

Rehabilitation

APPLIED science

HOW MOBILE MEDICINE IS FOSTERING GREATER INDEPENDENCE AND IMPROVING PATIENT OUTCOMES

BY PHALGUN NORI, M.D., AND PAMELA TAMULEVICIUS, MSR, CCC-SLP

SMARTPHONE AND TABLET APPLICATIONS (“apps”) have become a cost-effective and engaging form of assistive technology for use in rehabilitation. For stroke, traumatic brain injury and spinal cord injury populations in particular, the recovery of cognitive skills and activities of daily living is a vital part of treatment that directly affects short- and long-term functioning and quality of life.

While evidence-based treatments can be provided through traditional means, the ability to offer those same interventions through apps has given clinicians an additional tool to help patients compensate for impairments, build new abilities and ultimately lead more independent lives.

NEW THERAPY TOOLS

For the past three years, incorporation of app-enabled therapies with traditional treatments has been standard practice at Kessler Institute for Rehabilitation. Patients are given access to tablets during their inpatient stay as part of their overall therapy program. They often continue to use tablets during outpatient therapy and—provided the individual has access—in the home setting, as well.

The therapeutic needs of individuals with physical and cognitive disabilities are vast, making the profound adaptability of mobile platforms a boon to therapists and patients. Although much of the empirical literature on the utilization of apps in rehabilitation has been driven by speech and language pathology, more studies are being generated (see “Game On,” page 2) and programs developed to assist

with nearly every area of cognitive functioning and participation in daily activities. Applications can address aphasia, apraxia and dysarthria by allowing users to improve articulation and fluency through communication boards, flashcards and sentence construction exercises. More than 200 augmentative and alternative communication programs can transform text into speech. There also are operations to teach users how to count money accurately; visual pill sorters and tracking programs to aid in identification of medications and adherence to instructions; and calendars, scheduling assistants and automatic reminders to improve memory and daily planning.

In addition to native applications designed specifically for the recovery of a given cognitive or functional ability, non-native programs designed for other purposes (such as entertainment) also have proved to be valuable resources. For example, patients are encouraged to use the popular game Angry Birds for targeting attention, while crossword puzzles, word searches and language games can assist with reading, word recognition and comprehension. Games, mazes and other puzzles can be beneficial for improving visual memory and executive functioning.

IMPACTING INTERVENTIONS

The use of apps and mobile technology is also impacting the continuum of care and treatment. One of the most obvious benefits is their potential to support the self-management of symptoms outside the therapy setting. The ubiquity and portability of devices mean

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patients have access to programs anywhere and at any time, expanding the opportunity for repetitive learning and increased exposure—the cornerstones of rebuilding neuroplasticity. The ability for carryover of treatment goals from the hospital to the home ultimately promotes healing, fosters independence and improves quality of life.

Within a single therapy session, smartphone technology allows the therapeutic intervention to be easily customized to the interests and needs of the client. For example, flashcards used in speech and language therapy can be tailored to feature images that are more meaningful or appealing to the patient, which leads to greater engagement and in turn, greater improvement in attention, focus and adherence.

Today, many people already own a tablet or smartphone. For those who don't, the cost investment (while substantial) is far less than most traditional devices. For instance, speech-generating equipment for aphasia can cost several thousand dollars, and waiting for its arrival can cause delays in care.

The incorporation of apps and technology during traditional therapy sessions is only a small portion of the vast capabilities that will be pertinent to clients. Emerging programs that link to health care systems and electronic health records to create real-time profiles that will track appointments, results of diagnostic

tests, medications and the like are empowering patients and allowing them to be more proactive participants in their care. Education is, literally, at their fingertips, yielding better health behaviors. For example, a pressure ulcer prevention application lets users photograph skin breakdown for monitoring purposes, which can then be shared with physicians and therapists to track treatment progression.

BEYOND THE CLINIC

Mobile programs are not a panacea and are not intended to replace standard evidence-based treatments. Rather, they supplement treatment to help improve outcomes, and outside the therapy setting, serve as an extension of clinical care and a viable tool to maintain health and function. The benefits are not limited to patients. This technology is also stimulating participation by family members, who often express a desire to be involved in their loved one's care. Apps provide an outlet for this through interactive games and activities. Medication trackers, schedule reminders and other functional programs also help reduce caregiver burden and foster more independence in self-management. As a result, clinicians are continuing to explore the use of apps and other technologies not only to enhance skills and treatment, but also to facilitate participation by patients and their families.

GAME ON

Emerging research is lending further support for the use of apps for a variety of patient populations within the rehabilitation setting. A recent study from Worthen-Chaudhari and colleagues¹, presented at the 2015 American Congress of Rehabilitation Medicine Conference, examined the effects of a smartphone game in relieving persistent symptoms of post-concussion syndrome (PCS) and depression in adolescents. Individuals receiving usual care supplemented with exposure to the program on a near-daily basis for three to six weeks demonstrated significantly greater improvement in PCS and depressive symptoms than usual-care patients. This study provides promising initial results as to the possibilities of mobile technology in improving the health management and symptoms of concussion populations.

1. Worthen-Chaudhari L, Logan K, McGonigal J, Yeates K, Mysiw WJ. Concussion Symptoms in Adolescents Are Alleviated Through Use of a Gamified Health App. Research Poster 4838. *Arch Phys Med Rehabil* 2015; 96 (12): e8.



AVAILABLE APPS

The National Center for Telehealth & Technology provides a list of apps designed for memory training, stress management, mood enhancement and symptoms of traumatic brain injury. Most are available in the iTunes store. Read more about their applications here: t2health.dcoe.mil/products/mobile-apps.



Phalgun Nori, M.D.

Staff physiatrist at Kessler Institute for Rehabilitation.
 ■ pnori@kessler-rehab.com



Pamela Tamulevicius, MSR, CCC-SLP

Clinical manager and certified speech-language pathologist at Kessler Institute for Rehabilitation.
 ■ ptamulevicius@kessler-rehab.com

FOCUS ON

Rehabilitation

EDITOR-IN-CHIEF

Bruce M. Gans, M.D.

Chief Medical Officer
Kessler Institute for Rehabilitation
bgans@kessler-rehab.com

MANAGING EDITOR

Gail Mallor Solomon

Vice President of Communications
and Brand Management
Kessler Institute for Rehabilitation
gsolomon@kessler-rehab.com

EDITORIAL ADVISORS

Uri S. Adler, M.D.

Associate Medical Director and
Director of Stroke Rehabilitation
Kessler Institute for Rehabilitation
uadler@kessler-rehab.com

Neil N. Jasey, Jr., M.D.

Director of Brain Injury Rehabilitation
Kessler Institute for Rehabilitation
njasey@kessler-rehab.com

Steven Kirshblum, M.D.

Medical Director and Director of
Spinal Cord Injury Rehabilitation
Kessler Institute for Rehabilitation
skirshblum@kessler-rehab.com

Bruce Pomeranz, M.D.

Medical Director and Director of
Amputee Rehabilitation
Kessler Institute for Rehabilitation
bpomeranz@kessler-rehab.com

CONTRIBUTORS

Debra Gordon; Emily A. Kuhl, Ph.D.

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Beyond the silos

BREAKING DOWN THE WALLS IN THE POST-ACUTE CARE WORLD

The launch of Medicare's Comprehensive Care for Joint Replacement (CJR) mandatory demonstration project on April 1 represents a potential risk to the well-being of patients who require rehabilitation hospitals. The experiment highly incentivizes acute care hospitals to avoid sending patients to rehabilitation hospitals or even nursing homes in order to reduce total episode spending.

The model does nothing to breach the rigid boundaries—"silos"—among post-acute care. Instead, patients will be steered to settings that are less expensive, where they'll receive fewer protective and active care services.

These care silos developed over time when the prospective payment systems for acute and rehabilitation hospitals (known as diagnosis-related groupings, or DRGs) provided an incentive to reduce lengths of stay. To meet the need, nursing homes began expanding their provision of skilled therapies, and home health agencies developed the capacity to provide therapy services in residences.

Outpatient therapy centers developed and comprehensive outpatient rehabilitation facilities (CORFs) expanded as payment systems encouraged their growth. But the new payment systems also came with regulations around conditions of participation for each payment model, as well as state licensure laws that crystalized the differences between settings.

The unintended consequence of these initiatives was to create rigid walls around post-acute care settings based on payment, regulatory and legal provisions.

Today, lower acuity settings are looking to broaden the types of patients they care for in order to maximize reimbursement and volume. So, for instance, nursing homes are trying to care for patients who should be in rehabilitation hospitals, and home health agencies are attempting to pull patients from nursing homes to provide care in personal residences.

The CJR program emphasizes reduced expenditures and higher profitability for payers and acute care hospitals, but its quality measures lag far behind those required to ensure patient safety and good outcomes. For example, there are no real-time indicators around pain management or the occurrence of post-operative complications in the perioperative setting. If these concerns are not monitored, adverse consequences, such as increases in venous thromboembolic events, excessive reductions in joint range of motion, or prolonged post-operative pain, will go unrecognized, harming patients who were diverted from more clinically appropriate settings.

A better hope for the future of medical rehabilitation and the safety and well-being of our patients is to implement the Continuing Care Hospital (CCH) model mandated in the Affordable Care Act. This pilot program would create a new type of hospital to deliver the full continuum of rehabilitation services under one roof. A new prospective payment system would ensure that costs are driven by patient characteristics, not facility attributes. Fully implementing the CCH will literally "blow up" the silos while preserving the ability of clinicians to determine the most appropriate level of care for their patients.

Although Medicare is more than three years delinquent in following the congressional mandate to implement the CCH, hope still remains.

Bruce M. Gans, M.D.

Chief Medical Officer
bgans@kessler-rehab.com

AHEAD OF THE GAME: Advancing the diagnosis and management of sports-related concussions

BY NEIL N. JASEY, JR., M.D.



ON MARCH 14, when Jeff Miller, the National Football League's (NFL) senior vice president of health and safety policy, admitted before the U.S. House Committee on Energy and Commerce that there was an association between playing football and degenerative brain disorders, the message reverberated nationwide. For decades, the NFL had denied a relationship between the \$63 billion sport and neurocognitive problems later in life, which was reminiscent to many of Big Tobacco rejecting the link between smoking cigarettes and lung cancer. But a tidal wave of research on sports-related concussions over the last several decades has weakened the NFL's position and is increasingly exposing the seriousness of these injuries and their potential long-term consequences.

Underdiagnosis and delayed treatment of concussions can have lifelong devastating effects and, in extreme cases, lead to death. Thanks to a surge in research, advances in the assessment, intervention and prevention of these conditions are helping to better protect the safety and well-being of athletes at all levels of play.

BECOMING BETTER DETECTIVES

Sports-related mild traumatic brain injuries (mTBI), or concussions, affect up to 3.8 million Americans each year, almost one-third of whom are children and adolescents. The insidious and

pathophysiologically complex nature of these disorders makes diagnosis challenging. In many people, side effects will resolve within about a week, but in others they persist for months or years, causing significant academic, occupational, social and/or health-related difficulties. Symptoms are highly individualized and can vary widely from subtle to extreme changes in health, functioning and behavior—including amnesia, disorientation, confusion, headache, fatigue, nausea, vomiting, difficulty concentrating, depression, irritability and sleep disturbances. Patients often do not seek immediate medical care that might afford more accurate and timely detection. This is a critical lapse because a lack of symptoms does not necessarily mean the injury has healed. Furthermore, return to play while symptomatic can increase the odds of second-impact syndrome—sustaining an additional concussion while still recuperating from the initial one—which can severely increase cerebral blood volume, edema and intracranial pressure.

Physiological damage from mTBI involves axonal sheath injury, brain contusions and intracranial hemorrhaging, which increase the likelihood of developing a number of neurological disorders later on, such as post-concussion syndrome, chronic traumatic encephalopathy (CTE), mild cognitive impairment, and dementia. Magnetic resonance imaging (MRI), computed



Neil N. Jasey, Jr., M.D.
Director of brain injury
rehabilitation at Kessler Institute
for Rehabilitation.
■ njasey@kessler-rehab.com

tomography (CT), and positron emission tomography (PET) have been used traditionally as adjunctive diagnostic tools, but newer neuroimaging methods are being studied to help further improve assessment. Diffusion tensor imaging, an MRI technique, appears promising for its ability to reveal microscopic changes in axonal integrity and white matter damage, but it is currently only a research instrument. Magnetic resonance spectroscopy also is being investigated to detect metabolic changes indicative of cerebral tissue damage, such as increases in glutamine/glutamate, choline and myo-inositol.

While neuroimaging can be assistive, it is not always definitive and cannot be the sole source for diagnosis. Neuropathological changes reflect functional disturbances and do not automatically correspond to structural damage; thus, findings from imaging studies may appear normal despite the presence of injury. Supplemental techniques, such as measurement of deviation of ocular movement and provision of standardized sideline evaluations, like the Sports Concussion Assessment Tool 3, are now being employed with greater frequency.

The use of objective biomarkers, such as serum and cerebral spinal fluid findings, has come under investigation (see “Under the Microscope,” at right) and could potentially revolutionize the speed and accuracy with which concussions are detected. The protein S100-B, among the most widely studied markers of mTBI, is a highly sensitive indicator of astrocyte damage or necrosis when found in high concentrations. It also appears to be a correlate of TBI severity. Further research is needed to clarify the prognostic value of S100-B and other biological signs before their widespread clinical use can be implemented as tools for identifying patients at highest risk for morbidity and mortality.

EXPANDING THE TOOLBOX OF TREATMENTS

In order to mitigate the negative effects of concussions, intervention should be implemented immediately. Medical management is focused on reducing side effects and helping patients regain functioning as safely as possible. Conventional concussion protocols suggested that rest should be the mainstay of treatment until symptoms fully remit. However, new evidence has found that, in youths, strict cessation from physical activity may not improve post-concussive symptoms like balance, neurocognition and emotional distress. A more moderate approach is being advocated in which low-level movement is reintroduced in a stepwise fashion and under careful monitoring. Questions remain about such factors as the optimal length of break from activity; use of different interventions across various age groups and levels of competitive play; and how to address patients for whom rest and gradual exertion are ineffective.

There has been a call for more clinical trials into the pharmacological treatments of mTBI to determine effectiveness and assess the degree to which medications can help speed recovery. Existing drugs that assist with pain control, sleep dysfunction, mood disturbance and cognitive difficulties should be used conservatively and monitored closely, as side effects can exacerbate some concussion symptoms. Other novel therapeutic pathways include the use of supplements—such as omega-3 fatty acids, progesterone and dehydroepiandrosterone-sulfate—but these have yet to demonstrate any real clinical utility.

A FOCUS ON DETERRENCE

Concussion prevention efforts have become largely concentrated on behavior modification to help diminish accumulative injury during play. This is evidenced by the recent suspension of tackling during football practice by the Ivy League, as well as the U.S. Soccer Federation’s ban on heading the ball for players age 10 years and younger, with those 11 to 13 permitted to do so only during practice. Innovative football helmet designs intended to reduce head acceleration and incidence of concussion have been pursued, but to date none has been demonstrated to definitively prevent mTBI.

Much of the revitalized interest in prevention stems from one of the more publicly discussed aspects of sports concussions—CTE. This neurodegenerative disease was once attributed solely to boxers but has been discovered to occur in football, rugby, soccer, ice hockey and baseball. Research around CTE is still unfolding, and it was not until 2015 that the National Institute of Neurological Disorders and Stroke established a consensus definition. CTE has only been identified in individuals who have sustained repetitive head trauma, but not all persons with multiple mTBI will develop it. Postmortem histological exam is necessary to confirm diagnosis, underscoring the need for more retrospective studies of confirmed cases to better characterize CTE and its potential risk factors, such as duration of participation in the sport, use of performance-enhancing drugs, age at initiating contact play and substance use history.

Concussions are highly complex phenomena, and no single diagnostic marker or measure may ever conclusively reveal its occurrence. Although once thought to be largely transient, effects of sports-related mTBI pose a serious risk to the health and longevity of its participants, especially when poorly managed. The proliferation of research and public discussion about these injuries will only serve to improve our clinical care of individuals who sustain them. It is critical that clinicians understand the latest advancements in prevention and management to keep pace with rapid developments in this field and ensure adequate treatment for all athletes.



UNDER THE MICROSCOPE

A recent study published in *JAMA Neurology*¹ revealed that serum tests for concentrations of glial fibrillary acidic protein (GFAP) and ubiquitin C-terminal hydrolase L1 (UCH-L1) effectively differentiated between trauma patients with mild to moderate TBI and trauma patients without brain injury. The biomarkers also successfully forecast the presence of intracranial lesion, as confirmed by CT. While UCH-L1 best predicted concussions and lesions immediately (within eight hours) post-injury, GFAP was effective up to a week later. Further, GFAP has been shown to match the widely studied protein S100-B in terms of sensitivity and outperforms the biomarker in its specificity. However, neither GFAP nor UCH-L1 has been as heavily investigated as S100-B and will require additional testing in larger samples before widespread clinical use can be considered.

1. Papa L, Brophy GM, Welch RD, Lewis LM, Braga CF, Tan CN, et al. Time Course and Diagnostic Accuracy of Glial and Neuronal Blood Biomarkers GFAP and UCH-L1 in a Large Cohort of Trauma Patients With and Without Mild Traumatic Brain Injury. *JAMA Neurol* 2016 Mar 28. doi:10.1001/jamaneurol.2016.0039.

Managed care: Reaching enlightenment

BY BRUCE M. GANS, M.D.

ALMOST A THIRD OF MEDICARE BENEFICIARIES today are enrolled in Medicare Advantage (see chart), a dramatic increase since 2010.¹ In addition, more than half of all Medicaid beneficiaries now receive coverage through a managed care plan.² The explosive growth of managed care in these populations has created significant barriers to patient access to rehabilitation hospitals.

Medicare beneficiaries may choose between traditional fee-for-service Medicare or among managed care programs (Medicare Advantage). Those choosing the latter are often attracted by additional benefits such as hearing aids and by lower out-of-pocket costs.

Medicaid beneficiaries, however, typically have no choice; in most states, managed care is the only option.

The reality is that managed care plans limit patient choice—not only the choice of specific providers but also the types of providers and services allowed. Indeed, Congress' advisory entity, the Medicare Payment Advisory Commission (MedPAC), noted in its most recent report on post-acute care that managed care organizations employ three strategies to manage post-acute care: prior authorization for the use of high-cost settings such as rehabilitation hospitals; contracting with third-party vendors to manage post-acute care; and establishing limited networks that only include "high-value providers."³

As the commission wrote: "All involve restricting, to varying degrees, beneficiary choice." In addition, it noted that utilization rates of rehabilitation hospitals by managed Medicare beneficiaries are half that of fee-for-service beneficiaries.

Managed care plans appear to use prior approval denials as a primary way of reducing access to rehabilitation hospitals. Too often, it is up to nurses or mid-level practitioners who do not have expertise in the complexities of the post-acute care world to approve or deny the transfer. Thus, they make erroneous and clinically inappropriate judgments about which setting of care is most appropriate.

If the acute care hospital appeals the denial, or allows the rehabilitation hospital to do so on behalf of the patient (usually through physician-to-physician discussions), it is sometimes possible to reverse it. But such appeals often take days. The patient has likely been discharged to another setting, dramatically reducing the probability of a second transfer into the more appropriate rehabilitation hospital setting.

Unfortunately, Medicare beneficiaries have little understanding of their rights to object to denials. For instance, they don't know that the law mandates that Medicare Advantage patients have the same rights to services as those who participate in traditional fee-for-service Medicare.⁴

On the Medicaid side, beneficiaries are at the whim of their state plan, with many having no clear and practical recourse to appeal unfavorable decisions.

The one who suffers is the patient who is denied access to the most appropriate level of care.

One possible solution to this serious problem is to make payers responsible for the long-term outcomes (years, not weeks or months) of their care restrictions. This is particularly important given evidence that demonstrates

better outcomes, earlier discharges, and lower mortality in patients admitted to rehabilitation hospitals than those treated in skilled nursing facilities.⁵

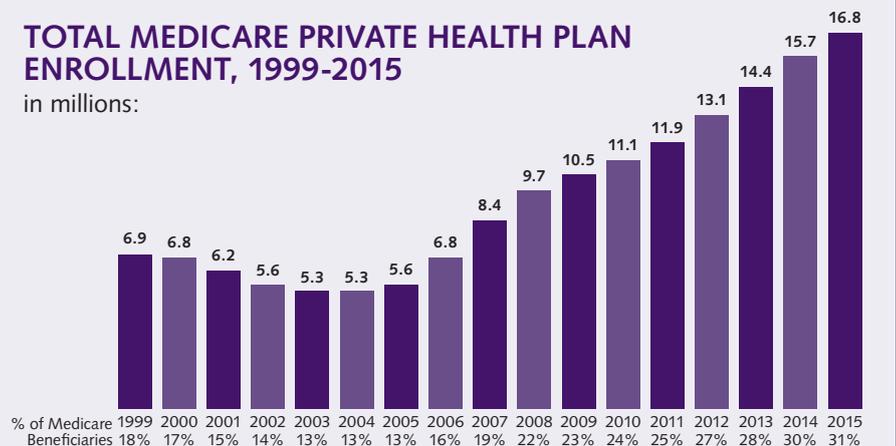
In a perfect world, managed care would be the best model to help patients with chronic and/or long-term disabling conditions improve the quality of services they receive by providing informed care management and coordination.

Instead, its shortsighted focus on immediate costs puts patients at risk and threatens the quality of care we are able to provide. Ensuring that managed care insurers live up to their potential to do good is the challenge.

1. Kaiser Family Foundation. Medicare Advantage Enrollees as a Percent of Total Medicare Population. kff.org/data-collection/medicaid-managed-care-market-tracker
2. Kaiser Family Foundation. Medicaid Managed Care Market Tracker. kff.org/data-collection/medicaid-managed-care-market-tracker
3. Medicare Payment Advisory Commission. Medicare's Post-Acute Care: Trends and Ways to Rationalize Payments. June 2015.
4. Ibid.
5. DaVanzo JE, El-Gamil A, Li JW, Shimer M, Manolov N, Dobson A. Assessment of Patient Outcomes of Rehabilitative Care Provided in Inpatient Rehabilitation Facilities and After Discharge. Prepared for the ARA Research Institute. 2014. Available at: amrpa.org/newsroom/Dobson%20DaVanzo%20Final%20Report%20-%20Patient%20Outcomes%20of%20IRF%20v%20-%20SNF%20-%207%2010%2014%20redated.pdf

TOTAL MEDICARE PRIVATE HEALTH PLAN ENROLLMENT, 1999-2015

in millions:



NOTE: Includes MSAs, cost plans, demonstration plans, and Special Needs Plans as well as other Medicare Advantage plans. SOURCE: Authors' analysis of CMS Medicare Advantage enrollment files, 2008-2015, and MPR, "Tracking Medicare Health and Prescription Drug Plans Monthly Report," 1999-2007; enrollment numbers from March of the respective year, with the exception of 2006, which is from April.



Meeting the unique rehabilitation needs of bariatric patients

CRISTIN McKENNA, M.D., PH.D.

PATIENTS IN REHABILITATION FACE DAUNTING CHALLENGES, and the additional difficulty of managing musculoskeletal and neurological conditions in the context of excess bodyweight requires specialized care. With knowledge, forethought and planning, clinicians can provide bariatric populations with the necessary care to effectively improve their health and functioning.

ADEQUATE ADAPTATIONS

Proper rehabilitation for bariatric populations must ensure provision of medical equipment that is weight- and width-appropriate, including beds, shower chairs, wheelchairs and toilets. Many devices can accommodate up to 350 pounds, but for severely obese patients this might not be sufficient and can pose a threat to safety. Similarly, environmental modifications, like widened doorways or use of transport vehicles with higher weight limits, may be warranted. At Kessler Institute for Rehabilitation, team meetings are organized in advance of a patient's admission to ensure the proper apparatus is either in-house or rented.

Much of treatment goal-setting is focused on discharge planning and determining the extent to which the patient can regain functioning, but clinicians need to be mindful of sequelae specific to bariatrics that can delay recovery, and adapt their expectations accordingly. Excessive bodyweight is generally associated with significant functional limitations, including difficulties with mobility, increased risk of falls and greater muscle fatigue; these reduce exercise capacity and can lead to deconditioning. Higher BMI can have comorbidities, such as osteoarthritis, which cause chronic pain and further impair movement. Obesity is highly correlated with health conditions known to complicate rehabilitation outcomes, such as diabetes, sleep apnea and hypoventilation. The sleep apnea can lead to excessive daytime drowsiness, which can reduce endurance



in physical therapy. Persons with impaired movement are at high risk for pressure ulcers. Appropriate pressure relief is a particular concern among obese patients.

Clinician education also must extend to troubleshooting orthotic and prosthetic fabrication, donning and doffing, all of which can be complicated due to patient size. Excess fatty tissue often makes achieving adequate socket fit and proper suction difficult in patients with limb loss. And because lower limb prostheses are selected based on bodyweight and activity level, obese individuals have fewer options in terms of socket design and suspension.

A PERSON-CENTERED APPROACH

Reducing pain, enhancing function and improving fat-to-lean-mass ratio may seem like obvious targets of intervention, but in clinical practice during inpatient rehabilitation, a common challenge concerns whether or not weight loss will be addressed as a treatment goal. Some people may not be receptive to guidance; others may choose to focus on their more immediate injury recovery needs. Depending on the patient's diagnosis, increased calories may be necessary while hospitalized, and decreasing body fat may have to wait until after discharge. At Kessler, a nutritionist provides integrated input to every bariatric patient, but ultimately we respect the wishes of the

individual as to whether or not weight reduction is an area of focus at this time.

For many people living with extreme obesity, stigma and discrimination are everyday realities. Our clinicians are sensitive to this and mindful of how we address treatment modifications. For instance, extra staff may be necessary to assist with transfers and in therapy, as the patient likely lacks sufficient strength to support his or her own bodyweight. A multidisciplinary treatment team—including physiatry, nursing, therapy and nutrition—discusses and plans for these accommodations in private and ideally before the patient is admitted. Having to call for extra assistance in the presence of the individual can be unintentionally hurtful and undermine rapport building with care providers.

Meeting the individualized rehabilitation needs of a bariatric patient is an essential skill given that the prevalence of obesity appears to be trending upward and these issues will likely affect a greater number of persons in the future.



Cristin McKenna, M.D., Ph.D.
Staff physiatrist at Kessler Institute for Rehabilitation.
■ Cmckenna@kessler-rehab.com

Balance or burnout? Tipping the scales in physicians' favor

BY STEVEN KIRSHBLUM, M.D.

A RECENT SURVEY PUBLISHED in Mayo Clinic Proceedings¹ revealed that, in 2014, physicians in physical medicine and rehabilitation (PM&R) reported the third-highest rate of burnout, behind only emergency medicine and urology and among 24 medical specialties—a significant increase from only three years prior (47.4 percent versus 63.3 percent). Burnout impacts the recruitment, retention and migration of clinicians, but hospitals play an important role in enriching the practice structure and implementing numerous quality improvement strategies to help make careers in physical medicine and rehabilitation more sustainable.

UNIQUE CHALLENGES

Although burnout has been documented across all medical areas, PM&R presents unique demands associated with the management of patients who have complex illnesses and potentially life-altering social situations. However, there may be different pressures for those physiatrists primarily engaged in inpatient versus outpatient practices. For physiatrists practicing mainly in rehabilitation hospitals, these may include challenges related to the shortened patient length of stay; the later hour of admissions from the acute care hospital; denials for coverage of equipment and services; and the lengthy appeals process associated with those decisions. For outpatient physiatrists there may be similar issues in relation to denials for services, delays in obtaining approvals for diagnostic testing and therapeutic interventions; processes involved in restricted medications (e.g., Class III drugs); and the proliferation of electronic medical records that are not necessarily tailored to our field's needs.

Continual measurement and monitoring of burnout metrics—such as physician stress level, perception of work-life balance and intent to leave the practice—allows organizations to respond to problems

proactively. Data gathering should also occur at a more granular level and assess the quality of the daily work environment, such as the need for a change in processes and workflow and additional resources.

Staffing decisions can make an important difference in how physicians perceive their work life. Administrators should hire division and department leaders who embody qualities that facilitate better supervisor-supervisee relationships. This could mean encouraging clinicians to suggest ideas for improvement; fostering an open dialogue about their happiness on the job; or demonstrating a vested interest in helping providers cultivate their unique talents. Utilizing a team-based approach to staffing—including the use of ancillary employees, such as nurse practitioners, physician assistants or medical assistants—can reduce workload, promote cross-communication and give employees the time and opportunity to troubleshoot challenging clinical scenarios. From the inpatient side, promoting a close working relationship between case management and the overall team is important for documenting the need for greater length of stay, as well as in assisting with insurance denial appeal processes.

Hospitals also can help improve the efficiency of the practice environment by creating flexible, more predictable work schedules that still ensure adequate coverage and appropriate staff-to-patient ratios. This may be especially important for the retention of female clinicians given the significant gender gap in burnout rates, likely due in part to the need for greater balance between occupational and child care responsibilities. Finally, offering dedicated time for career development gives doctors the opportunity to pursue professional activities of high interest and personal value, which makes them more likely to feel invested in the organization and the profession as a whole.

PUTTING IT INTO PRACTICE

Several initiatives at Kessler Institute for Rehabilitation are being implemented or discussed to help build resilience and satisfaction among all providers. Collaboration has begun with Epic Systems on developing an EMR package that is more rehabilitation-friendly, with greater inclusion of documents vital to the practice of PM&R. We also have an established “oversight committee” to assist with issues related to pain medicine management and to help physicians handle difficult cases more effectively. More staff members, including medical assistants and nurse practitioners, are being added. Schedules that allow some physicians to assist with late admissions are being considered.

Hospital administrators and medical leaders have a vested interest in ensuring physicians are satisfied with their jobs. Clinician burnout is associated with high turnover and replacement costs and impinges on quality of care and patient outcomes. By improving the clinical environment to maximize efficiency and autonomy, organizations not only help improve the welfare of staff but also are protecting the well-being of their patients.

1. Shanafelt TD, Hasan O, Dyrbye LN, Sinsky C, Satele D, Sloan J, West CP. Changes in Burnout and Satisfaction With Work-Life Balance in Physicians and the General US Working Population Between 2011 and 2014. *Mayo Clin Proc.* 2015 Dec;90(12):1600-13.



Steven Kirshblum, M.D.

Medical director and director of spinal cord injury rehabilitation at Kessler Institute for Rehabilitation.
 ■ Skirshblum@kessler-rehab.com