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Director Interventional Spine and Musculoskeletal Medicine Fellowship
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Education:

9/2001-5/2002	University of Alberta Edmonton, Alberta, Canada
9/2002-12/2006	University of Kentucky Lexington, KY Bachelor of Science. <i>Summa Cum Laude</i>
8/2007-5/2011	University of Kentucky, College of Medicine Lexington, KY Doctor of Medicine <i>with High Distinction</i>

Postgraduate Training:

7/2011-6/2012	University of Kentucky Lexington, KY Preliminary Year, Internal Medicine
7/2012-6/2015	Stanford University Palo Alto, CA Physical Medicine and Rehabilitation Resident
7/2014-6/2015	Stanford University Palo Alto, CA Chief Resident, Physical Medicine and Rehabilitation
8/2015-7/2016	Stanford University Palo Alto, CA Interventional Spine Fellowship

Faculty Appointments:

10/2021- Current	Associate Professor Vanderbilt University Medical Center Nashville, TN
10/2016- 2021	Assistant Professor Vanderbilt University Medical Center Nashville, TN
06/2019 – Current	Core Faculty Center for Musculoskeletal Research Vanderbilt University Medical Center Nashville, TN

GRANTS:

1. Primary Investigator:
Spine Intervention Society Grant for “Parallel vs Perpendicular Technique for Lumbar Medial Branch Radiofrequency Ablation” \$102,500.
2019
2. Vanderbilt Site Co-Investigator:
SPINE-CARE Trial
2018
3. Co Primary Investigator
Spine Intervention Society Grant for “Comparison of Bacterial Growth from of Single-Use Vial Tops Before and After Disinfection”
2020

Scholarly Publications:

Peer Reviewed Journal Articles

1. **Schneider B**, Birthi P, Salles S. “Chiari I malformation with syringohydromyelia presenting as acute tetraparesis. Case Report.” *Journal of Spinal Cord Medicine*: 2013 Mar;36(2):161-5

2. Kennedy DJ, **Schneider B**, Casey E, Rittenberg J, Conrad B, Smuck M, Plastaras CT. "Vasovagal rates in fluoroscopically guided interventional procedures: a study of over 8,000 injections." *Pain Med*: 2013 Dec;14(12):1854-9
3. **Schneider B**, Kennedy DJ, Casey E, Smuck M, Conrad B, Pastaras CT. "Trainee involvement in transforaminal epidural steroid injections associated with increased incidence of vasovagal reactions." *PM&R*: 2014 Oct; 6 (10) 914-9.
4. Kennedy DJ, **Schneider B**, Smuck M, Plastaras CT. "The Use of Moderate Sedation for the Secondary Prevention of Adverse Vasovagal Reactions." *Pain Med*: 2015 April; 16 (4):673-9.
5. **Schneider B**, Varghis N, Kennedy DJ. "Ideal Corticosteroid Choice for Epidural Steroid Injections: A Review of Safety and Efficacy." *Current Physical Medicine and Rehabilitation Reports*: 2015 June; 3 (2): 151-158
6. Smuck M, **Schneider B**, Kennedy DJ. "Re: Epidural steroid injections compared with gabapentin for lumbosacral radicular pain: multicenter randomized double blind comparative efficacy study." *BMJ* 2015;350:h1748/rr-3
7. Kennedy DJ, **Schneider B**, Smuck M, Plastaras CT. "Response to Letter by Dr. Lipetz." *Pain Medicine*. 2016 January; 17(1):190-191
8. Kim E, Chotai S, Stonko D, Wick J, **Schneider B**, McGirt M, Devin C. "Patient reported outcomes after lumbar epidural steroid injection for degenerative spine disease in depressed versus non-depressed patients." *The Spine Journal*. 2017 Apr;17(4):511-517
9. **Schneider B**, Levin J. "A Narrative Review of Intra-articular Zygapophysial Steroid Injections for Lumbar Zygapophysial-Mediated Pain". *Curr Phys Med Rehabil Rep*. 2016 Jun;2(4):108–16.
10. **Schneider B**, Zheng P, Mattie R, Kennedy DJ. "Safety of epidural steroid injections." *Expert Opin Drug Saf*. 2016 May 13;1–9
11. **Schneider B**, Kennedy DJ, Kumbhare D. "Second-Order Peer Reviews of Clinically Relevant Articles for the Physiatrist. Naproxen With Cyclobenzaprine, Oxycodone/Acetaminophen, or Placebo to Treating Acute Low Back Pain a Randomized Clinical Trial." *American Journal of Physical Medicine and Rehabilitation*. 2017 Jun; 96 (6) e119-e122
12. **Schneider B**, Huynh L, Levin J, Rinkaekan P, Kordi R, Kennedy DJ. "Does Immediate Pain Relief After an Injection into the Sacroiliac Joint with

- Anesthetic and Corticosteroid Predict Subsequent Pain Relief?" *Pain Medicine* 2018 Feb 1;19(2):244-251
13. **Schneider B**, McCormick Z, Duszynski B, Smith C, "Particulate or Non-Particulate Steroids for Lumbar Transforaminal Injections" *Pain Medicine*. 2017 July 13; 18(9) 1817-1818
 14. **Schneider B**, Maybin S. "Safety and risk mitigation for cervical transforaminal epidural steroid injections." *Current Physical Medicine and Rehabilitation Reports*. (2017) 5(4):186-192
 15. **Schneider B**, Sturos E. "Safety and risk mitigation for cervical interlaminar epidural steroid injections." *Current Physical Medicine and Rehabilitation Reports*. (2017) 5 (4):193-199
 16. Kennedy DJ, **Schneider B**. "The Challenges of Research on Interventions for Low Back Pain" *Ann Intern Med*. 2017 Apr 18;166(8):601-602
 17. Jain N, **Schneider B**, Kuhn J, Murrell W, Archer K "Specialty Update: What's New in Orthopaedic Rehabilitation" *Journal of Bone and Joint Surgery*. 2017 Nov 15;99(22):1956-1963
 18. **Schneider BJ**, Miller DC, Martinez KR, Cota AG, Maes MK. "Cochrane Review Identifies Safe and Effective Treatment for Z-Joint Pain." *Pain Med* 2017 Dec 1;18(12):2509-2510
 19. Smith C, **Schneider B**, McCormick Z, Gill J, Loomba V, Engel A, Duszynski B, King W "Risks and Benefits of Ceasing or Continuing Anticoagulant Medication for Image-Guided Procedures for Spine Pain: A Systematic Review. *Pain Medicine*. 2018 Mar 1;19 (3) 438-448
 20. Wei J, Chotai S, Sivaganesan A. Archer K., **Schneider B**, Yang A, Clinton J. Devin "Effect of Pre-Injection Opioid Use on Post-Injection Patient-Reported Outcomes following Epidural Steroid Injections For Radicular Pain" *The Spine Journal*. 2018 May; 18(5) 788-796.
 21. Kennedy DJ, Zheng P, Smuck M, McCormick Z, Huynh L, **Schneider B** "A minimum of 5-year follow-up after lumbar transforaminal epidural steroid injections in patients with lumbar radicular pain due to intervertebral disc herniation." *The Spine Journal*. 2018 Jan; 18 (1) 29-35.
 22. Patel J, **Schneider BJ**, Smith CC "Intra-Articular Corticosteroid Injections and Hyperglycemia." *Pain Med*. 2018 May 1;19(5):1091–2.
 23. **Schneider BJ**, McCormick Z, O'Brien D, Bunch M, Smith CC, "Conscious Sedation." *Pain Med*. 2018 Sep 1;19(9):1872–3.

24. Miller DC, **Schneider BJ**, Smith C “NPO Prior to Interventional Spine Procedures.” *Pain Med Malden Mass.* 2018 Dec 1;19(12):2570–1.
25. Kennedy, DJ, Huyhn L, Wong J, Mattie R, Levin J, Smuck M, **Schneider B** “Corticosteroid Injections into Lumbar Facet Joints A Prospective, Randomized, Double-Blind, Placebo Controlled Trial” *Am J Phys Med Rehabil* 2018 May 4. 2018 Oct;97(10):741-746
26. Kim EJ, Chotai S, **Schneider BJ**, Sivaganesan A, McGirt MJ, Devin CJ. “Effect of Depression on Patient-Reported Outcomes Following Cervical Epidural Steroid Injection for Degenerative Spine Disease.” *Pain Med.* 2018 Dec 1;19(12):2371–6.
27. **Schneider B**, Maybin S, Sturos E. “Safety and complications of cervical epidural steroid injections.” *Physical Medicine and Rehabilitation Clinics.* 2018: 29; 255-169
28. **Schneider BJ**, Levin J, Kennedy DJ. “A Paradigm Shift?” *Pain Med* 2018 Jan 1;19 (1):204-205.
29. Jain N, **Schneider B** “In Lumbar Spinal Stenosis, Adding Corticosteroids to Lidocaine Epidural Injections Did Not improve Pain or Function at 12 Months” *The Journal of Bone and Joint Surgery.* 2018 May: 100(10);884
30. Nguyen C, Lefèvre-Colau M-M, Kennedy DJ, **Schneider BJ**, Rannou F. “Low back pain.” *Lancet Lond Engl.* 2018 15;392(10164):2547.
31. Kennedy DJ, Fraiser R, Zheng P, Huynh L, Levin J, Smuck M, **Schneider BJ**. “Intra-articular Steroids vs Saline for Lumbar Z-Joint Pain: A Prospective, Randomized, Double-Blind Placebo-Controlled Trial.” *Pain Med.* 2019 Feb 1;20(2):246–51.
32. Jain NB, **Schneider BJ**, Murrell WB, Hettrich CM, Archer KR. What’s New in Orthopaedic Rehabilitation: *J Bone Jt Surg.* 2018 Nov;100(22):1993–9.
33. Zheng P, **Schneider B**, Kennedy DJ, McCormick Z. “Safe injectate choice, visualization, and delivery for lumbar transforaminal epidural steroid injections: evolving literature and considerations” *Current Trends in PM&R* 7, pages414–421 (2019)
34. Furman M, Bernstein J, McCormick Z, **Schneider BJ**. “Concerns regarding ‘Interventional spine and pain procedures in patients on antiplatelet and anticoagulant medications (second edition)’” *Regional Anesthesia & Pain Medicine.* Epub ahead of print, doi: 10.1136/rapm-2018-100223

35. Vydra D, Hynes A, Clements N, Nagpal A, Julia J, **Schneider BJ**, et al. Current Practice Trends in Image Guidance During Lumbar and Cervical Transforaminal Epidural Steroid Injections. *Pain Med* [Internet]. 2019 Apr 2 [cited 2019 Apr 4]; Available from: <https://academic.oup.com/painmedicine/advance-article/doi/10.1093/pm/pnz065/5425908>
36. W. Stelzer, D. Stelzer, E. Stelzer, A. Sammer, E. Aichner, M. Braune, G. Feigl, **Schneider, BJ**. C. Duller "Success rate of intraarticular sacroiliac joint injection: Fluoroscopy versus Ultrasound guidance – A Cadaveric Study" *Pain Medicine* 2019 *Pain Medicine*, pnz059, <https://doi.org/10.1093/pm/pnz059>
37. McCormick ZL, **Schneider BJ**, Smith C, Spine Intervention Society's Patient Safety Committee. Driving After an Epidural Steroid Injection Without Sedation. *Pain Med*. 2019 Jan 1;20(1):195–6.
38. **Schneider BJ**, Ehsanian R, Huynh L, Levin J, Zheng P, Kennedy DJ. Pain and Functional Outcomes After Sacroiliac Joint Injection with Anesthetic and Corticosteroid at Six Months, Stratified by Anesthetic Response and Physical Exam Maneuvers. *Pain Med*. 2019 May 20;pnz111
39. Miller DC, **Schneider BJ**, McCormick ZL. Caution When Withholding Antithrombotic and Antiplatelet Agents for Interventional Spine Procedures and the Need for Further Risk Stratification. *Pain Physician*. 2019 Jul;22(4):413–5.
40. Zheng P, **Schneider BJ**, Yang A, McCormick ZL. Image-Guided Sacroiliac Joint Injections: an Evidence-based Review of Best Practices and Clinical Outcomes. *PM R*. 2019 May 22;
41. Yang AJ, McCormick ZL, Zheng PZ, **Schneider BJ**. Radiofrequency Ablation for Posterior Sacroiliac Joint Complex Pain: A Narrative Review. *PM R*. 2019 Jun 6;
42. **Schneider BJ**, Rosati R, Zheng P, McCormick ZL. Challenges in Diagnosing Sacroiliac Joint Pain: A Narrative Review. *PM R*. 2019 Apr 25;
43. Zheng P, **Schneider BJ**, Yang A, McCormick ZL. Image-Guided Sacroiliac Joint Injections: an Evidence-based Review of Best Practices and Clinical Outcomes. *PM R*. 2019 May 22;

- 44. Schneider BJ**, Ehsanian R, Levin J, Huynh L, Kennedy DJ, McCormick ZL. Intra-articular Sacroiliac Joint Needle Placement: Ultrasound, Fluoroscopy, and the Criterion Standard. *Am J Phys Med Rehabil.* 2019 Aug;1.
- 45. Schneider BJ**, Ehsanian R, Rosati R, Huynh L, Levin J, Kennedy DJ. Validity of Physical Exam Maneuvers in the Diagnosis of Sacroiliac Joint Pathology. *Pain Med.* 2020 Feb 1;21(2):255-260. doi: 10.1093/pm/pnz183.
- 46. Zheng P, Schneider BJ**, Kennedy DJ, McCormick Z. Safe Injectate Choice, Visualization, and Delivery for Lumbar Transforaminal Epidural Steroid Injections: Evolving Literature and Considerations. *Current Physical Medicine and Rehabilitation Reports.* Published online Sept 7 2019
<https://doi.org/10.1007/s40141-019-00244-5>
- 47. Schneider BJ**, Mattie R, Smith C. Cumulative Lifetime Steroid Exposure via Epidural Administration. *Pain Medicine.* 2019 Nov 1;20(11):2323–4.
- 48. Tate Q, Conger A, Burnham T, Cushman D, Kendall R, Schneider B**, McCormick Z. The Effectiveness and Safety of Genicular Nerve Radiofrequency Ablation for the Treatment of Recalcitrant Knee Pain Due To Osteoarthritis: A Comprehensive Literature Review. *Current Physical Medicine and Rehabilitation Reports.* Published online Sep 14 2019
<https://doi.org/10.1007/s40141-019-00246-3>
- 49. Smuck M, Schneider BJ**, Ehsanian R, Martin E, Kao M. Smoking is Associated with Pain in All Body Regions, with greatest influence on Spinal Pain. *Pain Medicine.* Epub ahead of print Oct 3 2019.
<https://doi.org/10.1093/pm/pnz224>
- 50. R Ehsanian Kennedy DJ Schneider BJ** “Cervical ultrasound utilization in selective nerve root injection for the treatment of cervical radicular pain: A review.” *Current Physical Medicine and Rehabilitation Reports.* Published online DOI: 10.1007/s40141-019-00248-1
- 51. Schneider B**, Popescu A, Smith C “Ultrasound Imaging for Cervical Injections.” *Pain Medicine* 2019 Oct 16 doi: 10.1093/pm/pnz277. [Epub ahead of print}
- 52. Burnham T, Conger A, Tate Q, Cushman D, Kendall R, Schneider BJ**, McCormick Z. “The Effectiveness and Safety of Percutaneous Platelet- Rich Plasma and Bone Marrow Aspirate Concentrate for the Treatment of Suspected Discogenic Low Back Pain: a Comprehensive Review. *Current*

- Physical Medicine and Rehabilitation Reports. (2019)
<https://doi.org/10.1007/s40141-019-00243-6>
53. Rosati, Renee and **Byron J Schneider**. "Systemic Effects of Steroids Following Epidural Steroid Injections." *Current Physical Medicine and Rehabilitation Reports* 7 (2019): 397 - 403.
 54. **Byron J Schneider**, Lisa Doan, Marc K Maes, Kevin R Martinez, Alan Gonzalez Cota, Nikolai Bogduk, on behalf of the Standards Division of the Spine Intervention Society, "Systematic Review of the Effectiveness of Lumbar Medial Branch Thermal Radiofrequency Neurotomy, Stratified for Diagnostic Methods and Procedural Technique" *Pain Medicine*, Volume 21, Issue 6, June 2020, Pages 1122–1141, <https://doi.org/10.1093/pm/pnz349>
 55. **Schneider, Byron J.** MD; Sullivan, William MD; Prather, Heidi DO; Smuck, Matthew MD; McCormick, Zachary MD LETTER: Spine Nonoperative Cost Before Surgery SPINE: January 21, 2020 - Volume Publish Ahead of Print - Issue - doi: 10.1097/BRS.0000000000003388
 56. Mattie R, **Schneider BJ**, Smith C. Frequency of Epidural Steroid Injections. *Pain Medicine*. 2020 Mar 31;pnaa053.
 57. **Schneider BJ**, Ehsanian R. Effects of smoking on pain intensity in patients with chronic pain: are there clinical implications? *Ann Palliat Med*. 2020 Mar;9:1205–1205. Epub ahead of print doi: 10.21037/apm.2020.01.02
 58. **Schneider BJ**, Miller DC, Mattie R, McCormick ZL, Smith C. Anticoagulants for Lumbar Epidural Steroid Injections. *Pain Medicine*. 2020 Apr 28;pnaa087.
 59. Ehsanian R, Rosati RM, Kennedy DJ, **Schneider BJ**. Antiplatelet and Anticoagulant Risk for Select Spine Interventions: A Retrospective Cohort. *Pain Med*. 2020 May 3;pnaa009
 60. Patel J, Saffarian M, Popescu A, **Schneider BJ**, McCormick Z Epidural Steroid Injections and Risk of Lumbar Surgical Site Infection. *Pain Med*. 2020 May 15; pnaa147
 61. Haring RS, Sullivan W, **Schneider BJ**. "Surgical Trials for Lumbar Radiculopathy: Why We Still Don't Know." *SpineLine* (2020) May/June; 21 (3):26-29
 62. McCormick ZL, **Schneider BJ**, Prather H, Sullivan W, Smuck M. Approaching the Management of Expectations in Patients with Chronic Low Back Pain: Enthusiasm vs Realism. *Pain Medicine*. 2020 Jun 3;pnaa144.

63. Ehsanian R, Anderson S, **Schneider B**, Kennedy D, Mansourian V. Prevalence of Low Plasma Vitamin B1 in the Stroke Population Admitted to Acute Inpatient Rehabilitation. *Nutrients*. 2020 Apr 10;12(4).
64. Miller DC, Patel J, Gill J, Mattie R, Saffarian M, **Schneider BJ**, Popescu A, Babaria V. Corticosteroid Injections and COVID-19 Infection Risk. *Pain Medicine*. 2020 Jul 22;pnaa199.
65. Kennedy DJ, **Schneider BJ**. “Lies, Damn Lies, and Statistic: A Commentary”, *Pain Medicine*, pnaa287, <https://doi.org/10.1093/pm/pnaa287>
66. Andrew Engel MD, Wade King MMedSc, MMed, **Byron J Schneider MD**, Belinda Duszynski, Nikolai Bogduk MD, PhD, The Effectiveness of Cervical Medial Branch Thermal Radiofrequency Neurotomy Stratified by Selection Criteria: A Systematic Review of the Literature, *Pain Medicine*, , pnaa219, <https://doi.org/10.1093/pm/pnaa219>
67. Popescu A, Saffarian M, **Schneider BJ**, McCormick ZL, Smith C; Spine Intervention Society’s Patient Safety Committee. Anticoagulants and Antiplatelets for Lumbar Medial Branch Blocks. *Pain Med*. 2020 Dec 25;21(12):3712-3713. doi: 10.1093/pm/pnaa311. PMID: 33372232.
68. **Schneider BJ**, Ehsanian R, Schmidt A, Huynh L, Kennedy DJ, Maher DP, Haring S. The effect of patient satisfaction scores on physician job satisfaction and burnout. *Future Sci OA*. 2020 Nov 12;7(1):FSO657. doi: 10.2144/foa-2020-0136. PMID: 33437508; PMCID: PMC7787140.
69. Ehsanian R, **Schneider BJ**, Kennedy DJ, Koshkin E. Ultrasound-guided cervical selective nerve root injections: a narrative review of literature. *Reg Anesth Pain Med*. 2021 Jan 13:rapm-2020-102325. doi: 10.1136/rapm-2020-102325. Epub ahead of print. PMID: 33441430
70. Patrick H Waring, MD, **Byron J Schneider, MD**, Zachary L McCormick, MD, Comparative versus Non-Comparative Dual Lumbar Medial Branch Blocks before Radiofrequency Neurotomy: Is There a Difference in Prognostic Value?, *Pain Medicine*, 2021;, pnab023, <https://doi.org/10.1093/pm/pnab023>
71. **Schneider BJ**, Haring RS, Song A, Kim P, Ayers GD, Kennedy DJ, Jain NB. Characteristics of ambulatory spine care visits in the United States, 2009-2016. *J Back Musculoskelet Rehabil*. 2021 Mar 5. doi: 10.3233/BMR-200145. Epub ahead of print. PMID: 33720875.

- 72.** Berlin, Evan MD¹; Khan, Samir DO¹; Sullivan, William MD¹; **Schneider, Byron** MD¹; Walker, Jeremy MD² Giant Tarlov Cyst and the Importance of Advanced Imaging Prior to Interventional Spine Injections, *American Journal of Physical Medicine & Rehabilitation*: July 13, 2021 - Volume - Issue - doi: 10.1097/PHM.0000000000001849
- 73.** Aaron J Yang, MD, Graham Wagner, MD, Taylor Burnham, MD, Zachary L McCormick, MD, **Byron J Schneider, MD**, Radiofrequency Ablation for Chronic Posterior Sacroiliac Joint Complex Pain: A Comprehensive Review, *Pain Medicine*, Volume 22, Issue Supplement_1, July 2021, Pages S9–S13, <https://doi.org/10.1093/pm/pnab021>
- 74.** **Byron J. Schneider**, Christine Hunt, Aaron Conger, Wenchun Qu, Timothy P. Maus, Yakov Vorobeychik, Jianguo Cheng, Belinda Duszynski, Zachary L. McCormick, The Effectiveness of Intradiscal Biologic Treatments for Discogenic Low Back Pain: A Systematic Review, *The Spine Journal*, 2021, ISSN 1529-9430, <https://doi.org/10.1016/j.spinee.2021.07.015>.
- 75.** Choudhry NK, Fontanet CP, Ghazinouri R, Fifer S, Archer KR, Haff N, Butterworth S, Deogun H, Block S, Cooper A, Sears E, Goyal P, Coronado RA, **Schneider BJ**, Hsu E, Milstein A. Design of the Spine Pain Intervention to Enhance Care Quality And Reduce Expenditure Trial (SPINE CARE) study: Methods and lessons from a multi-site pragmatic cluster randomized controlled trial. *Contemp Clin Trials* (in press)
- 76.** Sherwood D, Berlin E, Epps A, Gardner J, **Schneider B**. Cervical Medial Branch Block Progression to Radiofrequency Neurotomy: A Retrospective Clinical Audit. *North American Spine Society Journal* [Internet]. [cited 2021 Nov 9]; Available from: <https://doi.org/10.1016/j.xnsj.2021.100091>
- 77.** Hurley RW, Adams MCB, Barad M, Bhaskar A, Bhatia A, Chadwick A, Deer TR, Hah J, Hooten WM, Kisson NR, Lee DW, McCormick Z, Moon JY, Narouze S, Provenzano DA, **Schneider BJ**, van Eerd M, Van Zundert J, Wallace MS, Wilson SM, Zhao Z, Cohen SP. Consensus practice guidelines on interventions for cervical spine (facet) joint pain from a multispecialty international working group. *Reg Anesth Pain Med*. 2021 Nov 11:rapm-2021-103031. doi: 10.1136/rapm-2021-103031. Epub ahead of print. PMID: 34764220.

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79. Richard Derby, Yakov Vorobeychik, **Byron J. Schneider**, Jeongeun Lee, Combined Thoracic Medial Branch Radiofrequency and Chemical Neurotomy, *Interventional Pain Medicine*, 2021, 100002, ISSN 2772-5944, <https://doi.org/10.1016/j.inpm.2021.100002>.
80. Josh Levin, John Chan, Lisa Huynh, Matt Smuck, Jayme Koltsov, Bilge Kesikburun, Graham E. Wagner, Marc Caragea, Keith Kuo, Zachary L. McCormick, **Byron Schneider**, Evan Berlin, D.J. Kennedy, Serdar Kesikburun, Thoracic Transforaminal Epidural Steroid Injection for Management of Thoracic Spine Pain: A Multicenter Cross-Sectional Study of Short-Term Outcomes, *Interventional Pain Medicine*, 2021, 100004, ISSN 2772-5944, <https://doi.org/10.1016/j.inpm.2021.100004>.
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92. Ryan Mattie, **Byron J. Schneider**, David C. Miller, Adrian Popescu, Clark C. Smith, Zachary L. McCormick, "Factfinders for patient safety: Antibiotics for disc access and spinal cord stimulation trials, *Interventional Pain Medicine*, Volume 1, Issue 4, 2022,
93. William Galbraith, Samir Khan, James E. Gardner, **Byron Schneider**, Myocardial infarction following held antiplatelet therapy for lumbar radiofrequency neurotomy: A letter to the editor, *Interventional Pain Medicine*, Volume 2, Issue 1, 2023, 100171, ISSN 2772-5944, <https://doi.org/10.1016/j.inpm.2022.100171>.
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96. David Sherwood, W. Evan Rivers, Christine Hunt, Zach McCormick, Jose de Andres, **Byron J. Schneider**, Commentary on recent spinal cord stimulation publications, *Interventional Pain Medicine*, Volume 2, Issue 1, 2023, 100241, <https://doi.org/10.1016/j.inpm.2023.100241>.
97. Minh Nguyen, Mathew Saffarian, Clark C. Smith, Eric K. Holder, Haewon Lee, Benjamin J. Marshall, Ryan Mattie, Jaymin Patel, Byron Schneider, Zachary L. McCormick,

98. FactFinders for patient safety: Understanding potential procedure-related complications: RFN/multifidus atrophy, intradiscal biologics, and facet cyst rupture, *Interventional Pain Medicine*, Volume 2, Issue 2, 2023, 100248, ISSN 2772-5944, <https://doi.org/10.1016/j.inpm.2023.100248>.

Textbook Chapters:

1. **Schneider B**, Kennedy DJ. “Lumbar Spine Injections” Advanced Concepts in Lumbar Degenerative Disk Disease. Pinheiro-Franco JL, ed. Springer Science. Oct 2015 – (ISBN 978-3-662-47756-4).
2. Dutton R, **Schneider B**, Kennedy DJ. “Lumbar Spine Injuries and Conditions” Sports Medicine: Study Guide and Review for Boards 2nd Edition. Harrast M and Finnoff J, ed. Demon Medical Publishing. Aug 2016 – (ISBN-10: 1620700883)
3. **Schneider B**, Zheng P, Pun M, Kennedy DJ. “Interventional Pain Management” Principles of Rehabilitation Medicine. McGraw-Hill Education; 2019
4. **Schneider B**, Maybin AS. “Lumbar Facet Arthropathy” Essentials of Physical Medicine and Rehabilitation 4th ed. Frontera W, ed. Elsevier. 2018
5. **Schneider B**, Kennedy DJ “Upper Limb Sensory Studies” McLean Guide to Electrodiagnostic Medicine, Second Edition In Press
6. William J, **Schneider B**, Kennedy DJ “Chapter 97: A Review of Procedures and Interventions in Physical Medicine and Rehabilitation” Principles of Rehabilitation Medicine Case-Based Board Review. McGraw-Hill Education; 2021

Published Abstracts:

1. **Schneider B**, Kennedy DJ. "Trainee involvement in transforaminal epidural steroid injections associated with increased incidence of vasovagal reactions." *PMR* Sept 2013 Vol 5. Issue 9. S296
2. Kennedy DJ, Plastaras C, **Schneider B**, Rittenberg J, Smuck M, Conrad BP. "Vasovagal Rates in Fluoroscopically Guided Interventional Procedures: A Study of Over 8,000 Injections." *PMR* Sept 2013 Vol 5. Issue 9. S304
3. Kennedy DJ, **Schneider B**, Casey EK, Rittenberg JD, Lento PH. "Vasovagal Rates in Fluoroscopically Guided Interventional Procedures: A Study of Over 8,000 Injections." *The Spine Journal* 2013 Vol. 13, Issue 9, Supplement, Pages S23-S24
4. Williams L, **Schneider B**. "Neck pain and loss of cervical flexion with ossification of the nuchal ligament found incidentally: Case Series." *Am J Phys Med Rehabil*: 2014 March;93 (3) Suppl 2: a36
5. **Schneider B**, Kao MC, Martin M, Smuck M. "Poster 473 Smoking is Associated with Pain in all Body Regions, with Greatest Influence on Axial Pain." *PMR*. 2014 Sep;6(9):S180.
6. **Schneider BJ**, Smuck M, Plastaras C, Nahm LS, Maus TP, Kennedy DJ. "Poster 458 Delayed Complications Following Interventional Pain Procedures." *PMR*. 2014 Sep;6(9):S346.
7. Nahm LS, Smuck M, Plastaras C, **Schneider BJ**, Kennedy DJ. "Poster 457 Next Day Adverse Events from Interventional Pain Procedures." *PMR*. 2014 Sep;6(9):S346.
8. **Schneider B**, McCormick Z, Huynh L, Kennedy DJ. Comparative Effectiveness of Lumbar Transforaminal Epidural Steroid Injections with Particulate Versus Nonparticulate Corticosteroids for Lumbar Radicular Pain Due to Intervertebral Disc Herniation: A Prospective, Randomized, Double-blind Trial: Preliminary 5 Year Follow Up Data." *Pain Medicine*. 2015 Aug; 16 (8): 1658-1659
9. **Schneider B**, McCormick Z, Huynh L, Kennedy D. Effectiveness of Lumbar Transforaminal Epidural Steroid Injections with Particulate Versus Nonparticulate Corticosteroids for Lumbar Radicular Pain Due to Intervertebral Disc Herniation: Preliminary 5 Year Follow Up Data. *Am J Phys Med Rehabil*. 2016 Mar;95(3)
10. **Schneider B**, Kennedy DJ., Levin J, Huynh L, Kordi R, Immediate Relief After Sacroiliac Joint Injection as a Predictor of Subsequent Relief to Steroid at 2-4 Weeks. *Pain Medicine*. 2016. Aug; 17 (8): 1592

11. **Schneider B**, Kennedy DJ., Levin J, Huynh L, Kordi R, Poster 380 Immediate Relief After Sacroiliac Joint Injection as a Predictor of Subsequent Relief to Steroid at 2-4 Weeks. *PM R*. 2016 Sep: 8(9S) S285
12. Kim E, Chotai S, **Schneider B**, Sivaganesan A, Mcgirt M, Devin C. Effect of Depression on Patient Reported Outcomes following Cervical Epidural Steroid Injection for Degenerative Spine Disease. *The Spine Journal*. 2016 Oct: 16 (10S) S289.
13. Suarez D, **Schneider B**, Smuck M Transforaminal Epidural Steroid Injection as Treatment for L5 Radiculitis Caused by Lumbosacral Transitional Vertebrae with Pseudoarticulation. 2017 AAP Annual Meeting. *American Journal of Physical Medicine and Rehabilitation* 2017 March: 96(3) A98.
14. **Schneider B**, Kennedy DJ., Levin J, Huynh L, Kordi R, Immediate Relief After Sacroiliac Joint Injection as a Predictor of Subsequent Relief to Steroid at 2-4 Weeks. *American Journal of Physical Medicine and Rehabilitation* 2017. 2017 March: 96(3) A123.
15. **Schneider B**, Chotai S, Kim E. "Effect of Depression on Patient Reported Outcomes following Cervical Epidural Steroid Injection for cervical spondylosis causing radicular pain" *Pain Medicine* Aug 2017; 18 (8) 1617. Doi: 10.1093/pm/pnx183
16. Odonkor C, Zheng P, **Schneider B**, Huyhn L, Levin J, Smuck M, Kennedy DJ. "Immediate vs Prolonged Pain Relief After Sacroiliac Joint Injection with Anesthetic and Corticosteroid. *Pain Medicine* Aug 2017; 18 (8) 1615. Doi: 10.1093/pm/pnx183
17. Zheng P, **Schneider B**, Levin J, Huyhn L, Smuck, M, Agnes I, Kennedy DJ "Multi-Institutional Randomized, Double-Blind, Placebo Controlled, Prospective Study of Intra-articular Lumbar Zygapophysial Joint Corticosteroid Injections as Treatment of Chronic Low Back Pain in a Selected Population " *Pain Medicine* Aug 2017; 18 (8) 1619. Doi: 10.1093/pm/pnx183
18. **Schneider B**, Suarez D, Smuck M. "Poster 414: M Transforaminal Epidural Steroid Injection as Treatment for L5 Radiculitis Caused by Lumbosacral Transitional Vertebrae with Pseudoarticulation.: A case report." *PM&R*. 2017 Sept; 9 (9):S264

19. **Schneider B**, Kim E, Chotai S. “Poster 101: Effect of Depression on Patient Reported Outcomes following Cervical Epidural Steroid Injection for cervical spondylosis causing radicular pain” PM&R. 2017 Sept; 9 (9): S137-38
20. Betancourt JP, **Schneider B** “Successful use of oral opioids and benzodiazepine for secondary prevention of vasovagal reaction during transforaminal epidural steroid injection” American Journal of Physical Medicine and Rehabilitation 2018. March; 97 (3): a90
21. **Schneider B**, Kim E, Chotai S. “Effect of Depression on Patient Reported Outcomes following Cervical Epidural Steroid Injection for cervical spondylosis causing radicular pain” American Journal of Physical Medicine and Rehabilitation 2018. March; 97 (3): a111
22. Betancourt JP, **Schneider B** “Successful use of oral opioids and benzodiazepine for secondary prevention of vasovagal reaction during transforaminal epidural steroid injection” 1886 Pain Medicine 2018; 19: 1897 doi: 10.1093/pm/pny157
23. **Schneider B**, Rosati R “The Risk of Continuing Medications with Antiplatelet or Anti-coagulant Effect During Select Spine Interventions: A Cohort of 276 Injections” Pain Medicine 2018; 19: 1897 doi: 10.1093/pm/pny157
24. Rosati R, **Schneider BJ**, THE RISK OF CONTINUING MEDICATIONS WITH ANTI- PLATELET OR ANTI-COAGULANT EFFECT DURING SELECT SPINE INTERVENTION:A COHORT OF 276 INJECTIONS Abstracts of Scientific Papers and Posters Presented at the Annual Meeting of the Association of Academic Physiatrists. American Journal of Physical Medicine & Rehabilitation Volume 98 Number 3 (Suppl) 2019: a154
25. Schmidt A, **Schneider BJ**. Adjacent Level Facet Synovitis Presenting as New Low Back Pain After Successful Lumbar Radiofrequency Neurotomy AAPM 2019 Annual Meeting Abstracts. Pain Medicine 20(3), 2019, 637
26. Reza Ehsanian, **Byron J. Schneider**, Renee Rosati, Lisa Huynh, Josh Levin, David J. Kennedy, Diagnostic Response to Sacroiliac Joint Injections is Not Predicted by Physical Exam; Are Physical Exams Worth the Time? *Pain Medicine*, Volume 20, Issue 9, September 2019, Pages 1850–1878, <https://doi.org/10.1093/pm/pnz188>
27. **Byron J. Schneider**, Ameet Nagpal, Jaymin Patel, Patricia Zheng, Zachary L. McCormick Patient-perceived Duration of Effect of Lidocaine and Bupivacaine Following Diagnostic Medial Branch Blocks: A

Multicenter Study *Pain Medicine*, Volume 20, Issue 9, September 2019, Pages 1850–1878, <https://doi.org/10.1093/pm/pnz188>

28. Dustin Randall, Aaron Conger, Taylor Burnham, Rebecca A. Speckman, Raquel Reisinger, Quinn Tate, Ryan Spiker, **Byron J. Schneider**, Daniel M. Cushman, Zachary L. McCormick The Accuracy of SPECT/CT for Diagnosing Lumbar Facet-Joint Pain: A Systematic Review *Pain Medicine*, Volume 20, Issue 9, September 2019, Pages 1850–1878, <https://doi.org/10.1093/pm/pnz188>
29. Darrell Vydra, Alexander Hynes, Nate Clements, Ameet Nagpal, Jonathon Juli², **Byron J. Schneider**, Timothy P. Maus, Daniel M. Cushman, Zachary L. McCormick Current Practice Trends in Image Guidance During Cervical and Lumbar Transforaminal Epidural Steroid Injections: A Survey Study. *Pain Medicine*, Volume 20, Issue 9, September 2019, Pages 1850–1878, <https://doi.org/10.1093/pm/pnz188>
30. Alex Schmidt, **Byron J. Schneider**, Reza Ehsanian Radiofrequency Neurotomy in a Patient with Klippel-Feil Syndrome *Pain Medicine*, Volume 20, Issue 9, September 2019, Pages 1850–1878, <https://doi.org/10.1093/pm/pnz188>
31. **Byron J Schneider** and Rand Pope. *Sacroiliac Joint Complex Pain Mimicking as Acute Disc Herniation, an Uncommon Presentation of Common Pathology During Pregnancy: A Case Report. PM&R Volume 11 Issue S2, November 2019. S1-287*
32. Ehsanian R, **Schneider BJ**, Rosati R, Huyhn L, Levin J, Kennedy DJ. Prospective Study Comparing Physical Exam Maneuvers to Intra-articular Anesthetic Injection in the Diagnosis of Sacroiliac Joint Pathology. *PM&R Volume 11 Issue S2, November 2019. S1-287*
33. Ehsanian R, Anderson S, **Schneider BJ**, Kennedy DJ, Mansourian V. Prevalence of Vitamin B1 Deficiency in the Stroke Population Admitted to Acute Inpatient Rehabilitation. *PM&R Volume 11 Issue S2, November 2019. S1-287*
34. Alex Schmidt, **Byron J Schneider**, Reza Ehsanian. *Performing a Radiofrequency Neurotomy on Patient with Previously Undiagnosed Klippel-Feil Syndrome. PM&R Volume 11 Issue S2, November 2019. S1-287*
35. Alex Schmidt and **Byron J Schneider**. *Successful Lumbar Radiofrequency Neurotomy with Ensuing Adjacent Level Facet Synovitis. PM&R Volume 11 Issue S2, November 2019. S1-287*

36. Alex Schmidt, **Byron Schneider**, Reza Ehsanian “Radiofrequency Neurotomy in a Patient with Klippel-Feil Syndrome Case Diagnosis” *Pain Medicine* Volume 99, Number 3 (Suppl), March 2020 A218
37. Berlin E, Jones M, **Schneider B**. “Symptomatic Holocord Syrinx: Should blood patches be one of the initial treatments”. *Pain Medicine*. Volume 21, Issue 9. September, 2020.
38. Berlin E, Sherwood D, Epps A, Gardner J, Haring S, **Schneider B**. “Dual Medial Branch Blocks and Progression to Radiofrequency Neurotomy for Cervical Zygapophysial Arthropathy” AAPM&R Virtual Annual Meeting. PM&R. Vol 12. Issue S1. November 19 2021
39. Berlin E, Khan S, **Schneider B** “Outcomes of Thoracic Transforaminal Epidural Steroid Injections. A Case Series” *North American Spine Society Journal*. Vol1 21. Issue 9. September 1, 2021. DOI: <https://doi.org/10.1016/j.spinee.2021.05.264>
40. Khan S, Roehmer C, Sherwood D, **Schneider B** “Anderson Lesion in Ankylosing Spondylitis.” *Interventional Pain Medicine Abstract Supplement (2021) In Press*
41. Berlin E, Khan S, **Schneider B**, Sullivan W. “Case Report of a Giant Tarlov Cyst and the Importance of Advanced Imaging Prior to Interventional Spine Procedures. *Interventional Pain Medicine Abstract Supplement (2021) In Press*
42. Khan S, Berlin E, Bryant D, Sherwood D, **Schneider B** “Therapeutic Medial Branch Blocks: A Pragmatic Retrospective Clinical Audit.” *Interventional Pain Medicine Abstract Supplement (2022) In Press*
43. Khan S, Dovgan J, Haring RS, **Schneider B** “Current Trends in the Technical Performance of Lumbar Zygapophyseal Joint Interventions.” *Interventional Pain Medicine Abstract Supplement (2022) In Press*
44. Galbraith W, Gardner J, Khan S, **Schneider B** “Myocardial Infarction Following Held Antiplatelet Therapy for Lumbar Radiofrequency Neurotomy: A Case Report.” *Interventional Pain Medicine Abstract Supplement (2022) In Press*

Posters:

1. **Schneider B**, Kennedy DJ. "The Use of Conscious Sedation for the Secondary Prevention of Adverse Vasovagal Reactions." Poster Presentation. International Spine Intervention Society Annual Scientific Meeting. New York, NY. 7/2013
2. **Schneider B**, Kennedy DJ. "Trainee involvement in transforaminal epidural steroid injections associated with increased incidence of vasovagal reactions." AAPM&R, Washington DC, 2013
3. Kennedy DJ, Plastaras C, **Schneider B**, Rittenberg J, Smuck M, Conrad BP. "Vasovagal Rates in Fluoroscopically Guided Interventional Procedures: A Study of Over 8,000 Injections." AAPM&R, Washington DC, 2013
4. Kennedy DJ, **Schneider B**, Casey EK, Rittenberg JD, Lento PH. "Vasovagal Rates in Fluoroscopically Guided Interventional Procedures: A Study of Over 8,000 Injections." *NASS New Orleans LA 2013*
5. Williams L, **Schneider B**. "Neck pain and loss of cervical flexion with ossification of the nuchal ligament found incidentally: Case Series." Association of Academic Physiatrists Annual Meeting, Nashville TN 2014
6. **Schneider B**, Kao MC, Martin M, Smuck M. "Poster 473 Smoking is Associated with Pain in all Body Regions, with Greatest Influence on Axial Pain." *AAPM&R, San Diego 2014.*
7. **Schneider BJ**, Smuck M, Plastaras C, Nahm LS, Maus TP, Kennedy DJ. "Poster 458 Delayed Complications Following Interventional Pain Procedures." *AAPM&R, San Diego 2014.*
8. Nahm LS, Smuck M, Plastaras C, **Schneider BJ**, Kennedy DJ. "Poster 457 Next Day Adverse Events from Interventional Pain Procedures." *AAPM&R, San Diego 2014.*
9. **Schneider B**, McCormick Z, Huynh L, Kennedy D. "Effectiveness of Lumbar Transforaminal Epidural Steroid Injections with Particulate Versus Nonparticulate Corticosteroids for Lumbar Radicular Pain Due to Intervertebral Disc Herniation: Preliminary 5 Year Follow Up Data." Association of Academic Physiatrists Annual Meeting, Sacramento, CA 2015
10. Kennedy DJ, **Schneider B**, McCormick Z, Huynh L, Kennedy D. "Effectiveness of Lumbar Transforaminal Epidural Steroid Injections with Particulate Versus Nonparticulate Corticosteroids for Lumbar Radicular Pain Due to Intervertebral Disc Herniation: Preliminary 5 Year Follow Up

Data.” Poster Presentation. International Society for the Study of the Lumbar Spine 43rd Annual Meeting, Singapore, May 2016

11. **Schneider B**, Kennedy DJ., Levin J, Huynh L, Kordi R, “Immediate Relief After Sacroiliac Joint Injection as a Predictor of Subsequent Relief to Steroid at 2-4 Weeks.” *Spine Intervention Society Annual Scientific Meeting, New Orleans LA 2017*
12. **Schneider B**, Kennedy DJ, Levin J, Huynh L, Kordi R. Immediate Relief After Sacroiliac Joint Injection as a Predictor of Subsequent Relief to Steroid at 2-4 Weeks. Poster Presentation Spine Intervention Society 2016 European Congress. Lisboa, Portugal. 9/2016.
13. **Schneider B**, Kennedy DJ., Levin J, Huynh L, Kordi R, “Poster 380 Immediate Relief After Sacroiliac Joint Injection as a Predictor of Subsequent Relief to Steroid at 2-4 Weeks.” *AAPM&R New Orleans, LA 2017*
14. Kim E, Chotai S, **Schneider B**, Sivaganesan A, Mcgirt M, Devin C. “Effect of Depression on Patient Reported Outcomes following Cervical Epidural Steroid Injection for Degenerative Spine Disease.” *NASS, Boston MA 2017*
15. Suarez D, **Schneider B**, Smuck M Transforaminal Epidural Steroid Injection as Treatment for L5 Radiculitis Caused by Lumbosacral Transitional Vertebrae with Pseudoarticulation” *AAP Annual Meeting. Las Vegas, NV, 2017*
16. **Schneider B**, Kennedy DJ., Levin J, Huynh L, Kordi R, “Immediate Relief After Sacroiliac Joint Injection as a Predictor of Subsequent Relief to Steroid at 2-4 Weeks.” *Las Vegas, NV, 2017.*
17. **Schneider B**, Chotai S, Kim E. “Effect of Depression on Patient Reported Outcomes following Cervical Epidural Steroid Injection for cervical spondylosis causing radicular pain” *Spine Intervention Society Annual Scientific Meeting, San Francisco, CA 2017*
18. **Schneider B**, Suarez D, Smuck M. “Poster 414: M Transforaminal Epidural Steroid Injection as Treatment for L5 Radiculitis Caused by Lumbosacral Transitional Vertebrae with Pseudoarticulation.: A case report.” *AAPM&R Denver, CO 2017*
19. **Schneider B**, Kim E, Chotai S. “Poster 101: Effect of Depression on Patient Reported Outcomes following Cervical Epidural Steroid Injection

for cervical spondylosis causing radicular pain” AAPM&R Denver, CO 2017

20. Betancourt JP, **Schneider B** “Successful use of oral opioids and benzodiazepine for secondary prevention of vasovagal reaction during transforaminal epidural steroid injection” Poster Presentation at Association of Academic Physiatrists Annual Meeting, Atlanta, GA 2018
21. **Schneider B**, Kim E, Chotai S. “Effect of Depression on Patient Reported Outcomes following Cervical Epidural Steroid Injection for cervical spondylosis causing radicular pain” Poster Presentation at Association of Academic Physiatrists Annual Meeting, Atlanta, GA 2018
22. Betancourt JP, **Schneider B** “Successful use of oral opioids and benzodiazepine for secondary prevention of vasovagal reaction during transforaminal epidural steroid injection” Poster Presentation at Spine Intervention Society Annual Scientific Meeting in Chicago IL 2018
23. Rosati R, **Schneider BJ**, “The risk of continuing medications with anti-platelet or anti-coagulant effect during select spine interventions: A Cohort of 276 injections” Annual Meeting of the Association of Academic Physiatrists February 2019 in San Juan, PR
24. Schmidt A, **Schneider BJ**. Adjacent Level Facet Synovitis Presenting as New Low Back Pain After Successful Lumbar Radiofrequency Neurotomy AAPM 2019 Annual Meeting March 2019 in Denver CO
25. Reza Ehsanian, **Byron J. Schneider**, Renee Rosati, Lisa Huynh, Josh Levin, David J. Kennedy, Diagnostic Response to Sacroiliac Joint Injections is Not Predicted by Physical Exam; Are Physical Exams Worth the Time? Spine Intervention Society Annual Scientific Meeting August 2019 in New York, NY
26. **Byron J. Schneider**, Ameet Nagpal, Jaymin Patel, Patricia Zheng, Zachary L. McCormick Patient-perceived Duration of Effect of Lidocaine and Bupivacaine Following Diagnostic Medial Branch Blocks: A Multicenter Study Spine Intervention Society Annual Scientific Meeting August 2019 in New York, NY
27. Dustin Randall, Aaron Conger, Taylor Burnham, Rebecca A. Speckman, Raquel Reisinger, Quinn Tate, Ryan Spiker, **Byron J. Schneider**, Daniel M. Cushman, Zachary L. McCormick The Accuracy of SPECT/CT for Diagnosing Lumbar Facet-Joint Pain: A Systematic Review Spine Intervention Society Annual Scientific Meeting August 2019 in New York, NY

28. Darrell Vydra, Alexander Hynes, Nate Clements, Ameet Nagpal, Jonathon Juli², **Byron J. Schneider**, Timothy P. Maus, Daniel M. Cushman, Zachary L. McCormick Current Practice Trends in Image Guidance During Cervical and Lumbar Transforaminal Epidural Steroid Injections: A Survey Study. Spine Intervention Society Annual Scientific Meeting August 2019 in New York, NY
29. Alex Schmidt, **Byron J. Schneider**, Reza Ehsanian Radiofrequency Neurotomy in a Patient with Klippel-Feil Syndrome Spine Intervention Society Annual Scientific Meeting August 2019 in New York, NY
30. **Byron J Schneider** and Rand Pope. *Sacroiliac Joint Complex Pain Mimicking as Acute Disc Herniation, an Uncommon Presentation of Common Pathology During Pregnancy: A Case Report. American Academy of PM&R 2019 Annual Assembly. San Antonio TX, November 2019*
31. Ehsanian R, **Schneider BJ**, Rosati R, Huyhn L, Levin J, Kennedy DJ. Prospective Study Comparing Physical Exam Maneuvers to Intra-articular Anesthetic Injection in the Diagnosis of Sacroiliac Joint Pathology. *American Academy of PM&R 2019 Annual Assembly. San Antonio TX, November 2019*
32. Ehsanian R, Anderson S, **Schneider BJ**, Kennedy DJ, Mansourian V. *Prevalence of Vitamin B1 Deficiency in the Stroke Population Admitted to Acute Inpatient Rehabilitation. American Academy of PM&R 2019 Annual Assembly. San Antonio TX, November 2019*
33. Alex Schmidt, **Byron J Schneider**, Reza Ehsanian. *Performing a Radiofrequency Neurotomy on Patient with Previously Undiagnosed Klippel-Feil Syndrome. American Academy of PM&R 2019 Annual Assembly. San Antonio TX, November 2019*
34. Alex Schmidt and **Byron J Schneider**. *Successful Lumbar Radiofrequency Neurotomy with Ensuing Adjacent Level Facet Synovitis. American Academy of PM&R 2019 Annual Assembly. San Antonio TX, November 2019*
35. Sterling Haring, **Byron Schneider**, DJ Kennedy “Transforaminal vs interlaminar ESI for axial vs radicular or claudication pain” American Academy of Pain Medicine Annual Meeting. Washington DC, February 2020
36. Alex Schmidt, **Byron Schneider**, and Reza Ehsanian “Radiofrequency Neurotomy in a Patient with Klippel-Feil Syndrome Case Diagnosis”

Association of Academic Physiatrists ISPRM World Congress Meeting.
Orlando FL, March 2020

37. **Schneider BJ**, Kennedy DJ, Nagpal A, Patel J, Zheng P, McCormick Z, Ehsanian R “Normality of Numeric Rating Scale Pain Scores Before and After Medial Branch Blocks”. International Society for the Study of the Lumbar Spine Spineweek, Melbourne Australia, April 2020 - cancelled due to COVID
38. **Schneider BJ**, Ehsanian R, Kennedy DJ, Nagpal A, Patel J, Zheng P, McCormick Z “Patient-perceived Duration of Effect of Lidocaine and Bupivacaine Following Diagnostic Medial Branch Blocks; a Multicenter Study”. International Society for the Study of the Lumbar Spine Spineweek, Melbourne Australia, April 2020 - cancelled due to COVID
39. **Schneider BJ**, Ehsanian R, Kennedy DJ, Nagpal A, Patel J, Zheng P, McCormick Z “Agreement of numerical rating scale versus patient reported percentage perceived reduction in rating pain intensity after anesthetic block in the spine.” International Society for the Study of the Lumbar Spine Spineweek, Melbourne Australia, April 2020 - cancelled due to COVID
40. **Schneider BJ**, Ehsanian R, Schmidt A, Huynh L, Maher D, Kennedy DJ “The effect of patient satisfaction scores on physician burnout” Spine Intervention Society Spine Week, Melbourne Australia, April 2020 - cancelled due to COVID
41. **Schneider BJ**, Ehsanian R, Kennedy DJ, Schmidt A, Huynh L, Maher D “The effect of patient satisfaction scores on physician clinical decision making: a factor driving utilization of opioid prescriptions, magnetic resonance imaging, and interventional spine procedures.” Spine Intervention Society Spine Week, Melbourne Australia, April 2020 – cancelled due to COVID
42. Khan S, Roehmer C, Abramson N, **Schneider B**. “Current Trends in Technical Performance of Lumbar Facet Interventions Stratified by Fellowship Training.” Poster at American Society of Regional Anesthesia and Pain Medicine 20th Annual Pain Medicine Meeting. San Francisco CA Nov 2021
43. Roehmer C, Khan S, **Schneider B**. “A Unique Case of Axial Low Back Pain in the Setting of Lumbosacral Paraspinal Muscle Edema.” Poster at

American Society of Regional Anesthesia and Pain Medicine 20th Annual Pain Medicine Meeting. San Francisco CA Nov 2021

44. Roehmer C, Khan S, **Schneider B** “Clinical and Imaging Outcomes After Fluoroscopic Percutaneous Lumbar Facet Joint Cyst Rupture Procedures” Poster presented at the Annual Meeting of The American Society of Pain and Neuroscience. Miami FL, July 2021

Research Awards:

- 2015** **Best Resident Abstract Award**
International Spine Intervention Society
Schneider B, McCormick Z, Huyhn L, Kennedy DJ. “Comparative Effectiveness of Lumbar Transforaminal Epidural Steroid Injections with Particulate Versus Nonparticulate Corticosteroids for Lumbar Radicular Pain Due to Intervertebral Disc Herniation: A Prospective, Randomized, Double-blind Trial: Preliminary 5 Year Follow Up Data.” International Spine Intervention Society Annual Scientific Meeting, Las Vegas NV. 7/2015
Primary Recipient
- 2015** **Best PGY IV Presentation**
Stanford PM&R Resident Research Day
“Smoking is Associated with Pain in all Body Regions, with Greatest Influence on Axial Pain.”
- 2017** **Best Clinical Abstract by a Fellow**
Spine Intervention Society
Zheng P, **Schneider B**, Levin J, Huyhn L, Smuck, M, Agnes I, Kennedy DJ “Multi-Institutional Randomized, Double-Blind, Placebo Controlled, Prospective Study of Intra-articular Lumbar Zygapophysial Joint Corticosteroid Injections as Treatment of Chronic Low Back Pain in a Selected Population “Spine Intervention Society Annual Scientific Meeting. San Francisco, CA. July 2017.
Part of authorship team
- 2017** **Runner up Outstanding Paper Award in The Spine Journal.**
Kennedy DJ, Zheng P, Smuck M, McCormick Z, Huyhn L,

Schneider B “A minimum of 5-year follow-up after lumbar transforaminal epidural steroid injections in patients with lumbar radicular pain due to intervertebral disc herniation.”

2019

Best Clinical Abstract

Spine Intervention Society

Schneider BJ, Nagpal A, Patel J, Zheng P, McCormick Z “Patient-perceived Duration of Effect of Lidocaine and Bupivacaine Following Diagnostic Medial Branch Blocks; a Multicenter Study.” Spine Intervention Society Annual Scientific Meeting, New York, NY. August 2019

Primary Recipient

2019

Best Clinical Abstract by a Resident

Spine Intervention Society

Ehsanian R, Kennedy DJ, Rosati R, Levin J, Huynh L, **Schneider BJ** “Validity of Physical Exam Maneuvers in Diagnosis of Sacroiliac Joint Pathology; Are Physical Exams Worth the time?” Spine Intervention Society Annual Scientific Meeting, New York, NY. August 2019

Part of Authorship Team, mentor to resident recipient

2020

Best Basic Science Abstract

Spine Intervention Society

“Precision and Accuracy of the Numeric Rating Scale When Benchmarked Against Patient Reported Reductions in Pain: A Basic Science Study on Measuring Pain” - **B Schneider, MD**

Primary Recipient

2020

Best Clinical Abstract:

Spine Intervention Society

“The Incidence of Ischemic and Hemorrhagic Complications Associated With Ceasing vs. Maintaining Anticoagulant and /or Antiplatelet Agents for Pain Interventions” - Michael B. Furman, MD, MS

Part of authorship team

2021

Best Fellow Research Abstract:

Spine Intervention Society

Dual Medial Branch Blocks and Progression to Radiofrequency Neurotomy for Lumbar Zygapophysial Arthropathy
David Sherwood, DO

Part of authorship team, mentor to recipient

2021

Best Resident Research Abstract:

Spine Intervention Society

Dual Medial Branch Blocks and Progression to Radiofrequency
Neurotomy for Cervical Zygapophysial Arthropathy.

Evan Berlin, MD

Part of authorship team, mentor to recipient

2022

Best Resident Research Abstract

Spine Intervention Society

Predicting Time of Expected Patient Responses to Epidural Steroid
Injection

Valentine Chukwuma MD PhD

Part of authorship team, mentor to recipient

Clinical Awards:

- **2018** **Top “21 under 40” Spine Physicians** Spine journal

Invited National and International Presentations:

1. “Vasovagal rates in fluoroscopically guided interventional procedures: a study of over 8,000 injections.”
International Spine Intervention Society Annual Scientific Meeting
Orlando FL. 07/2014
2. “Smoking is Associated with Pain in all Body Regions, with Greatest Influence on Axial Pain.”
American Academy of Physical Medicine and Rehabilitation Annual Assembly
San Diego CA. 11/2014
3. “Comparative Effectiveness of Lumbar Transforaminal Epidural Steroid Injections with Particulate Versus Nonparticulate Corticosteroids for Lumbar Radicular Pain Due to Intervertebral Disc Herniation: A Prospective, Randomized, Double-blind Trial: Preliminary 5 Year Follow Up Data.”
International Spine Intervention Society Annual Scientific Meeting, Las Vegas NV. 7/2015
4. “Treatment Options for Cervical Spine Pathology: What's the Evidence? Therapies For Neck Pain.” American Academy of Physical Medicine and Rehabilitation Annual Assembly, Boston, MA. 10/2015
5. “Immediate Relief After Sacroiliac Joint Injection as a Predictor of Subsequent Relief to Steroid at 2-4 Weeks.” International Spine Intervention Society Annual Scientific Meeting, New Orleans LA 7/2015

- 6.** “Lumbar Epidural Steroid Injections” Spinal Interventions for Residents Session American Academy of Physical Medicine and Rehabilitation Annual Assembly, New Orleans, LA. 10/2016
- 7.** “Not All Low Back Pain is the Same.” Demystifying Low Back Pain: Where Orthopaedic and Pyschosocial Pathology Collide Session. American Academy of Physical Medicine and Rehabilitation Annual Assembly, New Orleans, LA. 10/2016
- 8.** Session Moderator: Demystifying Low Back Pain: Where Orthopaedic and Pyschosocial Pathology Collide Session. American Academy of Physical Medicine and Rehabilitation Annual Assembly, New Orleans, LA. 10/2016
- 9.** “Treatment Options: Physical Therapy/Manual Therapies: A Review of the Outcome Literature” Posterior Pelvic/Sacroiliac Joint Pain Session. North American Spine Society Annual Meeting, Boston MA. 10/2016
- 10.** “Lumbar medial branch blocks and facet injections” NASS lumbar injections Course, Phoenix, AZ, 1/2017
- 11.** “Fact Finder, Conscious Sedation”, Spine Intervention Society Annual Scientific Meeting, San Francisco, 7/2017
- 12.** “Epidural Steroid Injection and Post-Operative Infections in the Lumbar Spine” A Critical Review of the Influential Papers of 2016, Spine Intervention Society Annual Scientific Meeting, San Francisco, 7/2017
- 13.** “Hip Spine Syndrome” North American Spine Society Summer Spine Meeting, San Diego, 7/2017
- 14.** “Introduction: Prevalence and Diagnostic Confidence” North American Spine Society Summer Spine Meeting, San Diego, 7/2017
- 15.** Co-Chair/Moderator “Workup of Mimicking Pathology” North American Spine Society Summer Spine Meeting, San Diego, 7/2017
- 16.** “Concerns with Heterogeneity” Don’t Get Fooled: How to Identify Statistical Weakness in Clinical Pain Studies Part 1. American Academy of Physical Medicine and Rehabilitation Annual Assembly, Denver, CO, 10/2017
- 17.** “Concerns with Heterogeneity: Applications and Examples” Don’t Get Fooled: How to Identify Statistical Weakness in Clinical Pain Studies Part II Small Group Workshop. American Academy of Physical Medicine and Rehabilitation Annual Assembly, Denver, CO, 10/2017

- 18.** “Treatment Options: Physical Therapy/Manual Therapies: A Review of the Outcome Literature” A Pain in the Butt: Diagnosis and Treating Posterior Pelvic and Sacroiliac Joint Pain. American Academy of Physical Medicine and Rehabilitation Annual Assembly, Denver, CO, 10/2017
- 19.** Session Moderator: A Pain in the Butt: Diagnosis and Treating Posterior Pelvic and Sacroiliac Joint Pain. American Academy of Physical Medicine and Rehabilitation Annual Assembly, Denver, CO, 10/2017
- 20.** “Effect of Depression on Patient Reported Outcomes Following Cervical Epidural Steroid Injection for Cervical Spondylosis Causing Radicular Pain” Leading in Research: Pain and Spine Medicine Podium Session. American Academy of Physical Medicine and Rehabilitation Annual Assembly, Denver, CO, 10/2017
- 21.** Session Moderator. “The Cellular and Systemic Effects of the Aging Spine and Musculoskeletal System.” American Academy of Physical Medicine and Rehabilitation Annual Assembly, Denver, CO, 10/2017
- 22.** “Lumbar medial branch blocks and facet injections” NASS lumbar injections Course, Phoenix, AZ, 1/2018
- 23.** Session Moderator for “Trainee Involvement in Interventional Spine Procedures” Association of Academic Physiatrists Annual Meeting, Atlanta, GA Feb 2018
- 24.** Session Moderator for “Point/Counterpoint Discussion: Platelet Rich Plasma (PRP) Injections for Tendinopathy.” Association of Academic Physiatrists Annual Meeting, Atlanta, GA Feb 2018.
- 25.** “Trainee Involvement in Interventional Spine Procedures: Complications and Outcome” Trainee Involvement in Interventional Spine Procedures Session at Association of Academic Physiatrists Annual Meeting, Atlanta, GA Feb 2018
- 26.** Session Moderator for “Innovations for Outcome Measures in Lumbar Spinal Stenosis” Association of Academic Physiatrists Annual Meeting, Atlanta, GA Feb 2018.
- 27.** “Diagnosis of Lumbar Spinal Stenosis” Innovations for Outcome Measures in Innovations for Outcome Measures in Lumbar Spinal Stenosis session at Association of Academic Physiatrists Annual Meeting, Atlanta, GA Feb 2018.
- 28.** “Research in Lumbar Spinal Stenosis Using Accelerometry as an Outcome Measure” in Innovations for Outcome Measures in Lumbar Spinal Stenosis

- session at Association of Academic Physiatrists Annual Meeting, Atlanta, GA Feb 2018.
- 29.** “Maximizing Safety During Spine Interventions: Technique, Steroid Selection, and Anticoagulation Management” American Osteopathic College of Physical Medicine and Rehabilitation Mid Year Meeting, Nashville TN April 2018
 - 30.** “Diagnosis of Sacro-Iliac Joint Pain with a Focus on Physical Exam” in The Sacroiliac Joint - The Pathway from Pain to Treatment. International Society for the Advancement of Spinal Surgery 2018. Toronto, Canada. April 2018.
 - 31.** “Don’t always blame the sacroiliac joint: differentiating between the SIJ, Lumbar Spine, and Hip” in A Pain in the Rear: Diagnosing and Treating Lumbar Spine and Sacroiliac Complex Pain session. American Academy of Pain Medicine Annual Meeting. Vancouver, Canada. April 2018
 - 32.** “Manipulation and Physical Therapy for SIJ Pain: Is There Evidence?” in Sacroiliac Joint Controversies at Spine Intervention Society Annual Scientific Meeting Chicago IL Aug 2018
 - 33.** “Critical Review of Papers by Kennedy et al and Friedly et al” in a Critical Review of the Influential Papers of 2017. Spine Intervention Society Annual Scientific Meeting Chicago IL Aug 2018
 - 34.** “Review of Lumbar Radiofrequency” In Radiofrequency Neurotomy: Review of the Literature and Controversies at Spine Intervention Society Annual Scientific Meeting Chicago IL Aug 2018
 - 35.** “FactFinders Presents: Safety Issues with Ultrasound-Guided Cervical Injections” at Spine Intervention Society Annual Scientific Meeting Chicago IL Aug 2018
 - 36.** “The Risk of Continuing Medications with Anti-platelet or Anti-coagulant Effect During Select Spine Interventions: A Cohort of 276 Injections” In Research Abstract Podium Presentations Spine Intervention Society Annual Scientific Meeting Chicago IL Aug 2018
 - 37.** “Diagnostic Injections: Clinical Pearls” in Symposium: Section on RIMS: Clinical Failure of Lumbar Surgery Part I – Diagnostic Considerations North American Spine Society, Los Angeles CA , Sept 2018

- 38.** “Facet intra-articular injection and radiofrequency neurotomy” in Symposium: Section on RIMS: Clinical Failure of Lumbar Surgery Part II – Treatment Options North American Spine Society, Los Angeles CA , Sept 2018
- 39.** Moderator for “Employing Comprehensive Spine Care” American Congress of Rehabilitation, Dallas TX, Sept 2018
- 40.** “Lumbar Injections” in Employing Comprehensive Spine Care at American Congress of Rehabilitation, Dallas TX, Sept 2018
- 41.** Moderator for “An Update on the Safety of Spine Procedures: What You Need to Know Now” American Academy of Physical Medicine and Rehabilitation, Orlando FL, Oct 2018
- 42.** “Systemic Effects of Steroids After Epidural Steroid Injections” in An Update on the Safety of Spine Procedures: What You Need to Know Now” at the American Academy of Physical Medicine and Rehabilitation, Orlando FL, Oct 2018
- 43.** “Systematic Approach to Reading Lumbar MRIs” in Spine Imaging Interpretation for the PM&R Specialist at the American Academy of Physical Medicine and Rehabilitation, Orlando FL, Oct 2018
- 44.** Moderator for “Hip-Spine Syndrome: Clinical Applications for the General Outpatient Physiatrist and Those Practicing in More Specialist Settings like Spine or Sports Clinics” at the American Academy of Physical Medicine and Rehabilitation, Orlando FL, Oct 2018
- 45.** “Imaging and Diagnostic Injections for the Lumbar Spine” in Hip-Spine Syndrome: Clinical Applications for the General Outpatient Physiatrist and Those Practicing in More Specialist Settings like Spine or Sports Clinics at the American Academy of Physical Medicine and Rehabilitation, Orlando FL, Oct 2018
- 46.** Moderator for “Employing Comprehensive Spine Care” American Academy of Physical Medicine and Rehabilitation, Orlando FL, Oct 2018
- 47.** “Lumbar Injections” in Employing Comprehensive Spine Care at American Academy of Physical Medicine and Rehabilitation, Orlando FL, Oct 2018
- 48.** “Lumbar medial branch blocks and facet injections” NASS lumbar injections Course, Phoenix, AZ, 1/2019

49. "Lateral Branch Nerve Blocks: The Foundational Science and Elements Yet to be Defined" American Academy of Pain Medicine. Denver CO 3/2019
50. "Lumbar Medial Branch Blocks". American Academy of Pain Medicine. Denver CO 3/2019
51. "The Systemic Effects of Steroids Resulting from Epidural Steroid Injections." American Academy of Pain Medicine. Denver CO 3/2019
52. "The Risks of Ceasing or Maintaining Anticoagulation Medications for Interventional Spine Procedures." American Academy of Pain Medicine. Denver CO 3/2019
53. "Interventional Treatment Options for Scoliosis" Arab Spine Course Diploma Module 4, Dubai UAE 4/2019
54. "Complications of Lumbar Interventional Procedures" Arab Spine Course Diploma Module 4, Dubai UAE 4/2019
55. "Complications of Cervical Interventional Procedures" Arab Spine Course Diploma Module 4, Dubai UAE 4/2019
56. "Pathophysiology of Axial Lumbar Pain" Arab Spine Course Diploma Module 1, Dubai UAE 4/2019
57. "Lumbar Epidural Steroid Injections" Arab Spine Course Diploma Module 1, Dubai UAE 4/2019
58. "Medical Management of Axial and Radicular Pain" Arab Spine Course Diploma Module 1, Dubai UAE 4/2019
59. "Interventional Options for Lumbar Spinal Stenosis" Arab Spine Course Diploma Module 1, Dubai UAE 4/2019
60. "Diagnosis and Treatment of Sacroiliac Joint Pain" Arab Spine Course Diploma Module 1, Dubai UAE 4/2019
61. "Role of the Facet Joints in Low Back Pain" Arab Spine Course Diploma Module 1, Dubai UAE 4/2019
62. "Interventional Treatment Options for Facet Pain" Arab Spine Course Diploma Module 1, Dubai UAE 4/2019
63. "Interventional Treatment Options for Discogenic Pain" Arab Spine Course Diploma Module 1, Dubai UAE 4/2019

64. "The Specifics on Nonspecific Low Back Pain: Challenges in Diagnosis, Treatment, and Research" Montefiore Annual Spine Symposium, New York NY 4/2019
65. "Patient-perceived Duration of Effect of Lidocaine and Bupivacaine Following Diagnostic Medial Branch Blocks; a Multicenter Study." In "Top Research Abstract Presentations" Spine Intervention Society Annual Scientific Meeting, New York, NY. August 2019
66. "Lumbar Zygapophyseal Targeted Injections" in "Facet Joint Pain" Spine Intervention Society Annual Scientific Meeting, New York, NY. August 2019
67. "Facet Joint Pain" Moderator. Spine Intervention Society Annual Scientific Meeting, New York, NY. August 2019
68. "Why I Wouldn't Recommend Biacuplasty for My Patients" in "Discogenic Pain" Spine Intervention Society Annual Scientific Meeting, New York, NY. August 2019
69. "Ultrasound Guided Sacroiliac Joint Injection" FactFinder. Spine Intervention Society Annual Scientific Meeting, New York, NY. August 2019
70. "Antithrombotic Guidelines" Panel Discussion. American Society of Interventional Pain Physician Mid-South Meeting. Memphis TN. September 2019
71. "Selective Nerve Root Blocks" in Section on RIMS: Optimization for Spine Surgery. North American Spine Society 2019, Chicago IL, September 2019
72. "Lumbar medial branch blocks and facet injections" in NASS Basic Fluoroscopic Guided Lumbar Spinal Injections. North American Spine Society 2019, Chicago IL, September 2019
73. "Our Practice Patterns: What We Are Doing and Why". SIS and NASS Joint symposium "Evolution: How Our History Shapes the Future of Spine Interventions" North American Spine Society 2019, Chicago IL, September 2019
74. "The Sacroiliac Joint and Dorsal Ligament Complex: The Clinically Relevant Anatomy and Innervation" in The Sacroiliac Joint and Dorsal Complex

- Procedural Considerations and Review of the Evidence. AAPM&R Annual Assembly 2019 San Antonio, TX November 2019
75. “Systematic Approach to the Lumbar MRI” in Spine Imaging Interpretation for the Early-Career PM&R Specialist. AAPM&R Annual Assembly 2019 San Antonio, TX November 2019
 76. “Lumbar MRI” in Spine Imaging Interpretation for the Advanced PM&R Specialist AAPM&R Annual Assembly 2019 San Antonio, TX November 2019
 77. “Tried and True: Updates on Data for Radiofrequency Ablation of the Spine” in Current State of Radiofrequency Ablation. AAPM&R Annual Assembly 2019 San Antonio, TX November 2019
 78. “Lumbar medial branch blocks and facet injections” NASS lumbar injections Course, Chicago, IL, January 2020
 79. “Intra-discal biologics: PRP and Stem cells: An evidence based review” NASS Evidence and Technology Summit, Park City UT, February 2020
 80. “Potential Roles of Telemedicine in an Interdisciplinary Spine Clinic” NASS Evidence and Technology Summit, Park City UT, February 2020
 81. “Lumbar radiofrequency ablation” NASS Evidence and Technology Summit, Park City UT, February 2020
 82. “Intra-discal Stem cells” NASS Evidence and Technology Summit, Park City UT, February 2020
 83. “Lateral Branch Nerve Radiofrequency Ablation: A Best-Evidence Update” American Academy of Pain Medicine Annual Meeting, Washington DC, February 2020
 84. “Lateral Branch Nerve Blocks: The Foundational Science and Elements yet to Be Defined” American Academy of Pain Medicine Annual Meeting, Washington DC, February 2020
 85. “Provocation Discography: Diagnostic and Prognostic Value” American Society of Neuroradiology Annual Meeting (virtual), June 2020
 86. “Precision and Accuracy of the Numeric Rating Scale When Benchmarked Against Patient Reported Reductions in Pain: A Basic Science Study on Measuring Pain” Spine Intervention Society Annual Scientific Meeting

- (Virtual). August 2020
- 87.** “Cervical Medial Branch Radiofrequency Neurotomy” Spine Intervention Society Annual Scientific Meeting (Virtual). August 2020
 - 88.** “Intradiscal Biologics: A Review of the Evidence” North American Spine Society Annual Meeting (Virtual) October 2020
 - 89.** “Setting up MRI cervical spine for review” AAPM&R Annual Assembly (virtual). November 2020
 - 90.** “Trigger Points for Spine Pain and Assessing the Literature for the Spine Physiatrist – The Con Argument” AAPM&R Annual Assembly (virtual). November 2020
 - 91.** “Biologics for the Intervertebral Disc: Review of the Evidence” AAPM&R Annual Assembly (virtual). November 2020
 - 92.** “Intradiscal Biologic Therapies: Systematic review of outcomes data on intradiscal PRP and Stem Cell injections” La Sociedad Ibero Latinoamericana de Columna (SILACO) Annual Congress (virtual). May 2021
 - 93.** “The Specifics on Nonspecific Low Back Pain” Emory University, Department of Physical Medicine & Rehabilitation Grand Rounds. Atlanta, GA (virtual). March 2021
 - 94.** “The Specifics on Nonspecific Low Back Pain” Stanford University, Department of Orthopaedics Division of Physical Medicine & Rehabilitation Grand Rounds. Palo Alto, CA (virtual). May 2021
 - 95.** “Lumbar Transforaminal Epidural Steroid Injections” NASS Lumbar Injection Course. Chicago, IL. June 2021.
 - 96.** “Getting and Choosing a Job: Academic Practice” in Building Your Clinical Practice. Spine Intervention Society Annual Scientific Meeting. Washington, DC. August 2021
 - 97.** “Review of the Evidence-Base” in Role of Ultrasound (US) in Interventional Spine Procedures. Spine Intervention Society Annual Scientific Meeting. Washington, DC. August 2021
 - 98.** “SIS Systematic Review on Intradiscal Biologic Treatments for Discogenic Pain” in Orthobiologics for the Treatment of Spine Pain. Spine Intervention Society Annual Scientific Meeting. Washington, DC. August 2021

- 99.** Orthobiologics for the Treatment of Spine Pain. Moderator. Spine Intervention Society Annual Scientific Meeting. Washington, DC. August 2021
- 100.** “Regenerative Medicine for Axial Spine Pain”. University of Rochester. Dept of Spine Grand Rounds. Rochester, NY (virtual) September 2021
- 101.** “Injections and the Physical Exam”. In Section on Posterior Pelvic Girdle Pain: The Physical Exam. North American Spine Society Annual Meeting. Boston, MA. September 2021.
- 102.** Moderator for “Abstract Presentation: Injections and Non-Operative Interventions/Imaging” North American Spine Society Annual Meeting. Boston, MA. September 2021.
- 103.** Moderator for “Abstract Presentations: Safety and Quality in Spinal Care Delivery” North American Spine Society Annual Meeting. Boston, MA. September 2021.
- 104.** “The Specifics of nonspecific low back Pain” Melzack Pain Lecture Series (Grand Rounds). McGill University, Montreal, Canada. (virtual) October 2021
- 105.** “Orthobiologics for Low Back Pain” Vanderbilt University Department of PM&R Grand Rounds, Nashville TN (virtual) November 2021
- 106.** “Urinary Urgency: Should I Be Concerned” in A Game of CLUE: Can You Deduce the Different Causes for the Same Presenting Back and Lower Extremity Symptoms? AAPM&R Annual Meeting, Nashville TN (virtual). November 2021
- 107.** “AAPM&R Registry The Data is in: How AAPM&R’s Registry Early Adopter Sites are Engaging Patients to Collect Valuable Data in Low Back Pain and Ischemic Stroke” AAPM&R Annual Meeting, Nashville TN (virtual). November 2021
- 108.** “Interventional Treatments – Lumbar Epidural Steroid Injections” in Lumbar Disc Herniation and Sciata session. ArabSpine Module 1 Course. Dubai, UAE. December 2021.
- 109.** “Clinical Assessment” in Lumbar Canal Stenosis Session. ArabSpine Module 1 Course. Dubai, UAE. December 2021.

- 110.** “Pathophysiology of Axial Low Back Pain” in Axial Pain Session. ArabSpine Module 1 Course. Dubai, UAE. December 2021.
- 111.** “SI Joint Pain, Diagnosis & Medical Management” in Sacroiliac and Disc Arthroplasty Session. ArabSpine Module 1 Course. Dubai, UAE. December 2021.
- 112.** “Interventional Treatments for Facet Mediated Pain” in Pain, Evidence, Outcomes and Clinical Pearls Session. ArabSpine Module 1 Course. Dubai, UAE. December 2021.
- 113.** “Management of Spinal Pain Syndrome in Spinal Cord Injury Patients” in Particularities Session. ArabSpine Module 3 Course. Dubai, UAE. December 2021.
- 114.** “Lumbar Transforaminal Epidural Steroid Injections” NASS Lumbar Injection Course. Phoenix, AZ. January 2022.
- 115.** “Con Argument Against Ultrasound Use for Cervical Injections” Spine Intervention Society Winter Seminar. Maui, HI. March 2022.
- 116.** “Precision and Accuracy of the Numeric Pain Rating Scale” Spine Intervention Society Winter Seminar. Maui, HI. March 2022.
- 117.** “Patient Satisfaction Scores” Spine Intervention Society Winter Seminar. Maui, HI. March 2022.
- 118.** “Risks and Complications.” NASS Lumbar Injection Course. Chicago, IL. June 2022.
- 119.** “Transforaminal Epidural Steroid Injections/Selective Nerve Root Blocks” NASS Lumbar Injection Course. Chicago, IL. June 2022.
- 120.** “Regenerative Treatment for Discogenic Low Back Pain” in State of the Art Management of Athletic Back Pain. Sports Medicine Summit: Caring for Athletes with Lower Limb Spine Injuries. Philadelphia, PA. August 2022.
- 121.** “Fact Finders Present: Antibiotics for Disc Access” in Disc Pain vs Vertebrogenic Pain. Spine Intervention Society Annual Scientific Meeting. Vancouver, Canada. September 2022

- 122.** Moderator for Top Research Presentations Spine Intervention Society Annual Scientific Meeting. Vancouver, Canada. September 2022
- 123.** Moderator for Research Presentations Spine Intervention Society Annual Scientific Meeting. Vancouver, Canada. September 2022
- 124.** “Predicting Time of Expected Patient Responses to Epidural Steroid Injection” in Top Research Presentations. Spine Intervention Society Annual Scientific Meeting. Vancouver, Canada. September 2022
- 125.** “Chondrotoxicity of Local Anesthetics” AANEM Annual Meeting. Nashville, TN. September 2022
- 126.** “Biologics for the Treatment of Spine Pain: An Evidenced Based Review” in Biologics in the Management of Low Back Pain: Current State of the Evidence and Clinical Considerations.” North American Spine Society Annual Meeting. Chicago, IL October 2022
- 127.** “The Role of Injections in Predicting Surgical Outcomes” in Case Review: The Relationship Between Injections and Surgery.” North American Spine Society Annual Meeting. Chicago, IL October 2022
- 128.** Moderator for “Abstract Presentations: Etiology and Epidemiology of Spinal Disorders” North American Spine Society Annual Meeting. Chicago, IL October 2022
- 129.** “The Evolving Science of Surgical Preoperative Optimization” in Symposium: The Evolving Science of Surgical Preoperative Optimization.” North American Spine Society Annual Meeting. Chicago, IL October 2022
- 130.** “Transforaminal Epidural Steroid Injections/Selective Nerve Root Blocks” NASS Lumbar Injection Course. Phoenix AZ, January 2023
- 131.** Moderator for “Medical Session: Need to Know Updates for Your Interventional Practice” NASS Evidence Technology and Science Summit, Park City UT, February 2023
- 132.** “Preview of New Steroid Safety Guidelines” in Medical Session: Need to Know Updates for Your Interventional Practice Session, NASS Evidence Technology and Science Summit, Park City UT, February 2023
- 133.** Moderator “Top Papers of 2022/2023” NASS Evidence Technology and Science Summit, Park City UT, February 2023

- 134.** “Effect of Spinal Cord Burst Stimulation vs. Placebo Stimulation on Disability in Patients with Chronic Radicular Pain after Lumbar Spine Surgery: A Randomized Clinical Trial by Hara et al” in Top Papers of 2022/2023 Session, NASS Evidence Technology and Science Summit, Park City UT, February 2023
- 135.** “Long-term Outcomes in Use of Opioids, Nonpharmacologic Pain Interventions, and Total Costs of Spinal Cord Stimulators Compared with Conventional Medical Therapy for Chronic Pain by Dhruva et al” in Top Papers of 2022/2023 Session, NASS Evidence Technology and Science Summit, Park City UT, February 2023
- 136.** “Pain Location Is Associated with Fracture Type in Acute Osteoporotic Thoracolumbar Vertebral Fracture: A Prospective Observational Study by Zhang et al” in Top Papers of 2022/2023 Session, NASS Evidence Technology and Science Summit, Park City UT, February 2023
- 137.** “Patient-Perceived Duration of Effect of Lidocaine and Bupivacaine Following Diagnostic Medial Branch Blocks: A Multicenter Study” in Top Papers of 2022/2023 Session, NASS Evidence Technology and Science Summit, Park City UT, February 2023
- 138.** “How Much Back Pain is Really from the Sacroiliac Joint?” in Management of Sacroiliac Joint Pain Session, NASS Evidence Technology and Science Summit, Park City UT, February 2023
- 139.** “Is There a Difference Between Pain from the Sacroiliac Joint and Posterior Sacroiliac Complex?” in Management of Sacroiliac Joint Pain Session, NASS Evidence Technology and Science Summit, Park City UT, February 2023
- 140.** “Lumbar Spine MRI Basics” in Imaging of the Lumbar Spine: Practical Pearls Session, NASS Evidence Technology and Science Summit, Park City UT, February 2023
- 141.** “Interventional Diagnostic Considerations” in Diagnostic and Treatment Considerations for Neck and Periscapular Pain Session, NASS Evidence Technology and Science Summit, Park City UT, February 2023
- 142.** “Anterior Element Pain Imaging” in Diagnostic and Treatment Considerations for Lumbosacral Anterior Element Pain Session, NASS Evidence Technology and Science Summit, Park City UT, February 2023
- 143.** “Intradiscal Biologics” in Diagnostic and Treatment Considerations for Lumbosacral Anterior Element Pain Session, NASS Evidence Technology

- and Science Summit, Park City UT, February 2023
- 144.** “Biologics for the Treatment of Spine Pain: An evidence based review”
New York University Langone Department of Physical Medicine &
Rehabilitation Grand Rounds, Virtual, February 2023
 - 145.** “Single Medial Branch Blocks: The Argument” in RFN Pro-Con Debates.
Spine Intervention Society Winter Meeting, Montego Bay Jamaica, February
2023
 - 146.** “Injectate Risks” in Update on Steroid Injection Risks – Multi-society
Workgroup. Spine Intervention Society Winter Meeting, Montego Bay
Jamaica, February 2023
 - 147.** “Managing Pre-Procedural Anticoagulation/Antiplatelet Agents” in
Breakout Sessions. Spine Intervention Society Winter Meeting, Montego Bay
Jamaica, February 2023
 - 148.** “Conservative and Medical Management of Lumbar Disc Herniation”,
ArabSpine Module 1, Dubai UAE, May 2023
 - 149.** “Pathophysiology of Axial Low Back Pain” ArabSpine Module 1, Dubai
UAE, May 2023
 - 150.** “Conservative and Medical Treatment of Lumbar Canal Stenosis”
ArabSpine Module 1, Dubai UAE, May 2023
 - 151.** “Sacroiliac Joint Pain, Diagnosis, and Medical Management”, ArabSpine
Module 1, Dubai UAE, May 2023
 - 152.** “Interventional Treatment for Facet Mediated Pain”, ArabSpine Module 1,
Dubai UAE, May 2023
 - 153.** “Sacroiliac Joint Interventional Treatments”, ArabSpine Module 1, Dubai
UAE, May 2023
 - 154.** “Management of Spine Pain Syndromes in Spinal Cord Injury Patients”,
ArabSpine Module 3, Dubai UAE, May 2023

155. “Rehabilitation after Spinal Cord Injury”, ArabSpine Module 3, Dubai UAE, May 2023
156. “Intradiscal Stem Cell Injections” Dubai International Spine Conference, Dubai UAE, May 2023
157. “Intradiscal PRP Injections”, Dubai International Spine Conference, Dubai UAE, May 2023
158. “PRP Injections for facet and sacroiliac joint pain”, Dubai International Spine Conference, Dubai UAE, May 2023

Teaching Activities:

- ArabSpine
 - Module 1 Cadaver Lab Instructor, Dubai UAE, 5/2023
 - Module 3 Cadaver Lab Instructor, Dubai UAE, 5/2023
- Spine Intervention Society Online Journal Club, development and authorship of CME Material – available at <https://www.spineintervention.org/page/spinenet>
 - What Injectate Volume is Sufficient for Cervical Medial Branch Blocks
 - Varying SCS Frequency for Patients with Low Back Pain
 - Intraosseous Basivertebral Nerve Ablation for the Treatment of Chronic Low Back Pain in “Routine Clinical Practice”
 - A Comparison of Hyaluronate and Triamcinolone
- AAP Online Lecture Series
 - "Risks and complications of interventional spine procedures" 4/2020
- American Academy of PM&R
 - Proof of the pudding debate
 - AAPM&R Annual meeting, San Antonio TX 2019
- North American Spine Society (NASS)
 - NASS Lumbar Spinal Injections Course
 - Instructor, Phoenix AZ 2017
 - Co-Chair, Phoenix, AZ 2018
 - Co-Chair, Phoenix AZ 2019
 - Co-Chair, Chicago IL 2020
 - Co-Chair, Chicago IL 2021
 - Co-Chair, Boston MA 2021
 - Instructor, Phoenix AZ 2022

- Co-Chair, Chicago IL 2022
 - Instructor, Phoenix AZ 2023
- NASS Basic Fluoroscopic Guided Lumbar Spinal Injections
 - Instructor, Chicago IL 2019
- Spine Intervention Society Evidence Based Medicine I Course
 - Table Instructor, San Francisco 2017
 - Table Instructor, Chicago 2018
 - Table Instructor (virtual), 2020
 - Table Instructor (virtual), 2023
- Spine Intervention Society Evidence Based Medicine II Course
 - Table Instructor, New York 2019
 - Table Instructor (virtual), 2021
 - Table Instructor (virtual), 2022
- Spine Intervention Society Evidence Based Medicine III Course
 - Moderator, Vancouver Canada 2022
 - Moderator, Online, January 2023
 - Moderator, Online, May 2023
- American Academy of Pain Medicine
 - Instructor in Diagnostic Conundrums: Neck vs Shoulder; Back vs Hip. “Pain Medicine Best Practices: Integrative Solutions for Critical Challenges (PME).” Vancouver, Canada 2018
- Vanderbilt University
 - Vanderbilt Medical School CASE Meet the Researcher, round table discussion November 2021
 - Grand Rounds – Vanderbilt PM&R: “Orthobiologics for the treatment of Low Back Pain” November 2021
 - Vanderbilt Medical School CASE Meet the Researcher, round table discussion October 2021
 - PM&R Program Evaluation Committee 2018-2020
 - Grand Rounds – Vanderbilt PM&R: “Maximizing Safety During Spine Interventions: Technique, Steroid Selection, and Anticoagulation Management” 5/2018
 - Lecturer – Vanderbilt PM&R Resident Lecture Series
 - Cervical Spine Pathology 10/2016
 - Lumbar Spine Pathology 11/2016
 - Hip Anatomy and Physiology 1/2017
 - Hip Pathology 1/2017
 - Journal Club 2/2018

- Research Design and Statistics 5/2017
 - Journal Club 8/2017
 - Spine Injections 8/2017
 - Journal Club 3/2018
 - Journal Club 4/2018
 - Hip Anatomy and Physiology 12/2018
 - Hip Spine Syndrome 12/2018
 - Careers in Medicine 2/2019
 - Trigger Points 3/2019
 - Innervation of the Sacroiliac Joint Complex 3/2019
 - Journal Club 3/2019
 - Complications of Interventional Spine Procedures 6/2019
 - Resident Board Review 8/2019
 - Resident Journal Club 8/2109
 - Discogenic Pain 8/2019
 - Lumbar Medial Branch Blocks 8/2019
 - Evidence Based Medicine 4/2020
 - Evidence Based Medicine 5/2020
 - Intradiscal Biologics 6/2020
- Education Coordinator – Vanderbilt PM&R Pain Lecture Series 2017
 - Guest Lecturer “Acute Intervertebral Disc Herniation” Vanderbilt Neurosurgery Resident Lecture Series 2017
 - Coordinator for weekly occurring combined spine educational series for rotating medical student, PM&R residents, and PM&R Interventional Spine Fellows including monthly didactic teaching, monthly case conference, and monthly journal club. August 2019-current
 - Monthly time commitment of dedicated trainee teaching time 3-4 hours.
- Stanford University
 - Guest Lecturer “Back, Buttocks, and Hip Pain.” Stanford University Ortho 210: Practical Sports Medicine and Orthopaedic Examination Skills, 2015
 - Guest Lecturer “Introduction to Low Back Pain.” Singapore-Stanford Bio-Design Fellowship Program, 2015
 - Guest Lecturer “Introduction to PM&R.” Stanford School of Medicine, PM&R Interest Group, 2015
 - Revised Stanford PM&R Resident Education Curriculum and Provided Multiple Lectures as Chief Resident, 2014-2015
 - Resident Assistant:
 - Practical Sports Medicine and Orthopaedic Examination Skills, Stanford University, 2014
 - Musculoskeletal Exam Practicum, Stanford Medical School, 2013

Professional Organizations:

- Association of Academic Physiatrists
 - Member 2016- Current
 - Membership Committee 2019-2021
 - Program for Academic Leadership 2019-2021

- American Association of Physical Medicine & Rehabilitation
 - Abstract Reviewer 2017
 - Future Leaders Program 2019-2022
 - Corporate Relations Committee 2021-2022
 - Reimbursement and Policy Review Committee 2022-current

- North American Spine Society
 - Sacro-iliac and posterior pelvis pain section 2021 - current
 - Interventional Spine and Musculoskeletal Medicine Section
 - **Inaugural Chair** 2020 – current
 - Interventional Spine and Musculoskeletal Medicine Fellowship Committee
 - **Vice Chair** 2019-current
 - Education Council: Section on Rehabilitation, Interventional, and Medical Spine 2017-2021
 - **Vice Chair** 2017-2019
 - Comprehensive Episodes of Spine Care Committee 2021-current
 - Coverage Committee – 2017 – 2018, 2020-current
 - **Co-chair** 2022 – current
 - Clinical Practice Guideline Committee 2019-current
 - Abstract Reviewer 2017, 2018, 2019, 2020, 2021, 2022
 - Faculty Development Work Group 2020 – 2022
 - Nominating Committee 2022-current
 - Annual Meeting Planning Committee Co-chair 2022-2023

- Spine Intervention Society
 - Evidence Analysis Committee, 2015-2021
 - **Vice Chair** 2019 - 2021
 - Patient Safety Committee, 2015-current
 - Research Division 2016-current
 - **Vice Chair** 2018-2021
 - **Chair 2021-current**
 - Research Mentorship Committee 2019-current
 - **Vice Chair** 2019-current

- Membership Committee 2017-2021
- Standards Division 2017-current
- Annual Scientific Meeting Planning Committee 2018-2021
- Education Division/Research Division task force on conflict of interest during CME activities (ACCME) 2019
- COVID task force committee 2020
- Technical Manual Editorial Board 2019-current
- Name Change Task Force 2023

Other Activities:

- MACRA Episode Base Cost Measure Wave 2 clinical Subcommittee: Musculoskeletal Disease Management – Spine 2018
- Tennessee State Technical Advisory Group: Spine Episodes of Care 2017
- Vanderbilt EPIC Super User for 2017 VUMC Epic roll out
- American Board of PM&R Part 1 Examination Standard Setting, 2018
- Spine Intervention Representative for open commentary on newly proposed Medicare Local Coverage Determinations for Facet Joint Interventions for Pain Management
 - Palmetto GBA November 9, 2020
 - First Coast November 12, 2020
 - Novitas Solution November 13, 2020
- Spine Intervention Representative for open commentary on proposed Medicare Local Coverage Determinations for Sacroiliac Joint Injections
 - Palmetto GBA October 25, 2022

Additional Training:

- Association of Academic Physiatrists Program for Academic Leadership, 2019-2021
- American Academy of Physical Medicine and Rehabilitation Future Leaders Program, 2019 - 2022
- Evidence Based Medicine Certification
 - Evidence Based Medicine - Certified
 - North American Spine Society, 2017
 - Evidence Based Medicine I Course – Certified
 - Spine Intervention Society, 2015 Annual Scientific Meeting, Las Vegas NV
 - Evidence Based Medicine II Course – Certified
 - Spine Intervention Society, 2016 Annual Scientific Meeting, New Orleans LA
 - Evidence Based Medicine III Course - Certified
 - Spine Intervention Society, 2017 Annual Scientific Meeting, San Francisco CA

- Miscellaneous Training
 - Medtronic Kyphon Kyphoplasty. Physician Training Course 2013
 - SonoSite Education Musculoskeletal Ultrasound Workshop 2013
 - SonoSite Education Interventional Pain Ultrasound Workshop 2013
 - Teaching Enhancement Seminar, Stanford Faculty Development Center

Journal Reviewer

- Spine **Section Editorial Board**, Pain Medicine 2018-current
- Current Physical Medicine and Rehabilitation Reports. Musculoskeletal Rehabilitation **Section Editor** 2019-2020
- Rehabilitation & Regenerative Medicine Section, Pain Medicine, **Section Co-Editor** 2019-2021
- SpineLine, **Editorial Board** 2019- current
- Interventional Pain Medicine **Editorial Board** 2021
- PM&R Journal 2015 - 2019
- Pain Medicine 2016
- PLOS ONE 2018
- Dove Medical Press (Open Access), 2018
- Annals of Physical Medicine and Rehabilitation 2019
- International Journal of Spine Surgery 2019
- American Journal of Physical Medicine & Rehabilitation 2019 – current
- Clinical Journal of Pain 2020
- Scientific Reports 2020
- NASSJ – 2020-current
- Regional Anesthesia and Pain Medicine 2020
- Clinical Interventions in Aging 2020, 2021
- Journal of Clinical Medicine 2020
- Interdisciplinary Neurosurgery: Advanced Techniques and Case Management 2021
- Pediatrics 2021
- Pain 2022
- Frontiers Neurology 2022
- Spine **Advisory Editorial Board** 2023- current

Licensure and Certification:

- Tennessee Medical License, 2016-current, 54302
- American Board of Physical Medicine and Rehabilitation Board Certified 2016
- California Medical License, 2013-2016, A124231
- BLS certified

Mentorship:

- Eric Sturos 2016 - 2021
- Simone Maybin 2016 - 2019
- Alex Schmidt 2017 - 2019
- Renee Rosati 2017 - 2021
- Sterling Haring 2018 - 2022
- Reza Ehsanian 2018 - current
- Blake Fechtel 2019 – 2020
- Valentine Chukwuma 2020 - current
- Adam Epps 2020-2023
- Evan Berlin 2020-2023
- Scott Miller 2020-2023
- David Sherwood 2020-2022
- Oksana Zhivotenko 2020-2021
- Margaret Rutherford 2021-2023
- William T Riden 2022-current
- Richard Rosales 2022-current
- Jakob Dovegan 2021-current