Physiatrist's Voice

NEWSLETTER June 2022

Enhancing Health And Function Through Education And Research In The Field Of Physical Medicine And Rehabilitation

In this Issue

ACE
PRESIDENT'S MESSAGE

By Mark Rubenstein, M.D.

June 2022

Aces are considered one of the most valuable cards in a deck. In the game of "21" they can be used as a 1 or as an 11. In secondary school our exams were most often graded out of a total of 100, and if one scored perfectly we might say they "aced" the exam. Many acronyms have developed from the word itself. A brief search revealed at least 397 acronyms that are used for the word.

This "President's Message" marks my last since the next will be drafted by the incoming President, Dr. Andrew Sherman. For many years I was asked to ascend to this position for FSPMR, but the timing due to multiple other commitments just never seemed opportune. Everything in our lives is a balance. I have had a hard time saying "no" to organizational responsibilities. It's part of my genetic make-up and commitment to the profession of medicine, as well as commitment to community.

The last two years have had its own challenges. The most obvious has been COVID. It has changed how we practice, how we dress, how we socialize, and how we convene. We are doing our best to meet these dynamic challenges, and I'm sure there are many more to come. As I pondered the ideas for my last "message," I thought about the mission of FSPMR.

Our published mission is as follows:

> *The Florida Society of Physical Medicine and Rehabilitation's mission is to promote and advance health and function through education and research in the field of Physical Medicine and Rehabilitation, in order to provide quality patient care and promote a person's quality of life and improve functional outcomes.*

This mission is really related to our chosen specialty. The realization is that our society provides a voice for our members. The most important things I think our organization can provide include advocacy, collabora-

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tion, and education. Make that list of acronyms now 398, as ACE fits perfectly.

Advocacy comes in many forms. We advocate for our patients as well as ourselves and our profession. Political advocacy is inherent to the future of medicine. I encourage all physiatrists to engage in political action committees from the county organizations, and at the state level. It is the legislators who approve the statutes which govern how we can practice. Personally I wish I could spend my entire day seeing patients and providing the expertise that I have dedicated my career to. Understanding the political system and participating in representing the interests of physicians from all specialties is a necessity to protect the future of the medical community. I have tried to inject legislative updates to these newsletters to keep our membership informed. In April the Florida House and Senate completed its most recent session and a number of bills were considered that affect many of us. A brief review of some of these may be of benefit.

Senate Bill 312 was one of the last bills passed in the session. The Senate version contained a provision to include audio-only telemedicine visits in the definition of telehealth, but the House refused to concur. The bill that passed therefore had a sole provision where physicians will be able to prescribe Schedule III-V controlled substances via telehealth, but Schedule II will be precluded. This bill takes effect 7/1/22.

House Bill 459 relates to Step Therapy Protocols. It is not the same FMA supported bill as in year's past, but helps to solve some of the problems with step therapy. The legislation requires health insurers that utilize step therapy protocol to provide a written explanation that includes the reason for a denial, the supporting clinical rationale, and the procedure for appeal. This is also effective 7/1/22.

SB 544 allows pharmacists to order an emergency opioid antagonist with an autoinjection delivery system or intranasal application for patient or caregiver use. It also requires hospital emergency departments and urgent care centers that treat and release person in response to a suspected or actual overdose of a controlled substance to report such incidents to the Department of Health if the patient was not transported to the facility via ambulance. This takes effect 7/1/22.

HB 817 is a fix to last session's parental consent bill. This allows for the provision of emergency care to minors without parental consent in any situation, not just care provided in a hospital or college clinic. The FMA is continuing to address glitches in the original bill.

SB 7017 extends the COVID-19 liability protections for health care providers passed in 2021 for another year (these protections were set to expire in March of 2022).

The bills mentioned above may have relevance to our membership. There were obviously many more bills that were issued, and some pertain to healthcare but not specifically physiatrists. Equally important to understanding the new rules and regulations, it is helpful to know which bills did NOT pass last session. "Defense" of bills is one of the most important things that political action committees and their lobbyists do. Likewise, it is helpful to know what legislation was sought to pro-

PRESIDENT'S MESSAGE—CONTINUED

tect physicians that the legislators did NOT adopt.

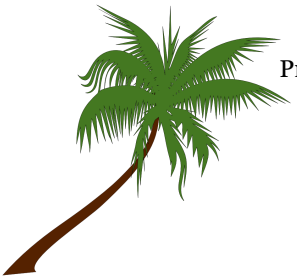
SB 540/HB 319 would have allowed psychologists to prescribe medications INCLUDING controlled substances.

SB 1192/HB 861 would have prohibited non-physicians from using a term designating a medical specialty unless certain requirements were met (this bill was the one the FMA sought to rectify the "Nurse Anesthesiologist" opinion from the Board of Nursing).

For those of you that dispense in your offices or clinics, SB 748 was proffered by Senator Diaz and would have prohibited health insurers from refusing to pay a participating provider for providing covered clinician-administered drugs and related services to covered persons. It would have prohibited insurers from interfering with the patient's right to choose to obtain a clinician-administered drug from the patient's chosen health care provider or pharmacy. It would have prohibited insurers from requiring clinician administered drugs to be dispensed by a pharmacy selected by the insurer. There are many other inclusions in the bill that would have restricted the health insurers' power to control dispensing, but the bill did not pass.

Education is our duty and our responsibility. On a daily basis we educate our patients. We teach the residents and students. We provide family education. We teach our children. Paramount to the success of our specialty is maintaining a knowledge base of cutting edge techniques, medical innovations, and standards in the care of patients. Our annual meeting has a daylong educational break-out which puts education in the forefront of our members and our residents. We look forward to the annual FSIPP/FSPMR meeting in July, and encourage all of you to consider attending. Dr. Sherman and his team strives to provide the most appropriate and timely lectures and seminars. If you as members have suggestions for future topics, please let us know.

Collaboration is the mechanism by which our board works to represent the interest of our organization. Physiatry is truly the specialty of team-oriented care. Our board has identified goals for the coming year and one is clearly to expand reaches to the physiatrists of our state who are not currently members. We need to expand our membership numbers to strengthen our voice. Our focus has included creation of a membership committee, and we welcome Kenneth Ngo, M.D. as our

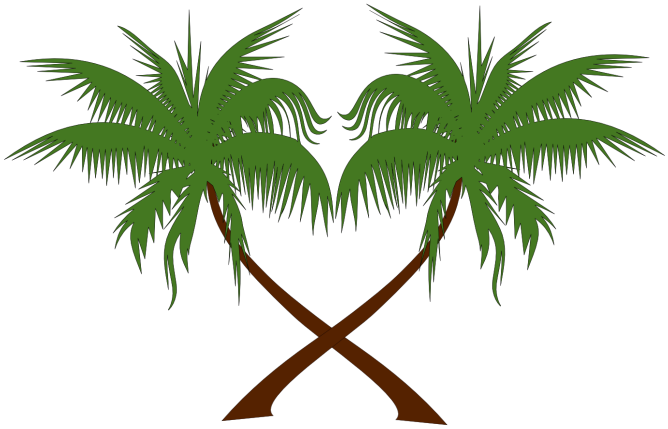


President's Message continues on the next page.

new Chair of same.

I would like to thank our board members, our executive director, and our resident liaisons for their commitment to our mission. Collaboration between all has been integral to the existence of our society. Dr. Andrew Sherman has been our committed Vice-President and will assume the reins of the organization in July. We look forward to his leadership. A thank you to our Secretary, Dr. Colleen Zittel, and our Treasurer, Dr. Diana Hussain. Our members-at-large over the last two years have been Dr's Marc Gerber, Jay Wright, Jesse Lipnick, and Lindsay Shroyer. Thank you to Dr. Craig Lichtblau, our Immediate Past-President, particularly for his generous financial support of the organization which has allowed us to continue to function in a stable capacity. Thanks to our Carrier Advisory Council Representative, Dr. Mitchell Freed, for representing the interests of all physiatrists in the state. Additionally, our collaborative efforts have included Resident Liaisons from the various programs in the state. Thank you to Edwin Amirianfar, MD, Kareem Qaisi, DO, Arun Zachariah, DO, Yvette Little, DO, Zeeshan Haque, MD, and Michael Brownstein, MD for representing their respective programs in our organization. Our organization's glue is clearly our experienced Executive Director, Lorry Davis. We appreciate her diligence, organization, and commitment to our specialty.

It has been a pleasure to serve the FSPMR. I look forward to continuing to advocate on your behalf, to collaborating with you, and to learning from and educating our colleagues in the coming years.



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See you at the Meeting!

Complete and up-to-date Conference Information for
July 28—31, 2022

HERE

https://fsipp.org/conference/

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FSPMR Breakout, Saturday July 30, 2022
FSPMR/FSIPP Conference, July 28 - 31, 2022, JW Marriott Tampa Water Street

Course Director: Andrew L Sherman MD MS
Professor and Vice Chair of Education
Department of Physical Medicine & Rehabilitation
University of Miami Leonard M Miller School of Medicine, Miami FL

8:30–9:15 AM ***Transitioning from Acute In-Patient Rehabilitation to Out-Patient Services***
Trevor H Paris MD FAAPMR, System Chief Medical Officer
Brooks Rehabilitation, Jacksonville FL
Pierre Galea MD, Staff Physiatrist
Brooks Rehabilitation Hospital, Jacksonville FL

9:15–10:00 AM ***How to Treat, Manage, and Diagnose Post-Traumatic Mild TBI***
Marissa R McCarthy MD, Associate Professor, College of Medicine
Department of Neurology, University of South Florida
Neurorehabilitation, James A Haley VA Hospital, Tampa FL

10:00–10:30 AM BREAK with Exhibitors and Posters

10:30–11:15 AM ***Depositions and Trials: The Forensic Experience***
Anthony J Dorto DC MD
Disability Assessment, Miami FL
Craig H Lichtblau MD
Craig H Lichtblau MD PA, North Palm Beach FL

11:15 AM–12:00 PM ***KEYNOTE: LONG COVID***
Alba M Azola MD, Assistant Professor
Co-Director PM&R Post-Acute COVID-19 Team (JH PACT) Program
Department of Physical Medicine and Rehabilitation
Johns Hopkins University School of Medicine, Baltimore MD

12:00–1:00 PM LUNCH

FSPMR BREAKOUT continues on the next page.

1:00–1:45 PM ***Peds/Sports Medicine/Ultrasound – What Can a Physiatrist Offer?***
Jason L Zaremski MD CAQSM FACSM FAAPMR, Clinical Associate Professor PM&R and Sports Medicine, Department of Physical Medicine & Rehabilitation, Department of Orthopaedic Surgery & Sports Medicine (Joint appointment) University of Florida Health, Gainesville FL

1:45 – 2:30 PM ***Telehealth Roundtable***
Moderator: Andrew Sherman MD MS
Panel: Carolyn Geis MD FAAPM , Associate Professor, Department of PM&R UF Health Neurology, UF Health Orthopaedics & Sports Medicine University of Florida, Gainesville FL
Jessica G Cupido DO, Bay Pines VA Healthcare System, Bay Pines FL
Brian T Higdon MD, Associate Medical Director Spinal Cord Injury Brooks Rehabilitation Hospital, Jacksonville FL

2:30 – 3:00 PM BREAK with Exhibitors and Posters

3:00 – 4:15 PM PM&R RESIDENT CASE PRESENTATIONS
6 programs @ 10 minutes each, followed by 15 minutes Q&A

3:00 – 3:10 PM **University of South Florida**
Neurorheumatologic Rehabilitation: A Case Study
Kareem Qaisi DO PGY3 and Matthew Wilhelm DO PGY3

3:10 - 3:20 PM **Memorial Health**
HSV/EBV reactivation in a patient with GBS syndrome secondary to COVID 19 Pneumonia
Yvette Little DO PGY3 and Amanda Hargrove DO PGY3

3:20 – 3:30 PM **West Florida Hospital/UCF**
Iliacus Hematoma Resulting in Compressive Femoral Neuropathy
Himat Gill DO PGY3 and Sean O'Leary MD PGY3

3:30 – 3:40 PM **University of Florida**
Post-Traumatic Focal Dystonia
Michael Brownstein MD PGY3 and Shammi Patel DO PGY3

FSPMR BREAKOUT continues on the next page.

3:40 – 3:50 PM **University of Miami**
An Unexpected Rehabilitation Course in a Medically Complex Patient
Oliver Acosta MD PGY4 and Lauren Cuenant DO PGY3

3:50 – 4:00 PM **Larkin Community Hospital**
A Case of CIDP (chronic inflammatory demyelinating polyneuropathy) Complicated by Vitamin B12 Deficiency after Gastric Bypass Surgery
Megan McGuire DO PGY3 and Richard Morgan DO PGY4

4:00 – 4:15 PM **Q&A for All Resident Case Presentations with Expert Panel:**
Mark Rubenstein MD FAAPMR FAANEM Vice-Speaker, Florida Medical Association President, Florida Society of Physical Medicine & Rehabilitation
Colleen M Zittel MD, Orlando Health Jewett Orthopedic Institute, Lake Mary FL
Diana A Hussain MD, Orlando Health Physical Medicine and Rehabilitation, Orlando FL

4:15 – 5:00 PM **FSPMR Annual Business Meeting/Elections/Recognition**
Refreshments/Snacks

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BALLOT

Elections, 2022 – 2024

At our Annual Business Meeting, Saturday, July 30, FSPMR will hold elections. Here is your official Slate of Candidates. Nominations may come from the floor at the time of the meeting via write-in votes.

President 2022 - 2024 – Andrew Sherman MD, Miami (current Vice President)

No vote needed, VP ascends to Presidency.

Vice President

-----_____Diana Hussain MD, Orlando

_____Write-in:_____

Secretary

_____Chelsea Frost MD, Tampa

_____Write-in:_____

Treasurer

_____Parag Shah MD MBA, Jacksonville

_____Write-in:_____

Immediate Past President – Mark Rubenstein MD, Jupiter

Members-at-Large, in alpha order (VOTE for 4 ONLY):

_____Marc Gerber MD, Orlando, *incumbent*

_____Craig Lichtblau MD, W Palm Beach

_____Cassandra List MD, Jacksonville

_____Rigoberto Nunez MD, Tampa

_____Lindsay Shroyer MD, St Petersburg, *incumbent*

_____Write-in :_____

doc: fspmr ballot 22 - 24

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THANK YOU

FSPMR BOARD OF DIRECTORS, 2020–2022

President
Mark Rubenstein MD

Vice President
Andrew Sherman MD

Secretary
Colleen Zittel MD

Treasurer
Diana Hussain MD

Immediate Past President
Craig Lichtblau MD

Member-at-Large
Jesse Lipnick MD

Member-at-Large
Marc Gerber MD

Member-at-large
Lindsay Shroyer MD

Member-at-Large
Jay Wright MD

Carrier Advisory Council (CAC) Rep
Mitchel Freed MD

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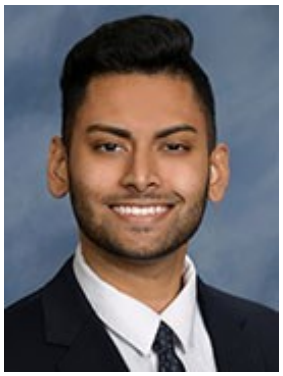
THANK YOU

FSPMR RESIDENT LIAISONS

Liaison, University of Miami PM&R Residency Program
Edwin Amirianfar MD

Liaison, University of Florida PM&R Residency Program
Michael Brownstein MD



Liaison, West Florida Hospital PM&R Residency Program
Zeeshan Haque MD

Liaison, Memorial Healthcare System PM&R Residency Program
Yvette Little DO

Liaison, University of South Florida PM&R Residency Program
Kareem Qaisi DO

Liaison, Larkin Community Hospital PM&R Residency Program
Arun Zachariah DO

OPEN ACCESS Freely available online

International Journal of Physical Medicine & Rehabilitation

Review Article

Life Expectancy in Spinal Cord Injury: The Importance of High-Quality Care

Craig H. Lichtblau[1*], Christopher Warburton[2], Gabriel Meli[3], Allyson Gorman[4]

[1]Physical Medicine and Rehabilitation Consultant to the Paley Orthopedic and Spine Institute at St. Mary's Medical Center, West Palm Beach, FL, USA, Consultant to Children's Medical Services for the State of Florida, District 9, St. Mary's Medical Center; [2]University of Miami Miller School of Medicine, Miami, FL, USA;[3]Cornell University, Ithaca, NY, USA;[4]Medical College of Wisconsin, Wauwatosa, Wisconsin, USA

ABSTRACT

Spinal Cord Injury (SCI) injuries most commonly occur in the young, and there is a significant need to understand how long SCI patients will live for the purposes of planning and financing their care. The calculators that are used to estimate life expectancy in those with SCI are flawed and tend to underestimate survival time. Thanks to medical advancements, SCI patients are living longer than ever before and thus require more care over a longer duration. This care is costly and must be financed if SCI patients are to remain healthy and have adequate quality of life.

Keywords: Spinal Cord Injury (SCI); Pain; Life expectancy; Chronic pain

INTRODUCTION

Nearly 300,000 people are currently living with Spinal Cord Injury (SCI) in the United States, and each year, between 250,000 and 500,000 more people around the globe will suffer this devastating injury [1]. Most SCIs result from accidents, sports-related injuries, and violence [1,2]. In the United States, motor vehicle collisions account for 38% of SCI, with falls accounting for another 30% [1].

Males between the ages of 16 and 30 represent the highest risk group for this condition [1,3]. Given that SCI often occurs in young people and causes long-term health-related consequences, healthcare planning is critically important in the context of SCI to ensure that those living with SCI have the care and resources they need to optimize health outcomes.

LITERATURE REVIEW

There is an unmet need to accurately estimate survival in SCI patients

Determining future medical care, support services, and durable medical products for those with SCI requires life expectancy estimation and identification of the factors affecting survival [4]. Unfortunately for SCI patients and their families, there does not exist a highly reliable way to predict how long an individual patient will survive. Though SCI life expectancy calculators have been generated based on population data, these calculators are not sensitive enough to adequately capture clinically meaningful contextual factors that affect longevity in individual SCI patients.

While life expectancy calculators may in some circumstances provide a valuable baseline from which to begin an assessment of how long an SCI patient will survive, the estimates from the calculators are almost always inferior to estimates provided by experts who can improve upon the baseline prediction by incorporating crucial circumstantial information that will impact the patient's outcomes. Though models and experts agree that healthcare funding is a modifiable predictor of longevity in those with SCI and that those who cannot finance high-quality care are likely to live significantly shorter lives than those who can afford better care, experts are needed to evaluate life expectancy in each individual case and to provide a more precise estimate of survival than can be attained with algorithms alone [5].

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SCI life expectancy calculators suffer several limitations

How long any given individual will live results from a plethora of factors. Life expectancy calculators, which are based on the status of a discrete number of factors at a snapshot in time, are highly rigid in their analyses of longevity. They are incredibly limited in the data they incorporate into their assessments. For example, the life expectancy calculated provided by the Life Expectancy Project accounts only for a patient's name, sex, age, smoking habits, and whether one's health classifies as 'excellent,' 'good, or 'average' [6]. In the case of SCI, medical schools disclaim that for any given individual, life expectancy calculators will not provide an accurate estimate of the number of years that an individual will survive [7]. In addition to the inherent limitations of all life expectancy calculators, SCI-specific life expectancy calculators are further plagued by the weak data on the relevant patient population. Historically, studies in SCI life expectancy have suffered from small sample sizes and statistical designs that prevent robust estimates of survival from the time of injury [8]. Nonetheless, it has become clear that some factors can help in the prediction of how long SCI patients will live. For instance, some of the important clinical factors to consider are the severity of injury, degree of impairment, and ventilator dependency, whereas some of the demographic predictors of longevity include gender, ethnicity, and age at time of injury [4,9].

Critical in the evaluation of life expectancy models is the recognition that longevity in SCI results not only from nonmodifiable risk factors but also from modifiable ones. These factors include overall health, economic status, social support, and community integration [9,10]. That aspects of an individual's life can be modified to affect their longevity highlights the complexity of predicting how long a patient will live and demonstrates why a life expectancy calculator-which is used at a given moment in time-cannot adequately integrate the dynamic information that will ultimately determine how long a given SCI patient survives.

Life expectancy models likely under predict how long SCI patients will survive

Though data on life expectancy in those with SCI are scant and suffer from a high degree of variability in the estimates they provide, there is significant evidence that overall survival in SCI patients has improved dramatically since World War II, likely owing to advancements in understanding and management of the condition [3,10,11]. The current medicines and medical services, including surgical and rehabilitation services all enhance longevity in those with SCI [12]. However, current models to predict life expectancy in SCI often incorporate old data and do not give current scientific advancements enough weight.

Research now shows that for those who have suffered SCI but can walk without assistance and do not need an indwelling catheter to manage their bladder, life expectancy is reduced by less than 10% [13]. Further, for those in the youngest age groups, life expectancy is nearly normal. In addition, life expectancies should continue to improve with advances in methods to prevent and manage complications such as pneumonia, pulmonary embolism, and sepsis [8]. Though our medical teams are getting better and better at keeping SCI patients alive, translating those improvements into updated life expectancy algorithms in a quantifiable way is challenging, and thus life expectancy calculators are always behind the curve.

Longer life expectancies in those with SCI means SCI patients require longer-term care

Despite improvements in longevity, fewer than 1 in 100 SCI patients have fully recovered functionally by the time they leave the hospital, pointing to the significant need to effectively manage this population of patients as they continue to suffer from their injuries beyond hospital discharge [1]. In addition to failing to recover fully, SCI patients are now enduring chronic health conditions such as coronary artery disease, cardiovascular disease, and maturity-onset diabetes, which had not before been recognized in this population because these patients did not tend to live as long as they do now [12].

While approximately 90% of SCI patients return to their homes following their injuries today, these patients are at high risk for secondary complications [14]. The typical SCI patient experiences between 8 and 14 complications each year, with common complications being: Pain, spasticity, urinary tract infections, bowel problems, osteoporosis, respiratory difficulties, autonomic dysreflexia, and pressure ulcers [15].

With the appropriate care, however, secondary complications could be prevented or quickly managed before they escalate to the point where patients require readmission to the hospital [15]. There is an urgent unmet need to provide ongoing rehabilitative care to SCI patients after they are discharged from the hospital to reduce the level of long-term disability. Indeed, research shows that the best outcomes in SCI occur with intense rehabilitation directed by a collaborative healthcare team of physiatrists, physical therapists, and occupational therapists [1].

A leading cause of death amongst SCI patients is suicide, pointing to the significant need for better care

Urinary tract disease was once a major cause of mortality in SCI patients but has dropped dramatically as a cause for death in this population over the past several decades [13].

Similarly, renal failure, which was the leading cause of death in SCI patients who survived their initial injury, is no longer a top driver of death in this population. Instead, suicide has become a leading cause of death in those with SCI and the number one cause of death in those with complete paraplegia [14].

Suicide risk is potentially even more modifiable than other secondary complications related to SCI that may lead to death, and thus effective strategies for preventing suicide could therefore significantly increase life expectancy in SCI patients.

Suicide risk can depend in part on quality of life, and quality of life in those with SCI is directly linked to continued and well-

coordinated care. The type and quality of care predicts life expectancy in those with SCI by reducing secondary complications but also by improving patients' function and perception of support, which contribute to how patients feel about their quality of life. Psychiatrists and pain management specialists can also more directly address SCI complications that may enhance suicide risk, such as depression and pain [1].

Ultimately, financial means have a huge impact on survival in SCI

It is generally agreed that financial realities impact health outcomes and that health disparities result largely from income gaps, and it is well established that wealthier people tend to be healthier and experience lower mortality rates than less wealthy people [10]. The trend for people with SCI is no exception. Data show that financial means are predictive of how long SCI patients will live and how many comorbidities they will suffer [10]. Research shows, for instance, that those SCI patients near the poverty line likely live shorter lives than those with access to more resources [9].

While life expectancy calculators cannot provide accurate or precise estimates for how long individual SCI patients will survive, they do tend to consider factors that are known to contribute to patients' longevity, including those related to economic status. Tellingly, the life expectancies that are generated by these calculators vary widely depending on information linked to financial status.

Take, for example, the gold standard for life expectancy estimation in those with SCI: The University of Alabama's Life Expectancy Calculator. This calculator accounts for just 10 factors: Age, injury date, sex, ethnicity, highest level of education, type of insurance, whether a patient has used a ventilator, the cause of their injury, their current level of SCI and current completeness of SCI.

The life expectancy generated from the University of Alabama Spinal Cord Injury Calculator changes significantly, depending on whether the patient has Workers' Compensation or private insurance versus Medicare, Medicaid, or other. In our example, a 70-year old black male (date of birth 11/16/50, date of injuries 10/31/19), who was a high school graduate and had been on a ventilator, was diagnosed as a C5 ASIA B spinal cord injury. Using the University of Alabama calculator, his life expectancy would be 8.68 years if his funding came from Workers' Compensation or private insurance. However, if his funding came from Medicare, Medicaid, or other, the University of Alabama calculator provides a life expectancy of 6.81 years. Thus, whether this patient has insurance indicative of higher versus lower economic status and corresponding quality of care alters life expectancy by 22%. When patient information is used, the impact of insurance type is sometimes even more drastic. It is thus clear that not only clinical experts, but also those who developed the Spinal Cord Injury Life Expectancy Calculator algorithms, recognized that SCI patients who have optimal funding will have a significantly longer life expectancy. On the other hand, patients who do not receive optimal funding are not afforded early detection of and early intervention to the secondary effects of immobility and SCI, which carry increased morbidity and mortality. These complications include but are not limited to deep vein thrombosis, pulmonary embolus, pneumonia, sepsis, urinary tract infection, cellulitis, osteomyelitis, and autonomic dysreflexia. Thus, according to the University of Alabama Spinal Cord Injury Calculator, patients who do not receive optimal funding are unlikely to receive optimal care and will have a significant reduction in life expectancy.

CONCLUSION

SCI carries a significant burden to patients, families, and the healthcare system. These injuries tend to occur relatively early in life, and thus the care for those who survive requires a great deal of planning for and spending on healthcare, the quality of which substantially impacts longevity. SCI life expectancy calculators are employed to aid in financial and future medical care planning, but they are extremely limited in the value they offer to individual patients because they fail to capture meaningful clinical and non-clinical factors that affect how long each patient will survive. Nonetheless, these calculators do account for the critical role of finances and high-quality care as well as other important contributors to patient survival. These calculators may thus provide a valuable jumping off point from which clinical experts familiar with the details of individual patients can base their more accurate and precise estimates for how long a given patient will survive and what can be done to increase longevity and improve quality of life for those patients.

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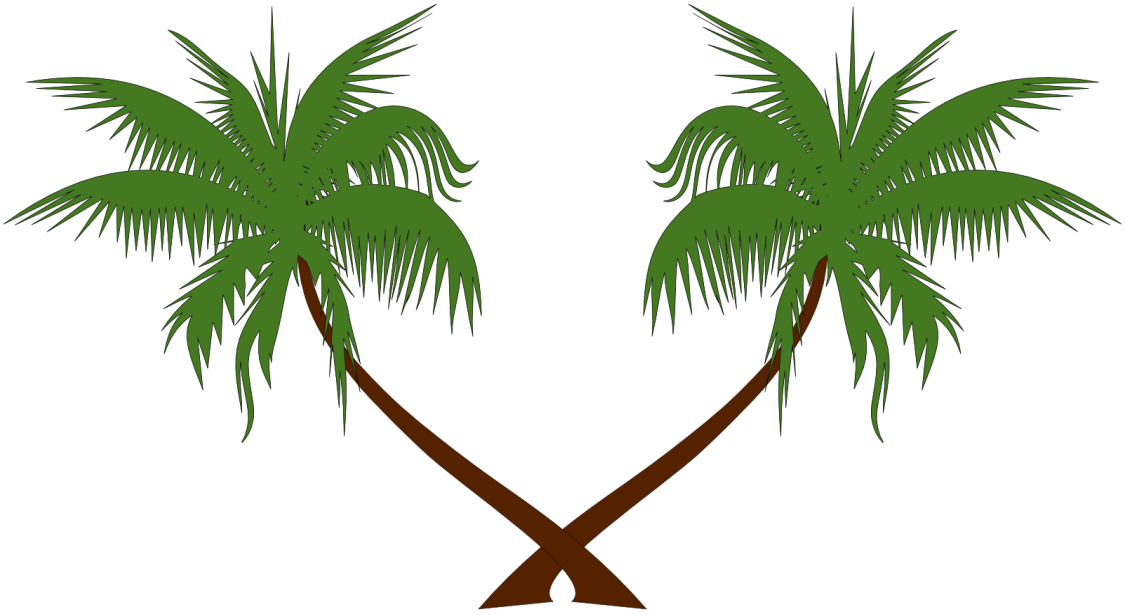

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Spinal Cord Injury

by Craig Lichtblau, M.D.

Spinal cord injury is damage to the spinal cord that causes temporary or permanent changes in its function. Symptoms may include loss of muscle function, sensation, or autonomic function in parts of the body served by the spinal cord below the level of the injury. Injury can occur at any level of the spinal cord and can be complete, with a total loss of sensation and muscle function at lower sacral segments, or incomplete, meaning some nervous signals are able to travel past the injured area of the cord to the sacral S4-S5 spinal cord segments. Depending on the location and severity of damage, the symptoms vary from numbness to paralysis, including bowel or bladder incontinence. Long-term outcomes also range widely, from full recovery to permanent quadriplegia or paraplegia. Complications can include muscle atrophy, loss of voluntary motor control, spasticity, pressure sores, infections, and breathing problems.

In the majority of spinal-cord-injured patients, the damage comes from physical trauma, such as car accidents, gunshot wounds, falls, and sports injuries, but it also can result from nontraumatic causes, such as infection, insufficient blood flow, and tumors. Just over half of spinal cord injuries affect the cervical spine, while the thoracic spine, border between thoracic and lumbar spine, and lumbar spine alone each represent 15% of cases. Diagnosis is typically based on symptoms and medical imaging.

In the United States, about 12,000 people a year survive a spinal cord injury. The most commonly affected group is young adult males.

Spinal cord injury has seen great improvements in its care since the middle of the 20th century. Research into potential treatments includes stem cell implantation, hypothermia, engineered material for tissue transport, epidural spinal stimulation, and wearable robotic exoskeletons.

Classification

Spinal cord injury can be traumatic or nontraumatic and can be classified into three types based on cause: (1) mechanical, (2), toxic, and (3) ischemic. The damage can also be divided into primary (the cell death that occurs immediately in the original injury) and secondary (biochemical cascades that are initiated by the original insult and cause further tissue damage). Secondary injury pathways include ischemic cascade, inflammation, swelling, cell suicide, and neurotransmitter imbalances. Secondary injury can take place for minutes or weeks following the injury.

The area of skin innervated by a specific spinal nerve is called a dermatome, and the group of muscles innervated by a single spinal nerve is called a myotome. The part of the spinal cord that was damaged corresponds to the spinal nerves at that level and below. Injuries can be cervical (C1 through C8), thoracic (T1 through T12), lumbar (L1 through L5), or sacral (S1 through S5). A person's level of injury is defined as the lowest level of full sensation and function. Paraplegia occurs when the legs are affected by the spinal cord damage in thoracic, lumbar, and sacral injuries, and quadriplegia occurs when all four limbs are affected.

Spinal Cord Injury– continued

The American Spinal Cord Injury Association is widely used to document sensory and motor impairments following spinal cord injury. It is based on neurological responses, touch and pinprick sensations tested in each dermatome, and strength of the muscles that control key motions on both sides of the body. Muscle strength is scored on a scale of 0 to 5. Sensation is graded on a scale of 0 to 2; 0 signifies no sensation, 1, altered or decreased sensation, and 2, full sensation. Each side of the body is graded independently.

In a complete spinal injury, all functions below the injured area are lost, whether or not the spinal cord is severed. An incomplete spinal cord injury involves preservation of motor or sensory function below the level of the injury in the spinal cord. To be classified as incomplete, there must be some preservation of sensation or motion in the areas innervated by S4 to S5.

Voluntary External Anal Sphincter Contraction

The nerves in this area are connected to the very lowest region of the spinal cord, and retaining sensation and function in these parts of the body indicates that the spinal cord is only partially damaged. Incomplete injury, by definition, includes a phenomenon known as sacral sparing. Some degree of sensation is preserved in the sacral dermatomes, even though sensation may be more impaired in other, higher dermatomes below the level of the lesion. Sacral sparing has been attributed to the fact that the sacral spinal pathways are not as likely as the other spinal pathways to become compressed after injury, due to the lamination of fibers within the spinal cord.

Signs and Symptoms

Signs (observed by a clinician) and symptoms (experienced by a patient) vary depending on where the spine is injured and the extent of the injury. Injury to a specific part of the spine can cause pain, numbness, or a loss of sensation in the dermatome (area of skin) associated with that region.

Paresthesia, a tingling or burning sensation in affected areas of the skin, is another symptom. A person with a lowered level of consciousness may show response to a painful stimulus above a certain point, but not below it.

An injury to a particular part of the spinal cord can also cause problems with movements involving muscles innervated by that part of the spine. The muscles may contract uncontrollably (spasticity), become weak, or be completely paralyzed.

Spinal shock (loss of neural activity), including reflexes below the level of the injury, occurs shortly after the injury and usually goes away within a day or weeks. Priapism, an erection of the penis, may be a sign of acute spinal cord injury. The specific parts of the body affected by loss of function are determined by the level of injury. Some signs, such as bowel and bladder dysfunction, can occur at any level. Neurogenic bladder involves a compromised ability to empty the bladder and is a common symptom of spinal cord injury. This can lead to high pressures in the bladder and can damage the kidneys.

Complications

Complications of spinal cord injuries include pulmonary edema, respiratory failure, neurogenic shock, and paralysis below the injury site. In the long term, the loss of muscle function can have additional effects from disuse, including atrophy of the muscles. Immobility can lead to pressure sores, particularly in bony areas, requiring precautions such as extra cushioning and turning in bed every two hours (in the acute setting) to relieve pressure. In the long term, people in wheelchairs must shift periodically to relieve pressure.

Spinal Cord Injury– continued

Another complication is pain, including nociceptive pain (indication of potential or actual tissue damage) and neuropathic pain (when nerves affected by damage convey erroneous pain signals in the absence of noxious stimuli).

Spasticity (the uncontrollable tensing of muscles below the level of the injury) occurs in 65% to 78% of chronic spinal cord injury patients. It results from lack of input from the brain that quells muscle responses to stretch reflexes. It can be treated with medications and physical therapy. Spasticity increases the risk of contractures (shortening of muscles, tendons, or ligaments that result from lack of use of a limb). This problem can be prevented by moving the limb through a full range of motion multiple times a day.

Another problem lack of mobility can cause is loss of bone density and changes in bone structure. Loss of bone density (bone demineralization), thought to be due to lack of input from weakened or paralyzed muscles, can increase the risk of fractures. Conversely, a poorly understood phenomenon is the overgrowth of bone tissue in soft tissue areas, called heterotopic ossification. It occurs below the level of the injury, possibly as a result of inflammation, and happens to a clinically significant extent in 27% of people.

People with spinal cord injury are at especially high risk for respiratory and cardiovascular problems, so hospital staff must be watchful to avoid these complications. Respiratory problems, especially pneumonia, are the leading cause of death in people with spinal cord injury, followed by infections (usually pressure sores, urinary tract infections, and respiratory infections). Pneumonia can be accompanied by shortness of breath, fever, and anxiety.

Another potentially deadly threat to respiration is Deep Venous Thrombosis (DVT), in which blood forms a clot in immobile limbs. The clot can break off and form a pulmonary embolus, lodging in the lung and cutting off blood supply to it. DVT, particularly within 10 days of injury, is an especially high risk in spinal cord injury, occurring in over 13% of patients in the acute care setting. Preventative measures include anticoagulants, pressure hose, and moving the patients' limbs. The usual signs and symptoms of DVT and pulmonary embolus may be masked in spinal cord injury cases, due to effects such as alterations in pain perception and nervous system functioning.

Urinary tract infection is another risk that may not display the usual symptoms (pain, urgency, frequency) and may instead be associated with worsening spasticity. The risk of UTI, likely the most common complication in the long term, is heightened by use of indwelling urinary catheters. Catheterization may be necessary because spinal cord injury interferes with the bladder's ability to empty when it gets too full, which could trigger autonomic dysreflexia or damage the bladder permanently. The use of intermittent catheterization to empty the bladder at regular intervals throughout the day has decreased mortality due to kidney failure from urinary tract infection in the First World, but it still is a serious problem in developing countries.

An estimated 24% to 45% of people with spinal cord injury suffer disorders of depression, and the suicide rate is as much as six times that of the rest of the population. The risk of suicide is worst in the first five years after injury. In young people with spinal cord injuries, suicide is the leading cause of death. Depression is also associated with an increased risk of other complications, such as urinary tract infection and pressure ulcers, both of which occur more frequently when self-care is neglected.

Spinal Cord Injury– continued

Autonomic Dysreflexia and Neurogenic Shock

One condition that occurs typically in spinal cord injuries above the T6 level is autonomic dysreflexia, in which the blood pressure increases to dangerous levels, levels high enough to cause a potentially deadly stroke. It results from an overreaction of the system to a stimulus, such as pain below the level of the injury, because inhibitory signals from the brain cannot pass the lesion to dampen the excitatory sympathetic nervous system response. Signs and symptoms of autonomic dysreflexia include anxiety, headache, nausea, ringing in the ears, blurred vision, flushing skin, and nasal congestion. It can occur shortly after the injury or not until years later. Other autonomic functions may also be disrupted. This includes problems with body temperature regulation, which mostly occur in injuries at the T8 level and above.

Another serious complication that can result from lesions above T6 is neurogenic shock, which results from an interruption in the output from the sympathetic nervous system responsible for maintaining muscle tone in the blood vessels. Without this sympathetic input, the vessels relax and dilate. Neurogenic shock presents with dangerously low blood pressure, low heart rate, and blood pooling in the limbs, which results in insufficient blood flow to the spinal cord and potential further damage to it.

Causes

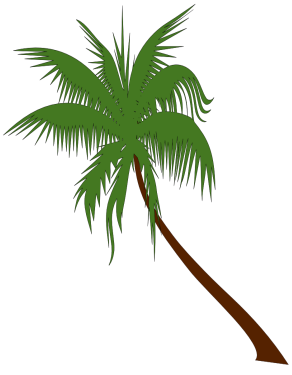
In the United States, motor vehicle accidents are the most common cause of spinal cord injuries. The second most common cause is falls, followed by violence, such as gunshot wounds, and then sports injuries. Of all sports-related spinal cord injuries, shallow-water dives are the most common cause. Winter sports and water sports have been increasing as causes, while spinal cord injuries caused by football and trampoline injuries have been declining.

Another potential cause of spinal cord injury is iatrogenic injury caused by an improperly performed medical procedure, such as an injection into the spinal column. In developed countries, the most common cause of nontraumatic spinal cord injury is degenerative disease, followed by tumors. In many developing countries, the leading cause is infections, such as HIV and tuberculosis.

Spinal cord injury may also occur in intervertebral disc disease and spinal cord vascular disease. Spontaneous bleeding can occur within or outside the protective membranes that line the cord, and intervertebral discs can herniate. Damage can result from dysfunction of blood vessels, as in arteriovenous malformation, or when a blood clot becomes lodged in a blood vessel and cuts off blood supply to the cord. When systemic blood pressure drops, blood flow to the spinal cord may be reduced, potentially causing a loss of sensation and voluntary movement in the area supplied by the affected level of the spinal cord. Congenital conditions and tumors that compress the cord can also cause spinal cord injury, as can vertebral spondylosis and ischemia. Multiple sclerosis can also damage the spinal cord, as can infectious or inflammatory conditions, such as tuberculosis, herpes zoster, herpes simplex, meningitis, myelitis, and syphilis.

Life Expectancy

Patients that suffer a spinal cord injury have a reduction in life expectancy. The best way to determine life expectancy is to utilize the University of Alabama Spinal Cord Injury Calculator.



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Residency Updates

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West Florida Hospital /UCF PM&R residency Program
Zeeshan Haque, MD PGY-2

Hello all,


Zeeshan Haque MD

I would like to start off by congratulating our newly matched class. We are very excited to have matched an excellent class of brand new physiatrists! We would like to welcome:

Dr. Megan Craig, DO

Dr. Zachary Lin, DO

Dr. Mathew McGillivray, MD

Dr. Justin Buck, DO

We are also excited to soon welcome our incoming class of PGY-2s who are currently completing their intern years:

Dr. Michael Byrd, MD

Dr. Romil Patel, MD

Dr. Corey Stone, DO

Dr. Wade Wyckoff, MD

West Florida Hospital /UCF PM&R residency Program
Zeeshan Haque, MD PGY-2 continued

Since our last update, West Florida Hospital has been rebranded to HCA Florida West Hospital. We were invited to help change the flag for the hospital as part of the hospital's rebranding ceremony. Also, Dr. Cahill started off our GME Grand Rounds series with a presentation on "Headaches: The Big Picture." The aim of his presentation was to help simplify the diagnosis and management of headaches.

As part of our wellness events, Dr. Buchalter has planned a charter fishing trip for the residents to attend at the end of June.

Furthermore, I was kindly selected to represent our program as our program's AAPM&R PHiT Ambassador. Dr. O'Leary and myself have both also been selected to serve at the HCA Florida West Hospital's Pain Stewardship Committee. Lastly, Dr. Gill & Dr. O'Leary both plan to attend the FSPMR 2022 Conference and are both excited to have the opportunity to meet you all in person!

Best Regards,

Zeeshan Haque, MD PGY-2

UCF PM&R Residency Program

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University of Florida
Michael Brownstein MD, Resident Liaison
Andrew H Dubin MD, UF PM&R Residency Director

Hello from Gainesville!

Michael Brownstein MD

As the residency year comes to a close, University of Florida's first class reflects on our inpatient experience. We've learned a lot, survived our first SAE, and are excited to transition into various outpatient specialties to learn from different physiatrists within our department.

We are excited to meet our incoming class of PGY-2 residents, Drs Rosalynn Conic, David Drozda, Kalish Pendem, and Zane Thompson, next month. We are also excited to have matched the following class who will be joining us in July 2023.

Some exciting department updates:

- Dr. Heather Vincent talks muscle soreness on The Washington Post
- Dr. Jason Zaremski serves on the panel for AAPM&R, The Kinetic Chain: The Overhead Athlete, and presents at the International Olympic Committee World Conference
- Dr. Monica Verduzco-Gutierrez presents at our grand rounds on "Long COVID Rehabilitation"
- We had many residents, athletic trainers, and attending physicians volunteer their time providing free pre-participation physicals for the surrounding community of athletes
- Dr. Andrea Aguirre and myself have been accepted to present at ASCIP in September

We're looking forward to seeing you at the conference in July!

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University of Miami Miller School of Medicine/Jackson Memorial Hospital PM&R Residency Update

Edwin Amirianfar MD, Resident Liaison

Edwin Amirianfar MD

Hello again from Miami!

There has been some exciting news since our last newsletter and we would like to start off by welcoming our Match Day results for the Class of 2026:

Arielle Farhi – Albert Einstein College of Medicine

Matison Alderman – Florida International University Herbert Wertheim College of Medicine

Azmeer Khamisani – Cooper Medical School of Rowan University

Reid McCullough – Arkansas College of Osteopathic Medicine

Felicia Mix – Burrell College of Osteopathic Medicine at New Mexico State University

Lance Reccoppa – University of Louisville School of Medicine

Harika Vallabhaneni – Western University of Health Sciences COMP

Mark Williams – Renaissance School of Medicine at Stony Brook University

We would also like to acknowledge our new attending physicians to our department:

Dr. Meghan Cochrane, who started in March

Dr. Sony Issac, who is our current TBI fellow, will be starting in October

We had our 2nd Annual Wellness Retreat this past March after our first successful retreat last year! We had a morning of wellness lectures followed by yoga. After, we had an afternoon filled with bonding and competition at Top Golf!

We also held our 16th Annual Research Day in March! Our resident/fellows presented great research projects and displayed their amazing posters!

We are winding down the end of the academic year and enjoying our last few weeks with our amazing Class of 2022. They have been an amazing example for our residency program and we would like to wish them the best of luck as they all proceed to their fellowship programs. We will miss you all!

Until next time.....

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University of South Florida PM&R Residency Update

Kareem Qaisi DO, Resident Liaison
Marissa McCarthy, MD, Residency Program Director

Greetings from sunny Tampa Bay! We would like to first congratulate all the graduates and upcoming physiatrists. With a record setting residency application season, it is a great time to be in the field of physical medicine and rehabilitation! We are delighted to welcome the incoming class of residents to the University of South Florida PM&R program:

Kareem Qaisi DO

We are also proud of our residents who showcased posters at the American Osteopathic College of Physical Medicine and Rehabilitation (AOCPMR) conference in April. The conference was held here in Tampa, and it was a pleasure to meet faculty, residents, and students from the different programs across the country.

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University of South Florida PM&R Residency Update

Kareem Qaisi DO, Resident Liaison
Marissa McCarthy, MD, Residency Program Director

Dr. Matthew Wilhelm (PGY-2) presented a poster titled: **Subcutaneous Chemodenervation with Botulinum Toxin A for Amputees with Residual Limb Hyperhidrosis: A Case Series**. And Dr. Kareem Qaisi (PGY-2) presented a poster, which secured a 3rd place victory in the poster competition, titled: **Concrete Evidence: Ultrasound Diagnostic Imaging for Suspected Post-Traumatic Iliotibial Band Friction Syndrome in a Total Knee Arthroplasty Patient.**

We look forward to seeing everyone at the meeting in July!

Kareem Qaisi, DO
Resident Physician | PGY-2
University of South Florida
Physical Medicine & Rehabilitation

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Larkin Community Hospital PM&R Residency Update

Arun Zachariah DO, Liaison
Jose J. Diaz, DO, Residency Program Director

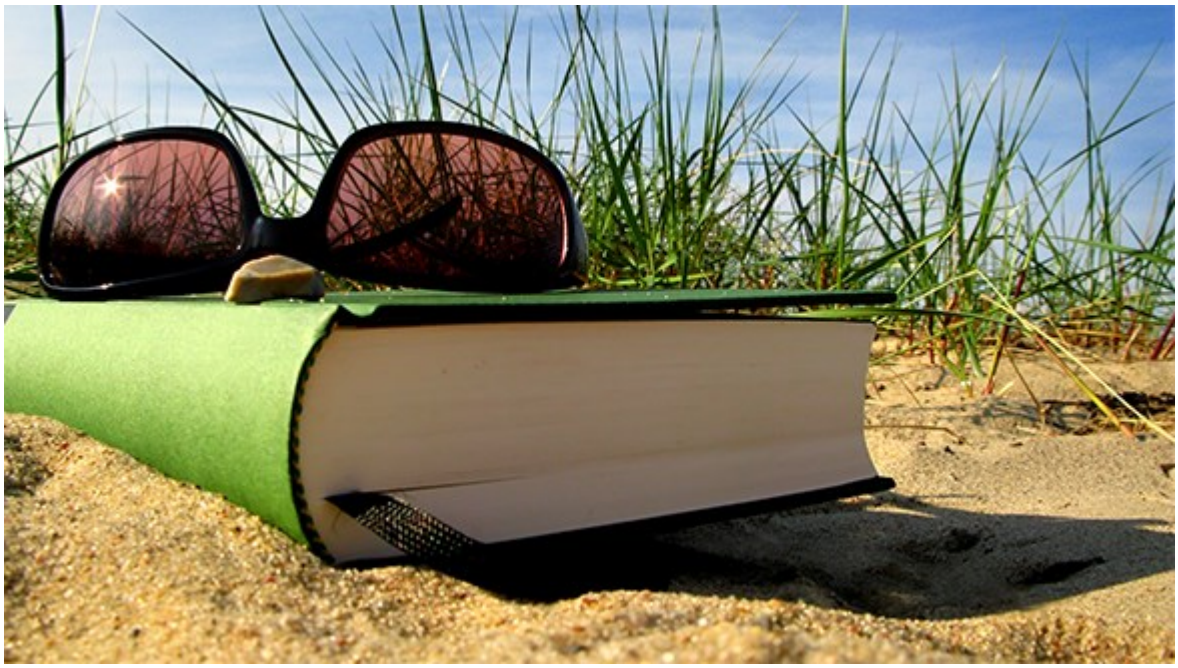
Arun Zachariah DO

Happy end of the year to everyone! Congrats to all of the residents for completing another year and the seniors for graduating or entering fellowship! Thank you Eric and Trevor for being great chiefs!

Our class's placement is as follows

Trevor Persaud – TBI Fellowship at Mayo Clinic
Eric Lam – Pain Fellowship at Larkin
Colleen Neubert – Private Practice
Vidur Ghantiwala – Pain Fellowship at UVermont
Kevin Estes – TBI Fellowship at Atrium Health
Aleks Pecherek – NASS Fellowship at The Sports and Spine Center (Houston)
Alan Nguyen – Interventional Spine at Cantor Spine Institute
Eileen Slavin – Cancer Rehab at Georgetown
Jeremy Fitzig – Attending at West Palm Beach VA

Best of luck to everyone!



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Memorial Healthcare System PM&R Residency Program

Dr. Yvette Little PM&R Resident Liaison to FSPMR
Jeremy Jacobs DO, Residency Program Director

PM&R Residency Program Update

Dr. Yvette Little, (PGY2) Resident Liaison

Dr. Jeremy Jacobs DO, Residency Program Director

DR. Yvette Little

Greetings Everyone! Hope everyone is doing well as we get close to finishing out this academic year. Below are announcements from our program that we would like share with you.

First off, we would like to congratulate our PGY4s as they get ready to transition to the next stage of their career. Dr. Michael Boeving has accepted the position as Assistant Professor in the division of neurorehabilitation at Washington University in St. Louis. Dr. Abhinav Mohan will be starting his Pain Medicine fellowship at University of Washington and Dr. Steven Tijmes will be starting his Pain Medicine fellowship at Louisiana State University. It is bitter sweet to see our inaugural class graduating and moving on. They will be missed!

We are also very excited for our PGY3s as they also prepare for their next stage of their careers. Dr. Uday Mathur is applying for Sports Medicine Fellowship and Dr. Andres Gutierrez and Dr. Robert Mousselli have applied for Pain Medicine Fellowship and are currently interviewing.

At MHS, we have great exposure to a multicultural patient population with a wide variety of disease pathology which allows us the opportunity to write up case reports. Below are a few of our most recent case reports we presented at conferences.

Dr. Ellen Dzierzak and Dr. Noushad Mamun presented at ASIPP.

Spinal Cord Stimulator Revision to Target Two Separate Pain Syndromes

Dr. Uday Mathur presented at AMSSM.

Gang of Knee Pain-refractory knee pain in the setting of ACL ganglion cyst

Dr. Amanda Hargrove, Dr. Ellen Dzierzak and Dr. Yvette Little will be presenting four different case reports at this year's AAP Conference at the end of May.

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Memorial Healthcare System PM&R Residency Program

Dr Yvette Little PM&R Resident Liaison to FSPMR
Jeremy Jacobs DO, Residency Program Director

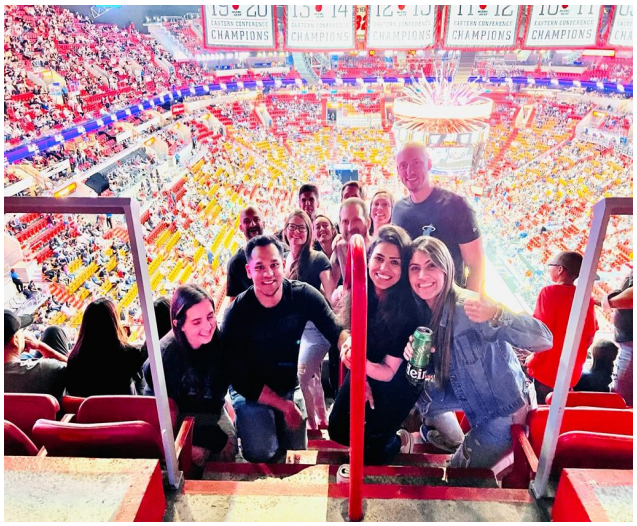
Memorial Healthcare System

We would also like to congratulate Dr. Mathew Voelker, Dr. Ellen Dzierzak and Dr. Noushad Mamun who each won top 10 posters for Memorial Research Day. Amazing work!

In our residency, we really strive to have a well-balanced program that allows us to gain experience in every field of Physical Medicine and Rehabilitation. This past didactic block, we had the privilege to have two different prosthetic companies provide a comprehensive overview of upper and lower extremity prosthetics and orthotics. We learned about the basic principles of prosthetics/orthotics, new current technology and how to really support our amputee patients in order to help them achieve their specific functional goals. In addition, this upcoming didactic block, we will be having two different companies providing us further education and hands on experience with Botulinum Toxin injections.

We also have resumed our sports physician coverage at multiple colleges in our surrounding area. This opportunity allows us to develop the skills necessary to practice Sports Medicine. In addition, Dr. Matthew Voelker took it another step further and became a certified side skier for the ANN's angels adaptive waterski foundation and took part in this year's adaptive sports and recreation expo water skiing extravaganza with Dr. Uday Mathur which is hosted by Memorial Healthcare System.

Below are some pictures of our residents at the most recent events they participated in.



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Memorial Healthcare System PM&R Residency Program

Dr Yvette Little PM&R Resident Liaison to FSPMR
Jeremy Jacobs DO, Residency Program Director

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Professional Opportunities

Professional Opportunities are FREE and re-posted as a service to FSPM&R members

Post YOUR Professional Opportunities here

Other Opportunities:

3 Month Other Ops Postings—$150.00

Payment can be made from the Opportunities Page of the FSPMR.org website

Physiatrist's Voice

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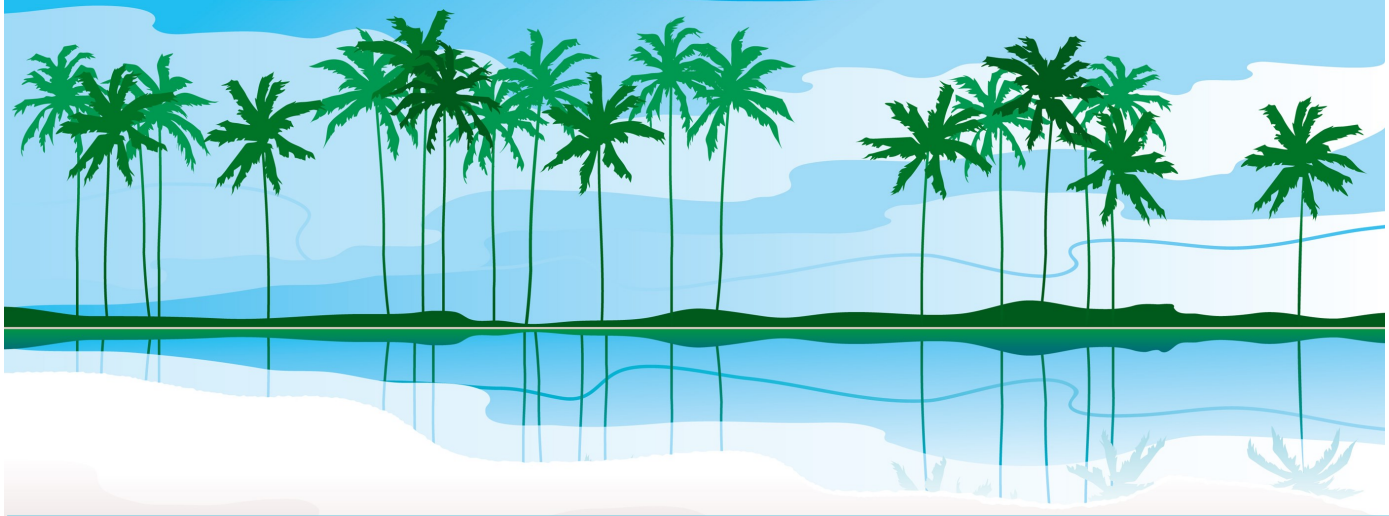
Deadline for our next issue, is August 15th
for our September 2022 Newsletter

Guidelines for your articles are available on the website: FSPMR.org/newsletters Here a few for your convenience;

- Pictures: should be in .jpg or .gif format. All files must have minimum resolution of 72 dpi. (max. 300) with a image size no larger than: 1500 px x 900 px
- Documents should be submitted in electronic format (.docx). If a PDF is to be submitted, each page must be submitted separately.
- All articles will be approved by Web site committee editors.
- FSPMR will retain full editorial rights to any submissions.

Articles in this newsletter are not an endorsement of nor an acceptance by the Florida Society of Physical Medicine and Rehabilitation. They are published as a service to the author for the benefit of members. This is not a scientifically peer reviewed publication.



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Happy Summer!