the strategy to one of critical care's most challenging groups. The new protocol addresses the needs of patients receiving extracorporeal membrane oxygenation (ECMO), which provides much-needed stability in cases of potentially reversible cardiac or respiratory failure but carries the side effects of inactivity. Two recent cases highlight the benefits of early mobilization in this ICU population. In one, a 69-year-old man with a rapidly deteriorating

condition due to cardiogenic shock was engaged in therapy one day after conversion to veno-venous ECMO. He gradually regained mobility and was ambulating at discharge. In a second complex case, a 26-year-old man with vasculitis-associated respiratory failure was mobilized following ECMO cannulation and regained independence by the time of discharge 19 days later. In both cases—and more like them—Rusk experts' carefully orchestrated ECMO mobilization plans that helped ensure seamless therapeutic protocols and smooth recoveries.



Sharing the Benefits of Early Mobilization with Children in Critical Care

Rusk's early mobilization findings in adults have also been applied—and borne out—among critically ill children. One of just a handful of hospitals pioneering early mobilization in pediatric critical care, NYU Langone launched the PICU early mobilization initiative in 2016, beginning with an algorithm designed to identify those pediatric patients appropriately suited for the early mobilization protocol. The program trains nurses, therapists, and other staff in safe techniques, with an emphasis on hands-on experience. Additionally, parent volunteers with previous experience caring for PICU patients help to foster understanding and acceptance of early mobilization among families currently undergoing treatment. These efforts have already paid off: An initial evaluation shows measurable outcome improvements due to the uptick in early mobilization, with a decrease in length of stay and an increase in home discharge. The protocols are currently being fine-tuned with the goal of enhancing multi-disciplinary coordination, to bring even greater benefits to the pediatric critical care population.



Continuing Medical Education: 2018 Courses

MARCH 3

Splinting 101: Back to Basics

MARCH 10

The Rusk Complex Case Series: Rehabilitation Management of the Patient with Complex Cardiac Disease

MARCH 11

Interdisciplinary Management of Aerodigestive Function and Swallowing in the Medically Complex Child

MARCH 19

43rd Annual PM&R Review

APRIL 20


Injury Prevention and Performance Improvement for the Golfer: Translating Evidence into Practice

MAY 23-25

Prosthetics and Orthotics for Physicians and Allied Medical Professionals

For more information go to med.nyu.edu/cme



 Kimberly White, Exercise Physiologist

As Transplant Programs Expand, Rehabilitation Plays Key Role

In 2018, NYU Langone's Transplant Institute will include heart and lung transplant programs for the first time. As these programs take shape, transplant surgeons are involving Rusk physiatrists in the process. The rehabilitation team is helping to select and prepare candidates for their transplant and promoting recovery with cardiopulmonary rehabilitation post-surgery.

"Our team is unique in our involvement at the pre-transplant patient selection stage and with the extensive services we offer across the full continuum of transplant care."

—Jonathan H. Whiteson, MD

"Transplant recipients thrive when rehabilitation is closely integrated with the transplant program. Our team is unique in our involvement at the pre-transplant patient selection stage and with the extensive services we offer across the full continuum of transplant care," says Jonathan H. Whiteson, MD, assistant professor of rehabilitation medicine and vice chair for clinical operations. "Rehabilitation is seamless as patients transition from the outpatient clinic to the ICU, to the surgical floor, to inpatient rehabilitation, and back into the community."

In the days following transplant surgery, Rusk's inpatient cardiopulmonary rehabilitation unit will provide critical recovery support to heart and lung transplant patients. Once patients are discharged, physiatrists will continue to closely monitor recovery through regular check-ins and throughout outpatient cardiopulmonary rehabilitation.

Complex MS Case Confirms Efficacy of Intensive Rehabilitation

For one patient whose multiple sclerosis (MS) treatment triggered a debilitating domino effect of immunological symptoms, intensive rehabilitation was key to rapid and complete recovery. In this complex case, the presentation of worsening left-side weakness quickly deteriorated into severe disability in an otherwise high-functioning 44-year-old patient with MS. MRI imaging revealed progressive multifocal leukoencephalopathy—ultimately leading to a diagnosis of immune reconstitution inflammatory syndrome (IRIS), a rare immune response to MS treatment. With immunological complications in check, the Rusk team initiated a multipronged rehabilitation protocol, which included progressive physical therapy and ambitious occupational and speech therapy strategies. After four weeks of this intensive, full-spectrum treatment, the patient was discharged home—the extent of his recovery a testament to the comprehensive, multi-disciplinary approach adopted by his Rusk care team.

 [Read more on](#)
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4,288

PATIENTS

have received care at
NYU Langone's Concussion
Center since it launched in 2013

Study Strengthens Evidence for New Concussion Biomarker

In 2017, NYU Langone researchers used eye-tracking technology to study a group of college ice hockey players during preseason baseline assessments. Their investigation of athletes with long-term contact sport exposure strengthened the evidence for a new behavioral biomarker of concussion: prolonged pauses between eye movements.

The research team used infrared oculographic camera technology to record the ice hockey players' eye movements while they performed a rapid number-naming test—a visual performance measure that can be used as a sensitive screening tool for concussion.

"The camera lets us measure both quick eye movements, or saccades, and the rests or pauses between eye movements, the intersaccadic intervals or ISIs," says John-Ross (J.R.) Rizzo, MD, assistant professor of rehabilitation medicine and neurology. "What we found in this group is that prolonged number-naming times are correlated with longer ISIs, not with slower saccades."

This investigation builds on the team's previous groundbreaking findings that concussion patients have longer intersaccadic intervals compared with healthy patients. According to Dr. Rizzo, it reinforces the importance of fixation pauses as a target for concussion research.

"This study is helping us move beyond the general link between eye movement and concussion and concentrate on the ISI as a more granular focal point following post-injury impairment," Dr. Rizzo says. "What this ultimately means in terms of traumatic brain injury is a bigger question, and that's what we're driving toward as we push this line of research forward."

2017 IN DEPTH

Rehabilitation: Pushing Boundaries for Better Patient Outcomes



↑ Jonathan H. Whiteson, MD

In New Building, Rehabilitation Informs Design

After nearly a decade of planning, the Helen L. and Martin S. Kimmel Pavilion will open its doors in summer 2018. Rusk Rehabilitation experts were involved in the building's design and development right from the start—with a vision that includes the latest rehabilitation technology.

The opening will cap nearly a decade of effort by healthcare leaders, architects, and others to create a state-of-the-art hospital facility in the heart of New York City. The brand-new, 830,000-square-foot building puts the patient experience at the forefront, with a design that optimizes the potential of rehabilitation medicine. The layout not only accommodates the latest technology, but also facilitates innovative clinical practices.

"Rusk has been at the table from the very beginning," says John R. Corcoran, PT, DPT, site director for rehabilitation therapy services. "We sat with the architects and designers from day one, looking at everything through a rehabilitation lens."

Rusk experts conveyed a strong vision connecting facility design with patient recovery. According to Corcoran, though the building will not hold rehabilitation beds, their guidance addressed all other aspects of the design, from the floor plan to the furniture. "There are many functional ways that the Kimmel Pavilion is going to benefit rehabilitation patients, their families, and our staff," he says.

SINGLE ROOMS: REHABILITATION AND DATA LABORATORIES

To start, every patient room will be a single room—enhancing infection control and enabling patient rehabilitation.

"We advocated strongly for all single rooms," Corcoran says. "Aside from the safety benefits, single rooms can be used as functional gyms and rehabilitation centers—before the patient is well enough to be mobile throughout the halls and gyms."

Among the other benefits single rooms offer: Each one is large enough to accommodate rehabilitation equipment, which can be left in the room for extended periods without disturbing other patients. Single rooms also offer the privacy so critical as patients work on activities of daily living such as showering and dressing during occupational therapy, and the quiet necessary for speech-language therapy. In addition, each room has the capacity to install ceiling lifts for therapy.

On the clinical research side, single rooms will enable research teams to investigate the efficacy of patient interventions, such as continuous access to a lower body cycle.

"Kimmel Pavilion patient rooms will be the laboratories where we collect de-identified outcomes data and use those data to help other patients," says Corcoran.

FORWARD-THINKING TECHNOLOGY— AND FRESH AIR

Inside and out, the facility's environment is structured to engage patients' senses and enhance their experience.

Throughout patient rooms and shared spaces, advanced technology provides touch points and delivers rehabilitation-relevant content. Each patient room will be equipped with a 75-inch interactive display called My Wall, which patients can control with a tablet interface. "We will use this system to provide disease-specific educational content and targeted videos to augment rehabilitation," notes Corcoran. Similarly, technology will enhance the rehabilitation experience of pediatric patients in the Hassenfeld Children's Hospital at the Kimmel Pavilion. "The new facility includes a broadcast studio, where our kids can produce their own

music videos as a therapeutic activity," adds Corcoran.

The building is also designed to provide what is often elusive to rehabilitating patients: Access to the outdoors. "The new facility has roof terraces on the seventh floor with some tremendous views of the East River and the city," says Corcoran. "This allows the more able-bodied patients—both children and adults—to enjoy time (or their regained abilities) outside."

INNOVATION SUPPORTS EARLY MOBILIZATION

Early mobilization—already proven to produce better patient outcomes, less use of medications and diagnostics, and a faster return home for patients—is an additional priority within the building. It supports the approach with two complete rehabilitation gyms, one on the cardiovascular services floor and one on the neurosciences floor.

The new gyms feature innovative rehabilitation equipment, such as custom splinting and orthoses, as well as a zero-gravity device that helps patients with shoulder weakness relearn arm movements. Both gyms include a training bathroom. There are also training stairs on every floor of the hospital.

"By locating these gyms strategically, we will be helping patients leave the hospital quicker, get back to their lives, and ultimately achieve better outcomes," says Corcoran.

Overcoming the Challenge of Chronic TBI in Diverse Populations

As people with moderate to severe traumatic brain injury (TBI) live longer, experts are just beginning to understand their unique needs and challenges. At Rusk, grant-funded new research into long-term outcomes associated with TBI is centered on improving care for patients from diverse backgrounds—particularly those in traditionally underserved communities.

The project's grant was awarded through the Traumatic Brain Injury Model Systems (TBIMS) program, an initiative of the federal government designed to foster innovative projects and research on brain injury. This marks the second time that the research team from Rusk, one of just 16 designated TBIMS centers nationwide, has received the prestigious five-year award.

"Increasingly, TBI is recognized as a chronic condition, but we're still learning what that means in terms of the aging brain—how it impacts individuals as they move into their 50s, 60s, 70s, and beyond," says Tamara Bushnik, PhD, FACRM, associate professor of rehabilitation medicine and director of interhospital research and knowledge translation. "Our goals are to answer these questions and use what we learn to improve quality-of-life and function for these patients."

Understanding how these results can be applied specifically to culturally diverse populations—who are often economically disadvantaged and medically underserved—is key to the Rusk TBIMS program.

"This initiative will leverage the complex picture of people we see throughout the different boroughs and neighborhoods of New York City," says Dr. Bushnik. "For instance, NYU Langone Hospital-Brooklyn, which serves a

community with very large Asian and Russian populations, is a Level I trauma center that sees quite a few individuals with traumatic brain injury."

REACHING OUT TO THE COMMUNITY

During the first phase of the initiative, Rusk will gather input from the community through a series of focus groups and in-depth interviews, documenting the experiences of both patients and caregivers in the New York City area. The goal is to determine the specific medical and psychological comorbidities of individuals with chronic TBI—and the specific challenges family members face as they provide long-term support. As part of this effort, the team will explore how knowledge, attitudes, and experiences of TBI may differ across various racial and cultural groups.

Outreach efforts will also focus on community organizations and healthcare providers, soliciting input from a community advisory board composed of clinical stakeholders, including primary care physicians. "Our entire effort recognizes that these healthcare providers are the 'boots on the ground' with the potential to make a huge difference for our communities' families dealing with chronic TBI," notes Dr. Bushnik.

TBI TOOLS FOR THE CARE TEAM

Based on the findings of the initial grassroots outreach, Rusk will develop a tool kit of resources to help patients, caregivers, and clinicians addressing the challenges of chronic TBI.

"The tool kit's components will be driven by what we determine the community needs," says Dr. Bushnik. "For patients and caregivers, we expect to provide educational materials that deliver relevant information about aging with TBI in a culturally sensitive way." For example, the tool kit will likely build on Rusk's earlier efforts to develop TBI educational videos in multiple languages.

The tool kit will also provide resources for primary care providers, including specific measures to assess and track chronic brain injury. "First, we want to raise awareness among healthcare providers about chronic TBI," says Dr. Bushnik. "We also want to provide physicians with guidance on how to assess patients for chronic brain injury and manage their condition long term."

"We are now at the point where we have data from people who are 30 years post-TBI."

—Tamara Bushnik, PhD, FACRM

FINDING MORE ANSWERS

As part of the TBIMS grant, Rusk is required to enroll at least 50 patients per year in the program's national database, which tracks longitudinal information on TBI patients at one, two, and five years post-injury, and every five years afterwards.

"The database has followed the natural history of recovery following traumatic brain injury since 1989," explains Dr. Bushnik, "so we are now at the point where we have data from people who are 30 years post-TBI."

She believes that Rusk's research on chronic TBI among diverse populations will complement the insights coming out of the TBIMS database.

"Both ask important questions about chronic TBI: How do aging and TBI interact, and how can we overcome cultural and economic barriers in caring for these aging patients?" notes Dr. Bushnik. "These are things we can now start looking at—and it's incredibly important that we find the answers."

Tamara Bushnik, PhD, FACRM
is the chair of the 2018 Federal
Interagency Conference on

Traumatic Brain Injury

↓ Tamara Bushnik, PhD, FACRM



ECMO Protocol Pushes the Boundaries of ICU Early Mobilization

In 2017, Rusk extended its pioneering intensive care unit (ICU) early mobilization strategies to reach one of the most challenging groups in the critical care population—patients receiving extracorporeal membrane oxygenation (ECMO). Two recent cases illustrate the benefits—and challenges—of early mobilization for this unique ICU population.

Complex Case: Early Mobilization, ECMO Combine in Care for Cardiogenic Shock

In May 2017, a 69-year-old man was admitted with coldlike symptoms, headache, and shortness of breath. Following his diagnosis—cardiogenic shock caused by acute pericarditis with tamponade—the care team initiated veno-arterial ECMO and placed a mechanical circulatory support device.

Though the patient's baseline health was excellent, critical illness had led to rapid deconditioning. While he was still in the post-anesthesia care unit (PACU), occupational therapists started him on an upper-extremity exercise program in the Trendelenburg position. They also worked with nursing staff to implement delirium prevention strategies.

Physical therapy (PT) was initiated the day after the patient was converted to veno-venous ECMO. Because of the limits imposed by the patient's lines, tubes, drains, and other equipment, he started with submaximal isometric leg exercises and simple ankle range-of-motion therapies. Once the patient's circulatory support device was removed, the rehabilitation team initiated the mobilization protocol. The patient was transferred via sliding to a cardiac chair, which required the involvement of three nurses, two PTs, and an ECMO perfusionist.

"Mobilizing an ECMO patient is the epitome of interdisciplinary care," explains Katherine Weber, PT. "It requires several nurses, multiple therapists, one or two ECMO perfusionists, plus sign-off orders from physicians."

Over the next several days, this team performed additional mobilizations. At the same time, occupational therapy focused on seated activities of daily living (ADLs), and the patient worked on upper-extremity range of motion independently. Days later, the patient was decannulated from ECMO. He continued to work on transfers and sit-to-stand exercises and soon began ambulating. Over the next week, he worked progressively on standing tolerance, walking, upper-extremity strength, standing ADLs, and upper- and lower-body dressing.

By the time this patient was discharged to rehabilitation, he could dress with moderate assistance, stand at the sink to perform ADLs, and ambulate 75 feet with a rolling walker.

"Mobilizing an ECMO patient is the epitome of interdisciplinary care. It involves a team of multiple physicians, therapists, nurses and ECMO perfusionists."

—Katherine Weber, PT

Complex Case: When Vasculitis Presents, Mobilization Restores Movement

A 26-year-old man experienced worsening coldlike symptoms for several months, ultimately leading to significant pain and stiffness in his upper and lower extremities. By the time he was admitted in July 2017, the patient's condition had progressed to respiratory failure. He was intubated and cannulated for veno-venous ECMO and diagnosed with antineutrophil cytoplasmic antibody (ANCA)-positive vasculitis.

Rehabilitation began shortly following his ECMO cannulation. Initial evaluations noted decreased active range of motion and strength in his upper and lower extremities, and the patient was unable to complete bed mobility and transfers without maximum assistance. For the first mobilization, a care team used the overhead lift to transfer the patient from bed to chair, where he performed upper- and lower-body exercises. This procedure was repeated the next day, and mobilizations eventually incorporated bodyweight squats using the Moveo™ XP table.

Several days after his initial ICU admission, the patient performed a sit-to-stand transfer to a chair and later ambulated 6 feet. Walking therapy continued the following day. Later that afternoon, the patient was taken off ECMO. Over the next week, the patient gradually increased his stamina, ultimately ambulating 250 feet without rest breaks. Therapy also focused on upper-extremity strength and range of motion, ADLs, energy conservation techniques, and relaxation strategies to address his anxiety.

By the time the patient was discharged home—19 days after ECMO was initiated—he no longer relied on assistive devices. His extremity range of motion was within normal limits, his grasp strength had recovered, and his general exertion levels had decreased from very hard to moderate. His independence restored, he was able to dress, bathe, toilet, groom, and feed himself.

LESSONS: COORDINATION, COMMUNICATION, AND AWARENESS

Based on these and other initial experiences, Rusk experts have developed a detailed protocol document specifying eligibility criteria and mobilization team roles for ECMO patients, with a step-by-step process for orchestrating a successful ECMO mobilization.

According to Elizabeth Appel, PT, DPT, team coordination is a key success factor. “It takes a lot of time and clear, concise communication to coordinate,” she says. “Everyone involved needs to be on the same page in terms of the order and timing of movements and must understand the backup safety plan.”

Rehabilitation teams should also maintain awareness of the unique limitations and needs of ECMO patients. “To maintain the integrity of the patient's joints, it's important to initiate a patient-specific exercise program, tailored to their prior functional status and their meaningful occupations, within the limitations of all the lines, tubes, drains, and ECMO equipment,” says Shivani Ruparelia, OT.

The same attention to detail can also help prevent delirium, a common side effect of critical care, Ruparelia adds. “Maintaining the patient's cognitive status from the very beginning can help ensure it does not become a limitation later as therapy progresses,” she says.

“Maintaining the patient's cognitive status from the very beginning can help ensure it does not become a limitation later as therapy progresses.”

—Shivani Ruparelia, OT

Early Mobilization Speeds Recovery for Critically Ill Children

After launching a successful early mobilization program for adult critical care patients, rehabilitation leaders at Rusk turned to the pediatric ICU (PICU) to apply their findings. After one year, their PICU initiative has cut length of stay and increased the home discharge rate for critically ill children. Project leaders say the keys to its success are communication and collaboration.

NYU Langone Health is one of a handful of hospitals pioneering early mobilization in pediatric critical care. As part of this overall effort, Rusk launched the PICU early mobilization initiative in 2016. Project leaders began by developing an algorithm for identifying early rehabilitation candidates. The initial goal was to mobilize non-ventilated pediatric patients within 18 hours of admission and mechanically ventilated patients within 48 hours.

“Meeting these targets can be challenging, because caregivers are often reluctant to mobilize these children,” says Jodi Herbsman, PT, DPT, program manager of acute care rehabilitation therapy services. “They may be uneasy about patient safety or may simply want to let the child rest.”

To increase staff comfort with the protocol, project leaders trained nurses and therapists in techniques for safely mobilizing complex pediatric patients, with an emphasis on hands-on experience.

“We required all team members to practice on patients with their lines in, and at times with the caregivers at the bedside, to create an experience they could not simulate by practicing on each other,” says Herbsman. “We also required nurses and therapists to practice treating patients together, which helped to build a greater sense of teamwork.”

The early mobilization team also addressed speech-language pathology. “The speech therapist used tablet computers and other tools to help young patients express their concerns so the PTs/OTs or nurses could answer their questions,” says Herbsman. “This allowed the patient to be part of the process.”

In June and July 2016, the family advisors interviewed several PICU patients and their parents or caregivers, with the goal of understanding family perceptions of early mobilization.

“The most surprising feedback from these firsthand perspectives was that families did not have a clear understanding of the role of PTs, OTs, and speech therapists,” notes Herbsman. “Based on this insight, we engaged the family advisors to script our therapists to explain their roles and values in family-friendly ways.”

The family advisors also found that parents were unsure about timing and expectations. “They were never really sure when the therapists were coming or whether they were coming back,” says Herbsman. “So we encouraged therapists to give families an approximate time line of when they would be there.”

In addition to the interviews, the family advisors took part in staff training. “They helped educate nurses on the benefits of early mobilization for both the patient and the parent,” adds Herbsman. “It was incredibly powerful for our team to hear from our PICU families how a sense of hope and normalcy was restored once their children started to move.”

“It was incredibly powerful for our team to hear from our PICU families how a sense of hope and normalcy was restored once their children started to move.”

—Jodi Herbsman, PT, DPT

FAMILY ADVISORS PLAYED CRITICAL ROLE

According to Herbsman, a significant enhancement to Rusk’s pediatric early mobilization program was the involvement of family advisors—parents who have lived through the experience of a child being hospitalized. “We had two family advisors on our pediatric early mobilization team who really helped us work through barriers for this project,” she notes.

The number of patients mobilized within target time frames increased

from **56%**
to **82%**

between pre-intervention
and post-intervention

SIGNIFICANT IMPROVEMENTS IN PICU METRICS

To evaluate the initiative, project leaders compared a pre-intervention group (73 patients treated in late 2015) with a post-intervention group (110 patients treated across the same dates in 2016).

Overall, the data showed that staff education and training increased the use of early mobilization: Between pre-intervention and post-intervention, patients mobilized within target time frames increased from 56 percent to 82 percent.

This led to measurable improvements in patient outcomes. “For patients who were not mechanically ventilated, length of stay in the PICU decreased from 3.5 days to 2.4 days,” says Herbsman. “In addition, total length of stay for these patients decreased from 6.1 days to 4.2 days.”

Early mobilization also improved discharge disposition. “In the pre-intervention group, 85 percent of non-mechanically ventilated patients were discharged directly home,” notes Herbsman. “With the intervention, the home discharge rate increased to 95 percent.”

Due to the small number of patients in the mechanically ventilated group, the data for that population yielded no statistically significant results. However, the study did demonstrate the overall safety of early mobilization in the PICU. “There were no safety events whatsoever—no lines that came out, no unplanned extubations, no falls,” adds Herbsman. Rehabilitation leaders at Rusk are currently working to fine-tune their approach to pediatric early mobilization by improving coordination. “Our biggest takeaway is that early mobilization is not something anyone can do alone,” concludes Herbsman. “It requires real multi-disciplinary effort and coordination.”

↓ Jodi Herbsman, PT, DPT



Complex Case: Full-Spectrum Rehabilitation Enables MS Patient's Recovery from Debilitating Episode

When immunological complications reduced a high-functioning patient with multiple sclerosis (MS) to a state of severe disability, rehabilitation medicine was key in quickly returning the patient's full function after treatment.

INITIAL TREATMENT

In May 2017, a 44-year-old fully independent male with a history of MS presented with worsening weakness in all extremities and pronounced left-side weakness. A brain MRI revealed a right frontal lobe lesion believed to be progressive multifocal leukoencephalopathy (PML), potentially related to the patient's treatment.

Following admission, with his condition stabilizing, the patient received a physiatry consult from Sofiya Prilik, MD, clinical instructor of rehabilitation medicine. In June, he was transferred to Rusk for acute inpatient rehabilitation. Within a few days, however, the patient's left hemiplegia and left hemineglect began to worsen, greatly affecting his balance and mobility. A repeat MRI showed a progression of the PML-like lesions, with associated mass effect and development of an 8 mm left midline shift.

The patient was transferred back to the neurology unit, where physicians diagnosed him with immune reconstitution inflammatory syndrome (IRIS), a condition in which the immune system creates a significant inflammatory response in the context of immunosuppression. Treatment with high-dose methylprednisolone eventually succeeded in decreasing his midline shift.

↓ Sofiya Prilik, MD, and Francesca Toone, NP



INTENSIVE REHABILITATION

His immunological complications under control, in mid-June the patient was transferred back to acute rehabilitation. Due to the presence of viral pneumonia and parainfluenza, he was admitted to a specialized cardiopulmonary rehabilitation unit with isolation capabilities.

"This patient was very functional at baseline, but he was now quite deconditioned and still suffered from significant left-sided weakness and confusion," says Dr. Prilik. "Fortunately, we were able to start him right away on intensive therapy."

The Rusk team's rehabilitation care plan included:

➔ Physical therapy

The patient had significant functional deficits due to decreased trunk balance, left-sided weakness, left apraxia, and hemineglect. Physical therapists began with range-of-motion exercises, gentle progressive strengthening techniques, and balance and coordination exercises to provide neuromuscular reeducation. As the patient progressed, he tolerated sitting with minimal support, transferring out of bed, and standing. After one week, he could stand in parallel bars with bilateral arm support and perform squat transfers with moderate assistance. Over the next few weeks, he worked on gait stability, ambulation with and without assistive devices, and using stairs. At discharge, the patient could walk 200 feet unaided and go up and down 10 stairs without a cane.

➔ Occupational therapy

Activities of Daily Life (ADL) retraining began with coordinating muscle movements in the left hand and arm. Range-of-motion and flexibility training were employed to prevent contractures and facilitate progress with everyday functional activities. Due to the patient's perceptual deficits,

occupational therapists introduced vision exercises and awareness training as he engaged in daily tasks. About 10 days after admission, the patient could shave himself while in a wheelchair but still needed verbal cues to integrate his left arm. He was soon able to engage in simple meal preparation and perform simulated laundry and shopping activities. Near the end of his stay, therapy included community excursions, such as a trip to a nearby grocery store, and neuromuscular reeducation for fine motor tasks such as writing and typing.

➔ Speech therapy

Since the patient worked as a computer programmer, much of his speech therapy was tailored to computer use. Though fluent in English prior to illness onset, the bilingual patient also presented with word retrieval and processing difficulties, further complicated by attention impairment. Initially, he required significant cueing to self-check for accuracy, particularly for information on the left side. As therapy progressed, he sustained attention through complex multimedia tasks and error self-correction. Speech therapists also worked with him on reasoning, problem-solving, and verbal fluency, cultivating additional attention strategies with a rehabilitation notebook so he could eventually return to work.

➔ Psychotherapy

Although the patient displayed a high degree of positive treatment motivation and compliance, he struggled early on with anxiety, depression, and sleep disturbance, issues that became a barrier to full participation in therapy. To overcome these barriers, an inpatient psychologist provided the patient with cognitive/behavioral strategies for anxiety reduction and mood/sleep management. The psychologist also helped the patient stay focused on short-term goals during acute rehabilitation while using a problem-solving approach

to identify, specify, and organize longer-term goals. As the patient became more adept at using new coping strategies and skills, his ability to integrate, assimilate, and accommodate therapeutic interventions appeared to flourish.

The patient received several other services during acute rehabilitation. Toward the end of his hospitalization, a social worker arranged home care and other therapy services for safe discharge, and a recreation therapist helped him begin to reintegrate with his colleagues by helping him respond to work emails.

OUTCOME

After four weeks at Rusk, the patient was discharged home. According to Dr. Prilik, the extent and speed of his recovery were remarkable. "This patient, who previously couldn't get out of bed, walked out of the rehabilitation unit and eventually went back to work as a computer programmer," she notes.

Dr. Prilik ascribes his recovery to several factors. "He was extremely motivated, with strong family support," she says. "In addition, he had access to every discipline he needed—a stellar team of physical, occupational, and speech therapists, targeted psychological support, plus a medical team proactive in finding the best solutions for the particular problems in this rare case."

Academic Activity

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Gold DJ, Weiwei D, Rizzo JR, Hudson TE, Chaudhry Y, Hasanaj L, Selesnick I, Balcer L, Galetta G, Rucker J. Saccade sequences and rapid number naming in concussion

Lloyd-Smith AJ, Weiwei D, Rizzo JR, Hudson TE, Chaudhry Y, Hasanaj L, Selesnick I, Balcer L, Galetta G, Rucker J. Gaze-position dependent opsoclonus in post-concussive syndrome

Raynowska JJ, Weiwei D, Rizzo JR, Hudson TE, Chaudhry Y, Hasanaj L, Selesnick I, Balcer L, Galetta G, Rucker J. The validity of an eye tracker with low temporal resolution to assess eye movements during a rapid number naming task: performance of the EyeTribe versus the EyeLink in controls

American Academy of Physical Medicine and Rehabilitation Annual Meeting 2017

Chiu Y, Kim B. Acute onset of psychotic symptoms following abrupt discontinuation of hormone replacement therapy in a transgendered woman with traumatic brain injury: a case report

Ho D, Shin R, Giangrosso D. Obturator externus avulsion and parasymphyseal fracture after a fall: a case report

Kim B, Chiu Y. Effective proprioceptive exercises for sensory ataxia due to thalamic stroke: a case report

Kim B, Chiu Y. Isolated lateral collateral ligament tendinopathy and rupture—two cases of a rare injury pattern: a case report

Mandalaywala N, Seo Y. Pilocytic astrocytoma presenting as migraines and bilateral cervical myalgia in adulthood: a case report

Mandalaywala N, Seo Y, Cantir M. Psoas abscess mimicking facetogenic pain on initial presentation: a case report

Mandalaywala N, Seo Y. Inpatient rehabilitation management and ambulatory follow up of a patient with Guillain-Barre syndrome secondary to Zika virus infection: a case report

Mandalaywala N, Seo Y, Chen J. “I found my hand”: reversal of somatoparaphrenic delusion following administration of methylphenidate: a case report

Pruski A, Shin R. 3rd and 4th finger “drop”—an ignored sign of C8 radiculopathy? Three case reports

Roth J, Alomar-Jimenez W. Atypical presentation of inflammatory myopathy related to dermatomyositis: a case report

Stanford R. Hydrodissection of Achilles tendonopathy: a case report

Theivakumar S. Recovery in neurologic rehabilitation of central nervous system toxoplasmosis: a case report

Academic Activity

American Board of Rehabilitation Psychology and APA Division of Rehabilitation Psychology Annual Conference 2016

Childs A, Lee YSC, Fraser F, Matsuzawa Y. Characteristics of concussion patients in a major metropolitan medical center: implications for rehabilitation

Ellois V, Bertisch H, Krellman J, Bergquist T, Dreer L, Bushnik T. Characteristics of firearm brain injury survivors in the Traumatic Brain Injury Model Systems (TBIMS) national database: a comparison of assault and self-inflicted injury survivors

Ellois V, Kucukboyaci NE, Creighton J, Wolfson J, Mihovich E, Rath JF. Efficacy of stress management training groups following acquired brain injury

Ellois V, Smith-Wexler L, Lee YSC, Kucukboyaci NE, Rath JF. Barriers to neurorehabilitation treatment: focus on issues facing linguistic and racial/ethnic minorities

Kucukboyaci NE, Ellois V, Long C, Smith M, Rath JF, Bushnik T. Cluster analysis of the effects of vulnerable group membership in acute TBI rehabilitation

American Congress of Rehabilitation Medicine Annual Conference

Hada E, Juszczak M, Long C, Smith M, Shagalow S, Bushnik T. A demographic analysis of the barriers and supporters of enrollment for Traumatic Brain Injury Model Systems (TBIMS) research

Hada E, Long C, Jenkins N, Childs A, Smith M, Bushnik T. First year follow-up of traumatic brain injury: the effect of social integration on life satisfaction, depression, and anxiety

Hada E, Long C, Man A, Bushnik T. Hidden homelessness and traumatic brain injury: defining and characterizing housing instability

Hada E, Long C, Man A, Bushnik T. The additive risk of criminal arrest to physical, mental, and social functioning post-traumatic brain injury

Hada E, Long C, Man A, Bushnik T. Traumatic brain injury and offense classification: longitudinal impact of felony and criminal arrests post-injury

Juszczak M, Beattie A, Smith M, Nelson L, Maikos J, Bushnik T. A descriptive analysis of pain and psychosocial characteristics of civilian and veteran lower extremity amputees

Juszczak M, Beattie A, Smith M, Nelson L, Maikos J, Bushnik T. The influence of social support on functional outcomes and quality of life in lower limb amputees

Juszczak M, Bushnik T. Examining the effect of a powered exoskeleton on quality of life in people with spinal cord injury

Juszczak M, King A, Shin R, Van De Walle N, Bushnik T, Cohen J. Developing an evidence based approach to address functional level change in persons following amputation

Juszczak M, Maikos J, Nelson L, Cohen J, Heckman J, Bushnik T. The epidemiology and rehabilitative outcomes of lower limb amputees: a one-year analysis post amputation surgery

Juszczak M, Maikos J, Nelson L, Zarate A, Cohen J, Heckman J, Bushnik T. Utilizing neurocognitive assessment to examine the association between cognition and mobility in lower extremity amputees

Juszczak M, Nelson L, Maikos J, Cohen J, Heckman J, Bushnik T. The impact of comorbidities on rehabilitation and functional outcomes following lower limb amputation

Juszczak M, Nelson L, Maikos J, Cohen J, Heckman J, Bushnik T. K3 lower extremity amputees: a descriptive summary and barriers to ambulatory capability

Juszczak M, Nelson L, Maikos J, Cohen J, Heckman J, Bushnik T. An analysis of multiaxial hip strength and range of motion in lower extremity amputees

Khan S, Elwood D, Elwood T. Hearing the future: using technology to provide updates on PM&R scientific advancements

Kim S, Mortera M, Hoeffcker L, Herrold A, King L, Terhorst L, Hu X, Krishnan S, Machtinger J, Heyn P. An umbrella review of systematic reviews of pharmacological treatments post-TBI

Kucukboyaci NE, Ellois V, Long C, Smith M, Rath JF, Bushnik T. Cluster analysis of the effects of vulnerable group membership in acute TBI rehabilitation

Kucukboyaci N, Gonen O, Lui Y, Rath J, Kirov I. Neuropsychological testing, MR spectroscopy, and patient symptom reports reveal two distinct stories in mTBI

Rabinowitz L, Schmidt J. Variables in language recovery patterns during inpatient neuro-rehabilitation

Tramontana A, Sorge R, Labate A, De la Paz E, Miangolarra Page JC, Siminovich-Blok B. Evaluating integrative approaches for fibromyalgia in physical and rehabilitation medicine (PM&R)

Uy P, Lee YSC, Matsuzawa Y, Childs A, Donahue S, Fraser F, Ricker J, Barr W, MacAllister W. Predictability of the Sports Concussion Assessment Tool-Third Edition (SCAT3) on cognitive performance measures

American Congress of Rehabilitation Medicine Annual Conference 2016

Amorapanth P, Aluru V, Yousefi A, Tang A, Stone J, Cox S, Aronson M, Bilaloglu S, Lu Y, Rath JF, Im B, Raghavan P. Altered physiologic, but not subjective, responses to emotional stimuli

Cho YS, Sohlberg MM, Rath JF, Diller L. Training adults with brain injury how to help-seeking when lost

Ellois V, Long C, Childs A, Smith J, Bertisch H, Amorapanth P, Lui Y, Rath JF. Relationships among slowed processing speed, emotional reactivity, and postconcussive symptoms in adults with mild traumatic brain injury

Fraser F, Matsuzawa Y, Lee YSC, Childs A, Barr W, MacAllister W, Ricker J. Gender differences in self-reported post-concussion symptoms

Kim S, Foley FW, Cavallo MM, Howard J, Rath JF, Dadon K, Rimler Z, Kalina JT. Growth and benefit finding post-trauma: a qualitative study of partners of individuals with multiple sclerosis

Kim S, Rath JF, Zemon V, Picone M, Portnoy JG, Foley FW. Cognitive status and employment in persons with multiple sclerosis: the effects of problem orientation

Long C, Childs A, Ellois V, Smith J, Bertisch H, Lui Y, Rath JF. Gender differences in neuropsychological functioning following mild traumatic brain injury: implications for assessment and rehabilitation

Smith M, Long C, Bushnik T. Supporting factors for follow-up care in TBI patients' post-inpatient discharge

Smith M, Reimann G, Long C, Siminovich-Blok B, Bushnik T. A center-specific demographic analysis of barriers to retention in Traumatic Brain Injury Model Systems (TBIMS) research

American Occupational Therapy Association (AOTA) Annual Conference 2017

Barton M, Comis C. The development and implementation of a preventative rehabilitation program for bone marrow and stem cell transplant patients in acute care

Burns S. An interdisciplinary approach to the development of diagnosis-specific patient education for neuro-oncology on an inpatient rehabilitation unit

Evangelist M, Harb J. Face transplant: an interdisciplinary rehabilitation protocol

Fernandes J. The hand therapist's role in pre- and post-natal care: a health promotion approach

Finley W. Non-operative management of a four-part proximal humerus fracture: a case report

Flaherty R. Bridging the post-acute gap: development of a comprehensive outpatient occupational therapy brain injury program

Phelan K, Ruch C, Eschenfelder VG, Mordan M. A relational content analysis of pedagogical instruction of motor control approaches

Portugal L, DelCorro J. Exploring a collaboration between OT and women with physical disabilities in a community health and wellness program

Smith-Gabai H, Evangelist M. Current trends in organ transplantation: meeting the unique needs of the transplant patient

Van Lew S, Geller D, Waskiewicz M, Martori E. Adult MTBI and atypical sensory processing

Velasco C, Gorga N. Using therapeutic use of self with female Middle Eastern patients in inpatient rehabilitation

Waskiewicz M, Martori E, Van Lew E. Determining the effectiveness of OT vision rehabilitation interventions on the adult concussion population: a performance improvement project

American Physical Therapy Association (APTA) Combined Sections Meeting 2017

Battsek H, Battsek M, Shah K. The flu in the ICU: the role of physical therapy in treating critically ill patient's s/p endocorporeal membrane oxygenation throughout the continuum of care

Catterall N. Implementation of preventative rehabilitation program for inpatient bone marrow and stem cell transplantation patients

Catterall N, Keeler A. Depressive mood disorder in a patient with peripheral vascular disease: a reason for acute inpatient rehab, not a barrier

Davis K. Use of balance intervention and its positive effects on physical function after autologous stem cell transplant in a patient with multiple myeloma

DiCarrado S, Bianchi C, Karsten J, McLoughlin A, Rocchio M, Karpatkin H. The effect of fatigue on sensory impairment in multiple sclerosis: a randomized crossover study

Eftychiou I, Rankel E. The importance of staff competency when treating a transgendered person

Fischer M, Josef K, Newkirk M. Delirium in patients with CVA—increasing treatment team awareness

Flanagan C. Task-specific approach to rehabilitation for patient with pregnancy-related intracranial hemorrhage: case study

Gross M. Addressing compassion fatigue in physical therapists working in the ICU

Gross S, Kaplan A. The effects of limb loss-related grief following toxic shock syndrome on functional recovery in acute care

Hawthorne C, Newkirk M. Physical therapy outcomes in a patient s/p high-grade glioma resection of the spinal cord in the acute care setting: a case report

Hubregsen A. A case study illustrating the benefits of combining high-intensity interval treadmill training with reciprocal arm swing in enhancing functional recovery in a patient after brain tumor resections

Keeler A, Zisser D. Rehabilitation outcomes in a patient with Boerhaave's syndrome after a prolonged period of unknown medical care

O'Donnell S, Herbsman J, Klein D, Griffing K, Pereira-Argenziano L, Schneider S, Corcoran J, Linder-Perlman N, Folks T, Sheldon M. Early rehabilitation in the pediatric intensive care unit: a performance improvement project

Russett K. High-intensity interval training in a young male athlete with chronic traumatic brain injury and impact on functional recovery

Schram B. An evidence-based exercise program for manual wheelchair users

Sumida C. Custom foam positioners as an adjunct to management of gastroesophageal reflux and post-surgical myelomeningocele closure in neonates: a case series

Weber K, Anderson C. Problem-solving barriers faced by physical therapy in a hospital medical observation

American Society of Interventional Pain Physicians 2017

Shekane P, Gualtier R, Michalisin J. Spinal cord stimulation for neuropathic pain secondary to chronic inflammatory demyelinating polyneuropathy

American Speech-Language-Hearing Association Convention 2016

Brates D, Riquelme LF, Sandler C, Molfenter SM. The reliability and efficiency of different methods for capturing post-swallow residue

Riquelme LF, Franceschelli A, Lipinska I, Rotberg I, Molfenter SM. Thin liquids vs semi-solids: comparisons using the Normalized Residue Ratio Scale (NRRS) in individuals with dementia

Riquelme LF, Karim A, Levy M, Razmadze S, Schundler S, Molfenter SM. Pharyngeal residue: comparisons with/without pills utilizing the Normalized Residue Ratio Scale (NRRS)

American Speech-Language-Hearing Association Convention 2017

Wildman A, Tan T, Kane A. Improving parent knowledge & confidence for carryover of feeding strategies

Annual Meeting of the New York State Speech-Language-Hearing Association 2017

Altschuler T. TECHnically speaking: patient-provider communication across healthcare settings

Balou M, Lumish M, Kamelhar D. Airway protection during swallowing in patients with nontuberculous mycobacteria

Balou M, Lumish M, Kamelhar D. Esophageal dysmotility, gastroesophageal reflux, and aspiration in patients with non-tuberculous mycobacteria

Balou M, Molfenter S, Smith J, Lumish M. Airway protection during swallowing in patients with nontuberculous mycobacteria

Pino Grisales J, Castillo D, Liriano M, Galletta EE, Obler LK, Vogel-Eyny A. Tip-of-the-tongue states in common and proper noun retrieval in aging

Robison L. Dysphagia treatment post-anterior cervical discectomy and fusion

Schneider E. Bridging the gap: pragmatic language group therapy for post-concussion syndrome

Schneider E, VanAuken S. Bridging the gap: pragmatic language group therapy for post-concussion syndrome
Zurlnick A, D'sa I. The impact of augmentative and alternative communication intervention on speech production

Annual Meeting of the Speech, Language, Hearing Association Research Day 2017

Pino Grisales J, Castillo D, Liriano M, Galletta EE, Obler LK, Vogel-Eyny A. Common noun and proper noun retrieval in healthy older adults: understanding the TOT phenomenon

Association of Academic Physiatriests Annual Meeting

Kaul A, Franzese K, Cohen J. Ataxia and dysarthria secondary to Kufoer-Rakeb syndrome in two siblings and their progression in outpatient rehabilitation: a case report

Stallings S, Shin R, Cohen J. Stiff-person syndrome and role of acute inpatient rehabilitation: a report of two cases

Association of Academic Phsyiatriests Annual Meeting 2017

Balou M, Espiritu McKay T, Kao D, Ho D, Cohen J, Rodriguez E. Inpatient comprehensive rehabilitation after full-face transplantation

Rizzo JR, Hudson TE, Weiwei D, Birkemeier J, Pasculli R, Selesnick I, Balcer L, Galetta G, Rucker J. Rapid number naming in chronic concussion: eye movements in the King-Devick test

Combined Otolaryngology Spring Meeting 2017

Balou M, Rodriguez E. Swallowing rehabilitation after full-face transplantation: a case report

Dion G, Ahmed O, Brates D, Balou M, Amin M. Correlation between laryngological clinical evaluation and videofluoroscopic swallow study findings in patients with cough

Dysphagia Research Society 2017

Balou M, Rodriguez E. Comprehensive swallowing rehabilitation after full-face transplantation: a case report

Turcotte M, Balou M, Molfenter S. Edema in oral/oropharyngeal cancer treated with chemoradiation: exploring risk for aspiration

Fifth Annual Johns Hopkins Critical Care Rehabilitation Conference 2016

Altschuler T, Tan T, Sheldon ME, Folks T. Establishing a patient-provider communication program in the pediatric intensive care unit (PICU)

Gartenberg A, Evangelist M. VITALS: A toolkit for developing an occupational therapy program in the ICU

International Brain Injury Association 12th World Conference 2017

Smith M, Long C, Bushnik T. Supporting factors for follow-up care in TBI patient's post-inpatient discharge

Smith M, Reimann G, Long C, Siminovich-Blok B, Bushnik T. A center-specific demographic analysis of barriers to retention in Traumatic Brain Injury Model Systems (TBIMS) research

International Neuropsychological Society

Lu W. Assessing and treating sleep disturbance and fatigue after a concussion(s)

International Neuropsychological Society Annual Conference

Voelbel GT, Wu S, Lazar M, Azmi H, Ogedegbe C, Wylie G, Feldman J. Prospective longitudinal investigation of white matter integrity in mild traumatic brain injury

International Neuropsychological Society Conference 2017

Murray N, Statucka M, McCabe D, Lu W. Concussion: past, present, and future

Otruba B, Cornwell M, Yazowitz L, Wiener JR, Uy PJ. The predictive value of verbal fluency and story memory upon story recall using the Repeatable Battery for Assessment of Neuropsychological Status in an inpatient setting

International Society for Magnetic Resonance in Medicine 2017

Chung S, Fieremans E, Rath JF, Lui YW. Performance of complex tasks of working memory related to brain microstructure in healthy adults: a diffusion kurtosis imaging study

International Stroke Conference 2016

Hepburn-Smith M, Danziger K, Rossan-Raghnath N. Predicting aspiration using NYUMC dysphagia screening

Johns Hopkins Medical Center David A. Robinson Symposium 2017

Dai W, Selesnick I, Rizzo JR, Rucker JC, Hudson TE. The pathway of quantitative saccade analysis

Medscape

Cohen J. Vitamin D eases depression, fatigue in spinal cord patients

National Multicultural Conference and Summit 2017

Connor FB. Practical applications of multiculturalism: mentorship and training in rehabilitation

Smith-Wexler L, Ellois V, Lee YSC, Rath JF. Health disparities and cultural considerations in neurorehabilitation of linguistic and ethnic/racial minorities

Smith-Wexler L, Lee YSC, Ellois V, Rath JF. Health disparities, assessment, and treatment in neurorehabilitation of linguistic and cultural minorities

National Rehabilitation Association Annual Training Conference

Kvaternik K, Laster B, Lindsey R, Tran A. A case study of on-the-job interventions to maintain employment

North American Neuromodulation Society 2017

Khan B, Papapetrou P, Michalisin J. Spinal cord stimulator therapy for plantar fasciitis

North American Neuro-Ophthalmology Society Annual Conference 2017

Hudson TE, Cobbs L, Rizzo JR, Weiwei D, Balcer L, Galetta G, Rucker J. Video-oculographic recording of the electronic Mobile Universal Lexicon Evaluation System (eMULES) rapid picture naming task

Lloyd-Smith A, Weiwei D, Hudson TE, Rizzo JR, Balcer L, Galetta G, Zee D, Rucker J. Gaze-position dependent opsoclonus in post-concussive syndrome

Raynowska J, Rizzo JR, Weiwei D, Hudson TE, Balcer L, Galetta G, Zee D, Rucker J. Performance of a portable eye tracker to assess eye movements during the King-Devick test

Weiwei D, Hudson TE, Rizzo JR, Balcer L, Galetta G, Rucker J. Saccade sequences and rapid number naming in chronic concussion

North American Society for Pediatric GI, Hepatology & Nutrition Annual Meeting 2017

Kaistha A, Goldhaber A, Tan T. Classification of feeding disorders in patients referred to an interdisciplinary nutrition and feeding team

NYC Neuromodulation Meeting 2017

Conner PS, Galletta E, Hyun J, Vogel-Eyny A, and Marangolo P. Combining tDCS and evidence-based behavioral treatment in aphasia: a case study

NYU Wireless Board Meeting and 5G Telecommunications Summit 2017

Niu L, Qian C, Wong E, Fang Y, Hudson TE, Rizzo JR. AI-driven spatially intelligent platforms: a foundation for smart wearable assistive technology in low vision

Society of Behavioral Medicine 2017

McAndrew LM, Anastasides N, Chelenza M, Chiusano C, Gonzalez C, Graff F, Rath JF. Life and treatment goals of veterans with Gulf War Illness

Society of Biological Psychiatry 2017

Cimino K, Coats T, Miles L, Bertisch H, Gonen O, Lazar M. Thalamic microstructural deficits in chronic schizophrenia and their relation to cognitive function

Coats T, Cimino K, Miles L, Malaspina D, Bertisch H, Gonen O, Lazar M. Diffusion kurtosis imaging of the anterior cingulate cortex in schizophrenia

Society of Neuroscience 2016

Bilaloglu S, Chakrabarty S, Lu Y, Yousefi A, Raghavan P. Plasticity in cortical control signals to muscles in pianists with overuse injury with peripheral behavioral intervention

Raghavan P, Lu Y, Bayona C, Bilaloglu S, Yousefi A, Tang A, Aluru V, Rangan A. Determination of treatment algorithms for patient subgroups for post-stroke hand function rehabilitation

Yousefi A, Bilaloglu S, Rizzo JR, Lu Y, Raghavan P. Gaze pattern differences inform hand posture to object shape during reach-to-grasp

Society of Neuroscience 2017

Yousefi A, Bilaloglu S, Stone J, Rizzo JR, Lu Y, Raghavan P. Eye-hand coordination during reaching to grasp task in the real world

Study in Multidisciplinary Pain Research-International Symposium of Ultrasound for Regional Anesthesia and Pain Medicine 2017

Patel D, Michalisin J. Percutaneous cryoneurolysis of anterior femoral cutaneous nerve and infrapatellar branch of saphenous nerve for post-surgical knee pain

Vizient Annual Conference 2016

Parkin C, Hochman K, Whiteson J, Hooker C. Standardization of the acute inpatient to acute rehabilitation discharge process and impact on observed/expected length of stay

Academic Activity

PRESENTATIONS

Society for Social Studies of Science/European Association for the Study of Science and Technology (42/EASST) Conference 2016

Kucukboyaci NE. Milieu therapy, identity formation, and rehabilitation following traumatic brain injury

5th Annual Hopkins Critical Care Conference 2016

Herbsman J. Early rehabilitation in the pediatric ICU

10th Session of the Conference of State Parties to the UNCRPD Enable Symposium 2017

Rizzo JR. Breaking barriers through bionic senses and cybernetics: AI-driven smart wearable assistive technology for the visually impaired, meeting the demands of the 21st century through innovative technology

93rd American Congress of Rehabilitation Medicine Annual Conference

Flanagan SR. Concussion physician office visit

Kim S, Heyn P, Takahashi Hoffercker L, Hu X, Mortera MH, Heinemann AW. Progress and report of the ACRM Measurement Networking Group Applied Cognition Task Force (MNG ACTF)

American Academy of Physical Medicine and Rehabilitation Annual Meeting

Cohen E, Balou M, Heckman J, Bartels M, Young M. Rehabilitation following organ transplantation: what EVERY physiatrist must know

American Academy of Physical Medicine and Rehabilitation Annual Meeting

Flanagan SR, Fusco H, Kugel E, Levine J. Where o'where is the inpatient TBI care? A presentation of TBI subacute facilities in the spectrum of TBI care

Fusco H, Levine J, Sackheim K. Getting ahead of TBI pain syndromes

Moroz A, Edelstein J, Cohen J, Bansal A. Pathological gait: an interactive workshop

Stitik T, Sara C, Beatty N, Dhani H, Enriquez R, Fossati J, Foye P, Kim S, Kingsbury D, Mendoza J, Portugal S, Sambasivan A, Shah V, Shriner SJ, Sokolof J. Ultrasound-guided lower limb injection workshop

Whiteson JH, Moroz A, Bushnik T, Ilizarov G. Telemedicine: harnessing technology to transform the practice of physical medicine and rehabilitation

Whiteson JH, Parkin K, Sweeney G. Exercise is powerful medicine: how physiatry can lead the way in transforming the health of our nation

American Board of Rehabilitation Psychology and American Psychology Association (APA) Division of Rehabilitation Psychology Annual Conference 2016

Connor FB, Murray N. Cultural competence and rehabilitation: innovations in treatment and assessment

Ellois V. Characteristics of firearm brain injury survivors in the Traumatic Brain Injury Model Systems (TBIMS) national database: a comparison of assault and self-inflicted injury survivors

Kim S, Cavallo M, Sostre A, Kingsley K, Matsuzawa Y, Brownsberger M. Social participation as evidence of treatment outcomes for individuals with acquired brain injury

Rath JF, Bertisch H. Group treatment 101: a "how-to" guide for working with adults with acquired brain injury

Smith-Wexler L, Lee YSC, Ellois V, Kucukboyaci NE, Rath JF. Health disparities, assessment, and treatment in neurorehabilitation of linguistic and cultural minorities

American Congress of Rehabilitation Medicine Annual Conference November 2016

Adams J, Denham T, Flanagan S, Fraser F, Kapoor N, Kothare S, Langenbahn D, Matsuzawa Y, Minen M, Pagnotta G, Palazzo M, Rizzo RR, Schneider E, Sproul M, Waskiewicz M. Concussion—road to recovery: navigating obstacles, overcoming challenges and striving for tailored multi-disciplinary care (pre-conference instructional course)

Childs A. MMPI profiles of adults with mild traumatic brain injury: what's the norm? In NIDILRR's Young Investigators Symposium

Hada E, Juszczak M, Long C, Smith M, Shagalow S, Bushnik B. A demographic analysis of the barriers and supporters of enrollment for Traumatic Brain Injury Model Systems (TBIMS) research

Kingsley K, Hollowell B, Vega M. Culturally competent assessment of cognitive and emotional function in people with aphasia: developing guidelines in our work with ethnically diverse populations

Raghavan P. Leveraging principles of plasticity to optimize neurorehabilitation. Upper limb motor recovery post-stroke: is there a way forward? (pre-conference instructional course)

American Congress of Rehabilitation Medicine Annual Conference October 2017

Amorapanth P, Neumann D, Ellois V, Rath J, Raghavan P. The emotional measure of man: objective approaches to assessing emotional function in traumatic brain injury

Bushnik T, Juszczak M, Maikos J, Nelson L, Cohen J, Heckman J. Development of an interdisciplinary multi-center outcomes database in limb loss rehabilitation, a 5-year review

Bushnik T, Sander A, Vega M. Cultural considerations and impacts for individuals with traumatic brain injury

Connor F, Murray N, Ellois V. Limitations and consequences to cultural competence in rehabilitation

Flanagan S, Langenbahn D, Pagnotta G, Palazzo M, Reilly M, Rizzo JR, Root M, Singer P, Sproul M, Waskiewicz M. Concussion: managing recovery inertia in complex phenotypes: a case study model

Kim S, Cavallo M, Matsuzawa YK, Kingsley K. Treatment outcomes for individuals with acquired brain injury and the significance of social participation

Kim S, Hoffercker L, Terhorst L, Hu X, Mortera M, Krishnan S, Mallinson T, Heyn P. Evidence-based pharmacological interventions after traumatic brain injury

Kim S, Lehrer P, Andrasik F, Wolf S, Kesar T, Genthe K, Heyn P. Contemporary applications of biofeedback for patients: mind-body approaches to rehabilitation

Kim S, Ronan S, Dolot J, Tyson A, Marks B, Traum R, Krishnan S, Heyn P. The effects and effectiveness of structured physical activity at varying life stages

Kim S, Siminovich-Blok B, Sasson N, Leskowitz E. Chat with the experts: latest CIRM approaches and research in rehabilitation

Kumar A, Armstrong J, Marquez de la Plata C, Kingsley K. Community reintegration in low-resource settings: unmet needs and family participation in rehabilitation process

Leskowitz E, Kim S, Vora A, Chin B, Quezada-Morales JL, Heyn P. Integrative medicine and rehabilitation: a natural partnership

Nakase-Richardson R, Bushnik T, Hoffman J. Advancing TBI sleep research: three multi-center studies within the TBI Model System Program

Niemeier J, Kniemann K, Ahmad A, Smith-Wexler L, Vega M. Community integration and family adjustment after ABI: practical solutions in a rapidly changing world

Rizzo J. National Stroke Association Young Investigators: eye control deficits coupled to hand control deficits: eye-hand incoordination in chronic stroke

Sasson N, Charles K, Ludovici L, Siefferman J, Kim S. Innovative solutions for pain rehabilitation

Siminovich-Blok B, Sumida C, Karpatkin H, Tramontana A, Kim S. Acupuncture and integrative medicine research and implementation in different rehabilitation settings

American Occupational Therapy Association Annual Conference 2017

Capasso N, Marino C. Assessment and treatment of neurological visual impairment in the acute rehabilitation setting

Evangelist M, Harb J. Face transplant: an interdisciplinary rehabilitation protocol

Evangelist M, Smith-Gabai H. Current trends in organ transplantation: meeting the unique needs of the transplant patient

Flaherty R. Thinking outside the box: creativity in using everyday environment and equipment for treatment and interventions in return to work following TBI

Khalil N, Shah K. The safety and feasibility of mobilization of patients at high risk of vasospasm in the neurological intensive care unit: a case report

Marino C, Capasso N. Assessment and treatment of neurological visual impairment in the acute rehabilitation setting

American Physical Therapy Association (APTA) Combined Sections Meeting 2017

Corcoran J. LAMP catalyst talks: leadership lessons from the front lines of physical therapy 2017

Corcoran J. Personal leadership development: leadership 101 (with LAMP faculty) 2017

Nelson L, Lee K, Lee J, Conklin M. Adaptive sports: rehabilitation beyond the brick and mortar

APTA Next Conference 2017

Bronstein F, Chung M, Windler S. Pillow talk: the effect of sleep on physical functioning in neurological rehabilitation

Oswald W, Pagnotta G, Palazzo M. Value-based management of spine pain in an urban hospital system

APA 125th Annual Convention 2017

Kim S. Disclosing an invisible disability: politics of recognition. In Samuels EA, Carlos M, Kim S, Liebich E, Lund E, Antebi-Gruszka N, Young J. Perspectives on disclosing diverse identities as a psychologist: from silence to liberation

American Society for Surgery of the Hand

Davis A. Rehabilitation: general principles and clinical cases

Annual Meeting of the Columbian Association of Hand Therapists

Cherry F. Pain management: therapeutic management of the stiff wrist; therapeutic management of the stiff finger; relative motion orthoses; orthoses of CMC joint osteoarthritis

Annual Rehabilitation Conference

Waked WJ. Psychological issues and treatment in persons with heart failure

American Speech-Language-Hearing Association Annual Convention 2016

Balou M, Lumish M, Kamelhar D. Prevalence of esophageal dysmotility, gastroesophageal reflux & microaspiration in patients with nontuberculous mycobacteria

Danziger K, Lemen A. Counseling in acute care

American Speech-Language-Hearing Association Annual Convention 2017

Brown E, Dumbrava L. Familial dysautonomia: effects on feeding, swallowing, and respiratory function

Association for Behavioral and Cognitive Therapies Convention 2016

Vidair H, DiGiuseppe R, Stevens H, Terjesen M, Amato L, Agiorgioaei-Boie F, Pagirsky M. Education and mental health—an overdue and necessary alliance

Association of Academic Physiatrists

Herbsman J. Early rehabilitation in the pediatric ICU

Association of Academic Physiatrists Annual Meeting

Bushnik T. Enrollment and refusal rates of traumatic brain injury research

Espirito T, Balou M, Cohen J. New frontiers: inpatient comprehensive rehabilitation after full-face transplantation

Raghavan P. Changing the way we view stroke care

Raghavan P. Hyaluronidase for muscle stiffness

Association of Ringside Physicians Annual Meeting 2016

Rizzo JR research presented by Gelber J. Current and future research in MMA

Combined Otolaryngology Spring Meeting

Balou M, Molfenter SM, Sanfilippo N, Beverly S, Lumish M. Swallowing function after chemoradiation for head and neck cancer: a pre- versus post-treatment instrumental comparison

Comprehensive Examination and Treatment of the Patient with Delirium: An Interprofessional and Evidence-Based Approach 2016

Herbsman J. Challenges and successes of implementing a delirium program

Congenital Hyperinsulinism Symposium at Children's Hospital of Philadelphia 2016

Kane A, Schieber A. Challenges of weaning a child from a feeding tube with congenital hyperinsulinism

Dysphagia Research Society Annual Meeting

Turcotte M, Balou M, Molfenter SM. Edema in oral/oropharyngeal cancer treated with chemoradiation: exploring risk for aspiration

European Society for Swallowing Disorders Congress

Molfenter SM, Brates D, Riquelme LF. Comparing perceptual methods for rating residue with the normalized residue ratio scale

Glen Cove Hospital Departmental Grand Rounds 2017

Raghavan P. Facilitating upper limb recovery post stroke

Helen Keller National Center 2017

Rizzo JR. Assistive technology unloaded: bionic senses towards novel wearables and fusion mechanical solutions for those with low vision

Institute for Healthcare Improvement National Forum 2016

Herbsman J. Early rehabilitation in the pediatric ICU

International Lyme and Associated Diseases Society Annual Scientific Session 2016

Shea L. Neuropsychiatric Lyme disease medical traumatization on individuals and families

International Society for Augmentative and Alternative Communication Conference 2016

Altschuler T. Putting patient-provider communication at the forefront: overcoming barriers through phases of pediatric inpatient program development

International Society of Hyaluronan Sciences 2017

Raghavan P. Use of hyaluronidase in the treatment of muscle stiffness

Kessler Institute of Rehabilitation Departmental Grand Rounds 2016

Raghavan P. A new treatment for muscle stiffness

Microsurgical Reconstruction Meeting 2017

Danziger K, Mars G. Feeding strategies following HAN reconstruction-reconstructive surgery: tips, tricks and videos: a comprehensive approach to major reconstruction

Mid-Atlantic Occupational Health Conference

Flanagan SR. Return to work after TBI: challenges, adaptations and flexibility

National Academy of Neuropsychology 2016

LaDuke C, Barr W. Adult grand rounds: progression of HIV-associated neurocognitive disorder in the context of combined antiretroviral therapy

National Rehabilitation Association Annual Training Conference

Donroe L, Kvaternik K. Say goodbye to online job search: new strategies for 2016

Neurofibromatosis 2 Initiative–Neurofibromatosis Patient and Family Forum 2016

Corcoran J. Maximizing function and improving quality of life

Neuromodec Conference 2017

Raghavan P. Cranial electrical stimulation in traumatic brain injury

New York State Speech-Language-Hearing Association Annual Convention

Gherson S. Voice therapy in the school-based setting

Noorani M, Lazarus C, Molfenter SM. The relationship between swallowing screening and sarcopenia in healthy seniors

New York State Speech-Hearing-Language Association Annual Meeting 2016

Altschuler T. TECHnically speaking: patient-provider communication across healthcare settings

Kane A, Schieber A. Challenges of weaning a child from a feeding tube with congenital hyperinsulinism

Kane A, Schieber A. Feeding tube wearing for children with congenital cardiac anomalies

Tan T, Danziger K, Kane A. Progression of speaking valve tolerance in a child with craniofacial disorder

Northwell Health Departmental Grand Rounds 2016

Raghavan P. Creative technologies to improve access to rehabilitation

Nurses Improving Care for Health System Elders Conference 2017

Gartenberg A, Newkirk M, Fischer M, Evangelist M. Delirium in patients with CVA: increasing interdisciplinary team awareness

NYC Neuromodulation Meeting 2017

Charvet L, Liu A, Galletta E, Biagioni M, Amorapanth P, Raghavan P. Emerging neuromodulation protocols: are we ready for the clinic?

NYIT College of Osteopathic Medicine 2016

Raghavan P. Challenges and opportunities in PMR

Raghavan P. The Hyaluronan Hypothesis and its implications for muscle physiology and fibrosis

NYUHJD Musculoskeletal Executive Advisory Board 2017

Rizzo JR. Augmenting humans with bionic senses and robotic vision: smart wearable assistive technology for the visually impaired

NYULMC's 9th Annual Quality and Safety Day

Amoroso A, Carumba R, Catanzaro C, Cunningham C, DiStefano C, Evangelist M, Fridman D, Gross M, Harb J, Herbsman J, Keller R, Killmer E, Kim Y, Manley-Cullen C, McGrady M, McKenzie A, Nunnally M, Pagan W, Pham V, Piper G, Rossie J, Weldegabriel T. CUSP 4 MVP-VAP

Newkirk M, Gartenberg A, Aladin M, Dodds T, Ernst L, Evangelist M, Fischer M, Jones N. Delirium in patients with CVA and other neurological diagnoses: increasing treatment team awareness

NYULMC Biomedical Entrepreneurship Program Inaugural Launch Session 2017

Rizzo JR. Bio-medical devices

NYULMC's Comprehensive Examination and Treatment of the Patient with Delirium: An Interprofessional and Evidence-Based Approach 2016

Evangelist M. Assessment of delirium across the continuum of care

NYU President's Inauguration Celebration 2016

Rizzo JR. Spatial perception augmented: wearables meet the visually impaired

NYU School of Medicine's Department of Population Health: Congruent Mentorship to Reach Academic Diversity in Neuroscience Research (Comrade) Program 2017

Raghavan P. Innovation to improve access to post-stroke rehabilitation

NYU Tandon School of Engineering, Tampere University of Applied Sciences, and University of Tampere Mini-Symposium 2016

Rizzo JR. Assistive technology solutions: exo-centric wearables

NYU Wireless Board Meeting and 5G Telecommunications Summit VIS4ION Platform 2017

Rizzo JR. AI-driven smart wearable assistive technology in the visually impaired

Pink Conference on Female Brain Injury 2016

Murray N. Concussion in the female adolescent athlete

Qingdao Municipal Hospital 100 Year Anniversary Conference

Flanagan SR. Physical medicine and rehabilitation contributions to health care reform

Resident and Fellow Training Program: The Cadaver Program Department of Neurology Mount Sinai School of Medicine

Flanagan SR. Spasticity management: oral medications, rehabilitation and ITB

Rusk Community Lecture Series 2016

Corcoran J, Kim C. A functional approach to pain management

TBI Model Systems Leadership Conference

Flaherty R. Thinking outside the box: creativity in using everyday environment and equipment for treatment and interventions in return to work following TBI

Telecommunications/Mobile Health Symposium 2017

Rizzo JR. "Connected" medical devices

The Orthobiologic Institute

Kingsbury D. Orthobiologics for musculoskeletal conditions: summary protocols, best evidence, and rationale

United Nations: Meeting the Demands of the 21st Century Through Innovative Technology 2017

Raghavan P. Freedom to move again: technology for low cost remote sustainable stroke therapy

VIS4ION Platform, Mechanical and Aerospace Engineering Grand Rounds 2017

Rizzo JR. Destroying visual disabilities through wearable assistive technology

World Stroke Congress 2016

Raghavan P. Creating an enriched rehabilitation environment in a low-resource setting

Young Stroke Conference 2016

Raghavan P. Advances in spasticity management

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1,519
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98
Operating
Rooms

172,072
Emergency
Room Visits

68,884
Patient
Discharges

4,500,000
Outpatient
Faculty Practice
Visits

9,654
Births

3,633
Physicians

5,104
Nurses

516
MD
Candidates

85
MD/PhD
Candidates

263
PhD
Candidates

418
Postdoctoral
Fellows

1,327
Residents
and Fellows

5,087
Original
Research
Papers

549,707
Square Feet
of Research
Space

\$359M
NIH
Funding

\$364M
Total Grant
Revenue

*Numbers represent FY17 (Sept 2016–Aug 2017) and include
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