



OUR COVID-19 EFFORTS

Read about NYU Langone Health's response to the challenges of the COVID-19 pandemic.
See insert.



Rusk Rehabilitation

2020 HIGHLIGHTS

Advancing Rehabilitation Research & Technological Innovation

For More Than 50 Years, Rusk Rehabilitation Has Advanced the Field of Rehabilitation Medicine Through Research

See page 2.

Commitment to Education Drives Efforts to Share COVID-19 Rehabilitation Knowledge Widely

Rusk Rehabilitation Shares Best Practices on Rehabilitation Services for Patients with Covid-19

See page 5.

STEVEN R. FLANAGAN, MD

Howard A. Rusk Professor of
Rehabilitation Medicine
Chair, Rusk Rehabilitation



MESSAGE FROM THE CHAIR

This was a memorable year at Rusk Rehabilitation, in which we rose to the challenges of COVID-19 while helping patients of all kinds regain their strength, independence, and quality of life.

This annual report presents some of our achievements, as well as a complex case in which a patient benefited from our faculty and staff members' exceptional expertise.

When New York became the epicenter of the pandemic in March 2020, we mobilized to provide rehabilitation therapies to acute care services while retooling our own facilities to cope with the influx of recovering coronavirus patients. Meanwhile, we launched a webinar series to share insights on COVID-related care. We enabled the remarkable recuperation of a heart transplant patient hospitalized for a year with complex comorbidities. And we conducted groundbreaking research on topics such as wearable assistive technologies for the visually impaired.

Moving forward, we will continue to pursue our passion for restoring patients' abilities and for exercising leadership that advances rehabilitation as a field.



Top 10

IN U.S. NEWS &
WORLD REPORT

249,500+

OUTPATIENT
VISITS

176+

CONFERENCE POSTERS
AND PUBLICATIONS

\$7.1M

RESEARCH FUNDS



▲ Rusk Rehabilitation's multidisciplinary team quickly adapted to address the influx of patients with COVID-19, providing exceptional care in the rehabilitation unit and beyond.

PHOTO: JONATHAN KOZOWYK

Rusk Rehabilitation Rises to the Challenge of COVID-19

When New York City became the U.S. epicenter of the coronavirus disease (COVID-19) pandemic in March, Rusk Rehabilitation at NYU Langone Health rapidly reconfigured its services to treat the flood of critically ill and recovering patients. Since then, Rusk Rehabilitation's multidisciplinary team has continually adapted its approach to the evolving crisis.

MOBILIZING FOR THE EMERGENCY

As caseloads began rising, leadership meetings were held daily to identify and address emerging needs across the medical center, with updates emailed to all faculty and trainees to enhance coordination. Rusk Rehabilitation's two Manhattan-based inpatient rehabilitation facilities, at Tisch Hospital and NYU Langone Orthopedic Hospital, were repurposed within a week; one was reserved for patients recovering from COVID-19 and the other for patients who tested negative. The inpatient rehabilitation facility at NYU Langone Hospital—Brooklyn was converted to an acute COVID-19 unit.

Although face-to-face outpatient visits were suspended to avoid the risk of contagion, virtual rehabilitation therapy

through video visits was maximized, providing continuity of care for those who needed it most. Meanwhile, Rusk Rehabilitation's research division engaged with numerous system-wide initiatives aimed at improving clinical and institutional approaches to pandemic-related challenges.

PROVIDING HELP BEYOND THE REHABILITATION UNIT

Rusk Rehabilitation's attending and resident physicians volunteered to treat patients with COVID-19 throughout the NYU Langone network. One important contribution was in prone positioning—a technique that has long been used to

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We're seeing people who presented with respiratory failure and need pulmonary rehabilitation, people who've had strokes and need stroke rehabilitation, and people who've had heart attacks and need cardiac rehabilitation.”

—Jonathan H. Whiteson, MD

improve oxygenation in patients with acute respiratory distress syndrome and whose effectiveness for intubated patients with COVID-19 was first documented in late March in a study published in the *American Journal of Respiratory and Critical Care Medicine*. Patients on ventilators or with severely impaired mobility must typically be lifted and turned daily by teams of five or more clinicians and support staff.

At NYU Langone, proning teams were led by Rusk Rehabilitation physical therapists, in conjunction with acute care medical and nursing personnel. Rusk Rehabilitation clinicians also mobilized to provide a range of rehabilitation therapies to acute care services, including dysphagia management, early mobilization, and communication therapy.

Rusk Rehabilitation's experience responding to prior public health emergencies, such as the

9/11 attacks and Superstorm Sandy, helped shape its initial response to the coronavirus crisis. “We carry this institutional memory in our culture,” says Alex Moroz, MD, MHPE, associate professor of rehabilitation medicine, vice chair for Rusk Rehabilitation's education and training, and director of the Physical Medicine and Rehabilitation Residency. “When things get really difficult, our people just pull together and do what needs to be done.”

RESPONDING NIMBLY TO CHANGING CONDITIONS

The first wave of acute patients lasted approximately two months. “Early on, our team's focus was on inpatient care,” explains Dr. Moroz. “The volume was very high, and we were all working incredibly hard to keep up with it.”

By late spring, Rusk Rehabilitation's COVID-19-positive inpatient unit had begun to empty out, and the team's clinicians were increasingly called upon to consult with other services whose patients with coronavirus had entered recovery. Finally, in June, Rusk Rehabilitation's outpatient units were able to reopen, with a growing number of patients needing care for the long-term sequelae of COVID-19.

“This is a disease that affects every single organ system,” notes Jonathan H. Whiteson, MD, associate professor of rehabilitation medicine, vice chair for Rusk Rehabilitation's clinical operations, and medical director of cardiac rehabilitation. “We're seeing people who presented with respiratory failure and need pulmonary rehabilitation, people who've had strokes and need stroke rehabilitation, and people who've had heart attacks and need cardiac rehabilitation. Many patients are struggling with a chronic post-viral fatigue syndrome, which we're treating with lifestyle changes as well as exercise therapy and other modalities. We're currently developing a comprehensive post-COVID-19 rehabilitation clinic to address these varied needs.”

SHARING KNOWLEDGE TO ADVANCE THE FIELD

Rusk Rehabilitation's unique perspective as a rehabilitation center amid the pandemic has received national and international attention through a series of webinars, directed by Dr. Moroz and hosted by Dr. Whiteson, and Lyn D. Weiss, MD, professor of rehabilitation medicine and chair of the Physical Medicine and Rehabilitation Service at NYU Langone Hospital—Long Island, titled “COVID-19 Conversations: Powered by Rusk Rehabilitation.” These COVID-19-related lessons have also been shared through Doctor Radio on SiriusXM and through the podcast series *Rusk Insights on Rehabilitation Medicine*.

With a new wave of the pandemic now rising nationwide, Rusk Rehabilitation is prepared to step unto the breach once more. “I'm immensely proud of our team,” says Steven R. Flanagan, MD, the Howard A. Rusk Professor of Rehabilitation Medicine and chair of Rusk Rehabilitation. “Through their tireless work and dedication, they've helped improve COVID-19 outcomes and decreased the burden on acute care services throughout our hospital system—and beyond it.” ■

Advancing Rehabilitation Research

For more than 70 years, Rusk Rehabilitation has been dedicated to advancing the field of rehabilitation through scientific inquiry, and to developing new technologies to enhance patient care. In 2020, that mission advanced on several fronts.

A NEW RESEARCH LEADER TAKES THE HELM

In March, Ryan C. Branski, PhD, was named the Howard A. Rusk Associate Professor of Rehabilitation Research and vice chair for research in the Department of Rehabilitation Medicine. Dr. Branski, who is also an associate professor in the Department of Otolaryngology-Head and Neck Surgery, has been a faculty member at NYU Langone since 2010. In addition, he heads a National Institutes of Health-funded laboratory that seeks to develop optimized therapeutic approaches for diseases of the upper aerodigestive tract that manifest as speech, voice, and swallowing disorders. His team takes a regenerative medicine approach, pioneering the delivery of gene therapy as well as tissue-engineering constructs to address functional deficits altering communication and deglutition.

Dr. Branski has published more than 100 peer-reviewed manuscripts and is a frequent speaker at

national and international scientific meetings. He is one of only a few investigators to be named Fellow of the American Speech Language Hearing Association, the American Laryngological Association, and the Academy of Otolaryngology-Head and Neck Surgery.

In his new role, he will oversee Rusk Rehabilitation's wide-ranging research enterprise, which includes programs in aphasia and language, assistive technology, biofeedback, cardiopulmonary conditions, emotion and brain injury, eye-hand coordination, neuropsychology, swallowing, stroke, traumatic brain injury, vestibular system and balance, and vision integration.

"This is a wonderful opportunity to build upon Rusk Rehabilitation's tradition of excellence in research," Dr. Branski says. "I'm excited to help our faculty enhance the level of success that they've achieved over the years and to strengthen our research workforce through targeted recruitment of scientists who have the right phenotype to fit into the Rusk family—those who share our commitment to doing impactful research and to seizing every opportunity to make a difference."

FOSTERING PROGRESS IN REHABILITATION TECHNOLOGY

Translating rehabilitation research into novel technologies has long been the personal mission of John-Ross Rizzo, MD, assistant professor in the Departments of Rehabilitation Medicine and Neurology and director of Innovation and Technology in the Department of Rehabilitation Medicine. The latter position, created in 2019, is one of the first of its kind in a rehabilitation department of an academic medical center.

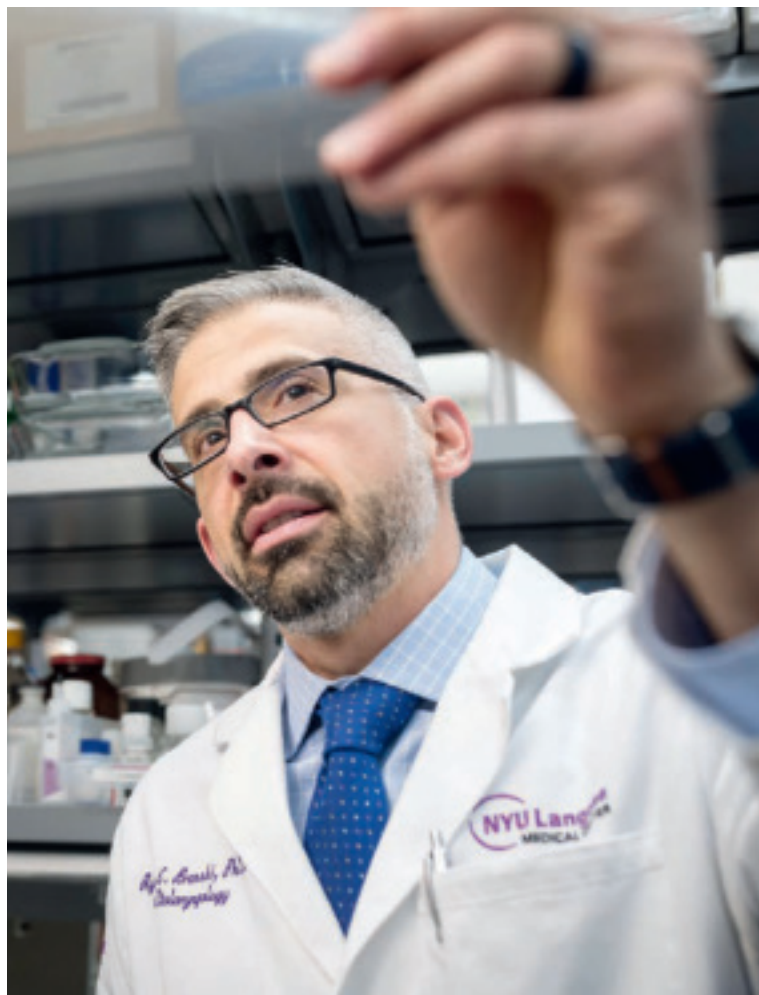
"The idea is to create infrastructure that will enhance our faculty members' and trainees' understanding of how tech innovation is done, including the ins and outs of the patent process, and then to support them in bringing their ideas to fruition," Dr. Rizzo says. "We want to build bridges between innovators within the department, with those in other departments at NYU Langone, and with private industry—fostering strategic partnerships with medical device companies, telecom companies, even gaming companies."

Among the first fruits of this endeavor is the Tandon/Rusk Transformer Challenge, launched in October 2020 in collaboration with NYU Tandon School of Engineering (where Dr. Rizzo also holds several academic appointments). The challenge invites experts from Rusk Rehabilitation and engineers at Tandon to form teams to create new assistive technology, rehabilitation apps, wearable devices for preventive care, and other innovations. The teams, which must include at least one member from each organization, will compete for

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Ultimately, we hope to make commuting safer and easier for visually impaired people. Our aim is to reduce the economic burdens on them and their families and help them live healthier, more satisfying lives.”

—John-Ross Rizzo, MD



Ryan C. Branski, PhD
PHOTO: KARSTEN MORAN

two \$10,000 prizes and the chance to take their projects from concept to prototype—and eventually to products or services that can be brought to market. The winners will be announced in mid-2021.

DEVELOPING BETTER NAVIGATION TOOLS FOR THE VISUALLY IMPAIRED

Dr. Rizzo is also director of the Rehabilitation Engineering Alliance and Center Transforming Low Vision (REACTIV) lab at Rusk Rehabilitation, where his research focuses on assistive technology designed to help people who are visually impaired—whether permanently, due to medical conditions, or temporarily, as with military personnel conducting night operations or firefighters navigating smoke-filled buildings. This work is driven, in part, by his own experience as a patient with choroideremia—an inherited, progressive eye disorder that has left him legally blind.

One of REACTIV's areas of concentration is the development of advanced wearable devices to provide visually impaired pedestrians with

step-by-step navigational instructions and obstacle warnings. In April, Dr. Rizzo and his team were awarded a \$1.5 million grant from the National Science Foundation's Smart & Connected Communities program for a project addressing the challenges that low-to-no vision commuters face when using public transportation.

"For this population, the first mile—getting from your domicile to public transport—is often very difficult," Dr. Rizzo explains. "A lot of people end up depending on car services, taxis, or family members to drive them. Many others simply end up unemployed." The grant will support the development of wearables capable of guiding visually impaired commuters to a subway station or bus stop, using existing Wi-Fi environments such as LinkNYC — the system of kiosks now being installed throughout New York City.

Such assistive devices will need to be able to handle more data-intensive processing than those currently available. The goal is to enhance the platform already developed by Dr. Rizzo's lab—which utilizes backpack-mounted sensors, advanced machine vision, wireless communications, and human-machine interfaces—by enabling it to perform "connected" dynamic localization and navigation assistance in complex urban environments. This effort will require research on topics ranging from low-vision behavior and city-agency cooperation to optimized data streams and enhanced power management.

A crucial aspect of the project is to create real-time maps of walking patterns, generated by the users themselves. Dr. Rizzo envisions a system that could stream GPS-enabled accessibility data to city departments, enabling mobility obstacles—such as cracked sidewalks or other tripping hazards—to be quickly corrected.

"Ultimately, we hope to make commuting safer and easier for visually impaired people," Dr. Rizzo says. "Our aim is to reduce the economic burdens on them and their families and help them live healthier, more satisfying lives." ■



Ki Chi (Korey) Chi, PT, DPT

PHOTO: KARSTEN MORAN

Advanced Rehabilitation Protocols Are Key to Success in Same-Day Discharge Joint Replacement

Same-day discharge (SDD) joint replacement is becoming increasingly popular among patients and providers across the country, driven by demographic, economic, and epidemiological forces. At Rusk Rehabilitation at NYU Langone Hospital—Brooklyn, careful preoperative preparation and aggressive postoperative follow-up help ensure quality outcomes in this new model of care.

THE ADVANTAGES OF SAME-DAY DISCHARGE

Over the past decade, multiple studies have demonstrated that in properly selected patients, SDD total hip or knee arthroplasty can provide outcomes similar to those of inpatient surgery—with improved patient satisfaction, decreased perioperative morbidity, and reduced costs. As the U.S. population ages, and as healthcare evolves toward a value-based model, such procedures are being offered at a growing number of medical centers. And since the onset of the coronavirus (COVID-19) pandemic, with concern over infection spurring patients to avoid inpatient stays, demand for SDD procedures has risen sharply.

Five years ago, NYU Langone became the first medical center in New York City to offer

SDD hip replacement, in collaboration with Rusk Rehabilitation; SDD knee replacement followed shortly thereafter.

In early 2020, the SDD program expanded to NYU Langone Hospital—Brooklyn, again operating in tandem with Rusk Rehabilitation. The new program, like its predecessor, owes much of its success to skilled surgeons leveraging state-of-the-art technologies. Yet what happens before and after each procedure is crucial as well—in particular, the pre- and postsurgical care delivered by Rusk Rehabilitation's physical therapy team.

The team is led by Manuel Wilfred, DPT, PhD, assistant supervisor at Rusk Rehabilitation at NYU Langone Hospital—Brooklyn, and works closely with Joshua C. Rozell, MD, assistant professor in the Department of Orthopedic Surgery, who heads the hospital's SDD program.

Rusk Rehabilitation experts play a central role in ensuring that each patient is well prepared for surgery, recovers swiftly, and regains full mobility.

LAYING THE GROUNDWORK FOR OPTIMAL OUTCOMES

In Brooklyn, many patients live alone or face other obstacles to safe early discharge, such as walk-up apartment buildings, language barriers, or lack of insurance access—one reason why few surgeons in the borough provide SDD joint replacement. The goal of the NYU Langone Hospital—Brooklyn program is to make such procedures available to anyone who can safely benefit. Patients are selected carefully on the basis of factors including overall health, activity level, motivation to pursue postoperative rehabilitation, and access to social support during recovery.

A Rusk Rehabilitation clinical care coordinator discusses expectations and discharge plans with the patient before surgery, arranging home therapy in advance. During the preoperative consultation, Dr. Rozell provides the patient with a “playbook” containing detailed instructions on how to prepare for the procedure as well as information on rehabilitation, the recovery timeline, and potential postsurgical issues.

THE IMPORTANCE OF EARLY POSTOPERATIVE INTERVENTION

Dr. Rozell uses a variety of advanced surgical techniques to facilitate same-day discharge and faster recovery. For the knee, he relies on a tourniquet-less, computer-navigated procedure that helps to accurately restore leg alignment while reducing postsurgical muscle dysfunction. For the hip, he typically performs an anterior approach that spares soft tissues, facilitates intraoperative imaging and accurate implant placement, and improves clinical assessment of leg length. Another key element is the use of a short-acting spinal anesthetic rather than general anesthesia.

Rusk Rehabilitation physical therapists start the rehabilitation process for SDD patients just 90 minutes after surgery as the spinal block begins to wear off. “In the past, we used to let patients rest all day, and we’d start working with them the next morning,” Wilfred says. “Now we have them sit up as soon as possible, while they’re still in the recovery room. We make sure their blood pressure and other vitals are good and that they’ve got normal function in their limbs. Then we try to get them ambulating. With help, some patients can walk 50 to 60 feet 2 hours after the surgeon places the last stitch.”

Later in the day, the Rusk Rehabilitation experts return for a second session that typically includes stair-climbing practice. Throughout the process, they consult electronically with other members of the multidisciplinary care team—including Dr. Rozell, physician assistants, case managers, nurses, and social workers—to report

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With help, some patients can walk 50 to 60 feet 2 hours after the surgeon places the last stitch.”

—Manuel Wilfred, DPT, PhD

on the patient’s status and arrange for any special equipment or treatments that might be needed going forward. In the majority of cases, discharge occurs that evening.

SUPPORTED DISCHARGE BRINGS FASTER RECOVERY

Home physical therapy is initiated about 24 hours later, progressing to outpatient physical therapy once the patient is able to travel to a clinic unaided. “This is very much a supported discharge,” Wilfred notes. “It’s made possible only by the highest level of

coordination among providers who are all focused on the same goal for our patients.”

Altogether, the course of rehabilitation for NYU Langone’s Brooklyn patients (as for their Manhattan counterparts) is typically shorter than for those who receive inpatient joint replacement, with fewer complications and readmissions. “With early, aggressive, and well-orchestrated intervention, we’ve improved outcomes while carving out days or weeks from the length of recovery,” Wilfred says.

“None of our patients have had any complaints,” he adds. “In fact, many of them have asked to come back for the other side to be done.” ■

Commitment to Education Drives Efforts to Share COVID-19 Rehabilitation Knowledge Widely

Since its founding in 1948, Rusk Rehabilitation—the first university-affiliated academic center devoted to rehabilitation medicine, and still one of the largest institutions of its kind—has been dedicated to sharing its expertise with the field at large and with the general public. The coronavirus disease (COVID-19) pandemic has made that mission more urgent than ever, spurring educational efforts through a variety of digital outlets.

RUSK INSIGHTS ON REHABILITATION MEDICINE

PODCAST

HAS

175K+

DOWNLOADS

FROM MORE THAN

40

COUNTRIES

WEBINAR SERIES OFFERS INSIGHTS FOR FRONTLINE WORKERS

As New York City became the national epicenter of the pandemic in March 2020, Rusk Rehabilitation experts worked alongside frontline teams throughout the NYU Langone Health system, continuously adapting best practices to provide optimal rehabilitation services for patients with COVID-19. They also began hearing from colleagues who knew they could soon face similar onslaughts.

“Physiatrists across the country needed advice on what to do when these cases came their way,” recalls Alex Moroz, MD, MHPE, associate professor of rehabilitation medicine, vice chair for education, and director of the Physical Medicine and Rehabilitation Residency. “The challenge was how to get that information to them quickly and effectively.”

Dr. Moroz turned to Blue Sky, the online learning management platform that Rusk Rehabilitation uses for virtual training courses. Within a week he and his team had produced the first installments of a seven-episode video series titled “COVID-19 Conversations: Powered by Rusk Rehabilitation.”

The webinars take the form of dialogues between Rusk Rehabilitation experts and a multi-disciplinary team of clinicians moderated by Jonathan H. Whiteson, MD, associate professor of rehabilitation medicine and medicine, vice chair for Rusk Rehabilitation clinical operations, and medical director of cardiac rehabilitation, and Lyn D. Weiss, MD, professor of rehabilitation medicine and chair of the Physical Medicine and Rehabilitation Service at NYU Langone Hospital—Long Island. Topics include when to admit a patient with COVID-19 to an acute rehabilitation unit, what rehabilitation looks like for this patient population, the transformation of pulmonary rehabilitation,

vital sign parameters during rehabilitation, and how to safely reopen outpatient rehabilitation facilities in the wake of the pandemic.

The webinars range in length from under 15 minutes to approximately 1 hour. To date, they have been downloaded more than 8,600 times.

A LONG-RUNNING PODCAST TACKLES THE PANDEMIC

A more generalized educational resource is the weekly *Rusk Insights on Rehabilitation Medicine* podcast, which features discussions with Rusk Rehabilitation researchers, clinicians, and educators, as well as healthcare leaders at other institutions who have participated in grand rounds and research symposia with Rusk Rehabilitation. Hosted by Thomas Elwood, DrPH, retired executive director of the Association of Schools of Allied Health Professions, the series has covered a wide range of conditions over the past five years. Since the onset of the pandemic, however, its focus has frequently turned to COVID-19.

Recent episodes have covered topics such as advances in research in rehabilitation for the disease; inpatient rehabilitation during the pandemic; techniques for prone positioning, wound care, and neurorehabilitation in patients with COVID-19; and the impact of the coronavirus on hand therapy.

One of the nation's longest-running podcasts on rehabilitation medicine, *Rusk Insights* reaches listeners in more than 40 countries. The program was conceived by Rusk Rehabilitation's Education Excellence Committee, led by Dr. Moroz and Angela M. Stolfi, DPT, clinical instructor of rehabilitation medicine and director of physical

therapy at Rusk Rehabilitation. "The committee's mission is to improve rehab education in every discipline, across the continuum of care," Dr. Stolfi says.

That commitment has also driven the development of several groundbreaking post-professional programs in recent years, including the first neurological physical therapy residency in the city, the first acute care residency in the region, and one of the first performing arts fellowships in the nation.

"There are many groups that provide continuing education in rehabilitation, but we think there's a special value in providing it from an institution that's a leader in clinical care," Dr. Stolfi adds. "We're there in the trenches, and we're talking about what we see."

A DIGITAL RADIO SHOW PROVIDES THE PUBLIC WITH EXPERT INFORMATION

While the web-based programs mentioned above are geared toward healthcare providers, another of Rusk Rehabilitation's digital offerings is aimed primarily at laypeople. NYU Langone's SiriusXM channel, Doctor Radio, offers 26 regularly scheduled shows covering different medical specialties, hosted by more than 60 of the health system's medical experts. On Monday mornings, Dr. Whiteson hosts a two-hour slot on rehabilitation medicine.

Before the pandemic, the show often covered topics related to current events—discussing post-mastectomy rehabilitation during Breast Cancer Awareness Week, for example, or broadcasting live from the American Academy of Physical Medicine and Rehabilitation Annual

Assembly. That focus on newsworthiness has continued during the coronavirus crisis. For most of 2020, Dr. Whiteson notes, "every week we've talked about the impact of COVID-19 on our health and how that relates to rehabilitation. And we've not yet run out of topics."

Since March, he and his guests have discussed issues including the benefits of wearing a mask, COVID-19-era CPR safety, and the implications of the coronavirus for pulmonary and rheumatological rehabilitation. Several of those episodes have also been excerpted as part of Doctor Radio's new podcast series *Coronavirus: Everything You Need to Know*.

Accessible online and via satellite radio to anyone with a SiriusXM subscription, the channel has a nationwide following. "Although our show targets a lay audience," Dr. Whiteson says, "you'd be surprised at how many professionals call in and ask questions—not just rehab colleagues, but dentists and primary care physicians and physician assistants. They find it a valuable source of information and a place to come for guidance on complex cases that they're dealing with in their own practices." ■



Jonathan H. Whiteson, MD



Rehabilitation Helps Patient Recover After a Year in the Hospital

After a near-fatal cardiac event and emergency heart transplant surgery, a 58-year-old woman experienced a series of severe complications that kept her in the hospital for 13 months. Preparing her to go home required a prolonged, coordinated effort by a multidisciplinary team of rehabilitation experts.

A CASCADE OF MORBIDITIES

The patient was transferred to NYU Langone Health from NYC Health + Hospitals/Bellevue on October 1, 2019, after suffering cardiogenic shock due to unexplained infiltrative cardiomyopathy. She was treated with extracorporeal membrane oxygenation (ECMO) while awaiting a heart transplant, which she received eight days later.

By mid-December, the woman's condition had stabilized sufficiently for her to be transferred to inpatient care at Rusk Rehabilitation. However,

her persistently fragile medical condition—with repeated episodes of nausea and vomiting—precluded significant improvement. In January 2020, diagnosed with a gastrointestinal bleed, she was moved back to acute care.

Over the following months, the patient experienced a cascade of morbidities. In February she pulled out her percutaneous endoscopic jejunostomy (PEJ) tube, leading to peritonitis and kidney failure; she was subsequently placed on hemodialysis. In March she developed a right chest seroma, pneumonia, and neutropenic sepsis.

▲ Experts at Rusk Rehabilitation led a multipronged approach to rehabilitation for a patient with multiple comorbidities, enabling her to safely return home.

PHOTO: JONATHAN KOZOWYK

She underwent washout and debridement of the seroma, as well as a subclavian graft replacement. As the year wore on, she developed wound dehiscence in the right shoulder and hemothorax in the right chest, complicated by fevers, hypotension, a deep vein thrombosis in the left lower extremity, a mild stroke, spinal compression fractures, and recurring pneumonia. She underwent a tracheostomy and chest tube placement.

Having survived this succession of traumas under the exceptional care of NYU Langone's clinicians and support staff, the woman was transferred back to the inpatient unit at Rusk Rehabilitation on October 29, 2020.

"This was one of the most complicated patients I've ever seen," says Jeffrey M. Cohen, MD, clinical professor of rehabilitation medicine at NYU Grossman School of Medicine and medical director of Rusk Rehabilitation's Medically Complex Rehabilitation Service. "She had been through so much, and she was profoundly deconditioned. Our mission was to help her get her life back to the greatest extent possible."

A MULTIPRONGED APPROACH TO COMPLEX REHABILITATION

When the woman arrived at Rusk Rehabilitation, she was barely able to roll over in bed. She required maximum assistance to go from supine to sitting and to transfer from her bed to a chair. Although she

was able to eat orally, she needed nocturnal tube feedings to maintain adequate nutrition. Due to the tracheostomy and other factors, her speech was both hypophonic and dysphonic.

Physical therapy, led by Rusk Rehabilitation expert Jacklyn Ward, PT, began with a focus on bed mobility and transfers from sitting to standing. From there, the patient progressed to ambulating with a rolling walker; initially she could go no farther than 25 feet and needed contact guarding to prevent injury, but her distance and agility steadily improved. She underwent wheelchair mobility exercises to build her upper-extremity strength and endurance, and step-up exercises to enable her to negotiate stairs and curbs.

Occupational therapy, led by Brittany Cuthbert, OT, emphasized self-care. “We worked on grooming while standing at a sink,” Dr. Cohen explains.

“We also practiced toilet transfers and upper- and lower-body dressing skills, such as putting on a T-shirt, underwear, and pants.” The patient was trained on adaptive equipment to help with shoes and socks.

The speech-and-swallow team performed a clinical bedside swallowing evaluation, which determined that she was able to tolerate regular solids and thin liquids. She was taught safe-feeding strategies and aspiration precautions, such as alternating small sips with small bites, and sitting upright for all meals out of bed.

The team also worked to improve the patient’s ability to communicate her needs and wants. She was fitted with a Passy Muir valve, which is designed to enhance voice and speech production, and therapists trained her in speech compensatory strategies. “We worked on coordinating sub-systems of voice production, including respiration, phonation, and articulation,” says Dr. Cohen. “The training incorporated video and audio feedback to enhance her awareness of her own speech quality.”

The patient was followed closely by psychologist Catherine Atkins, PhD, supervisor of psychology for inpatient acute rehabilitation, to monitor for depression or other mood problems and to reinforce her ongoing emotional resilience.

A CAREFULLY ARRANGED HOMECOMING

After a month at Rusk Rehabilitation, the patient showed striking gains in strength, balance, endurance, and respiratory function. She no longer needed supplemental oxygen. She could walk 125 steps using a rollator, at 0.46 meters per second—nearly double her initial speed. She could climb as many as 7 steps. She could comb her hair, brush her teeth, and dress herself. Her speech was nearly normal, and with her dysphagia almost gone, she was able to maintain an adequate diet orally.

Still, she needed supervision for all these tasks and minimal to moderate assistance with most of them—including such basic activities as entering and exiting a shower. She would require round-the-clock care indefinitely, and fortunately, the patient’s adult daughter and son were willing and able to provide it. During her time in rehabilitation, they participated in extensive education regarding functional mobility, fall prevention, wheelchair management, exercise protocols, goal-setting strategies, and other skills. They were also trained to set up and position assistive equipment around the patient’s home.

Once these preparations were completed, the patient was referred to the Visiting Nurse Service of New York for nursing, physical and occupational therapy, and home health aide evaluations. Outpatient hemodialysis services were arranged. And on November 30, she was discharged to her family.

“It’s remarkable how far this individual has come,” says Dr. Cohen. “At many points along the way, people who treated her didn’t think she was going to make it. Now, after more than a year in the hospital, we were able to safely send her home. I consider it a huge success story.” ■

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She had been through so much, and she was profoundly deconditioned. Our mission was to help her get her life back to the greatest extent possible.”

—Jeffrey M. Cohen, MD

Continuing Medical Education

SAVE THE DATE

March 15–20, 2021

45th Annual Comprehensive Review of Physical Medicine and Rehabilitation

This intensive six-day and three-evening review course is designed to examine current practice with emphasis on recent advances in the field of physical medicine and rehabilitation.



Learn more about this course by visiting
med.nyu.edu/cme

Awards & Recognition

Stamatela Matina Balou, PhD, clinical assistant professor of otolaryngology and rehabilitation medicine, was elected president of the New York State Speech-Language-Hearing Association and appointed a member and author of the Standards for Rigor and Transparency in Dysphagia Research (STARTED).

Ryan C. Branski, PhD, the Howard A. Rusk Associate Professor of Rehabilitation Research and vice chair for research in the Department of Rehabilitation Medicine, received the Research Discovery Award from the School of Health and Rehabilitation Sciences at the University of Pittsburgh and completed his four-year term as a standing member of the Motor Function, Speech, and Rehabilitation Study Section at the National Institutes of Health.

Linda Carozza, PhD, clinical assistant professor of rehabilitation medicine, was recognized as a Distinguished Fellow of the National Academies of Practice in Speech-Language Pathology.

Michael L. D'Agati, PT, DPT, clinical instructor of rehabilitation medicine, received the Research Discovery Award from the School of Health and Rehabilitation Sciences at the University of Pittsburgh.

Karen Danzinger, MA, CCC-SLP, was an invited panelist in multiple live webinars for "Tracheostomy Care and Management during COVID-19," hosted by ATOS Medical (National and International). She was also an invited speaker for Passy Muir's "Next Round: Facing COVID-19 through Case Studies."

Steven R. Flanagan, MD, the Howard A. Rusk Professor of Rehabilitation Medicine and chair of Rusk Rehabilitation, was nominated as vice president of the American Academy of Physical Medicine and Rehabilitation.

Beth P. Laster, MS, CRC, was selected as a peer reviewer for the Canadian Certified Vocational Evaluator and International Certified Vocational Evaluator for the Exam Study Guide of the Canadian Assessment, Vocational Evaluation and Work Adjustment Society.

Teresa Lynch, MA, CCC-SLP, received the American Speech Language Hearing Association Distinguished Early Career Professional Award.

Jed McGiffin, MS, postdoctoral fellow, received the Sunil Sen Gupta Research Travel Award from the American Psychological Association, Division of Rehabilitation Psychology.

Joseph F. Rath, PhD, clinical assistant professor of rehabilitation medicine, received the Roger G. Barker Distinguished Research Contribution Award from the American Psychological Association—Division of Rehabilitation Psychology.

John-Ross Rizzo, MD, assistant professor of rehabilitation medicine and neurology, was selected as an inductee into the Susan M. Daniels Disability Mentoring Hall of Fame.

Tina Tan, MS, CCC-SLP, BCS-S, coordinator for pediatric feeding and swallowing services, was invited as a speaker to the SENTAC and the Aerodigestive Society combined 2020 virtual meeting.

Lyn D. Weiss, MD, professor of rehabilitation medicine and chair of the Department of Physical Medicine and Rehabilitation at NYU Langone Hospital—Long Island, completed her 10th book, *Easy EMG* 3rd Edition, to be published in 2021.

Amanda Wildman, MS, CCC-SLP, received the Distinguished Early Career Professional Award from the American Speech Language Hearing Association.

ABOUT NYU LANGONE HEALTH

Leader in Quality

NYU Langone's emphasis on continuous improvement inspires teams to continually raise the bar on quality and safety across our growing network in Manhattan, Brooklyn, Queens, Long Island, Staten Island, and Florida. NYU Langone's Tisch Hospital, Kimmel Pavilion, NYU Langone Hospital—Brooklyn, and NYU Langone Hospital—Long Island were awarded an "A" as well as a Top Hospital award as part of the fall 2020 Leapfrog Hospital Safety Grades. NYU Langone Hospitals achieved Five Star ratings on CMS Hospital Compare effective October 2019 and is the only major academic medical center in the New York metropolitan region to attain a Five-Star Quality rating.



#9

in the Nation

Ranked ninth by *U.S. News & World Report* for Best Hospitals; and ranked fourth for Best Medical Schools (Research).



#4

in the Nation



Transforming Medical Education

As COVID-19 has added new urgency to nationwide physician shortages, debt burden, and lack of diversity, we remain committed to our accelerated pathways to the MD degree and full-tuition scholarships regardless of need or merit at the recently renamed NYU Grossman School of Medicine and the new primary-care focused NYU Long Island School of Medicine.



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Rusk Rehabilitation

2020 HIGHLIGHTS



Rusk Rehabilitation
Continues to Advance
the Field of Rehabilitation
Medicine Through Research
See page 2.



Rusk Rehabilitation
Shares Best Practices on
Rehabilitation Services
for Patients with Covid-19
See page 5.