

CURRICULUM VITAE

Name Avery Lee Buchholz MD MPH

Title Assistant Professor Neurosurgery
University of Virginia

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Education

2003 B.S., Biology, The Citadel, Military College of South Carolina
2010 M.D., University of Wisconsin School of Medicine and Public Health
2010 M.P.H., Injury Prevention, University of Wisconsin School of Medicine and Public Health

Professional Experience

2003-2005 Research Specialist, Department of Medicine Division of Cardiology Medical University of South Carolina. (Advisor: Donald Menick PhD). Project: gene regulation and failure in cardiac hypertrophy
2005-2008 Medical Student Research, Department of Orthopedics and Rehabilitation University of Wisconsin School of Medicine and Public Health. (Advisor: Lee Kaplan MD). Project: treatment and prevention of PARC lesions
2012-2016 Sports Medicine Concussion Team, Medical University of South Carolina. Organized and presented community education regarding concussion protocols and return to play. Clinical assessment of post concussion patients.
2014-2015 Graduate Medical Education Committee, Medical University of South Carolina.
2017-present AOSNA Strategic Initiative Task Force on Knowledge Translation
2018-present NASS Resident and Fellow Education Committee member

Internship, Residency and Clinical Fellowship

2010-2011 Intern, Medical University of South Carolina Department of General Surgery, Charleston, SC
2011-2017 Resident, Medical University of South Carolina Department of Neurological Surgery, Charleston, SC
2015-2016 Chief Resident, Medical University of South Carolina Department of Neurological Surgery, Charleston, SC. (Advisor: Sunil J Patel MD)
2016-2017 Complex Spine Fellow, University of Virginia Department of Neurological Surgery, Charlottesville, VA. (Advisors: Christopher I Shaffrey MD, Justin S Smith MD)
2016-2017 AO Spine North America Fellow, University of Virginia Department of Neurological Surgery, Charlottesville, VA. (Advisors: Christopher I Shaffrey MD, Justin S Smith MD)

Licensure and Certification

2010 South Carolina medical license, LL32799
2016 Virginia medical license, Limited license
2017 South Carolina medical license, MD32799

2017 Virginia medical license, 0101263406

Military Service

2005-2010 Second Lieutenant, Wisconsin Army National Guard 13th MEDD. Medical Service Corp
2010-2017 Captain, South Carolina Army National Guard Medical Command, Medical Service Corp

Academic Appointments

2017-2018 Assistant Professor, Department of Neurological Surgery Medical University of South Carolina, Charleston, SC
2018-Present Affiliate Assistant Professor, Department of Neurological Surgery Medical University of South Carolina, Charleston, SC
2018-Present Assistant Professor, Department of Neurological Surgery, University of Virginia, Charlottesville, VA

Hospital Appointments

2017-2018 Medical University of South Carolina. Charleston, SC
2017-2018 Ralph H Johnson VA Hospital. Charleston, SC
2017-2018 McLeod Regional Medical Center. Florence, SC
2017-2018 Carolinas Hospital. Florence, SC
2018-2018 Bon Secour Roper St Francis, Greenville, SC
2018-Present University of Virginia Health System

Principal Clinical and Hospital Service Responsibilities

None

Major Committee Assignments

2017-present AOSNA Strategic Initiative Task Force on Knowledge Translation
2018-present NASS Resident and Fellow Education Committee
2018-present UVA Clinical Radiation Safety Committee (CRSC)

Professional Societies

2005-present American Medical Association
2011-2017 Congress of Neurological Surgeons, Resident Member
2011-2017 American Association of Neurological Surgeons, Resident Member
2016-present AO Spine North America
2017-present Congress of Neurological Surgeons
2017-present American Association of Neurological Surgeons
2017-present North American Spine Society
2017-present Society of Lateral Access Surgery
2017-present Scoliosis Research Society (Candidate Member)
2017-present AANS/CNS Joint Section Spine and Peripheral Nerve

Editorial Boards and Reviewer

Ad-Hoc- Global Spine Journal
Ad-Hoc- The Spine Journal
Ad-Hoc- World Neurosurgery

Select Awards and Honors

2001 Vance E Hightower Scholarship (service)
2002 Citadel Foundation Scholarship (academics)
2002 Phi Kappa Phi National Honor Society

2002	Tri Beta Biological Honor Society
2003	Dr. Francis Eugene Zemp Biology Award
2003	Metcalf Biology Scholarship (academics)
2006	Shapiro Summer Research Grant Recipient
2010	Max S Rittenbury MD Intern of the Year Award: MUSC
2013	Best Presentation 2013 North Carolina Spine Society Meeting
2014	Resident Research Day Most Promising New Research. Neurosurgery
2015	Cleveland Spine Review Poker Run 1 st Place
2016	MUSC Resident Neurosurgery Teaching Award
2017	AO Spine Best Clinical Research Award. AOSNA Banff Fellows Forum.
2017	Global Spine Journal Top Reviewer 2017
2018	4 th Annual International Spine Deformity Symposium Best Paper Award

Funded Grants

None

Research Project/Research Support

2018-present	A Multi-Center, Randomized, Placebo Controlled, Double-Blinded, Trial of Efficacy and Safety of Riluzole in Acute Spinal Cord Injury Sponsor: AO Spine North America Role: Sub-Investigator
2018-present	A Multi-Center, Prospective, Comparative Study of Anterior vs. Posterior Surgical Treatment for Lumbar Isthmic Spondylolisthesis Sponsor: AO Spine North America Role: Sub-Investigator
2018- present	Prospective Evaluation of Elderly Deformity Surgery. A Prospective Observational, Multicenter Study Sponsor: AO Spine International Role: Sub-Investigator
2018-present	North American Clinical Trials Network (NACTN) for the Treatment of Spinal Cord Injury Sponsor: Christopher Reeve Foundation; Department of Defense Role: Sub-Investigator
2018-present	A Multi-Center Prospective Study of Quality of Life in Adult Scoliosis Sponsor: International Spine Study Group Foundation (ISSGF) Role: Sub-Investigator
2018-present	Prospective Radiographic and Clinical Evaluation of Surgical Treatment for Cervical Deformity: A Multi-Center Study Sponsor: International Spine Study Group Foundation (ISSGF) Role: Sub-Investigator
2018-present	Prospective, Multi-Center Adult Spinal Deformity Outcomes Database Registry Sponsor: International Spine Study Group Foundation (ISSGF) Role: Sub-Investigator
2018-present	A Prospective, Randomized, Multi-Center, Open-Label Pilot Study of Infuse® Bone Graft with Mastergraft® Strip and Posterior Fixation for Posterolateral Fusion (PLF) Treatment of Multi-Level Degenerative Lumbosacral Spinal Conditions Sponsor: Medtronic – Sofamor Danek Role: Sub-Investigator

Major Research Interests

1. Adult deformity surgery and outcomes.
2. Spine surgery outcomes.
3. Work flow and efficiency
4. OR design and management

Teaching Experience

2001-2003 Teaching Assistant, Department of Chemistry and Biology, The Citadel
2014-2016 Teaching Assistant, Department of Neurological Surgery, Medical University of South Carolina School of Medicine.

Lectures and Presentations

- 2005 **Buchholz AL**, Valppu L, Xu L. Unbalanced Expression of Antagonistic Splicing Factors in Cardiac Hypertrophy. 2nd Annual Symposium of AHA Council on Basic Cardiovascular Sciences, Keystone, CO
- 2006 **Buchholz AL** (Co-Moderator). From Battlefield to Home Front: Caring for the Combat Wounded. National Military Medical Conference. Hyatt Regency Milwaukee, WI.
- 2006 **Buchholz AL**, Niesen MC, Wisniewski MG, Kaplan MG. Age and Gender Differences in the Metabolic Activity of Osteoarthritic Knee Articular Cartilage. 5th Annual Medical Student Research Fall Forum, Madison, WI
- 2007 **Buchholz AL**, Niesen MC, Gausden E, Hetzel S, Squire MW, Kaplan LD. Metabolic Activity of Osteoarthritic Knees Correlates with Body Mass Index. OARSI World Congress on Osteoarthritis. Ft. Lauderdale, FL Dec 6-7, 2007.
- 2008 **Buchholz AL**, Niesen MC, Gausden E, Hetzel S, Squire MW, Kaplan LD. Metabolic Activity of Osteoarthritic Knees Correlates with Body Mass Index. 54th Orthopedic Research Society Conference. San Francisco, CA March 2-5, 2008.
- 2008 **Buchholz AL**, Niesen MC, Gausden E, Hetzel S, Squire MW, Kaplan LD. Metabolic Activity of Osteoarthritic Knees Correlates with Body Mass Index. 13th ESSKA 2000 Congress. Porto, Portugal May 21-24, 2008.
- 2008 **Buchholz AL**, McGuine T. The Epidemiology of Female High School Volleyball Injuries. Public Health Symposium Madison, WI May 9, 2008.
- 2009 **Buchholz AL** Niesen MC, Gausden E, Hetzel S, Squire MW, Kaplan LD. Metabolic Activity in Osteoarthritic Knee Explants Correlates with Body Mass Index. ICRS. Miami, FL May 23-26 2009.
- 2009 Chapman E, Linzer M, Baranski B, **Buchholz A**, Manwell L, Crnich C. The More You Look the More You Morula... Society of General Internal Medicine. Miami, FL May 13-16,2009.

- 2012 **Buchholz AL**, Krishna V, Frankel BM. Posterior Less Invasive Decompression and Stabilization for the Treatment of Malignant Neoplasms of the Thoraco-Lumbar Spine. Medical University of South Carolina Neurosciences Research Day. March 23, 2012.
- 2012 Krishna V, Blaker B, **Buchholz AL**, Morgan SL, Frankel B. Posterior Minimally Invasive Decompression and Stabilization for the Management of Benign, Intradural, Extramedullary Neoplasms of the Thoraco-Lumbar Spine. AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. 2012 Annual Meeting.
- 2012 **Buchholz AL**, Krishna V, Blaker B, Morgan SL, Frankel B. Posterior Less Invasive Decompression and Stabilization for the Treatment of Malignant Neoplasms of the Thoraco-Lumbar Spine: Perioperative Results and Risk of Hardware Failure. AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. 2012 Annual Meeting.
- 2013 **Buchholz AL**, Morgan S, Frankel BM. Minimally Invasive Percutaneous Screw Fixation of Traumatic Spondylolisthesis of the Axis. SMISS. Las Vegas, NV Oct 2013.
- 2013 **Buchholz AL**, Krishna V, Frankel BM. Posterior Less Invasive Decompression and Stabilization for the Treatment of Malignant Neoplasms of the Thoraco-Lumbar Spine. South Carolina Spine Society. Charleston, SC September 28 2013.
- 2013 **Buchholz AL**, Morgan S, Frankel BM. Minimally Invasive Percutaneous Screw Fixation of Traumatic Spondylolisthesis of the Axis. North Carolina Spine Society. Kiawah Island, SC August 24 2013.
- 2013 **Buchholz AL**, Krishna V, Frankel BM. Posterior Less Invasive Decompression and Stabilization for the Treatment of Malignant Neoplasms of the Thoraco-Lumbar Spine. North Carolina Spine Society. Kiawah Island, SC August 25 2013.
- 2015 Adult Spine Deformity: Importance of Pelvic Parameters. **Avery L Buchholz MD MPH**. Medical University of South Carolina Neurosurgery Grand Rounds October 23, 2016.
- 2016 **Buchholz AL**, Morgan S, Frankel BM. Minimally Invasive Percutaneous Screw Fixation of Traumatic Spondylolisthesis of the Axis. MUSC Resident Research Day. Charleston, SC 2016.
- 2016 Current Concepts in adult spine deformity correction: Importance of alignment in decision making. **Avery L Buchholz MD MPH**. Medical College of Georgia Neurosurgery Grand Rounds November 3 2017.
- 2017 **Buchholz AL**, Buell TJ, Quinn, JC, Shaffrey CI, Smith JS. Long Segment Fusion and the Use of a Tether for Proximal Junctional Kyphosis Reduction. 15th Annual AO Spine North America Fellows Forum. Banff Springs, Alberta Canada March 2017.
- 2017 Quinn JC, **Buchholz AL**, Buell TJ, Shaffrey CI, Smith JS. Alignment Risk Factors for PJK and the Effect of Posterior Polyester Tethers in Multilevel Posterior Instrumentation for Adult Spinal Deformity. 15th Annual AO Spine North America Fellows Forum. Banff Springs, Alberta Canada. March 2017.
- 2017 Eriksson EA, **Buchholz AL**, Matar M, Kalthorn S. Thoracic Spine Exposure: A New Indication for Rib Surgical Fixation. Platform Presentation at Chest Wall Summit. Park City, Utah. March 2017.
- 2017 Shaffrey CI, **Buchholz AL**. Three Column Osteotomy for Sagittal Correction. IMAST. Cape Town, South Africa. July 12-15, 2017.
- 2017 Buell D, **Buchholz AL**, Quinn JC, Nguyen J, Mazur MD, Bess S, Line BG, Ames CP, Schwab F,

Lafage V, Shaffrey CI, Smith JS. A Pilot Study on Posterior Polyethylene Tether to Prevent Proximal Junctional Kyphosis After Multilevel Spinal Instrumentation For Adult Spinal Deformity. CNS Annual Meeting 2017

- 2017 **Buchholz AL.** Importance of Lumbar Lordosis in Reduction of Adjacent Segment Disease. SCANS. Kiawah, SC. Dec 1-3, 2017.
- 2018 Garces J, Buell TJ, Mullin JP, Mazur MD, Nguyen JH, Taylor DG, **Buchholz AL**, Yen Chun-Po, Shaffrey CI, Smith JS. The Effect of Junctional Tethers on Proximal Junctional Kyphosis in Multilevel Posterior Spinal Instrumentation for Adult Spinal Deformity. 16th Annual AO Spine North America Fellows Forum. Banff Springs, Alberta Canada March 22-24, 2018.
- 2018 **Buchholz AL.** Surgeons as High Performance Athletes. 16th Annual AO Spine North America Fellows Forum. Banff Springs, Alberta Canada. March 22-24, 2018.
- 2018 Buell D, Quinn JC, **Buchholz AL**, Nguyen J, Mazur MD, Bess S, Line BG, Ames CP, Schwab F, Lafage V, Shaffrey CI, Smith JS. Alignment Risk Factors For Proximal Junctional Kyphosis and the Effect of Lower Thoracic Junctional Tethers for Adult Spinal Deformity. AANS/CNS Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2018.
- 2018 Buell D, **Buchholz AL**, Quinn JC, Nguyen J, Mazur MD, Bess S, Line BG, Ames CP, Schwab F, Lafage V, Shaffrey CI, Smith JS. A Pilot Study on Posterior Polyethylene Tether to Prevent Proximal Junctional Kyphosis After Multilevel Spinal Instrumentation For Adult Spinal Deformity. AANS/CNS Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2018.
- 2018 **Buchholz AL.** Transforaminal Endoscopic vs. Microscopic Discectomy. 2018 MUSC Health Spine Conference – Controversies in Spine Care. April 14, 2018. Kiawah Island, SC
- 2018 **Buchholz AL.** ALIF vs TLIF/PLIF vs LLIF Indications. 2018 MUSC Health Spine Conference – Controversies in Spine Care. April 14, 2018. Kiawah Island, SC
- 2018 **Buchholz AL.** Treatment of Adult Deformity: Whenever and When Never to Perform. 2018 MUSC Health Spine Conference – Controversies in Spine Care. April 14, 2018. Kiawah Island, SC
- 2018 Gross RH, **Buchholz AL**, Webb S, Bonthius, D. The Rib Construct – a Safe and Effective Method for Correction of Severe Pediatric Deformity. 3rd Annual Safety in Spine Surgery Summit. New York, NY. April 20, 2018.
- 2018 **Buchholz AL**, Buell TJ, Quinn JC, Bess S, Line B, Ames C, Schwab F, Lafage V, Shaffrey CI, Smith JS. Long Segment Fusion and the Use of a Tether for Proximal Junction Kyphosis Reduction. AO Global Spine Congress. May 2-5, 2018. Singapore.
- 2018 **Buchholz AL.** Primary Infections. Patient Care – Discitis. AO Global Spine Congress. May 2-5, 2018. Singapore.
- 2018 Gross RH, **Buchholz AL**, Webb SA, Walton Z, Bonthius D, Yao H. Fixation Costale Haute – Une Methode Sure Et Efficace Pour Traitant La Difformite Pediatrique Severe. Societe Francais de Chrugie du Rachis. Nantes France. June 7-9 2018.
- 2018 **Buchholz AL**, Buell TJ, Quinn JC, Bess S, Line B, Ames C, Schwab F, Lafage V, Shaffrey CI, Smith JS. Long Segment Fusion and the Use of a Tether for Proximal Junction Kyphosis Reduction. 4th Annual International Spine Deformity Symposium. New York City, NY. Nov 30-Dec 1, 2018.

- 2019 **Buchholz AL.** Medtronic Posterior Cervical Infinity. Advances in technology. Spine Base to Summit. Vail CO. January 18-21, 2019.
- 2019 **Buchholz AL,** Buell TJ, Nguyen JH, Wang TR, Mullin JP, Mazur MD, Garces J, Yen CP, Shaffrey CI, Smith JS. Complications after Spinopelvic Fixation with Iliac Screws in 260 Adult Patients with 2 year Minimum Follow-up. Spine Base to Summit. Vail CO. January 18-21, 2019.
- 2019 **Buchholz AL,** Buell TJ, Nguyen JH, Wang TR, Mullin JP, Mazur MD, Garces J, Yen CP, Shaffrey CI, Smith JS. Radiographic Outcomes and Complications after Single Level Lmbar Extended Pedicle Subtraction Osteotomy for Fixed Global Sagittal Malalignment: A Retrospective Analysis of 55 Adult Spinal Deformity Patients with Minimum 2-Year Follow-up. Spine Base to Summit. Vail CO. January 18-21, 2019.
- 2019 **Buchholz AL,** Lieberman I. Medtronic Mazor X Stealth Edition. Advances in technology. Global Spine Congress. Toronto ON. May 15-17, 2019.
- 2019 **Buchholz AL.** NuVasive. Deformity correction through use of reduction towers. International Meeting of Advanced Spine Technologies. Amersterdam, the Netherlands. July 17-20, 2019.
- 2019 Shaffrey CI, **Buchholz AL,** Hanson D. Constructs for Challenging Deformities: How Technology is Impacting My Practice. Scoliosis Research Society. Montreal, Quebec. September 17-21, 2019.
- 2019 **Buchholz AL.** Resident Fellow Education Pathway: Transition to Practice. Pitfalls. North American Spine Society. Chicago, IL. Sept 25 2019.
- 2019 **Buchholz AL.** NuVasive X360. How it Has Affected My Practice. Pitfalls. North American Spine Society. Chicago, IL. Sept 26, 2019.
- 2019 **Buchholz AL.** Resident Fellow Education Pathway: Transition to Practice. Interacting with Industry, Including Ethics. North American Spine Society. Chicago, IL. Sept 27 2019.

Inventions and Patents

None

Bibliography

1. Kappler CS, **Buchholz AL,** Xu L, Menick DR. Interaction of the Na⁺/Ca²⁺ Exchanger with Signaling Cofactors in the Cardiomyocyte. *Biophysical Journal*. 2005 88: 5928.
2. **Buchholz AL,** Valppu L, Xu L. Expression of Alternative Splicing Factors Are Changed in Pressure-Overloaded Cardiac Hypertrophy. *Circulation Research*. 2005 97 (2): e35.
3. Menick DR, Renaud L, **Buchholz A,** Muller JG, Zhou H, Kappler CS, Kubalak SW, Conway SJ, Xu L. Regulation of Ncx1 Gene Expression in the Normal and Hypertrophic Heart. *Ann N Y Acad Sci*. 2007 Mar;1099:195-203.
4. Chandrasekaran S, Peterson RE, Mani SK, Renaud L, **Buchholz AL,** Addy B, Xu L, Thiyagarajan T, Kern CB, Menick DR. Histone Deacetylases Facilitate Ncx1 Upregulation in Adult Cardiocytes. *FASEB* 2009 Nov 23(11): 3851-64.
5. **Buchholz AL,** Niesen MC, Gausden E, Hetzel S, Squire MW, Kaplan LD. Metabolic Activity in Osteoarthritic Knees Correlates with Body Mass Index. *The Knee* 2010 Mar;17(2) 161-6.

6. Schreiber JJ, Anderson PA, Humberto RG, **Buchholz AL**, Au AG. Hounsfield Units for Assessing Bone Mineral Density and Strength – A Tool For Osteoporosis Management. *JBJS* 2011 June: 93(11):1057-1063.
7. **Buchholz AL**, Morgan SL, Robinson L, Frankel BM. Minimally Invasive Percutaneous Screw Fixation of Traumatic Spondylolisthesis of the Axis. *Journal of Neurosurgery Spine* 2015 May: 22 (5) 459-465.
8. **Buchholz AL**, Frankel BM. Response. Alternative Approach in Type II Hangman Fractures. *Journal of Neurosurgery Spine*. 2016 Apr;24(4):672.
9. Buell TJ, **Buchholz AL**, Quinn JC, Shaffrey CI, Smith JS. Importance of Sagittal Alignment of the Cervical Spine in the Management of Degenerative Cervical Myelopathy. *Neurosurg Clin N Am*. 2018 Jan;29(1):69-82.
10. Buell TJ, **Buchholz AL**, Quinn JC, Bess S, Line BG, Ames CP, Schwab FJ, Lafage V, Shaffrey CI, Smith JS. A Pilot Study on Posterior Polyester Tethers as an Anti-PJK Device for Multilevel Spinal Instrumentation for Adult Spinal Deformity. *Operative Neurosurgery*. 2018 April 24.
11. Buell TJ, Mullin JP, Nguyen JH, Taylor DG, Garces J, Mazur MD, **Buchholz AL**, Shaffrey ME, Yen CP, Shaffrey CI, Smith JS. A Novel Junctional Tether Weave Technique for Adult Spinal Deformity: 2-Dimensional Operative Video. *Operative Neurosurgery*. 2018 June 05. <https://doi.org/10.1093/ons/opy148>
12. Buell TJ, **Buchholz AL**, Quinn JC, Mullin JP, Garces J, Mazur MD, Shaffrey ME, Yen CP, Shaffrey CI, Smith JS. Extended Asymmetrical Pedicle Subtraction Osteotomy for Adult Spinal Deformity: 2-Dimensional Operative Video. *Operative Neurosurgery*. 2019 June 16.
13. Spiotta AM, **Buchholz AL**, Pierce AK, Dahlkoetter J, Armonda R. The Neurosurgeon as a High-Performance Athlete: Parallels and Lessons Learned from Sports Psychology. *World Neurosurg*. 2018 Dec;120:e188-e193.
14. **Buchholz AL**, Henderson F Jr, Lowe S, Alshareef M, Wolgamott L, Patel S, Spiotta AM. Perspectives from a Residency Training Program Following the Implementation of a Wellness Initiative. *World Neurosurg*. 2018 Nov;119:e947-e955.
15. Buell TJ, Chen CJ, Quinn JC, **Buchholz AL**, Mazur MD, Mullin JP, Nguyen JH, Taylor DG, Bess S, Line BG, Ames CP, Schwab FJ, Lafage V, Shaffrey CI, Smith JS. Alignment Risk Factors for Proximal Junctional Kyphosis and the Effect of Lower Thoracic Junctional Tethers for Adult Spinal Deformity. *World Neurosurg*. 2018 Sep 11.
16. Quinn JC, **Buchholz AL**, Buell TJ, Smith JS, Shaffrey CI. Adjacent Segment Disease and Proximal Junctional Kyphosis – Part 2: Prevention and Treatment Strategies. *Contemporary Neurosurgery*: Dec 30, 2018. 40:18.
17. Buell TJ, **Buchholz AL**, Quinn JC, Smith JS, Shaffrey CI. Adjacent Segment Disease and Proximal Junctional Kyphosis – Part 1. Etiology and Classification. *Contemporary Neurosurgery*: Nov 30, 2018. 40:17.
18. Taylor DG, **Buchholz AL**, Sure DR, Buell TJ, Nguyen JH, Chen CJ, Diamond JM, Washburn PA, Harrop J, Shaffrey CI, Smith JS. Presentation and Outcomes After Medical and Surgical Treatment Versus Medical Treatment Alone of Spontaneous Infectious Spondylodiscitis: A Systematic Literature Review and Meta-Analysis. *Global Spine Journal*: Dec 13, 2018. 49S-59S.
19. Howie B.A., Davidson I.U., Tanenbaum J.E., Pahuta M.A., **Buchholz A.L.**, Steinmetz M.P., Mroz T.E. Thoracic Epidural Abscess: A Systematic Review. *Global Spine Journal*: Dec 13, 2018. 68S-84S.
20. de Leeuw CN, Fann PR, Tanenbaum JE, **Buchholz AL**, Freedman BA, Steinmetz MP, Mroz TE. Lumbar Epidural Abscesses: A Systematic Review. *Global Spine Journal*: Dec 13, 2018. 85S-95S.
21. **Buchholz AL**, Quinn JC, Buell TJ, Yen CP, Haid RW, Shaffrey CI, Smith JS. TLIF: A Review of Techniques and Advances. *Contemporary Neurosurgery*: Feb 15, 2019. 41:2.

22. Labaran L, Nikhil J, Puvanesarajah V, Jain A, **Buchholz AL**, Hassanzadeh H. A Retrospective Database Review of the Indications, Complications, and Incidence of Subsequent Spine Surgery in 12,297 Spinal Cord Stimulator Patients. *Neuromodulation*. 2019 [Accepted – In Press]
23. Buell TJ, **Buchholz AL**. Surgical Correction of Severe Adult Lumbar Scoliosis (Major Curves {greater than or equal to}75{degree sign}): Retrospective Analysis with Minimum 2-Year Follow-up. Accepted for publication *Journal of Neurosurgery*.
24. Guilherme BP, Wessell J, Alvarado A, Arnold PM, **Buchholz AL**. Anticoagulation and Spine Surgery. *Global Spine Journal*. Accepted for publication
25. Postoperative pyoderma gangrenosum after spinal fusion with instrumentation: case report.

Books and Monographs

None

Book Chapters

1. Vandergrift WA, Kalhorn SP, **Buchholz AL**. Common Postoperative Complications in Neurosurgery. *Principles and Practices of Hospital Medicine*. 2e. Edited by McKean SC, Ross JJ, Dressler DD, Scheurer DB. McGraw Hill Medicine 2016.
2. Quinn, JC, **Buchholz AL**, Shaffrey CI, Smith JS. Sagittal Plane Deformity Surgery (VCR) Complication. *Spinal Deformity: A Case-Based Approach to Managing and Avoiding Complications: Springer Science* 2016.
3. **Buchholz AL**, Quinn JC, Shaffrey CI, Berven SH, Polly MD, Smith JS. Kyphotic Deformity in the Pediatric Spine. *AO Spine Masters Series Volume 9 Pediatric Spine Deformity*. Edited by Luiz Roberto Vialle MD. Thieme Publishing 2016.
4. Quinn, JC, **Buchholz AL**, Shaffrey CI, Smith JS. Surgical Considerations in Non-Osteoarthritic Spondylopathies. *Degenerative Cervical Myelopathy and Radiculopathy: Treatment Approaches and Options*. Edited by Fehlings MG, Kaiser MG, Haid RW, Shaffrey CI. Springer Science and Business Media 2017.
5. **Buchholz AL**, Quinn JC, Shaffrey CI, Smith, JS. Atlantoaxial Stabilization. *Degenerative Cervical Myelopathy and Radiculopathy: Treatment Approaches and Options*. Edited by Fehlings MG, Kaiser MG, Haid RW, Shaffrey CI. Springer Science and Business Media 2017.
6. **Buchholz AL**, Quinn JC, Shaffrey CI. Post-op Spinal Deformities: Kyphosis, Non-union, and Loss of Motion Segment. *Nanda Complications in Neurosurgery*, 1st edition. Elsevier Clinical Solutions 2017.
7. Buell TJ, Quinn JC, **Buchholz AL**, Shaffrey CI, Smith JS. Importance of Sagittal Alignment of the Cervical Spine in the Management of Degenerative Cervical Myelopathy. *Neurosurgery Clinics of North America*. Edited by Michael G Fehlings and Junich Mizuno. Elsevier Publishing 2017.

Course Faculty

- 2018 16th Annual AO Spine North America Fellows Forum. Banff Springs, Alberta Canada. March 22-24, 2018
- 2018 NuVasive Intro to XLIF lab. Charlottesville, VA June 16, 2018
- 2018 SNS Intern Bootcamp. Atlanta, GA. July
- 2018 Cleveland Clinic Spine Review, Cleveland OH. July 2018
- 2018 2018 SNS Intern Boot Camp Course, Fundamentals of Neurosurgery. Atlanta, July 20-21.

Online Content

1. <http://abcnews4.com/archive/new-concussions-bill-aims-to-make-high-school-football-safer>
2. <http://www.muschealth.org/health-blog/high-school-concussion-policy-and-management>
3. <http://academicdepartments.musc.edu/newscenter/2017/back-pain/index.html>
4. <https://youtu.be/SqLYCwYgHpk>

Clinical References

Christopher I Shaffrey MD, Director of Spine, University of Virginia Department of Neurosurgery
Justin S Smith, MD, Director of Spine, University of Virginia Department of Neurosurgery
Sunil J Patel MD, Chairman, Medical University of South Carolina Department of Neurosurgery

Scientific References

Lee D Kaplan MD, Chief of Sports Medicine, University of Miami Department of Orthopedics