

Sharad Rajpal, M.D.

Board Certified Neurosurgeon

Boulder Neurosurgical & Spine Associates
4743 Arapahoe Avenue, Suite 202
Boulder, CO 80303
Phone: 303.938.5700
Fax: 303.998.0007

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**
St. Olaf College
Northfield, MN
Majors: Chemistry, Psychology
Summa Cum Laude (GPA 3.92/4.00)

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**
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**
Neurosurgical Partner, 2012-present
Staff Neurosurgeon, 2010-2012
Boulder, CO
- 1997-1998 **Accenture, LLP**
Computer 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

AWARD 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

- 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-Present **Reduction of Adverse Drug Events and Readmissions (RADAX-PGx).**
Role: Sub-Investigator
Sponsor: Global, Inc.
- 2016- Present **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-present **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-present **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. 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*. Los Angeles, CA, Apr 22 – 26, 2017
2. **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, April 30 – May 4, 2016, Chicago, IL.
3. **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, April 30 – May 4, 2016, Chicago, IL.
4. 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, September 2 – 4, 2015.
5. 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*. 83rd American Association of Neurological Surgeons Annual Scientific Meeting May 2-6, 2015.
6. 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.

7. 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.
8. 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.
9. 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 American Association of Neurological Surgeons 81st Annual Scientific Meeting, New Orleans, LA, April 27-May 1, 2013.
10. 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*. 2013 American Association of Neurological Surgeons 81st Annual Scientific Meeting, New Orleans, LA, April 27-May 1, 2013.
11. 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*. 2013 Annual Meeting of the AANS/ CNS Section on Disorders of the Spine and Peripheral Nerves, Phoenix, AZ, March 6 – 9, 2013.
12. 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*. 2013 Annual Meeting of the AANS/ CNS Section on Disorders of the Spine and Peripheral Nerves, Phoenix, AZ, March 6 – 9, 2013.
13. 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*. 2013 Annual Meeting of the AANS/ CNS Section on Disorders of the Spine and Peripheral Nerves, Phoenix, AZ, March 6 – 9, 2013.
14. 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, October 6 – 10, 2012.
15. 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, October 6 – 10, 2012.
16. 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, Hawaii , July 29 – August 2, 2012..
17. 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*. 80th AANS Annual Meeting, Miami, FL, April 14 -18, 2012.
18. Babuska J, Villavicencio AT, Mason A, Nelson EL, **Rajpal S**, Burneikiene S. *Accuracy Comparison for Intraoperative Biplanar and Volumetric Image Guidance: A Systematic review*. 2011 CNS Annual Meeting, Washington, DC, October 1–6, 2011.
19. 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*. 79th AANS Annual Meeting, Denver, CO, April 9-13, 2011.

20. 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*. 79th AANS Annual Meeting, Denver, CO, April 9-13, 2011.
21. 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*. 27th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Phoenix, AZ, March 9–12, 2011.
22. 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*. 27th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Phoenix, AZ, March 9–12, 2011.
23. **Rajpal S**, Hwang R, Mroz T, Steinmetz M. *Comparing Vertebral Body Reconstruction Implants for the Treatment of Thoracic and Lumbar Metastatic Spinal Tumors*. 27th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 9-12, 2011
24. **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.
25. **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*. 27th Annual Scientific Meeting of the American Pain Society. Tampa, FL. May 8-10, 2008.
26. **Rajpal S**, Steinmetz MP, Cook TD, Resnick DK. *Predictors of pseudoarthrosis following single level ACDF*. 23rd Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 7-10, 2007.
27. 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.
28. **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.
29. 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.
30. **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.
31. Musunuru S, Chen H, **Rajpal S**, Stephany N, McDermott JC, Holen K, Ridders LF, Weber SM. *Metastatic neuroendocrine hepatic tumors: resection improves survival*. Society of Surgical Oncology 58th Annual Cancer Symposium. Atlanta, GA. March 2005.
32. **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.
33. 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. 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.
2. **Rajpal S**. *The Argument for Total Disc Replacement*. 14th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, Colorado, October 21, 2017.
3. 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
4. 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
5. **Rajpal S**. *Neuromodulators and Pre-emptive Analgesia*. The 33rd Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Mar 8 – 11, 2017, Las Vegas, NE.
6. **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*. The 33rd Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Mar 8 – 11, 2017, Las Vegas, NE
7. Villavicencio AT, Nelson EL, Kantha V, **Rajpal S**, Burneikiene S. *Prediction of Clinical Outcomes after Transforaminal Lumbar Interbody Fusions Based on Preoperative Opioid Use*. The 33rd Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Mar 8 – 11, 2017, Las Vegas, NE
8. 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, Oct 26-29, 2016, Boston, MA
9. **Rajpal S**. *Spine Surgery in the Elderly*. 13th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, Colorado, October 8, 2016.
10. **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, Colorado, October 10, 2015.
11. 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, September 11-12, 2015.
12. 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.
13. 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.
14. **Rajpal S**. *The Argument for SI Joint Fusions*. 11th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, Colorado, October 18, 2014.
15. **Rajpal S**. *Spinal & Neurogenic Shock*. Boulder Community Hospital. Boulder, CO, May 28, 2014.
16. **Rajpal S**. *Treatment of O-C dislocation, Jefferson fracture, and Hangman's fractures*. Special Advanced Course: Spinal Trauma in the Elderly. 30th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL, March 5-8, 2014.

17. **Rajpal S.** *Expanding Indications for Tubular and Percutaneous Access of the Spine.* Special Advanced Course: Advanced MIS Techniques - Managing MIS Complications. 30th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL, March 5-8, 2014.
18. **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. 30th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL, March 5-8, 2014.
19. **Rajpal S.** *Lateral spinal approaches.* Special Advanced Course: Special Advanced Cadaver Course: Innovative Technologies in Spine and Peripheral Nerve Surgery. 30th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL, March 5-8, 2014.
20. **Rajpal S.** *Intracranial Hemorrhages & Traumatic Brain Injury: Basic Concepts.* 3rd Annual Nursing Education Meeting: Hot Topics in 2014. Broomfield, Colorado, February 15, 2014.
21. **Rajpal S.** *Spine Surgery: How Indications and Complication Avoidance Influence Decisions.* 10th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, Colorado, October 26, 2013.
22. **Rajpal S.** *Treatment of O-C Dislocation, Jefferson Fracture, and Hangman's Fracture.* 2013 Annual Meeting of the AANS/ CNS Section on Disorders of the Spine and Peripheral Nerves, Phoenix, AZ, March 6 – 9, 2013.
23. 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.* NASS 27th Annual Meeting, Dallas, TX, October 24 – 27, 2012.
24. **Rajpal S.** *Management of Spine Infections.* 9th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, Colorado, October 20, 2012.
25. 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.
26. Burneikiene S, Carr F, Nelson EL, **Rajpal S**, Villavicencio AT. *Higher Patient Expectations Before Surgery May Be Related to Improved Clinical Outcomes.* NASS 26th Annual Meeting, Chicago, IL, November 1-5, 2011.
27. **Rajpal S.** *Preventing Spine Site Infections.* 8th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, Colorado, October 29, 2011.
28. 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.* 79th AANS Annual Meeting, Denver, CO, April 9-13, 2011.
29. 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.* 27th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Phoenix, AZ, March 9 – 12, 2011.
30. 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.* NASS 25th Annual Meeting. Orlando, FL. October 5-9, 2010.
31. **Rajpal S.** *Pain Following Spine Surgery: A multimodality Approach.* 7th Annual Symposium Current Techniques in the Treatment of Cranial and Spinal Disorders. Broomfield, Colorado, September 11, 2010.
32. **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.* 25th Annual

- Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 11-14, 2009.
33. **Rajpal S**, Baggott C, Cain JH, Cramer S, Tilghman J, Allcock B, Miranpuri GS, Sun D, Resnick DK. *The effect of bumetanide administration on thermal hyperalgesia following contusive spinal cord injury in rats*. 24th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. February 27-March 1, 2008.
 34. **Rajpal S**, Gordon D, Pellino T, Strayer A, Trost GR, Zdeblick TA, Resnick DK. *Forget IV PCA; Perioperative multimodal oral analgesia for spine surgery*. 24th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. February 27-March 1, 2008.
 35. **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*. 16th Annual Meeting of the Rachidan Society. Kona, HA. February 3-7, 2008.
 36. Trost GR, **Rajpal S**, Gordon D, Strayer A, Resnick DK. *Multimodal oral analgesia in the postoperative spinal surgery patient*. 16th Annual Meeting of the Rachidan Society. Kona, HA. February 3-7, 2008.
 37. **Rajpal S**, Miranpuri GS, 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*. 23rd Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 7-10, 2007.
 38. Boisen ML, **Rajpal S**, Cheema AA, Seebruck CJ, Gerovac TA, Tilghman JI, Miranpuri GS, Resnick DK. *Celecoxib inhibits the development of chronic pain following spinal cord injury*. 23rd Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 7-10, 2007.
 39. Cheema AA, Seebruck CJ, Boisen ML, **Rajpal S**, Horn KP, Gerovac TA, Tilghman JI, Miranpuri GS, Resnick DK, Steinmetz MP. *Effects of acute rolipram administration on functional recovery in rats following spinal cord injury*. 23rd Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 7-10, 2007
 40. Steinmetz MP, Miranpuri GS, Seebruck CJ, **Rajpal S**, Gerovac TA, Horn KP, Resnick DK. *The effect of rolipram administration on thermal hyperalgesia following spinal cord injury in rats*. 23rd Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 7-10, 2007
 41. 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.
 42. **Rajpal S**, Tubbs RS, Salamat MS, Oakes WJ, Iskandar BJ. *Tethering tracts in spina bifida occulta: a re-evaluation*. 34th Annual Meeting of the AANS/CNS Section on Pediatric Neurological Surgery. Orlando, FL. Nov 2005.
 43. **Rajpal S**. UW Physical Therapy Conference. University of Wisconsin Hospitals and Clinics. "Neurosurgery – An Overview". Aug 8, 2005.
 44. **Rajpal S**. UW Pharmacy Conference. University of Wisconsin Hospitals and Clinics. "Neurosurgery – An Overview". Aug 8, 2005.
 45. 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*. Wisconsin Neurological Society 2004 Annual Conference. Milwaukee, WI. Oct 2004.
 46. **Rajpal S**, Newman GP. *Traumatic and non-traumatic carotid and vertebral artery dissection*. Department of Neurology Grand Rounds, University of Wisconsin Hospitals and Clinics. Sept 2005.

47. **Rajpal S**, Newman GP. *Blunt carotid & vertebral trauma*. Department of Surgery Trauma Conference. University of Wisconsin Hospitals and Clinics. Aug 2005.
48. **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**, Colson T, Bauer A, Forsythe RC, Burneikiene S. *Chiari Malformation and Hydrocephalus Masking Neurocysticercosis: A Case Report*. World Neurosurgery. 2018 Nov.
2. **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.
3. 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*. Clin Spine Surg. 2017 Jul;30(6):E765-769.
4. Villavicencio AT, Nelson EL, **Rajpal S**, Otalora F, Burneikiene S. *Case Series of Anterior Intervertebral Graft Extrusions in Transforaminal Lumbar Interbody Fusion Surgeries*. World Neurosurgery: 2016 Jan; 85:130-5.
5. 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 Neurosurgery 2015 Apr; 83(4):553-559.
6. 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
7. Mason A, Paulsen R, Babuska J, **Rajpal S**, Burneikiene S, Nelson EL, Villavicencio AT. *The accuracy of Pedicle Screw Placement Using Intraoperative Image Guidance Systems: A Meta Analysis*. J Neurosurg Spine. 2014 Feb;20(2):196-203.
8. Villavicencio AT, Nelson EL, Mason A, **Rajpal S**, Burneikiene S. *Outpatient Instrumented Lumbar Interbody Fusion*. Journal of Spinal Disorders & Techniques. 2013 Aug;26(6): 298-304.
9. **Rajpal S**, Hwang R, Mroz T, Steinmetz M. *Comparing Vertebral Body Reconstruction Implants for the Treatment of Thoracic and Lumbar Metastatic Spinal Tumors: A Consecutive Case Series of 37 Patients*. Journal of Spinal Disorders & Techniques (in print).
10. 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
11. Burneikiene S, Nelson EL, Mason A, **Rajpal S**, Villavicencio AT. *Complications in Patients Undergoing Transforaminal Lumbar Interbody Fusion with Deformity Correction for Degenerative Scoliosis and Spinal Stenosis* Surg Neurol Int 3(1):25, 2012.
12. Miranpuri AS, **Rajpal S**, Salamat SS, Kuo KS. *Upper cervical intramedullary spinal metastasis of ovarian carcinoma. Case report and review of the literature*. Journal of Medical Case Reports 5(1):311, 2011.
13. **Rajpal S**, Mofthakhar R, Bauer AM, Turk AS, Niemann DB. *Superselective Wada Test for Ruptured Spontaneous Fusiform Middle Cerebral Artery Aneurysm: A Technical Case Report*. Journal of Neurointerventional Surgery 3(3):237-41, 2011.

14. 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*. The Spine Journal 10(12):1049-54, 2010
15. **Rajpal S**, Gordon DB, Pellino TA, Strayer AL, Brost D, Trost GR, Zdeblick TA, Resnick DK. *Comparison of perioperative multimodal analgesia versus IV PCA for spine surgery*. Journal of Spinal Disorders and Techniques. Journal of Spinal Disorder and Techniques 23(2):139-45, 2010.
16. Resnick DK, **Rajpal S**, Steinmetz MK, Cook T. *Common pitfalls in interpretation of medical evidence: a case demonstration of misleading interpretation in the analysis of cervical spine fusions*. The Spine Journal 9(1):905-9, 2009.
17. Steinmetz MP, **Rajpal S**, Trost GT. *Segmental spinal instrumentation in the management of scoliosis*. Neurosurgery 63(3 suppl):131-8, 2008.
18. **Rajpal S**, Resnick DK. *Rod cantilever techniques*. Neurosurgery 63(3 suppl):157-62, 2008.
19. Cramer SW, Baggott C, Cain J, Tilghman J, Allcock B, Miranpuri GS, **Rajpal S**, Sun D, Resnick D. *The role of cation-dependent chloride transporters in neuropathic pain following spinal cord injury*. Molecular Pain 4:36, 2008.
20. **Rajpal S**, Steinmetz MP, Cheema AA, Seebruck CJ, Gerovac TA, Miranpuri GS, Resnick DK. *Effect of delayed rolipram on thermal hyperalgesia following spinal cord injury*. Annals of Neurosciences 15:27-30, 2008.
21. Cain JH, Baggott C, Tilghman JI, **Rajpal S**, Miranpuri GS, Resnick DK. *Recent developments in the study of spinal cord injury and neuropathic pain*. Annals of Neurosciences 14:96-107, 2007.
22. **Rajpal S**, Salamat SS, Tubbs RS, Kelly DR, Oakes WJ, Iskandar BJ. *Tethering tracts in spina bifida occulta: revisiting an established nomenclature*. Journal of Neurosurgery (Spine) 7:1-8, 2007.
23. **Rajpal S**, Resnick DK, Baskaya MK. *The role of journal club in neurosurgical training*. Neurosurgery 61:397-401, 2007.
24. **Rajpal S**, Gerovac TA, Turner NA, Tilghman JI, Allcock B, McChesney S, Miranpuri GS, Park SW, Resnick DK. *Anti-hyperalgesic effects of vanilloid-1 and bradykinin-1 receptor antagonists following spinal cord injury in rats*. Journal of Neurosurgery (Spine) 6:420-424, 2007.
25. **Rajpal S**, Tubbs RS, George TM, Oakes JW, Fuchs H, Hadley MN, Iskandar BJ. *Tethered Cord from Spina Bifida Occulta Presenting in Adulthood: A Tri-Center Review of 61 Patients*. Journal of Neurosurgery (Spine) 6:210-215, 2007.
26. **Rajpal S**, Chanbusarakum K, Deshmukh PR. *High Cervical Myelopathy Due to Arachnoiditis and Cord Tethering from Adjacent C2 Osteomyelitis: A Case Report*. Journal of Neurosurgery (Spine) 6:64-67, 2007.
27. 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 141:1000-1004, 2006.
28. Mofthakhar R, Turk AS, Niemann DB, Hussain S, **Rajpal S**, Cook T, Geraghty M, Aagaard-Kienitz B, Turski PA, Newman GC. *Effects of carotid and vertebral stent placement on cerebral perfusion and cognition*. AJNR 26:1772-1780, 2005.
29. **Rajpal S**, Niemann DB, Turk AS. *Transverse sinus stenting as treatment for benign intracranial hypertension in a young male. Case report and review of the literature*. Journal of Neurosurgery (Pediatrics) 3:102:342-346, 2005.
30. **Rajpal S**, Niemann DB, Aagaard-Kienitz B, Turk AS. *Intracranial endovascular stent placement for symptomatic metastatic non-Hodgkin lymphoma. Case report*. Journal of Neurosurgery 102:922-926, 2005.
31. Nichol PF, Corliss RF, **Rajpal S**, Helin M, Lund DP. *Perforation of the appendix from intestinal mucormycosis in a neonate*. Journal of Pediatric Surgery 39:1133-1135, 2004.

32. 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* 47:200-206, 1998.

PUBLICATIONS: BOOK CHAPTERS

1. **S Rajpal**, Erika Freiburg, Sara Kadlec. "Hazards in the Neurosurgical Operating Room," in the *Handbook of Neurosurgery, Neurology, and Spinal Medicine for Nurses and Advanced Practice Health Professionals*. Published by Routledge. December 2017.
2. **S Rajpal**, MP Steinmetz. "Intraoperative Neurological Evaluation" in *The Cervical Spine*, 5th ed. Benzel (ed) (*submitted*).
3. **S. Rajpal**, Orr D, MP Steinmetz. "Sacral Tumors: Regional Challenges" in *Spine Surgery: Techniques, Complication Avoidance, and Management*, 3rd ed. Benzel (ed) (*submitted*).
4. **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 (ed) (*submitted*).
5. **S Rajpal**, Iskandar BJ. "Lipomyelomeningocele" in *Youmans Neurological Surgery*, 6th ed. Winn (ed) (*in print*).
6. BG Rocque, **S Rajpal**, DK Resnick. "Post-laminectomy Deformities in the Thoracic and Lumbar Spine" in *The Textbook of Operative Spinal Surgery*, 3rd ed, Bridwell (ed) (*submitted*).
7. **S Rajpal**, DK Resnick. "Anterior Retroperitoneal Flank Approach" in *Fundamentals of Operative Techniques in Neurosurgery*, 2nd ed. Connolly, McKhann, Huang, Choudhri, Mocco (eds) (*submitted*).
8. **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.
9. **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. 2010.
10. **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.
11. **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.
12. **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.

COMMITTEES/ACTIVITIES

- Faculty. Surgical navigation technology course for new surgeons (2015)
- Invited Faculty. 30th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves (2014-present)
 - Special Advanced Course: Spinal Trauma in the Elderly
 - Special Advanced Course: Advanced MIS Techniques - Managing MIS Complications
 - Special Advanced Course: Hands On Spine: Indications, Techniques and Complication Avoidance for the NP/PA Assistant
 - Special Advanced Cadaver Course: Innovative Technologies in Spine and Peripheral Nerve Surgery
- Educational Faculty. Catalyst: Spinal Pelvic Realignment in the Adult Patient (2014-present)
- Planning Committee Member. Justin Parker Neurological Institute (JPNI): Annual Nursing Education: Hot Topics Meeting (2014-present)
- Lab Faculty. Cleveland Clinic Spine Review (2009-present)
- 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)