

# Byron J. Schneider MD

Assistant Professor  
Director Interventional Spine and Musculoskeletal Medicine Fellowship  
Dept of Physical Medicine & Rehabilitation  
Vanderbilt University Medical Center  
2201 Children's Way, Suite 1318  
Nashville, Tennessee 37212  
byron.j.schneider@vumc.org

## 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

## Faculty Appointments:

10/2016- Current	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 flouroscopically 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, Huynh 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* In Press (2018)
  34. Edwards D, Clark A, Dickerson D, Mathews L, Mendoza-Lattes S, Mirza S, Nicol A, **Schneider B**, Shah H, Stephens B, Hurley R “Enhanced Recovery After Spine Surgery: Evidence for Pathway Care in Lumbar Laminectomy, Discectomy, and Fusion” In Press (2018)
  35. 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

36. 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>
37. 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>
38. 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.
39. **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
40. 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.
41. 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;
42. Yang AJ, McCormick ZL, Zheng PZ, **Schneider BJ**. Radiofrequency Ablation for Posterior Sacroiliac Joint Complex Pain: A Narrative Review. *PM R*. 2019 Jun 6;
43. **Schneider BJ**, Rosati R, Zheng P, McCormick ZL. Challenges in Diagnosing Sacroiliac Joint Pain: A Narrative Review. *PM R*. 2019 Apr 25;
44. 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;

45. **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.
46. **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.
47. 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>
48. **Schneider BJ**, Mattie R, Smith C. Cumulative Lifetime Steroid Exposure via Epidural Administration. *Pain Medicine.* 2019 Nov 1;20(11):2323–4.
49. 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>
50. 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>
51. R Ehsanain 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
52. **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]
53. 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>
54. Rosati, Renee and **Byron J Schneider**. "Systemic Effects of Steroids Following Epidural Steroid Injections." *Current Physical Medicine and Rehabilitation Reports* 7 (2019): 397 - 403.
  55. **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>
  56. **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
  57. Mattie R, **Schneider BJ**, Smith C. Frequency of Epidural Steroid Injections. *Pain Medicine*. 2020 Mar 31;pnaa053.
  58. **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
  59. **Schneider BJ**, Miller DC, Mattie R, McCormick ZL, Smith C. Anticoagulants for Lumbar Epidural Steroid Injections. *Pain Medicine*. 2020 Apr 28;pnaa087.
  60. 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
  61. 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
  62. 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
  63. 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.



64. 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).
65. 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.
66. Kennedy DJ, **Schneider BJ**. “Lies, Damn Lies, and Statistics: A Commentary”, *Pain Medicine*, pnaa287, <https://doi.org/10.1093/pm/pnaa287>
67. 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>
68. 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.

## 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 2<sup>nd</sup> 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 4<sup>th</sup> ed. Frontera W, ed. Elsevier. 2018

5. **Schneider B**, Kennedy DJ “Upper Limb Sensory Studies” McLean Guide to Electrodiagnostic Medicine, Second Edition In Press

## 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/px183

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 Juli<sup>2</sup>, **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*

## 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 43<sup>rd</sup> 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 INTERVENTION: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 Juli<sup>2</sup>, **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, 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

## **Research Awards:**

- 2015**      **Best Resident Abstract Award**  
International Spine Intervention Society  
**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." 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, Huynh L, Smuck, M, Agnes I, Kennedy DJ "Multi-Institutional Randomized, Double-Blind, Placeboe 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, 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.”
- 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

## **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. “Treatments 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 Psychosocial 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 Psychosocial 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

## **Teaching Activities:**

- 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
  - 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
- Spine Intervention Society Evidence Based Medicine II Course
  - Table Instructor, New York 2019
- 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
  - PM&R Program Education Committee 2018-current
  - 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
    - Eternal 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
- 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-current
  - Program for Academic Leadership 2019-2021
- American Association of Physical Medicine & Rehabilitation
  - Abstract Reviewer 2017
  - Future Leaders Program 2019-2020
- North American Spine Society
  - Interventional Spine and Musculoskeletal Medicine Section
    - **Inaugural Chair** 2020 – current
  - NASS clinical practice guidelines committee
  - Interventional Spine and Musculoskeletal Medicine Fellowship Committee
    - **Vice Chair** 2019-current
  - Education Council: Section on Rehabilitation, Interventional, and Medical Spine 2017-current
    - **Vice Chair** 2017-current
  - Coverage Committee – 2017 – 2018, 2020-current
  - Abstract Reviewer 2017, 2018, 2019, 2020
  - Faculty Development Work Group 2020
- Spine Intervention Society
  - Evidence Analysis Committee, 2015-2017
    - **Vice Chair** 2019 - current
  - Patient Safety Committee, 2015-current
  - Research Division 2016-current
    - **Vice Chair** 2018-current
  - Membership Committee 2017-current
  - Standards Division 2017-current
  - Annual Scientific Meeting Planning Committee 2018-current

- Education Division/Research Division task force on conflict of interest during CME activities (ACCME) 2019
- COVID task force committee 2020

## **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

## **Additional Training:**

- Association of Academic Physiatrists Program for Academic Leadership, 2019-*current*
- American Academy of Physical Medicine and Rehabilitation Future Leaders Program, 2019 - *current*
- 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
- Rehabilitation & Regenerative Medicine Section, Pain Medicine, **Section Co-Editor** 2019-current
- SpineLine, **Editorial Board** 2019- current
- PM&R Journal 2015 - 2019
- Pain Medicine 2016 – current
- PLOS ONE 2018 – current
- Dove Medical Press (Open Access), 2018-current
- Annals of Physical Medicine and Rehabilitation 2019-current
- International Journal of Spine Surgery 2019-current
- American Journal of Physical Medicine & Rehabilitation 2019 – current
- Clinical Journal of Pain 2020 – current
- Scientific Reports 2020
- NASSJ – 2020
- Regional Anesthesia and Pain Medicine 2020
- Clinical Interventions in Aging 2020

## **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 - current
- Simone Maybin 2016 - 2019
- Alex Schmidt 2017 - 2019
- Renee Rosati 2017 - current
- Sterling Herring 2018 - current
- Reza Ehsanian 2018 - current
- Blake Fechtel 2019 – 2020