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PMR On Point.

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Thank you for reading our PM&R newsletter, which taps the brainpower of our clinicians, scientists and alumni to highlight our specialty from every angle. Our goal: to deliver actionable insights and valuable takeaways to your inbox — **on time, on topic and on point.**

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Feature. PM&R In the Year Ahead

The past three years have upended healthcare. In PM&R, specifically, physicians have faced myriad challenges — including navigating the pandemic and treating an entirely new patient population — with fewer staff and tighter budgets. Will 2023 be a repeat or *reset*? We asked James Sliwa, DO, Chief Medical Officer, and Richard Lieber, PhD, Chief Scientific Officer, to reflect on where we've been and where we're going — and on what the next year might hold for our field.

Dr. Sliwa, let's start with you. What should be top of mind for physiatrists in 2023?

JS: There is a high incidence of burnout, particularly among physiatrists. It's no surprise between challenges with pre authorization of care, inefficiency in workflow and higher and higher job expectations, it's easy to feel discouraged and out of touch with those components that initially drew us to the field.

I realize carving out time to focus on one's mental health is easier said than done, and that doing so will look different for everyone. Personally, my antidote is in trying to stay grounded in the meaningfulness of this work.

I'll never forget taking our hospital's first heart transplant patient the week before Christmas in 1988. At first, I wondered what had I just agreed to do? There was no playbook, and there were no guarantees. Yet, taking on this challenge prepared me for others throughout my career. Then, when COVID hit — and at the height of fear and uncertainty — I remember asking a new generation of attending physicians whether anyone was willing to step up to care for this emerging patient population. At first, I was surprised by the number who raised their hands. Then, I thought back to my first heart transplant patient — and my first burn and LVAD patients — and was reminded of how lucky I was, and how lucky *we* are, to take on new challenges and connect with patients and our work.

Inspiration is right in front of us every single day. Sometimes, it takes reinvention and stepping out of our comfort zones to find it. As our field expands, opportunities exist inside and outside of our organizations. I encourage you to seek those opportunities — through evolving clinical practice, work within professional societies, research engagement, quality improvement projects ... anything that connects you to the meaning of your work.

James Sliwa, DO
Chief Medical Officer & Senior Vice President of Medical Affairs Chief Quality and Safety Officer

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Richard L. Lieber, PhD
Chief Scientific Officer & Senior Vice President of Research

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Dr. Lieber, now onto you: What research advance could make the most significant impact in the coming year?

RL: I think huge opportunity exists in multimodal rehabilitation — combining pharmacological treatment with typical rehabilitation interventions. There have been tremendous advances in drug development and also in our understanding of biology. We now know that many of the biologic mechanisms underlying various diseases — like CP, cancer and stroke — are similar. In the meantime, there are a great number of drugs that have already been tested by the FDA and are approved and available. These factors could lead to an explosion in drug repurposing and, in rehabilitation specifically, we're primed to apply drugs developed for one purpose to different areas, including stroke, spinal cord injury, traumatic brain injury and neurodegenerative diseases.

For instance, a team I work with at Shirley Ryan AbilityLab has used the FDA-approved blood cancer treatment 5-Azacytidine (AZA), a drug that "washes off" DNA hypermethylation, to help rescue the muscle-growing capacity of satellite cells in kids with CP. After being treated with the drug *in vitro*, CP cells grow new muscle tissue — like muscle stem cells from typically developing children.

We hope that treatment with this class of drugs, in combination with physical therapy, may slow down, or even reverse, the progression of muscle contractures in CP. We are now in the process of testing AZA in an animal model and developing a protocol to treat children with CP with the drug.

Dr. Sliwa, what are some of the biggest challenges our field might face in the year ahead?

JS: Our biggest challenge in PM&R — not just this year, but in an ongoing sense — is the general lack of understanding among physicians, insurance companies and the general public about the very significant differences between various levels of care. There is a pervasive sense that rehabilitation is rehabilitation, and there is little differentiation between inpatient rehabilitation, skilled-nursing care, home health and so on.

Perhaps we shouldn't be surprised. Unlike other medical specialties, rehabilitation has no equivalent to an objective blood test or an X-ray to help measure or direct the results of treatment. Current assessment tools are not well-equipped to identify patient progress at low or high limits of function, or form a basis for comparison of gains between patients, facilities or levels of care. Put simply, our image problem is compounded by the lack of a quantitative, objective, standardized assessment tool that reliably measures patient progress across the full range of rehabilitation and recovery.

At Shirley Ryan AbilityLab, we've developed the Ability Quotient — an outcomes assessment system that builds on the Quality Indicators to help clinicians and insurers better measure outcomes and predict patient progress, care and cost. We hope to share this platform with the field in the future.

Meanwhile, though, reimbursement will get tighter and payors will seek the least expensive option. We need to craft a good argument for how we generate better outcomes than other levels of care, reinforcing the value we bring with referring physicians.

What do you foresee as the biggest opportunities in the year ahead, Dr. Lieber?

RL: I really think the biggest opportunity will come from the intersection of science and care — not just because it will prove our continued value, but also because it's best for our patients.

When it comes to research, we need to follow Stephen Covey's sage advice and "begin with the end in mind." Sometimes research only feels like a big science fair, with prizes awarded to those with the coolest experiment instead of to those with the idea most likely to help patients. I can't tell you how much time is spent talking about really neat ideas that, in reality, will have no utility in patients' everyday lives.

That's where physiatrists come in: your guidance and direction are key. Help us grow our clinical IQ. Become running buddies with an engineer. Create informal opportunities for discussion and education among people with different areas of expertise, both inside and outside of your organization. Create programs that incentivize collaboration focused on patient outcomes.

Three years ago, we established our Catalyst Grant Program, which is designed to enhance translational research. Through it, we invite clinical and nonclinical employees to team up and explore research ideas that could help patients. In the last year, applications to the program by non-scientists alone increased by nearly 30%.

Ultimately, we should be judged not by the sophistication of our ideas, nor by the number of our publications, but by how many patients we've actually helped to get better. I know from my experience at our organization and through discussions I've had with many in the field that there is hunger to drive discovery.

Last question: Any reading or watching recs?

JS: When I'm winding down from a long day, I love watching a good episode of the "Kominsky Method," which chronicles the trials and tribulations of an aging acting coach. It's hilarious!

RL: "The Hard Thing About Hard Things," by entrepreneur Ben Horowitz. I first read it a few years ago, and its lessons have stuck with me. Horowitz lays out a great strategy for working through those difficult moments in one's career.

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Buzzworthy. Sensory Room Sneak Peek

Sensory rooms offer a unique, tailored clinical experience for patients with a variety of ability levels — from those who are minimally conscious to those with behavior regulation disorders and the pediatric patient population. Take a sneak peek at Shirley Ryan AbilityLab's new sensory room, designed to spark exciting innovations in care.

Sensory Room Sneak Peek
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Science IRL. Cancer, Cachexia and Brain Injury

Half of people with cancer experience cachexia — a clinical syndrome defined by weight loss, fatigue and decreased appetite. Ishan Roy, MD, PhD, Shirley Ryan AbilityLab physician-scientist, offers his take on "Circulating myeloid cells invade the central nervous system to mediate cachexia during pancreatic cancer," which offers some clues as to how cancer affects the brain.

What's the big deal?

Until now, most researchers thought weight loss in individuals with cancer was related to a combination of disuse atrophy and direct muscle-tissue inflammation. However, this theory does not explain why energy level and appetite are affected in patients with cachexia.

What did researchers find?

Researchers showed that cancer affects the brain, even if it's located somewhere else in the body. Using a mouse model of cachexia, they tracked inflammation and distribution of immune cells throughout the body. Notably, they used pancreatic cancer because it does not typically metastasize to the brain. They found that immune cells preferentially invade the brain through the velum interpositum portal. These immune cells sense secreted proteins in the brain and move to regions that regulate appetite, mood and cognition. Using small molecular inhibitors of specific immune cells, researchers showed that blocking immune-cell trafficking can actually *reverse* loss of appetite.

What follow-up studies have been done?

In subsequent animal model studies, researchers showed that secreted factors like lipocalin-2 and growth/differentiation factor-15 (GDF-15) are elevated during cachexia and localize to the brain. Then, in the brain, these molecules directly regulate appetite and cognitive abilities in cancer-associated cachexia. Today, these molecules are the target of new pharmaceutical efforts to treat the syndrome.

How does this affect how I treat patients?

This study suggests that patients with non-neurologic cancer may experience brain injury through inflammation. Patients with cachexia may be at higher risk of brain inflammation, which could in turn lead to changes in appetite, cognition and mood. Thus, changes in cognition and mood should be considered as sources of functional impairment in all cancer patients with cachexia, regardless of type of cancer. This work opens the door for more research into potential treatments to reverse the effects of cancer-related cachexia.

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Ishan Roy, MD, PhD
Attending Physician, Research Scientist

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Influencer. Innovating Long COVID Care in the VA

Jacqueline D. Neal, MD, MSE ('13 Residency)
Physiatrist, Jesse Brown VA Medical Center
Assistant Professor, Department of Physical Medicine and Rehabilitation, Northwestern University Feinberg School of Medicine
Assistant Professor, University of Illinois College of Medicine

The 2022 recipient of the Veterans Affairs' (VA) Mark Wolcott Award for Clinical Excellence, Dr. Jacqueline Neal has extensive experience improving the lives of veterans. She designed and implemented an early mobility program that has enabled some of the sickest patients in the ICU to be mobile. Then, in 2020, Dr. Neal turned her attention to patients with long COVID — harnessing the size of the VA network to improve the outcomes for untold thousands. Read why Dr. Neal is so passionate about the VA, and why she points to the history of PM&R to underscore why physiatrists should become national leaders in the treatment of patients with long COVID.

Congratulations on receiving the Mark Wolcott Award. What was that experience like?
It was exciting! My family and I flew to Washington, D.C., for an award ceremony. I was so proud to win the award, but there are many people who work alongside me every day as part of my team who contributed to this accomplishment.

Did you join the VA straight out of residency?

I sure did. When I was a resident at Shirley Ryan AbilityLab (then the Rehabilitation Institute of Chicago), I did a rotation for a few months at the Jesse Brown VA and really loved it. When a position became available, I felt lucky to be hired; today, I still feel that I have the best job ever.

Why is that?

First, it is an honor to be able to take care of folks who have dedicated their lives to keeping our country safe. Plus, I get to spend an hour with each of my patients — a whole hour! That is unheard of outside of the VA. Another great thing about the VA is the teamwork and openness to innovation among the people who work here — we all care so much for the veterans and for the quality of care that's provided.

Your Wolcott Award for Clinical Excellence was given in part for your role in the VA's response to COVID. Tell us about that.

I'm primarily a practicing physiatrist — a generalist — at the Jesse Brown VA with a clinical focus on critical care rehabilitation, early mobility and medical education. In 2021, I started as co-director of the COVID-19 section of the VA Extension for Community Healthcare Outcomes (VA-ECHO) Program. We have regular didactic sessions for VA providers all across the country. We bring in specialists who give talks about different topics related to COVID-19, like acute outpatient and inpatient management, long COVID management, mental health and burnout, and health equity. Attendees usually number between 200 to 600 and include physicians, specialists, nurses, allied health professionals, and even dentists. Then, we use the feedback from these sessions to design future VA-ECHO topics. I am also a lead for the VA Long COVD Integrated Project Team, which is developing national VA clinical guidance for long COVID management.

How has your experience as a physiatrist in the VA affected how you treat patients with long COVID?

Because the VA is a national healthcare system with 150 facilities and more than 26,000 physicians, it's a little bit easier to study something like COVID. Additionally, we can consult with our colleagues across the country. For example, here at the Jesse Brown VA, we have a great neuropsychology team. If another VA doesn't have that kind of service, we can do an inter-facility consult and help take care of those patients.

Are you working on any other initiatives related to long COVID?

Yes, two, actually. First, I am participating through AAPM&R on the PASC Collaborative, a panel of physiatrists and other specialists across the country who provide long COVID care. One of the big topics we're talking about now is how to get long COVID care to all of the patients who live far from the urban settings and academic centers where most of the programs are located. Second, I represented the PM&R community on the White House's recently published memorandum on the long-term effects of COVID. I worked with an inter-facility group representing the CDC, the NIH, the VA and other federal agencies to write a report on what's being done right now and to provide recommendations for what can be done in the future. The memorandum discusses more than long COVID. It also goes into detail about folks who lost their jobs, are suffering from mental health issues and have difficulties with childcare.

Other than clinical expertise, how does your background in PM&R inform your outlook on COVID care?

Physiatry, as a field, has a long tradition of caring for patients recovering from acute polio, with many different organ systems involved and multiple phenotypes. Long COVID is similar: it is a chronic viral-induced condition that causes disability, and that's exactly where physiatry shines. We are really good at working with and organizing multiple specialists and putting together a plan of care that is best for the patient. That's what makes it so important for PM&R to be not just *involved in* caring for patients with long COVID, but actually *driving* that care. Based on our training, we have the skills to make a difference.

Recent Publications

- *Physical Medicine and Rehabilitation Pocketpedia, Fourth Edition*
  Chapter 17: COVID-19 Rehabilitation
- Multi-disciplinary collaborative consensus guidance statement on the assessment and treatment of cardiovascular complications in patients with post-acute sequelae of SARS-CoV-2 infection (PASC)
- Services and Supports for Longer-Term Impacts of COVID-19

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CME Opportunity. The Novel Use of Ultrasound in Physiatry

Feb. 9, noon-1 p.m. CST

Moderator: Sam Chu ('15 Residency), MD, Shirley Ryan AbilityLab Panelists: Colin Franz ('17 Residency), MD, PhD, Shirley Ryan AbilityLab; Jen Soo Hoo ('18 Residency), MD, Weill Cornell Medicine; Heakyung Kim, MD, University of Texas Southwestern Medical Center

The use of ultrasound has grown exponentially over the past few years in the field of physiatry. In addition to more traditional diagnostic and interventional applications in the musculoskeletal clinic, ultrasound is now being used in other areas of physiatric practice, such as image-guided spasticity interventions and electrodiagnostics; evaluation of the diaphragm for patients with respiratory or neuromuscular conditions; and real-time assessments of injuries in sports medicine on the field and in the training room.

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