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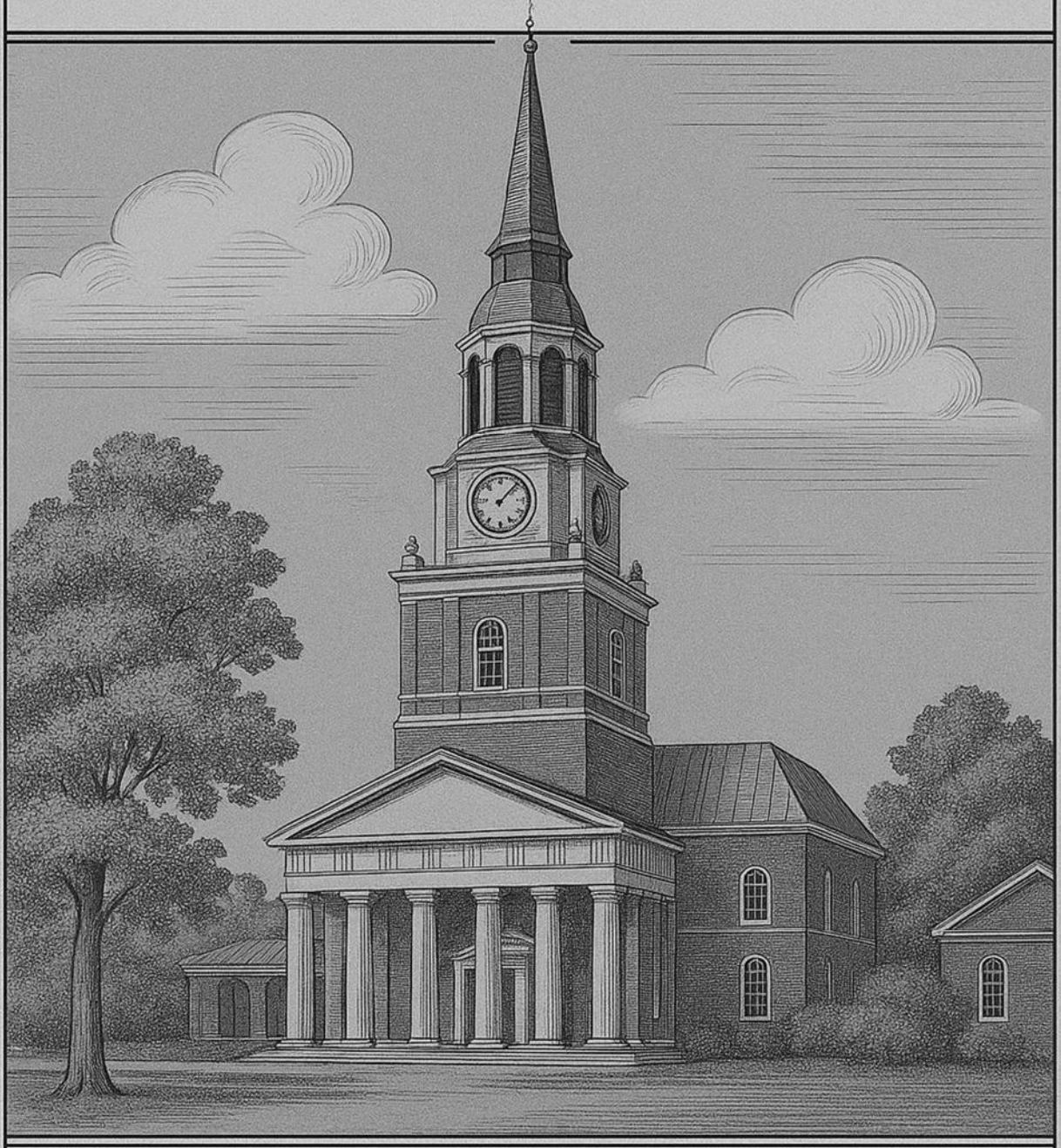

Interventional Pain Medicine

Pain Report July 2025

Editor's Letter

I'm excited to share a new quarterly segment in this issue called MSK Minutes. This feature will focus on the intersection of pain medicine and sports medicine, where innovative, function-focused care and minimally invasive techniques meet. It's a collaborative effort with Dr. Sam Dona from the University of Maryland and Dr. Salvador Portugal from NYU Langone, both highly respected for their work in musculoskeletal and ultrasound-guided procedures. In this first edition, we explore ultrasound-guided percutaneous tenotomy for lateral epicondylitis, offering practical, evidence-based insights that are directly relevant to our field.

This month's issue also includes an interview with Dr. Sudheer Potru, where we talk about his new role as host of the American Academy of Pain Medicine's Pain Matters Podcast. He brings a fresh voice to our specialty, helping share important conversations with pain medicine leaders from across the country. It's great to see his commitment to expanding access to education and advancing the field in such a meaningful way.

We also want to acknowledge the recent passing of Dr. Gabor Racz, a true pioneer in pain medicine whose contributions shaped the field for generations. His work, teaching, and leadership have left a lasting legacy, and he will be greatly missed by colleagues, trainees, and patients alike.

As July approaches, we're also looking forward to welcoming our new class of pain medicine fellows. This is always an energizing time for us. New fellows bring fresh ideas, curiosity, and passion that remind us why we do this work. To all our incoming fellows, welcome. We're truly excited to have you join our team and look forward to supporting you as you grow and learn with us.

-Enrique Galang, MD

Articles of Interest:

1. "Cervical Radiculopathy Management with Physical, Chiropractic, and Acupuncture Therapy: Factors Associated with Different Therapy Utilization Patterns." NASSJ. (https://doi.org/10.1016/j.xnsj.2025.100610)

A recent analysis of patients newly diagnosed with cervical radiculopathy (CR) revealed that within 90 days of diagnosis, only a small proportion pursued conservative therapies, with 16.8% utilizing physical therapy (PT), 4.4% chiropractic therapy (CT), and 0.2% acupuncture therapy (AT). CT had the highest average number of sessions, followed by PT and AT. Multivariable logistic regression identified several predictors of therapy choice: younger age and lower comorbidity burden were associated with CT use over PT, with regional and insurance differences also playing significant roles. Similarly, AT use was more likely among younger males, particularly in the West and Northeast, and less likely among Medicaid and Medicare recipients. These findings highlight a lack of national consensus on conservative CR management and suggest disparities in access and decision-making that could benefit from standardized, algorithm-driven care pathways.

2. “Decrease in opioid use and spinal interventions after basivertebral nerve ablation.” Interventional Pain Medicine. (https://doi.org/10.1016/j.inpm.2025.100594)

A retrospective analysis using the TriNetX global health research network evaluated healthcare utilization outcomes in 1,118 patients who underwent basivertebral nerve radiofrequency ablation (BVNRFA) between 2022 and 2025. The study found a significant reduction in opioid use within one year post-procedure compared to pre-procedure levels (51% vs. 57%, $p = 0.006$). Additionally, there was a marked decrease in the use of spinal interventions, including lumbar transforaminal epidural steroid injections (21% to 12%), lumbar interlaminar steroid injections (18% to 11%), and radiofrequency ablations (25% to 13%) (all $p < 0.001$). Only 47 patients underwent vertebral column spine surgery within a year following BVNRFA, with no cases of total disc replacement. These findings suggest that BVNRFA may contribute to reduced reliance on opioids and interventional spine procedures in appropriately selected patients.

3. “Effectiveness of Epidural Amniotic Fluid Injection for Low Back Pain.” Interventional Pain Medicine. (https://doi.org/10.1016/j.inpm.2025.100598)

A prospective clinical study evaluated the safety and efficacy of a single transforaminal epidural injection of amniotic fluid (AF) in patients with low back pain (LBP) due to lumbar herniated disc (HNP), spinal stenosis (SS), or degenerative disc disease (DDD). Sixty patients were enrolled across three diagnostic cohorts, each with one-year follow-up. Patients had persistent symptoms despite conservative treatments and received 2 cc of AF under fluoroscopic guidance. No complications were reported. The HNP group demonstrated the most significant improvements in pain and function, with notable reductions in Visual Analog Scale (VAS) scores for back and leg pain, Oswestry Disability Index (ODI), and pain medication use. SS patients experienced moderate improvements, while DDD patients showed inconsistent outcomes. The HNP cohort also had the highest rates of achieving minimal clinically important difference (MCID) and treatment success. These findings support the potential of AF injections as a safe and effective option for select patients, particularly those with HNP, and highlight the need for larger comparative studies against corticosteroid injections.

4. “The Q2 approach for percutaneous peripheral neuromodulation stimulator implantation targeting the C2 dorsal root ganglion at the C2 lamina for treatment of intractable headache: a technical note.” Pain Medicine. (https://doi.org/10.1093/pm/pnae113)

This technical report introduces the “Q2 approach,” a novel percutaneous method for implanting peripheral neuromodulation stimulators (PNS) targeting the C2 dorsal root ganglion (C2-DRG) at the C2 lamina, a previously unaddressed anatomical site in the treatment of intractable headache disorders. Conducted in an outpatient setting under combined ultrasound and fluoroscopic guidance, the procedure was performed on four patients using moderate sedation. Electrode placement was refined intraoperatively based on patient feedback to optimize stimulation. All patients experienced greater than 50% pain relief during the 60-day implant period, with three maintaining benefit beyond device removal. The average procedure time was under 60 minutes, and no complications such as lead migration or infection were reported. These findings demonstrate the feasibility and safety of this minimally invasive technique and suggest that C2-DRG neuromodulation may offer a promising alternative to destructive interventions in the management of refractory headache. Further studies are warranted to validate these early results and explore broader clinical applications.

Spotlight on Leadership and Innovation

We are proud to recognize **Dr. Meredith Adams, MD, MS, Associate Professor of Anesthesiology and Translational Neuroscience at Wake Forest University School of Medicine**, for being named one of **Becker's Hospital Review's Women in Health IT to Know**. This national recognition highlights over 140 leaders who are shaping the future of healthcare through their work in health information technology.

Dr. Adams serves as **chair of the NIH's Helping to End Addiction Long-term (HEAL) Initiative at Wake Forest**, leading a vital program dedicated to advancing solutions for the opioid crisis. She oversees a **research portfolio exceeding $27 million**, reflecting her commitment to developing innovative strategies that improve patient care and outcomes. Through her work, she is helping transform the way we think about delivering healthcare, using technology to bridge gaps and create more effective, patient-centered treatments.

Beyond her research leadership, Dr. Adams is actively involved on national boards focused on improving anesthesia and healthcare outcomes for diverse patient populations. We extend our warmest congratulations to Dr. Adams on this well-deserved honor and thank her for her ongoing dedication, leadership, and vision that continue to inspire colleagues and trainees alike.

Pain Service Line Updates

• Special congratulations to **Dr. Robert Hurley**, who was recently named **Principal Investigator** for the Nevro Spinal Cord Stimulation and Painful Diabetic Neuropathy study. **Drs. Janus Patel and Daniel Bintrim** also served as integral members of this important research effort.

• Congratulations to **Drs. Heather Columbano, David Shbeeb, Brandon Williams, Jessica Meister-Berger, and Robert Hurley** on their recent publication in *Regional Anesthesia & Pain Medicine (RAPM)* exploring the intersection of **music and pain medicine**.

• **Dr. Carlyle Hamsher** has been named **Director of Innovative Devices** for the Pain Service Line. His leadership will focus on advancing our use of cutting-edge technologies to improve patient care and procedural outcomes.

• **Dr. Janus Patel** delivered a **community outreach lecture** on interventional pain medicine to the local Rotary Club, helping educate the public about treatment options and our specialty's role in addressing chronic pain.

• **Dr. Daniel Bintrim** is collaborating with the **Epic team** to create more **optimized order sets**, aiming to streamline workflows and improve patient safety throughout our service line.

• **Dr. Amber Brooks** delivered a **Visiting Professor Lecture at the University of Chicago Department of Anesthesia and Critical Care** on the important topic of **Pain and Aging**, sharing her expertise with colleagues and trainees in another leading academic program.

• We're pleased to **welcome Dr. Steven Abriola**, a former WFUSOM fellow, to the Pain Service Line. He is excited to begin his **hybrid anesthesia and pain medicine** practice with us.

• **Dr. Enrique Galang** was recently peer-selected to serve on the **Undergraduate Medical Education Curriculum Committee (UMECC) at Wake Forest University School of Medicine**. This committee, under the authority of the Dean, oversees the entire medical education program leading to the MD degree.

Voices in Pain Medicine: Dr. Sudheer Potru

Dr. Sudheer Potru, a highly accomplished physician board certified in Anesthesiology, Pain Medicine, and Addiction Medicine. Dr. Potru brings a unique and comprehensive perspective to patient care, integrating his expertise across specialties to address the complex needs of individuals living with pain and substance use disorders.

We were honored to welcome him as a Visiting Professor at Wake Forest University School of Medicine, where he delivered an insightful lecture on the perioperative management of patients with substance use disorders. His commitment to advancing education and multidisciplinary care makes him a respected leader in the field of pain medicine.

Dr. Potru was gracious enough to answer a few questions for us.

1. What aspects of your clinical work are you most passionate about, and how have they shaped your approach to patient care?

I'm most passionate about clinic work related to opioids and substance use disorders, and how their effects interplay with chronic pain. So many of my patients have been stigmatized and ignored by numerous specialists saying "there's nothing I can do for you", but many have true chronic pain issues that also need to be addressed. I used to not believe some of my patients from the start, but now I've adapted a different approach where I try to always believe them from the beginning until they give me a reason not to believe them. This changes the way that you practice, because when you believe a patient you're willing to try to help them in many more different ways.

2. What key advice would you offer to graduating pain fellows as they transition into independent practice?

I tell my fellows to listen to their patients first and perform patient-centered care. It's easy to get distracted by the noise and the hospital administration and the RVUs, but when you enter an exam room, there's a human being sitting in there who is suffering. Imagine that were your parent or spouse or other loved one and imagine how you would want them to be treated -- kindly, compassionately, and appropriately -- and always do the right thing, whether related to a referral, a medication, a procedure, whatever. Most of the time, when you do the right thing, you optimize outcomes, but there are still problems, complications, and complaints. That said, if you always do what in your brain and in your heart is correct, you'll still sleep well knowing that you wouldn't have done anything different no matter what the situation.

The other piece of advice I would give is to not ignore mental health. It plays such a tremendous role in both generating and maintaining chronic pain, especially as related to the amygdala and mood disorders, and the mind-body connection is much stronger than medicine has previously thought. If your treatments aren't working or helping, go back to the patient and start exploring their mental health diagnoses; you may find some hidden depression or PTSD, and the patient often won't get any better until they're appropriately treated.

3. As the new host of the AAPM Pain Matters Podcast, what are you most looking forward to highlighting through this platform? (Official announcement can be found at https://painmed.org/new-voices-on-aapm-pain-matters-podcast/)

Honestly, lots of things. I want to discuss new drugs, new interventions, new psychological techniques. Pain Matters has done an outstanding job with advocacy and responding to bad research, and I obviously want to continue that too, to support our pain specialists out there fighting the good fight every day. Because I'm passionate about teaching and communication, I would anticipate that I'll naturally gravitate toward more topics on pain education, both for clinical practitioners as well as our patients. I think some of the most fascinating discussions could be about how clinical practitioners interface (psychologists, physical therapists, nutritionists, etc) and what else could be done to optimize multidisciplinary care for our most complex/challenging patients.

MSK Minutes

Dr. Sam T. Dona Jr., MD, Assistant Professor of Neurology and Orthopaedics at the University of Maryland School of Medicine, board-certified in Physical Medicine & Rehabilitation and Sports Medicine. Dr. Dona has provided medical care to elite athletes, including the New York Jets (NFL), NJ/NY Gotham FC (NWSL), and U.S. Olympic & Paralympic Training Center.

Dr. Salvador E. Portugal, DO, MBA, Clinical Associate Professor of Rehabilitation Medicine and Orthopedic Surgery at the NYU Grossman School of Medicine. Dr. Portugal is board-certified in PM&R and Sports Medicine, certified in musculoskeletal sonography (RMSK), and serves as Sports Medicine Fellowship Director and Medical Director of Sports Medicine Rehabilitation at NYU Langone Health.

Ultrasound-guided percutaneous tenotomy (USPNT) has gained recognition as a minimally invasive intervention for chronic lateral epicondylitis, particularly in patients who have failed to improve with conservative measures such as activity modification, physical therapy, and corticosteroid injections. Utilizing ultrasound guidance, the procedure involves the targeted debridement and aspiration of degenerative tendon tissue at the common extensor origin using devices that deliver focused ultrasonic energy (such as Tenex or TenJet). In a prospective cohort study of 37 patients, clinically significant improvements were observed in both pain (Patient-Rated Tennis Elbow Evaluation [PRTEE]) and function (Disabilities of the Arm, Shoulder and Hand [DASH]) scores, with benefits maintained at three-year follow-up. No serious adverse events were reported. Importantly, outcomes were enhanced among patients who participated in structured post-procedural rehabilitation, underscoring the value of integrating physiotherapy with procedural care.

A 2023 pilot randomized controlled trial evaluated the efficacy of USPNT combined with hydrodissection versus hydrodissection alone and physiotherapy alone in patients with chronic lateral elbow tendinopathy. The USPNT group demonstrated the most pronounced reduction in pain scores, with an approximate 2-point decrease on the numeric rating scale (NRS) for both rest and activity. Functional gains, as measured by the QuickDASH, were modest but favored the USPNT cohort. These findings support the use of USPNT for short-term symptom relief and suggest potential advantages in functional recovery when performed in conjunction with adjunctive rehabilitation strategies.

A 2024 systematic review encompassing 37 studies on open, arthroscopic, and percutaneous tenotomy techniques concluded that USPNT produced the greatest mean reduction in pain scores (VAS –5.6), exceeding that of both open (–4.6) and arthroscopic (–4.4) approaches. USPNT offers several procedural advantages, including performance in an outpatient setting, local anesthesia, minimal soft tissue disruption, and rapid recovery. Based on accumulating evidence, USPNT represents a safe and effective intervention for appropriately selected patients with refractory lateral epicondylitis and should be considered as a first-line procedural option within the spectrum of tendon-focused care.

Physical Examination for Lateral Epicondylitis

Accurate diagnosis of lateral epicondylitis relies on a careful history and focused physical exam. Common provocative maneuvers include **Cozen's Test, Mill's Test, and Maudsley's Test.** For Cozen's Test, the patient should be seated, with the elbow extended and forearm in maximal pronation, wrist radially abducted, and hand in a fist. The examiner should stabilize the patient's elbow while palpating the lateral epicondyle, the other hand is placed on the dorsum of the patient's hand. The patient is asked to move the wrist to dorsiflexion and the therapist provides resistance to this movement, in the position described above. The test is positive if pain on the lateral epicondyle is elicited. For Mill's Test, the patient is seated, and the clinician palpates the patient's lateral epicondyle with one hand while pronating the patient's forearm, fully flexing the wrist, the elbow extended. A production of pain in the area of the insertion at the lateral epicondyle indicates a positive test. For Maudsley's Test, the examiner resists extension of the 3rd digit of the hand, stressing the extensor digitorum muscle and tendon, while palpating the patient's lateral epicondyle. A positive test is indicated by pain over the lateral epicondyle of the humerus. These exam maneuvers help localize pathology to the common extensor tendon origin and are valuable for confirming the clinical diagnosis before considering advanced imaging or procedural interventions.

Volunteer Opportunities

The Department of Anesthesiology Academic Environment and Experience (formerly Community & Belonging) Committee and CEAL are hosting another outreach event with **Imprints Cares** on **July 24th** to introduce elementary students to medical professions. They are anticipating 30 participants in each group, ~60 total, and need several volunteers (any level of training from student to faculty) to assist with the stations. The event will take place at the **downtown medical school** and there are two separate time slots: 10a-12p & 1-3p. Lunch will be provided for the volunteers 12-1p. If you can volunteer this year, please email Rebecca at rmarcinc@wakehealth.edu.

Save the Dates

The American Society of Pain and Neuroscience (ASPN) Annual Conference: July 17-20, 2025 | Miami, Florida

North American Spine Society (NASS) International Annual Meeting: July 21-26, 2025 | Taipei, Taiwan

PAINWeek Annual Conference: September: 2-5, 2025 | Las Vegas Nevada

American Society of Anesthesiologists - ANESTHESIOLOGY 2025: October 10-14, 2025 | San Antonio, Texas
American Academy of Physical Medicine and Rehabilitation – AAPMR25: October 22-25, 2025 | Salt Lake City, Utah

Stay Connected with Wake Forest Pain Medicine

Discover the latest advancements in pain medicine through Wake Forest University's Pain Outcomes Lab. Our team is dedicated to improving patient care and advancing the field of pain management.

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Join us in our mission to enhance pain management and improve patient outcomes.