

Sharad Rajpal, M.D.

Board Certified Neurosurgeon

Boulder Neurosurgical & Spine Associates
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EDUCATION

- 2009-2010 **Clinical Spine Fellow**
Cleveland Clinic
Cleveland, OH
- 2008-2009 **Chief, Neurosurgery Residency**
University of Wisconsin Hospitals and Clinics
Madison, WI
- 2003-2008 **Neurosurgery Residency**
University of Wisconsin Hospitals and Clinics
Madison, WI
- 2002-2003 **General Surgery Internship**
University of Wisconsin Hospitals and Clinics
Madison, WI
- 1998-2002 **Medical Doctorate (M.D.)**
University of Wisconsin Medical School
Madison, WI
- 1993-1997 **Bachelor of Arts (Chemistry and Psychology Major)**
St. Olaf College
Northfield, MN
Graduated: Summa Cum Laude

POSITIONS/EMPLOYMENT

- 2017-present **Foothills Surgery Group, LLC**
President
Boulder, CO
- 2015-2017 **Exempla Good Samaritan Medical Center Foundation**
Member, Board of Directors
Lafayette, CO
- 2014-present **Justin Parker Neurological Institute**
Member, Board of Directors
Boulder, CO
- 2014-present **Avista Adventist Hospital Spine Program**
Spine Medical Director
Louisville, CO
- 2012-2017 **Longmont United Hospital Orthopedic & Spine Co-Management Company, LLC**

Vice President
Longmont, CO

2010-present **Boulder Neurosurgical & Spine Associates**
Partner, 2012-present
Associate, 2010-2012
Boulder, CO

1997-1998 **Accenture, LLP**
Computer Programmer and Analyst
Minneapolis, MN

PROFESSIONAL MEMBERSHIPS

- American Board of Neurological Surgery (ABNS) - Board Certified
- American Association of Neurological Surgeons (AANS)
- Congress of Neurological Surgeons (CNS)
- AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves
- North American Spine Society (NASS)
- American Medical Association (AMA)
- Colorado Neurosurgical Society
- Boulder County Medical Society

AWARDED GRANTS

2006 **Congress of Neurological Surgeons (CNS) Synthes Spine Fellowship (\$50,000)**
Advisor: Daniel Resnick, M.D.
Project: The role of inflammatory mediators following contusive spinal cord injury
University of Wisconsin Medical School Neurosurgery Residency Training Program
University of Wisconsin Medical School, Madison, WI

HONORS AND AWARDS

2019 **Marquis Who's Who®**, Lifetime Achievement Award
2018 **Compassionate Doctor Award**, Vitals®, vitals.com
2017 **America's Best Physicians Directory**, Today's Best Physicians National Consumer Advisory Board
2011-2016, 2018 **Patients' Choice Award**, Vitals®, vitals.com
2011, 2012, 2013 **Patients' Choice Physician**, Patients' ChoiceSM, patientschoice.org
2011, 2012 **Compassionate Doctor Award**, Patients' ChoiceSM, patientschoice.org
2010 **Outstanding Paper Award for Basic Science**, *The Spine Journal* & NASS
2008 **Medical Student Teaching Award**, University of Wisconsin Department of Neurosurgery
2007 **Resident Academic Achievement Award**, University of Wisconsin Department of Neurosurgery
2007 **Mayfield Basic Science Award**, AANS/CNS Section on Disorders of the Spine and Peripheral Nerves
2005 **Resident Academic Achievement Award**, University of Wisconsin Department of Neurosurgery
2005 **Medtronic Sofamor Danek Health Care Professional In-Training Scholarship**
2002 **State Medical Society of Wisconsin Houghton Award for Scholastic Excellence, Extracurricular Achievement, and Interest in the Activities of Medical Organization**
2000 **American Medical Student Association (AMSA) Leadership Recognition Award**
1997 **Summa Cum Laude**, St. Olaf College
1997 **Merck Index Award for Excellence in Chemistry**, St. Olaf College
1997 **Departmental Distinction in Chemistry**, St. Olaf College
1997 **Who's Who Among Colleges and Universities**
1993-1997 **St. Olaf Buntrock Presidential Scholarship for High Academic Achievement**
1995-1997 **Psi Chi Psychology Honor Society**, St. Olaf College
1996-1997 **Beta Beta Beta Biology Honor Society**, St. Olaf College
1996 **Phi Beta Kappa Academic Honor Society**, St. Olaf College

1993 Rotary International Community Service Award

RESEARCH

- 2017-Present **A Concurrently Controlled Study of the LimiFlex™ Paraspinous Tension Band in the Treatment of Lumbar of Lumbar Degenerative Spondylolisthesis with Spinal Stenosis.**
Role: Sub-Investigator
Sponsor: Empirical Spine, Inc.
- 2017-2018 **Reduction of Adverse Drug Events and Readmissions (RADAX-PGx).**
Role: Sub-Investigator
Sponsor: Global, Inc.
- 2016- 2019 **A Phase 2b, Randomized, Double-Blind, Placebo-Controlled Study to Evaluate the Safety and Efficacy of *Staphylococcus Aureus* 4-Antigen Vaccine (SA4Ag) in Adults Undergoing Elective Open Posterior Spinal Fusion Procedures with Multilevel Instrumentation.**
Role: Sub-Investigator
Sponsor: Pfizer
- 2014-2016 **A Prospective, Randomized, Double-blind, Phase II Study to Evaluate the Safety and Efficacy of Topical Thrombin (Human) Grifols as an Adjunct to Hemostasis during Vascular, Parenchymous, Soft Tissue, and Spinal Open Surgeries**
Role: Sub-Investigator
Sponsor: Grifols, Inc.
- 2014-2015 **A Multicenter, Prospective, Randomized Clinical Trial Using Dehydrated Human Amnion/Chorion Membrane (DHACM) in Decompressive Craniectomy Patients to Reduce Postoperative Scarring**
Role: Sub-Investigator
Sponsor: MiMedx
- 2013-2014 **Study of the Safety and Effectiveness of DIAM™ Spinal Stabilization System Versus Conservative Care**
Role: Sub-Investigator
Sponsor: Medtronic Spinal & Biologics
- 2013-2017 **The Investigational Plan for the Evaluation of the ACADIA™ Facet Replacement System**
Role: Sub-Investigator
Sponsor: Globus Medical, Inc.
- 2012-2014 **A Phase 3, Randomized, Single-Blind, Controlled Trial of Topical Fibrocaps™ in Intraoperative Surgical Hemostasis.**
Role: Sub-Investigator
Sponsor: ProFibrix, Inc.
- 2012-2016 **Prospective Randomized Clinical Trial Evaluating the Effectiveness of Lower Body Positive Pressure Treadmill Training in Patients after Lumbar Microdiscectomy and Fusion Surgeries**
Role: Sub-Investigator
Sponsor: Justin Parker Neurological Institute
- 2011-2016 **Project: DuraSeal™ Spine System Post-Approval Study**
Role: Sub-Investigator
Sponsor: Covidien
- 2011-2018 **Project: Prospective Randomized Clinical Trial Comparing PEEK and Allograft Spacers in Patients Undergoing Spinal Intervertebral Fusion Surgeries**
Role: Sub-Investigator

Sponsor: Justin Parker Neurological Institute

- 2011 **Project: A Pivotal Clinical Trial Evaluating the Safety and Effectiveness of Adherus Sealant When Used as a Dural Sealant in Cranial Procedures**
Role: Sub-Investigator
Sponsor: HyperBranch Medical Technology, Inc.
- 2006-2009 **Project: The role of inflammatory mediators in thermal hyperalgesia following contusive spinal cord injury**
Advisor: Daniel Resnick, M.D.
University of Wisconsin Medical School Neurosurgery Residency Training Program
University of Wisconsin Medical School, Madison, WI
- 1999 **Project: Utilization of Blood Transfusions in SICU Patients**
Advisor: Matilda Horst, M.D.
Medical Student Summer Fellowship Program for Anesthesiology and the Surgical Subspecialties
Henry Ford Health Hospitals, Department of Surgery, Detroit, MI
- 1996-1997 **Project: Role of Nitric Oxide Synthase in the Hippocampus**
Advisor: Konrad Talbot, Ph.D.
Independent Research Program
St. Olaf College, Department of Psychology, Northfield, MN
- 1995-1997 **Project: Structure, Stability, and Interaction of Cell Membrane Phospholipids**
Advisor: Anne Walter, Ph.D.
National Science Foundation Independent Research in Biology
St. Olaf College, Department of Biology, Northfield, MN
- 1992-1993 **Project: Serum Insulin-like Growth Factors after Liver Transplantation**
Advisor: Don Schalch, M.D.
NIH Minority High School Research Apprentice Program
University of Wisconsin Hospitals and Clinics, Madison, WI

POSTER PRESENTATIONS

1. **Rajpal S**, Vivek N, Burneikiene S, *The Impact of BMI on Operating Room time, Blood Loss, and Hospital Stay in Patients Undergoing Spinal Fusion*. AANS Annual Scientific Meeting. San Diego, CA, April 13-18, 2019.
2. **Rajpal S**, Burneikiene S. *Minimally Invasive Sacroiliac Joint Fusion with Cylindrical Threaded Implants Using Intraoperative Stereotactic Navigation*. AANS Annual Scientific Meeting. San Diego, CA, April 13-18, 2019.
3. **Rajpal S**, Hobbs S, Nelson EL, Villavicencio AT, Zielenski C, Kantha V, Burneikiene S. *The Impact of Preventative Multimodal Analgesia on Postoperative Opioid Requirement and Pain control in Patients Undergoing Lumbar Fusions*. AANS Annual Scientific Meeting. San Diego, CA, April 13-18, 2019.
4. Villavicencio AT, **Rajpal S**, Nelson EL, Telang J, Kantha R, Burneikiene S. *You Are Never Too Old for Surgery: Spine Management in an Aging Population. Degenerative Stenosis/Spondylolisthesis Treatment Options*. AANS Annual Scientific Meeting. Los Angeles, CA, Apr 22-26, 2017.
5. **Rajpal S**, Villavicencio AT, Burneikiene S, Nelson EL. *The Timing of Surgery and Symptom Resolution in Patients Undergoing Transforaminal Lumbar Interbody Fusion for Lumbar Degenerative Disc Disease and Radiculopathy*. AANS Annual Scientific Meeting. Chicago, IL, April 30-May 4, 2016.
6. **Rajpal S**, Villavicencio AT, Nelson EL, Burneikiene S. *Unilateral and Bilateral Pedicle Screw Fixation in Transforaminal Lumbar Interbody Fusion: Radiographic and Clinical Analysis*. AANS Annual Scientific Meeting. Chicago, IL, April 30-May 4, 2016.

7. Burneikiene S, Villavicencio AT, Mason A, **Rajpal S**. *The Timing of Surgery and Symptom Resolution in Patients Undergoing Transforaminal Lumbar Interbody Fusion for Lumbar Degenerative Disc Disease and Radiculopathy*. EuroSpine 2015. Copenhagen, Denmark, Sept 2-4, 2015.
8. Villavicencio AT, Nelson EL, Otolara F, Mason A, **Rajpal S**, Burneikiene, S. *Case Series of Anterior Intervertebral Graft Extrusions in Transforaminal Lumbar Interbody Fusion Surgeries*. AANS Annual Scientific Meeting. Washington, DC, May 2-6, 2015.
9. Villavicencio AT, Serxner BJ, Mason A, **Rajpal S**, Burneikiene S. *Unilateral vs. Bilateral Pedicle Screw Fixation in Transforaminal Lumbar Interbody Fusion: Radiographic and Clinical Analysis*. CNS Annual Meeting. Boston, MA, October 18-22, 2014.
10. Mason A, Paulsen R, Babuska J, **Rajpal S**, Nelson EL, Burneikiene S, Villavicencio AT. *The Accuracy of Pedicle Screw Placement Using Intraoperative Image Guidance: A Meta Analysis*. CNS Annual Meeting, San Francisco, CA, October 19-23, 2013.
11. Villavicencio AT, Serxner BJ, Mason A, Beasley KD, Nelson EL, **Rajpal S**, Faes N, Burneikiene S. *Comparative Study of Unilateral and Bilateral Pedicle Screw Fixation in Transforaminal Lumbar Interbody Fusion: Radiological and Clinical Analysis*. CNS Annual Meeting. San Francisco, CA, October 19-23, 2013.
12. Burneikiene S, Serxner BJ, Nelson EL, Mason A, **Rajpal S**, Villavicencio AT. *Radiological Outcomes in Patients Undergoing Transforaminal Lumbar Interbody Fusion (TLIF) with Interspinous Process Fixation Plate as an Adjunct to Unilateral Pedicle Screws*. 2013 AANS Annual Scientific Meeting. New Orleans, LA, April 27-May 1, 2013.
13. Burneikiene S, Villavicencio AT, Nelson EL, Mason A, **Rajpal S**, Beasley K. *The Duration of Symptoms and Clinical Outcomes in Patients Undergoing Anterior Cervical Discectomy and Fusion (ACDF) for Degenerative Disc Disease and Radiculopathy*. AANS Annual Scientific Meeting. New Orleans, LA, April 27-May 1, 2013.
14. Villavicencio AT, Mason A, Serxner B, Nelson EL, **Rajpal S**, Beasley KD, Burneikiene S. *Predictive Value of the Duration of Symptoms in Patients Undergoing Anterior Cervical Discectomy and Fusion (ACDF) for Degenerative Disc Disease and Radiculopathy*. Annual Meeting of the AANS/ CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ, March 6-9, 2013.
15. Serxner B, Villavicencio AT, Mason A, Nelson EL, **Rajpal S**, Beasley KD, Burneikiene S. *Transforaminal Lumbar Interbody Fusion (TLIF) with Interspinous Process Fixation Plate as an Adjunct to Unilateral Pedicle Screws: Radiological Outcomes*. Annual Meeting of the AANS/ CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ, March 6-9, 2013.
16. Mason A, Beloy V, Villavicencio AT, Nelson EL, Beasley K, Burneikiene S, **Rajpal S**. *Central cord syndrome with delayed abducens and hypoglossal nerve palsies, a novel triad: Case report, review of proposed mechanisms and relevant literature*. Annual Meeting of the AANS/ CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ, March 6-9, 2013.
17. Burneikiene S, Serxner BJ, **Rajpal S**, Nelson EL, Mason A, Villavicencio AT. *Association of Duration of Symptoms and Clinical Outcomes in Patients Undergoing Cervical Spinal Fusion for Degenerative Disc Disease and Radiculopathy*. CNS Annual Meeting. Chicago, IL, Oct 6-10, 2012.
18. Serxner BJ, Burneikiene S, Nelson EL, Mason A, **Rajpal S**, Villavicencio AT. *Transforaminal Lumbar Interbody Fusion (TLIF) with Interspinous Process Fixation Plate as an Adjunct to Unilateral Pedicle Screws: Radiological Outcomes*. CNS Annual Meeting. Chicago, IL, Oct 6-10, 2012.
19. Villavicencio AT, Serxner BJ, Burneikiene S, Nelson EL, Mason A, **Rajpal S**. *Clinical Outcomes in Patients Undergoing Transforaminal Lumbar Interbody Fusion (TLIF) with Interspinous Process Plate Fixation as an Adjunct to Pedicle Screws*. Spine Across the Sea. Kauai, HI, July 29-Aug 2, 2012.

20. Serxner BJ, Burneikiene S, Nelson EL, Mason A, **Rajpal S**, Villavicencio AT. *Preliminary Clinical Outcomes in Patients Undergoing Transforaminal Lumbar Interbody Fusion with Interspinous Process Plate Fixation as an Adjunct to Pedicle Screws*. AANS Annual Meeting. Miami, FL, April 14 -18, 2012.
21. Babuska J, Villavicencio AT, Mason A, Nelson EL, **Rajpal S**, Burneikiene S. *Accuracy Comparison for Intraoperative Biplanar and Volumetric Image Guidance: A Systematic review*. CNS Annual Meeting. Washington, DC, October 1-6, 2011.
22. Villavicencio AT, Nelson EL, Mason A, Babuska J, Carr FA, **Rajpal S**, Burneikiene S. *CO₂ Laser-Assisted Lumbar Fusions: Safety, Clinical Outcomes and Technical Considerations*. AANS Annual Meeting. Denver, CO, April 9-13, 2011.
23. Villavicencio AT, Nelson EL, Mason A, **Rajpal S**, Carr FA, Burneikiene S. *The Safety of Transforaminal Interbody Fusion for Deformity Correction in Degenerative Scoliosis with Spinal Stenosis*. AANS Annual Meeting. Denver, CO, April 9-13, 2011.
24. Villavicencio AT, Mason A, Nelson EL, **Rajpal S**, Carr F, Weeks B, Burneikiene S. *A Systematic Review of Accuracy and Comparison of Intraoperative Biplanar and Volumetric Image Guidance Systems*. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ, March 9-12, 2011.
25. Villavicencio AT, Nelson EL, Mason A, Babuska J, Carr F, **Rajpal S**, Burneikiene S. *CO₂ Laser-Assisted Lumbar Fusions: Safety, Clinical Outcomes and Technical Considerations*. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ, March 9-12, 2011.
26. **Rajpal S**, Hwang R, Mroz T, Steinmetz M. *Comparing Vertebral Body Reconstruction Implants for the Treatment of Thoracic and Lumbar Metastatic Spinal Tumors*. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ, March 9-12, 2011.
27. **Rajpal S**, Hwang R, Mroz T, Steinmetz M. *A Comparison of Vertebral Body Reconstruction Implants for the Treatment of Thoracic and Lumbar Spinal Tumors: A Consecutive Case Series of 30 Patients*. AO Spine Fellows Course. Banff, Canada, April 8-11, 2010.
28. **Rajpal S**, Gordon DB, Pellino TA, Strayer AL, Brost D, Trost GR, Zdeblick TA, Resnick DK. *Forget IV PCA; Perioperative multimodal oral analgesia for spine surgery*. Annual Scientific Meeting of the American Pain Society. Tampa, FL, May 8-10, 2008.
29. **Rajpal S**, Steinmetz MP, Cook TD, Resnick DK. *Predictors of pseudoarthrosis following single level ACDF*. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ, March 7-10, 2007.
30. Miranpuri GS, **Rajpal S**, Gerovac TA, Turner NA, Tilghman JI, Allcock BK, McChesney SL, Park SW, Resnick DK. *Anti-hyperalgesic effects of vanilloid-1 and bradykinin-1 receptor antagonists following spinal cord injury in rats*. Society for Neuroscience Annual Meeting. Atlanta, GA. October 14-18, 2006.
31. **Rajpal S**, Chanbusarakum K, Deshmukh PR. *High Cervical Myelopathy Due to Arachnoiditis and Cord Tethering from Adjacent C2 Osteomyelitis: A Case Report*. American Association of Neurological Surgeons Annual Meeting. San Francisco, CA. April 23-27, 2006.
32. Moftakhar R, Niemann DB, Hussain S, **Rajpal S**, Cook T, Geraghty M, Aagaard-Kienitz, B, Turski PA, Newman GC, Turk AS. *Influence of intracranial and extracranial stent revascularization on cerebral perfusion and cognition*. American Association of Neurological Surgeons Annual Meeting. New Orleans, LA. April 2005.
33. **Rajpal S**, Tubbs RS, George TM, Oakes JW, Hadley MN, Iskandar BJ. *Outcomes of tethered cord release in 61 adults with spina bifida occulta*. American Association of Neurological Surgeons Annual Meeting. New Orleans, LA. April 2005.

34. Musunuru S, Chen H, **Rajpal S**, Stephany N, McDermott JC, Holen K, Rikkers LF, Weber SM. *Metastatic neuroendocrine hepatic tumors: resection improves survival*. Society of Surgical Oncology 58th Annual Cancer Symposium. Atlanta, GA. March 2005.
35. **Rajpal S**, Turk AS, Aagaard-Kienitz B, Niemann DB. *Transverse sinus stenting as treatment for benign intracranial hypertension in a young male*. American Society of Neuroradiology 42nd Annual Meeting. Seattle, WA. June 2004.
36. Obeid NI, **Rajpal S**, Visovatti S, Strieb, Horst HM. *Utilization of blood transfusions in SICU patients*. Society of Critical Care Medicine 29th Educational and Scientific Symposium. July 2000.

ORAL PRESENTATIONS

1. **Rajpal S**. *Options for Relieving Spinal Disc Pain*. Invited Community Lecture. Boulder, CO. March 18, 2020.
2. **Rajpal S**. *Life After Residency: Navigating to a Job and Being Successful in Private Practice*. Invited Alumni Visiting Professor Lectureship, University of Wisconsin Madison Department of Neurological Surgery Graduation. Madison, Wisconsin. June 21-22, 2019.
3. **Rajpal S**. *You are Never Too Old for Surgery: Spine Management in an Aging Population*. Annual meeting of the American Association of Neurological Surgeons. San Diego, California, April 13-17, 2019.
4. **Rajpal S**. *The Benefits of Navigation*. Spine Technology Summit. San Francisco, California, Feb 28, 2019.
5. **Rajpal S**. *Posterior Cervical Techniques with Navigation*. Spine Tech Summit. San Francisco, California, March 1, 2019.
6. **Rajpal S**. *MAST MIDLF Procedure & Spinal Navigation*. Residents and Fellows Premier Event. New Orleans, LA, Jan 19, 2019.
7. **Rajpal S**. *Surgical Synergy: Navigated Spine Surgery 101*. Residents and Fellows Premier Event. New Orleans, LA, Jan 18, 2019.
8. **Rajpal S**. *Expandable Cages*. Residents and Fellows Premier Event. New Orleans, LA, Jan 18, 2019.
9. Burneikiene S, Villavicencio AT, Nelson EL, Kantha R, Beasley K, **Rajpal S**. *Medical Complications and Mortality in Octogenarians Undergoing Elective Spinal Fusion Surgeries*. Eurospine 2018, Barcelona, Spain, September 19 – 21, 2018.
10. **Rajpal S**. *Sagittal Alignment and Adult Deformity*. Decisions in Spine: Transitioning into Practice Residents and Fellows Course. Dallas, TX, Nov 3-4, 2017.
11. **Rajpal S**. *OLIF25TM Procedure*. Decisions in Spine: Transitioning into Practice Residents and Fellows Course. Dallas, TX, Nov 3-4, 2017.
12. **Rajpal S**. *The Impact of Preventative Multimodal Analgesia on Postoperative Opioid Requirements and Pain Control in Patients Undergoing Lumbar Fusions*. 15th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, CO, November 3, 2018.
13. Villavicencio AT, Nelson EL, **Rajpal S**, Burneikiene S. *Prediction Based on Preoperative Opioid Use of Clinical Outcomes after Transforaminal Lumbar Interbody Fusion*. NASS Annual Meeting, Orlando, FL, October 25 – 28, 2017.
14. **Rajpal S**. *The Argument for Total Disc Replacement*. 14th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, CO, October 21, 2017.

15. Villavicencio AT, Nelson EL, Kantha V, **Rajpal S**, Tomberlin C, Burneikiene S. *Prediction Based on Preoperative Opioid Use of Clinical Outcomes after Transforaminal Lumbar Interbody Fusion*. Annual Meeting of the Neurosurgical Society of America. Jacksonville, FL, Apr 2 – 5, 2017.
16. Villavicencio AT, Nelson EL, Kantha V, **Rajpal S**, Tomberlin C, Burneikiene S. *Prediction of Clinical Outcomes after Transforaminal Lumbar Interbody Fusions Based on Preoperative Opioid Use*. AANS Annual Scientific Meeting. Los Angeles, CA, Apr 22 – Apr 26, 2017.
17. **Rajpal S**. *Neuromodulators and Pre-emptive Analgesia*. Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Las Vegas, NV, Mar 8-11, 2017.
18. **Rajpal S**, Villavicencio AT, Burneikiene S, Nelson EL. *Timing of Surgery and Symptom Resolution in Patients Undergoing Transforaminal Lumbar Interbody Fusion for Lumbar Degenerative Disc Disease and Radiculopathy*. Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Las Vegas, NV, Mar 8-11, 2017.
19. Villavicencio AT, Nelson EL, Kantha V, **Rajpal S**, Burneikiene S. *Prediction of Clinical Outcomes after Transforaminal Lumbar Interbody Fusions Based on Preoperative Opioid Use*. Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Las Vegas, NV, Mar 8-11, 2017.
20. Villavicencio AT, Nelson EL, **Rajpal S**, Burneikiene S. *Association of Timing of Surgery and Clinical Outcomes in Patients Undergoing Transforaminal Lumbar Interbody Fusion*. NASS Annual Meeting, Boston, MA, Oct 26-29, 2016.
21. **Rajpal S**. *Spine Surgery in the Elderly*. 13th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, CO, October 8, 2016.
22. **Rajpal S**. *Decompression and Stabilization Techniques in the Posterior Cervical Spine*. Decisions in Spine: Transitioning into Practice Residents and Fellow Course. Denver, CO, May 20, 2016.
23. **Rajpal S**. *The Argument for Non-Surgical Management of C2 Fractures in the Elderly*. 12th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, CO, Oct 10, 2015.
24. Burneikiene S, Villavicencio AT, Nelson EL, **Rajpal S**. *The Duration of Symptoms and Clinical Outcomes in Patients Undergoing Anterior Cervical Discectomy and Fusion for Degenerative Disc Disease and Radiculopathy*. 13th Annual Baltic Neurosurgery Association Meeting, Vilnius, Lithuania, Sept 11-12, 2015.
25. Burneikiene S, Villavicencio AT, Nelson EL, Mason A, **Rajpal S**. *The Duration of Symptoms and Clinical Outcomes in Patients Undergoing Anterior Cervical Discectomy and Fusion for Degenerative Disc Disease and Radiculopathy*. EuroSpine 2015, Copenhagen, Denmark, September 2-4, 2015.
26. Villavicencio AT, Nelson EL, Mason A, **Rajpal S**, Burneikiene S. *The Timing of Surgery and Symptom Resolution in Patients Undergoing Transforaminal Lumbar Interbody Fusion for Lumbar Degenerative Disc Disease and Radiculopathy*. NASS and JSSR/Spine Across the Sea, Kohala Coast, HI, July 26-30, 2015.
27. **Rajpal S**. *The Argument for SI Joint Fusions*. Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, CO, October 18, 2014.
28. **Rajpal S**. *Spinal & Neurogenic Shock*. Boulder Community Hospital. Boulder, CO, May 28, 2014.
29. **Rajpal S**. *Treatment of O-C dislocation, Jefferson fracture, and Hangman's fractures*. Special Advanced Course: Spinal Trauma in the Elderly. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL, March 5-8, 2014.
30. **Rajpal S**. *Expanding Indications for Tubular and Percutaneous Access of the Spine*. Special Advanced Course: Advanced MIS Techniques - Managing MIS Complications. Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL, March 5-8, 2014.

31. **Rajpal S.** *Cervical Translaminar Fixation, Cervical Lateral Mass Fixation, Anterior Cervical Discectomy and Fusion, and Corpectomy.* Special Advanced Course: Hands On Spine: Indications, Techniques and Complication Avoidance for the NP/PA Assistant. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL, March 5-8, 2014.
32. **Rajpal S.** *Lateral spinal approaches.* Special Advanced Course: Special Advanced Cadaver Course: Innovative Technologies in Spine and Peripheral Nerve Surgery. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL, March 5-8, 2014.
33. **Rajpal S.** *Intracranial Hemorrhages & Traumatic Brain Injury: Basic Concepts.* 3rd Annual Nursing Education Meeting: Hot Topics in 2014. Broomfield, Colorado, Feb 15, 2014.
34. **Rajpal S.** *Spine Surgery: How Indications and Complication Avoidance Influence Decisions.* Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, Colorado, Oct 26, 2013.
35. **Rajpal S.** *Treatment of O-C Dislocation, Jefferson Fracture, and Hangman's Fracture.* Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ, March 6-9, 2013.
36. Villavicencio AT, Serxner BJ, Nelson EL, Mason A, **Rajpal S**, Burneikiene S. *The Duration of Symptoms and Clinical Outcomes in Patients Undergoing Anterior Cervical Discectomy and Fusion (ACDF) for Degenerative Disc Disease and Radiculopathy.* Annual NASS Meeting, Dallas, TX, October 24-27, 2012.
37. **Rajpal S.** *Management of Spine Infections.* 9th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, CO, October 20, 2012.
38. Villavicencio AT, Serxner BJ, Babuska J, Nelson EL, Mason A, **Rajpal S**, Busch E, Ashton A, Burneikiene S. *The Duration of Symptoms and Clinical Outcomes in Patients Undergoing Anterior Cervical Discectomy and Fusion (ACDF) for Degenerative Disc Disease and Radiculopathy.* Spine Across the Sea , Kauai, Hawaii, July 29 – August 2, 2012.
39. Burneikiene S, Carr F, Nelson EL, **Rajpal S**, Villavicencio AT. *Higher Patient Expectations Before Surgery May Be Related to Improved Clinical Outcomes.* NASS Annual Meeting, Chicago, IL, November 1-5, 2011.
40. **Rajpal S.** *Preventing Spine Site Infections.* 8th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, CO, October 29, 2011.
41. Villavicencio AT, Carr FA, Hernandez TD, Healy KM, Nelson EL, Mason A, **Rajpal S**, Burneikiene S. *Effects of Preoperative SF-36 Mental Component Scores and Patient Pain Expectations on Clinical Outcomes Following Anterior Cervical Discectomy and Fusion.* AANS Annual Meeting, Denver, CO, April 9-13, 2011.
42. Villavicencio AT, Nelson EL, Mason A, **Rajpal S**, Carr F, Burneikiene S. *The Safety and Efficacy of Transforaminal Lumbar Interbody Fusion for Deformity Correction in Degenerative Scoliosis with Spinal Stenosis.* Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Phoenix, AZ, March 9-12, 2011.
43. Ahmed M, **Rajpal S**, Sweeney C, Gerovac TA, Allcock B, McChesney S, Patel A, Tilghman J, Miranpuri GS, Resnick DK. *Cannabinoid subtype-2 receptors modulate the antihyperalgesic effect of WIN 55,212-2 in rats with neuropathic SCI pain.* Annual NASS Meeting. Orlando, FL. October 5-9, 2010.
44. **Rajpal S.** *Pain Following Spine Surgery: A multimodality Approach.* 7th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, Colorado, Sept 11, 2010.
45. **Rajpal S**, Sweeney C, Gerovac TA, Allcock B, McChesney S, Patel A, Tilghman J, Miranpuri G, Resnick D. *The role of cannabinoids in chronic neuropathic pain development following contusive spinal cord injury.* Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 11-14, 2009.

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47. **Rajpal S**, Gordon D, Pellino T, Strayer A, Trost GR, Zdeblick TA, Resnick DK. *Forget IV PCA; Perioperative multimodal oral analgesia for spine surgery*. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL, Feb 27-March 1, 2008.
48. **Rajpal S**, Cain JH, Allcock B, Tilghman J, Baggott C, Miranpuri GS, Resnick DK. *Intrathecal COX-2 inhibitor therapy on chronic neuropathic pain development in a rat model of contusive spinal cord injury*. Annual Meeting of the Rachidan Society. Kona, HI, Feb 3-7, 2008.
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55. **Rajpal S**, Tubbs RS, Salamat MS, Oakes WJ, Iskandar BJ. *Tethering tracts in spina bifida occulta: a re-evaluation*. Annual Meeting of the AANS/CNS Section on Pediatric Neurological Surgery. Orlando, FL. Nov 2005.
56. **Rajpal S**. UW Physical Therapy Conference. University of Wisconsin Hospitals and Clinics. "Neurosurgery – An Overview". Madison, WI, Aug 8, 2005.
57. **Rajpal S**. UW Pharmacy Conference. University of Wisconsin Hospitals and Clinics. "Neurosurgery – An Overview". Madison, WI, Aug 8, 2005.
58. Mofstakhar R, Niemann DB, Hussain S, **Rajpal S**, Cook T, Geraghty M, Aagaard-Kienitz, B, Turski PA, Newman GC, Turk AS. *Influence of intracranial and extracranial stent revascularization on cerebral perfusion and cognition*. Wisconsin Neurological Society 2004 Annual Conference. Milwaukee, WI, Oct 2004.
59. **Rajpal S**, Newman GP. *Traumatic and non-traumatic carotid and vertebral artery dissection*. Department of Neurology Grand Rounds, University of Wisconsin Hospitals and Clinics. Madison, WI, Sept 2005.
60. **Rajpal S**, Newman GP. *Blunt carotid & vertebral trauma*. Department of Surgery Trauma Conference. University of Wisconsin Hospitals and Clinics. Madison, WI, Aug 2005.

61. **Rajpal S**, Walter A. *Understanding the interaction between brain phosphatidylcholine and brain sphingomyelin using fluorescent probes*. 65th Annual Meeting of the Minnesota Academy of Science Winchell Undergraduate Research Symposium. April 1997.

PUBLICATIONS: JOURNAL ARTICLES

1. **Rajpal S**, Bauer A, Forsythe RC, Burneikiene S. *Diagnostic Challenges Between Chiari Malformation and Neurocysticercosis*. Atlas of Science. 2019 May 3.
2. **Rajpal S**, Hobbs S, Nelson EL, Villavicencio AT, Zielenski C, Beasley K, Kantha V, Mesenbrink J, Burneikiene S. *The Impact of Preventative Multimodal Analgesia on Postoperative Opioid Requirement and Pain Control in Patients Undergoing Lumbar Fusions*. Clin Spine Surg. 2020; 33:E135-E140.
3. Villavicencio AT, Nelson EL, **Rajpal S**, Vivek N, Burneikiene S. *The Impact of BMI on Perioperative Outcomes in Patients Undergoing Transforaminal Lumbar Fusion for Degenerative Disc Disease*. Clinical Neurology and Neurosurgery. Published online Feb 11, 2019.
4. **Rajpal S**, Burneikiene S. *Minimally Invasive Sacroiliac Joint Fusion with Cylindrical Threaded Implants Using Intraoperative Stereotactic Volumetric Navigation*. World Neurosurg. 2019 Feb; 122: e1588-e1591.
5. **Rajpal S**, Colson T, Bauer A, Forsythe RC, Burneikiene S. *Chiari Malformation and Hydrocephalus Masking Neurocysticercosis: A Case Report*. World Neurosurgery. 2018 Jun;114:68-71.
6. **Rajpal S**, Nelson EL, Villavicencio AT, Telang J, Kantha R, Beasley K, Burneikiene S. *Medical Complications and Mortality in Octogenarians Undergoing Elective Spinal Surgeries*. Acta Neurochir (Wien). 2018 Jan; 160 (1):171-179.
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8. Villavicencio AT, Nelson EL, **Rajpal S**, Otalora F, Burneikiene S. *Case Series of Anterior Intervertebral Graft Extrusions in Transforaminal Lumbar Interbody Fusion Surgeries*. World Neurosurg: 2016 Jan; 85:130-5.
9. Villavicencio AT, Serxner BJ, Mason A, Nelson EL, **Rajpal S**, Faes N, Burneikiene S. *Unilateral and Pedicle Screw Fixation in Transforaminal Lumbar Interbody Fusion: Radiographic and Clinical Analysis*. World Neurosurg 2015 Apr; 8:553-559.
10. Burneikiene S, Nelson EL, Mason A, **Rajpal S**, Villavicencio AT. *The Duration of Symptoms and Clinical Outcomes in Patients Undergoing Anterior Cervical Discectomy and Fusion for Degenerative Disc Disease and Radiculopathy*. The Spine J (15):427-432, 2015.
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12. Villavicencio AT, Nelson EL, Mason A, **Rajpal S**, Burneikiene S. *Outpatient Instrumented Lumbar Interbody Fusion*. J of Spinal Disorders & Techniques. 2013 Aug;26(6): 298-304.
13. Mason A, Ayres K, Burneikiene S, Villavicencio AT, Nelson E, **Rajpal S**. *A Novel Case of Resolved Post-Herpetic Neuralgia with Subsequent Development of Trigeminal Neuralgia: Case Report and Review of the Literature*. Case Rep Med. 2013:398513
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31. Musunuru S, Chen H, **Rajpal S**, Stephani N, McDermott J, Holen K, Rikkers LF, Weber SM. *Metastatic Neuroendocrine Hepatic Tumors: Resection Improves Survival.* Archives of Surgery. 2006 141:1000-1004.

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35. Nichol PF, Corliss RF, **Rajpal S**, Helin M, Lund DP. *Perforation of the appendix from intestinal mucormycosis in a neonate.* Journal of Pediatric Surgery. 2004 39:1133-1135.
36. Schalch DS, Kalayoglu M, Pirsch JD, Yang H, Raslich M, **Rajpal S**. *Serum insulin-like growth factors and their binding proteins in patients with hepatic failure and after liver transplantation.* Metabolism. 1998 47:200-206.

PUBLICATIONS: BOOK CHAPTERS

1. Nelson EL, **S Rajpal**, Villavicencio AT, Bauer A, Burneikiene S. "Neurosurgery" in *Cannabis in Medicine: An Evidence-Based Approach.* Finn K. (ed). Springer Nature. Switzerland AG. 2020.
2. **S Rajpal**, S Burneikiene. "Lumbar spondylolisthesis" in *Spine Surgery in an Aging Population.* Brooks and Strayer (eds). Thieme Medical Publishers, Inc. New York, NY. 2019.
3. **S Rajpal**, Erika Freiberg, Sara Kadlec. "Hazards in the Neurosurgical Operating Room," in the *Handbook of Neurosurgery, Neurology, and Spinal Medicine for Nurses and Advanced Practice Health Professionals.* Routledge. Philadelphia, PA. 2017.
4. **S Rajpal**, MP Steinmetz. "Intraoperative Assessment of Neurological Evaluation" in *The Cervical Spine*, 5th ed. Benzel EC. (ed). Wulters Kluwer: Philadelphia, PA. 2012.
5. **S Rajpal**, Orr D, MP Steinmetz. "Sacral Tumors: Regional Challenges" in *Spine Surgery: Techniques, Complication Avoidance, and Management*, 3rd ed. Benzel EC. (ed). Elsevier: Philadelphia, PA. 2012.
6. **S Rajpal**, DK Resnick. "Medical Management of Acute Spinal Cord Injury. No administration of Steroids" in *Spine Surgery: Techniques, Complication Avoidance, and Management*, 3rd ed. Benzel EC. (ed). Elsevier. Philadelphia, PA. 2012.
7. **S Rajpal**, Iskandar BJ. "Lipomyelomeningocele" in *Youmans Neurological Surgery*, 6th ed. Winn (ed) (*in print*).
8. BG Rocque, **S Rajpal**, DK Resnick. "Post-laminectomy Kyphosis in the Thoracic and Lumbar Spine" in *The Textbook of Spinal Surgery*, 3rd ed, Bridwell (editor). Lippincott, Williams Wilkins: 2011
9. **S Rajpal**, DK Resnick. "Anterior Retroperitoneal Flank Approach" in *Fundamentals of Operative Techniques in Neurosurgery*, 2nd ed. Connolly, McKhann, Huang, Choudhri, Mocco (eds). Thieme Medical Publishers, Inc. New York, NY. 2010.
10. **S Rajpal**, SB Lapsiwala, BJ Iskandar. "Tethered Cord Syndrome in Adults with Spina Bifida Occulta" in *Tethered Cord Syndrome*, 2nd ed. Yamada (ed). Thieme Medical Publishers, Inc. New York, NY. 2010.
11. **S Rajpal**, GR Trost. "Cervical Spine Kinematics and the Biomechanics of the Injured Cervical Spine: Craniocervical Junction (Occiput-C2)" in *Cervical Spine Trauma.* Vaccaro, Anderson (eds). Rothman Institute. Philadelphia, PA. 2010.
12. **S Rajpal**, GR Trost. "Posterolateral Fusion with or without Pedicle Screws for Low Back Pain" in *Surgical Management of Low Back Pain*, 2nd ed. Resnick, Haid, Wang (eds). Thieme Medical Publishers, Inc. New York, NY. 2009.

13. **S Rajpal**, BJ Iskandar. “Cranial, non-tumoral neuroendoscopy: a review” in Pan Arab Neurosurgical Journal, Pediatric Neurosurgery Supplement. Iskandar BJ (ed). MSD Printing Press. 2008.
14. **S Rajpal**, BJ Iskandar. “Surgical Approaches to Pediatric Midline Posterior Fossa Tumors” in Neurosurgical Operative Atlas 2E: Neuro-oncology. Badie (ed). Thieme Medical Publishers, Inc. New York, NY. 2006.

PUBLICATIONS: MISCELLANEOUS

- **S Rajpal**, DK Resnick. A practical guide to adult spine clearance. University of Wisconsin Hospitals and Clinics Trauma Notes. Aug 2006.
- **S Rajpal**, GR Trost. Traumatic brain injury. University of Wisconsin Hospitals and Clinics Trauma Notes. Jan 2004.

EDUCATIONAL COURSES

- Chairman. “Advancements in Stealth Navigated and Robotic Spine Surgery” Las Vegas, NV, Jan 31-Feb 1, 2020.
- Faculty. “Spine Tech Summit” Austin, TX, Jan 16-17, 2020.
- Chairman. “Advancements in Stealth Navigated and Robotic Spine Surgery” Chicago, IL, Nov 8-9, 2019.
- Chairman. “The Power of a Complete Navigated TLIF” Denver, CO, June 27, 2019.
- Chairman. “Fundamentals of Navigated Spine Surgery” Denver, CO, June 14-15, 2019.
- Faculty. “Minimally Invasive Techniques Training” Dallas, TX, April 27, 2019.
- Program Advisor. “Spine Tech Summit” San Francisco, CA, Feb 28-March 1, 2019.
- Chairman. “Fundamentals of Navigated Spine Surgery” Las Vegas, NV, Feb 1-2, 2019.
- Faculty. “Residents and Fellows Premier Medical Educational Event” New Orleans, LA, Jan 17-19, 2019.
- Faculty. “Navigated Surgical Techniques Training” Springfield, MO, Jan 16, 2019.
- Chairman. “Fundamentals of Navigated Spine Surgery” Las Vegas, NV, Nov 10-11, 2018.
- Faculty. “Surgical Synergy Techniques Training” Long Beach, CA, Oct 21, 2018.
- Faculty. “Surgical Synergy Techniques Training” Dallas, TX, Sept 22, 2018.
- Faculty. “Navigated Spinal Workflow Training” Morgantown, WV, Aug 25, 2018
- Faculty. “Navigated OLIF L2-L5 Technique Training” Nashville, TN, Aug 24, 2018.
- Faculty. “Surgical Synergy Techniques Training” Madison, WI, Aug 3, 2018.
- Faculty. “Fundamentals of Navigated Spine Surgery” Las Vegas, NV, Feb 9-10, 2018.
- Chairman. “Decisions in Spine: Transitioning into Practice Residents and Fellow Course” Dallas, TX, Nov 3-4, 2017.
- Faculty. “Decisions in Spine: Transitioning into Practice Residents and Fellow Course” Denver, CO, May 20-21, 2016.
- Faculty. “Surgical Navigation Technology Workflows New Surgeons”, Henderson, NV, Oct 23, 2015.
- Faculty. “Spinal Pelvic Realignment in the Adult Patient” Orlando, FL, Feb 21-22, 2014.
- Faculty. “Boulder Neurosurgical and Spine Associates Nursing Symposium”, Boulder, CO, 2014.
- Faculty. “Cleveland Clinic Spine Review” Cleveland, OH, 2009-present.
- Faculty. “Boulder Neurosurgical and Spine Associates Neurosurgical Symposium”, Boulder, CO, 2010-present

COMMITTEES/ACTIVITIES

- Planning Committee Member. Justin Parker Neurological Institute (JPNI): Annual Nursing Education: Hot Topics Meeting (2014-2016)
- Examiner. Medical Student Neurosciences Rotation OSCE Examination (2007-2009)
- Committee Member. University of Wisconsin Hospitals and Clinics Graduate Medical Education Committee (2006-2009)
- Committee Member. University of Wisconsin Hospitals and Clinics Graduate Medical Education Appeals Committee (2007-2009)
- Committee Member. Congress of Neurological Surgeons (CNS): Case of the Month Website Section (2005-current)
- Committee Member. Congress of Neurological Surgeons (CNS): Education Committee (2006-current)
- Member. ThinkFirst Education Program (2005-2009)
- Participant. Verona Area High School Junior Career Days (2007-2009)