

We all know that patients today have a

109

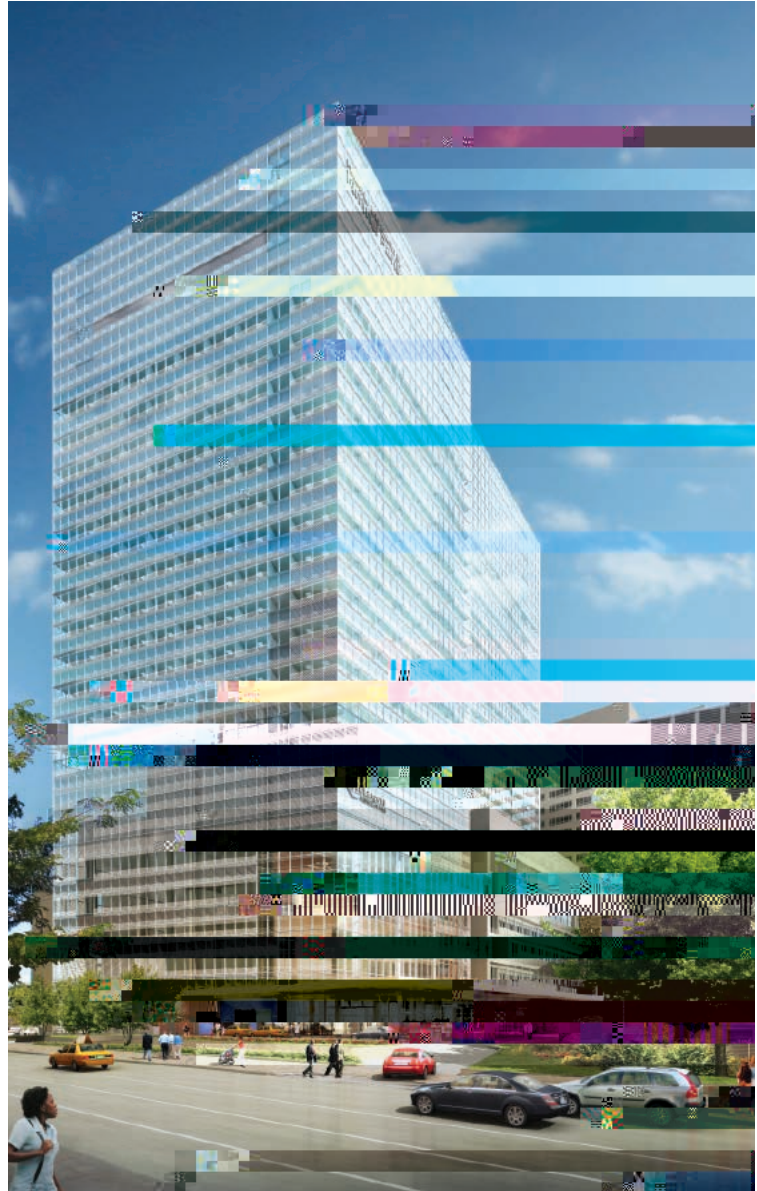


# Building on Existing Programs and Forging New Ground

## 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.

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## 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.

### 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.”

## 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.

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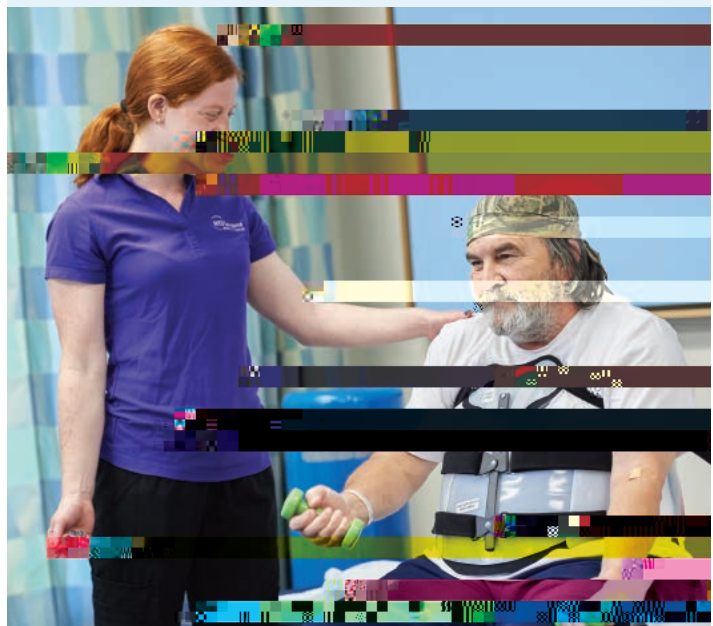
## Certified Specialist Physical Therapists Up 22 Percent

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. Stol, 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. Rusk also includes 22 percent of all PTs with cardiovascular/pulmonary specialization and 28 percent of all PTs certified in neurology.

Healthcare & Technology





## 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

## 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.

"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.

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PATIENTS

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## 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.”

# Rehabilitation: Pushing Boundaries for Better Patient Outcomes



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 a very beginning,” says John R. Corcoran, PT, DPT, speech director, 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.

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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

## **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.

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

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NYU Langone Health is one of a handful

**SIGNIFICANT IMPROVEMENTS  
IN PICU METRICS**

To evaluate the initiative, project leaders compared a pre-intervention group

## INITIAL TREATMENT

## INTENSIVE REHABILITATION

Handwritten notes, possibly describing rehabilitation goals or methods.





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





## **PRESENTATIONS**

Society for Social Studies of Science/European

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

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# Leadership



