NITIN AGARWAL, MD, MBA, FACS

EDUCATION

The University of Pennsylvania — Philadelphia, PA
- The Wharton School — 2024-2026
- Master of Business Administration
- Majors: Finance, Management, Entrepreneurship and Innovation

Rutgers, The State University of New Jersey — Newark, NJ
- New Jersey Medical School — 2010-2014
- Doctor of Medicine

The College of New Jersey — Ewing, NJ
- Bachelor of Science, Cum Laude, Honors Program — 2007-2010
- Major: Biology Seven-Year Accelerated B.S. / M.D.

The Lawrenceville School — Lawrenceville, NJ
- Secondary School Diploma — 2003-2007

POSTGRADUATE TRAINING

Harvard Medical School
- Harvard Macy Institute Program for Educators in Health Professions — 2025-2026

Society of Neurological Surgeons
- Neurosurgeon-Educator Fellowship — 2025-2026

Scoliosis Research Society
- Emerging Technologies Fellowship — 2023-2024

AO Spine North America Fellowship
- University of California, San Francisco Neurosurgery — 2021-2022

Strategies to Innovate Emergency Care Clinical Trials Network
- SIREN Fellowship — 2021-2022
- Brain Oxygen Optimization in Severe TBI Phase-3

University of California, San Francisco
- Department of Neurological Surgery — 2021-2022
  - Minimally Invasive and Complex Spine Surgery Fellowship
  - CAST Accredited — 2021-2022
- Advanced Training in Spine Surgery
  - Department of Orthopedic Surgery

Council of State Neurosurgical Societies
- Socioeconomic Fellow — 2016-2017

University of Pittsburgh Medical Center
- Chief Resident, Neurological Surgery — 2020-2021
- Enfolded Fellow, Sports Medicine — 2019-2020
- Enfolded Fellow, Minimally Invasive and Complex Spine Surgery — 2018-2020
- Resident, Neurological Surgery — 2015-2018
- Intern, Neurological Surgery — 2014-2015

PROFESSIONAL EXPERIENCE

West Virginia University — Morgantown, WV
- Associate Professor, Neurological Surgery — 2026-Present

Spine Computational Outcomes Learning Institute (SCOLI) — SCOLI.org
- Founder & Director, Non-Profit Organization — 2026-Present

Novuosis Scientific Pittsburgh, PA
- Chief Executive Officer 2024-Present
- Clinical Advisor

Veterans Affairs Pittsburgh Healthcare System Pittsburgh, PA
- Acting Chief, Neurological Surgery 2023-Present
- Site Program Director, Neurological Surgery Residency

University of Pittsburgh School of Medicine Pittsburgh, PA
- Associate Professor, Neurological Surgery and Bioengineering, Tenure Track 2023-2026
- Affiliate Faculty, McGowan Institute of Regenerative Medicine

University of Pittsburgh Medical Center Pittsburgh, PA
- Director, Minimally Invasive Spine and Robotics Surgery 2023-2026
- Associate Program Director, Neurological Surgery Residency
- Director, Complex and Minimally Invasive Spine Deformity Fellowship

Washington University School of Medicine St. Louis, MO
- Assistant Professor, Neurological Surgery, Investigator (Tenure) Track 2022-2023
- Assistant Professor, Orthopedic Surgery, Joint Appointment
- Director of Neurotrauma

University of California, San Francisco San Francisco, CA
- Clinical Instructor, Neurological Surgery 2021-2022
- Complex and Minimally Invasive Spine

ATA Martial Arts NJ
- Certified Instructor, National Judge, School Owner 2007-2018
- 3rd Degree Black Belt

Knowledge Ticket NJ, NY, PA
- Academic Tutor, Test Preparation, College Counseling 2007-2018

CERTIFICATIONS

Medical License
- Pennsylvania
  - MD479972 2023-Present
  - MT205924 2014-2021
- Missouri
  - 2022013879 2022-2024
- Illinois
  - 036159669 2022-2023
- California
  - A171325 2021-2022

American Board of Neurological Surgery
- Board Certified 2024-Present

AO Spine
- Global Spine Diploma

EUROSPINE: The Spine Society of Europe
- European Spine Course Diploma

University of Pittsburgh Center for Image-Guided Neurosurgery
- Gamma Knife Radiosurgery Perfexion / ICON

Neurocritical Care Society
- Emergency Neurological Life Support

American College of Surgeons
- Advanced Trauma Life Support

American Heart Association
- Advanced Cardiovascular Life Support, Basic Life Support for Healthcare Providers

Cornell University
- NSF-1 Corps Regional Program, Northeast Node

HONORS AND AWARDS

Top AAPI Doctor Award 2026
- Castle Connolly

Top Doctor Award 2026
- Castle Connolly

Early- to Mid-Career Physician Excellence in Clinical Care 2025
- University of Pittsburgh Medical Center

Research All-Star for Neurosurgery and Spine 2025
- Avant-garde Health

Implementation Award 2025
- Penn Wharton Innovation Fund

Validation Award 2024
- Venture Lab at Penn by Wharton

Faculty Teaching Award 2023
- University of Pittsburgh Medical Center, Department of Neurological Surgery

Young Surgeon Travel Grant 2023
- International Society for the Advancement of Spine Surgery 23rd Annual Conference

***SpineLine* 5th Annual 20 under 40 Class** 2022
- North American Spine Society

Young Surgeon Grant and Educational Track 2022
- Society for Minimally Invasive Spine Surgery Annual Forum

Young Clinician Investigator Award 2022
- NREF and the Academy of Neurological Surgeons

Thomas A. Zdeblick Best Paper Award 2022
- Lumbar Spine Research Society

Harold Rosegay Award 2022
- San Francisco Neurological Society

Educator of the Year Award 2021
- Congress of Neurological Surgeons

CSRS Resident and Fellow Scholarship 2021
- Cervical Spine Research Society Annual Meeting

Young Surgeon Grant and Educational Track 2021
- Society for Minimally Invasive Spine Surgery Annual Forum

Resident Teaching Award 2021
- University of Pittsburgh Medical Center, Department of Neurological Surgery

Branch Research Award 2021
- AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves

SRS North American Meeting Scholarship for Residents and Fellows 2021
- Scoliosis Research Society

Young Surgeon Grant 2021
- International Society for the Advancement of Spine Surgery 21st Annual Conference

Distinguished Junior Mentor Award 2020
- University of Pittsburgh School of Medicine

Neurosurgery Research and Education Foundation Travel Grant 2020
- European Association of Neurosurgical Societies Spine Training Course

Young Surgeon Grant 2019
- Society for Minimally Invasive Spine Surgery Annual Forum

Young Investigator Award 2019
- 12th Annual Society of Lateral Access Surgery Meeting

First Place History E-poster Award 2019
- 87th American Association of Neurological Surgeons Annual Scientific Meeting

Young Surgeon Travel Grant 2019

- 16th Annual Meeting: State of Surgery Think Tank

Socioeconomics, Health Policy, & Law NEUROSURGERY® Publications Top Paper of the Year 2018
- Annual Congress of Neurological Surgeons Meeting

Journalistic and Academic Neurosurgical Excellence (J.A.N.E.) Award 2018
- 34th Spine Summit

First Place Socioeconomic E-poster Award 2017
- 85th American Association of Neurological Surgeons Annual Scientific Meeting

Charlie Kuntz IV Scholar Award 2016
- 32nd Spine Summit

Peter W. Carmel, M.D. Award in Neurological Surgery 2014
- Outstanding Academic Achievement

Kenneth G. Swan, M.D. Memorial Award 2014
- NJMS Student Affairs

Class of 1979 Scholarship 2011
- NJMS Alumni Association Grant

Richard Pozen and Ann Silver Pozen Community Scholar 2011
- Healthcare Oriented Community Service Grant

Armstrong Engineering Scholarship Award 2007
- Scholastic Merit Based Grant

Oval Society Award 2007
- Community Service Distinction

PROFESSIONAL MEMBERSHIPS

Society of Neurological Surgeons (SNS) 2025-Present
- Provisional Member

Pennsylvania Neurosurgical Society (PNS) 2025-Present
American Spinal Injury Association (ASIA) 2024-Present
Association of Veterans Affairs Surgeons (AVAS) 2024-Present
Cervical Spine Research Society (CSRS) 2022-Present
- Candidate Member

Scoliosis Research Society (SRS) 2022-Present
- Candidate Member

Lumbar Spine Research Society (LSRS) 2022-Present
AO Spine 2021-Present
International Society for the Advancement of Spine Surgery (ISASS) 2021-2023
Society for Minimally Invasive Spine Surgery (SMISS) 2019-2026
American Association of South Asian Neurosurgeons (AASAN) 2017-Present
North American Spine Society (NASS) 2017-Present
Council of State Neurosurgical Societies (CSNS) 2016-Present
American Medical Association (AMA) 2012-Present
American Association of Neurological Surgeons (AANS) 2010-Present
- Fellow of the AANS (FAANS)

Congress of Neurological Surgeons (CNS) 2010-Present
- Fellow of the CNS (FCNS)

American College of Surgeons (ACS) 2010-Present
- Fellow of the ACS (FACS)

Society of Lateral Access Surgery (SOLAS) 2019-2020
American Academy of Neurology (AAN) 2010-2014
Biomedical Engineering Society (BMES) 2007-2010

MAJOR COMMITTEE APPOINTMENTS

National Institute of Health

- Special Emphasis Panel ZRG1 MSOS-A(11) 2025-Present
  - Small Business Applications with focus on Musculoskeletal Rehabilitation Sciences

North American Spine Society (NASS)
- AI Task Force 2025-Present

Pennsylvania Neurosurgical Society
- Executive Committee 2025-Present
  - Assistant Program Chair

Wharton School of the University of Pennsylvania
- Ethics Committee Member 2025-2026
- Ethics Committee First Year Liaison 2024-2025

Society of Neurological Surgeons
- Medical Student Committee 2025-Present

U.S. Department of Veterans Affairs
- Scientific Review Group Winter 2026
  - Subcommittee on Spinal Cord Injury/Disorders & Neuropathic Pain
- Scientific Review Group Fall 2025
  - Subcommittee on Spinal Cord Injury/Disorders & Neuropathic Pain
- Veterans Health Administration National Surgery Office 2025-Present
  - Neurosurgery Surgical Advisory Board Member
- Association of VA Surgeons (AVAS), Bylaws Committee Member 2026-2027

AO Spine
- AO Spine Knowledge Forum SCI
  - Social Media Representative 2025-Present
  - Associate Member 2024-Present
- Fellowship Committee 2024-2027
- Global Spine Diploma Program Deformity Module Faculty 2024-2025
- Global Spine Diploma Program Deformity Module Faculty 2025-2026
- Global Spine Diploma Examiner 2024
- Fellowship Director 2023-Present

Cervical Spine Research Society
- Abstract Review Committee 2023-Present

American Association of Neurological Surgeons
- Digital Content Advisory Committee
  - YNC Liaison 2019-2020
- Practice Management Committee
  - YNC Liaison 2019-2020
- Neurosurgery Research and Education Foundation Board of Directors
  - Social Media Ambassador 2018-2019
  - Fund Development Officer 2017-Present
    - Robert F. Heary Honor Your Mentor Fund
  - Resident Liaison 2017-2018
- Neurosurgery PAC Board of Directors
  - Member-at-Large 2022-Present
  - Young Neurosurgeon Member 2016-2022
- Young Neurosurgeons Committee
  - CSNS Liaison 2021-2022
  - Spine Section Liaison 2021-2022
  - MISSION Fellowship Selection 2020-2021
  - NREF Chris Philips HYM Fund Subcommittee 2020-2022
  - Sections Division Coordinator 2019-2022
  - Medical Student Subcommittee 2018-2021
    - Chair 2020-2021
  - Medical Student Representative Subcommittee 2018-2021
    - Chair 2020-2021

- Neurosurgical Top Gun Chair 2017-2020
- Marshalls Subcommittee Vice Chair 2016-2017
- Medical Student Task Force Resource Coordinator 2014-2017

Council of State Neurosurgical Societies

- Nominating Committee 2025-Present
- Executive Committee 2023-Present
- Social Media Chair 2025-Present
- Communication and Education Committee
  - Website Chair 2023-Present
- Delegate Appointee of the Congress of Neurological Surgeons Caucus
  - Chair 2025-Present
  - Vice Chair 2021-2025
  - Alternate Delegate and Secretary 2017-2021
- AANS Early Career Member 2022-2023
- Past Resident Fellow Mentor 2017-2018
- Socioeconomic Fellow 2016-2017

Congress of Neurological Surgeons

- Executive Committee 2025-2026
  - Member-at-Large
- Engagement Committee 2025-2026
  - Vice Chair
- CNS Foundation 2025-2026
  - Special Advisor
- NEXUS
  - Chair 2025-2026
- Scientific Program Committee 2022-2026
- Resident Committee
  - Vice Chair 2025-2026
  - Member 2022
- CNS Resident Fellows 2019-2020
  - Quality Committee
- Neurosurgical Survival Guide 2019-2021
  - Content Contributor
- SANS Committee 2018-2021
  - Content Contributor
- Sergeant-at-Arms Committee 2014-2021

Joint AANS / CNS Committees

- Disorders of the Spine and Peripheral Nerve
  - Scientific Program Committee Member 2022-2024, 2025-2026
  - Young Neurosurgeons Representative 2021-2024
- Section for Pain
  - Education Committee Member 2025-2026
- National Quality Council 2021-2022
  - Member
- Communications and Public Relations Committee 2021-2022
  - Member
- Coding and Reimbursement Committee 2021-2022
  - Member
- Washington Committee 2019-2021
  - Alternative Delegate
- Drugs and Devices Committee 2018-2022
  - Member

University of Pittsburgh Senate

- Student Admissions, Aid, and Affairs Committee 2025-2026

- Pro-Tem Member

University of Pittsburgh School of Medicine

- Curriculum Committee Advisory Board 2025-2026
- Faculty Educator Selection Committee 2025-2026
- Appeals Committee on Student Promotions 2025-2026
- Bridges Curriculum Subcommittee 2025-2026
  - Member
- Curriculum Committee Executive Subcommittee 2024-2025
- UPSOM Deans Summer Research Program 2025
  - Poster Symposium Faculty Moderator
- UPSOM Medical Student Teaching Award Review Committee (UMSTARC) 2024-2026
- Curriculum Colloquium Nominations Committee 2024-2026
- Educational Policy Council 2024-2026
  - Faculty-at-Large Member
- Curriculum Committee 2023-2026
  - Member
- Department of Neurological Surgery Grant Application Review Committee 2023-2026
  - Walter L. Copeland Fund of The Pittsburgh Foundation for Cranial Research
  - Department of Neurological Surgery Fund for Spine Research

University of Pittsburgh Medical Center

- Patient Safety Peer Review Committee 2025-2026
  - Member
- UPMC Bridges Program
  - Neurosurgery Specialty Content Group 2024-2026
- Spine Value Analysis Committee
  - Advisory Member 2024-2026
  - Member 2023-2024
- Surgical Service Line 2024
  - Surgical Cost, Quality and Outcomes Working Group
- Neurological Surgery Residency Clinical Competency Committee 2023-2026
  - Member
- Pittsburgh Neurosurgery Residency Advisory Council 2023-2026
  - Member
- Graduate Medical Education Committee
  - Accreditation, Review, and Quality Subcommittee 2023-2026
  - ACGME Clinical Learning Environment Review 2016

VA Pittsburgh Healthcare System

- Trainee Oversight Committee

Scoliosis Research Society

- Safety and Value Committee 2025-2026
- Annual Meeting Scientific Program Committee Member 2024-2025
- Podcast Committee Member 2022-2023

Beckwith Institute

- Frontline Innovation Program Selection Committee 2025-2026

Walter L. Copeland Fund

- Department of Neurological Surgery Grant Application Review Committee 2023-2026

Neurosurgical Society of Pittsburgh

- Program Chair 2025-2026
- Associate Program Chair 2024-2025

Lumbar Spine Research Society

- Membership Committee 2023-2025

American Medical Association

- Resident & Fellow Section (RFS) Sectional Alternate Delegate 2021-2022

Liaison Committee on Medical Education 2014

- NJMS Medical Students Committee

EDUCATIONAL ACTIVITIES

Current Trainees

Qazi Zeeshan 2025-2026
- University of Pittsburgh Medical Center, Postgraduate Spine Fellow

Krishna Nayak 2025-Present
- University of Pittsburgh School of Medicine, Medical Student

Anthony Schulien, M.D. 2025-2026, 2027-2028
- University of Pittsburgh Medical Center, Enfolded Spine Fellow

David McCarthy, M.D., M.Sc. 2024-2025, 2026-2027
- University of Pittsburgh Medical Center, Enfolded Spine Fellow

Jeffery Head, M.D. 2024-2025, 2026-2027
- University of Pittsburgh Medical Center, Enfolded Spine Fellow

Joseph Hudson, M.D. 2023-2024, 2025-2026
- University of Pittsburgh Medical Center, Enfolded Spine Fellow

Andrew Legaretta, M.D. 2023-2024, 2025-2026
- University of Pittsburgh Medical Center, Enfolded Spine Fellow

Hansen Deng, M.D. 2025-2026
- University of Pittsburgh Medical Center, Enfolded Spine Fellow

Taim Aizooky, B.S. 2024
- University of Pittsburgh School of Medicine, Medical Student
- Dean's Summer Research Program

Armani A. Manov 2024-Present
- University of Pittsburgh, Research Student

Zayaan Tirmizi 2024-Present
- University of Pittsburgh, Research Student

Ayesha Akbar Waheed, M.B.B.S. 2024-Present
- University of Pittsburgh School of Medicine, Research Fellow

Ben Carnovale 2023-Present
- University of Pittsburgh School of Medicine, Medical Student

Aditi Choudhary 2023-Present
- University of Pittsburgh, Research Student

Avi A. Gajjar 2021-Present
- Union College / Albany Medical College, Combined BS/MD/MBA Student

Former Trainees

Gautam M. Nayar, M.D. 2024-2025
- Current: PeaceHealth, Attending Neurosurgeon
- Mentee: University of Pittsburgh Medical Center, Enfolded Spine Fellow

Ricardo Fernández-de Thomas, M.D. 2024-2025
- Current: Puerto Rico, Attending Neurosurgeon
- Mentee: University of Pittsburgh Medical Center, Enfolded Spine Fellow

James Mooney, M.D. 2024-2025
- Current: Virginia Commonwealth University Assistant Professor
- Mentee: University of Pittsburgh Medical Center, Postgraduate Spine Fellow

William L. Rabon, B.S. 2024-Present
- Current: University of North Carolina School of Medicine, Medical Student
- Mentee: University of Pittsburgh School of Medicine, Research Assistant

Rida Mitha, M.D. 2023-2025
- Current: Allegheny Health Network, Neurological Surgery Resident

- Mentee: University of Pittsburgh School of Medicine, Research Fellow

Manan Shah, M.D. 2023-2024
- Current: Rutgers Robert Wood Johnson Medical School, Neurosurgeon
- Mentee: University of Pittsburgh Medical Center, Postgraduate Spine Fellow

Rohit P. Kumar, M.D. 2023-2024
- Current: University of Pittsburgh Medical Center, Neurological Surgery Resident
- Mentee: Hackensack Meridian School of Medicine, Research Fellow

Ashtah A. Das 2023
- Current: University of Buffalo, Medical Student
- Mentee: University of Pittsburgh, Summer Student Scholar

Galal A, Elsayed, M.D. 2022-2023
- Current: Assistant Professor, Weill Cornell Medicine Neurological Surgery
- Mentee: Washington University School of Medicine, Postgraduate Spine Fellow

Raj S. Lavadi, M.D. 2022-2025
- Current: Indiana University School of Medicine, Neurological Surgery Resident
- Mentee: University of Pittsburgh School of Medicine, Research Fellow

Sangami Pugazenthi, B.A. 2021-2023
- Current: University of Pittsburgh Medical Center, Neurological Surgery Resident
- Mentee: Washington University School of Medicine, Student

Vijay Letchuman, M.D. 2021-2022
- Current: University of California, San Francisco, Neurological Surgery Resident
- Mentee: University of California, San Francisco, Neurological Surgery Resident

Alexander A. Aabedi, M.D. 2021-2022
- Current: University of California, San Francisco, Neurological Surgery Resident
- Mentee: University of California, San Francisco, Neurological Surgery Resident

Nallammai Muthiah, B.S. 2020-2022
- Current: Washington University School of Medicine, Neurological Surgery Resident
- Mentee: University of Pittsburgh School of Medicine, Student

Souvik Roy, B.S. 2018-2022
- Mentee: University of Pittsburgh School of Medicine, Student

Stephanie M. Casillo, B.S. 2018-2021
- Current: University of Pittsburgh Medical Center, Neurological Surgery Resident
- Mentee: University of Pittsburgh School of Medicine, Student

Rachel C. Jacobs, M.D. 2017-2021
- Current: University of Pittsburgh Medical Center, Neurological Surgery Resident
- Mentee: University of Pittsburgh School of Medicine, Student

Andrew Faramand, M.D. 2017-2021
- Current: University of Pittsburgh Medical Center, Neurological Surgery Resident
- Mentee: University of Pittsburgh School of Medicine, Research Fellow

Ahmed Jorge, M.D., Ph.D. 2017-2021
- Current: The Ohio State University College of Medicine, Neurological Surgery Resident
- Mentee: University of Pittsburgh School of Medicine, Student

Michael D. White, M.D. 2016-2020
- Current: Barrow Neurological Institute, Neurological Surgery Resident
- Mentee: University of Pittsburgh School of Medicine, Student

Nicolas K. Khattar, M.D. 2015-2016
- University of Louisville School of Medicine, Neurological Surgery Resident
- Mentee: University of Pittsburgh School of Medicine, Student

Ahmed Kashkoush, M.D. 2014-2019
- Cleveland Clinic, Neurological Surgery Resident
- Mentee: University of Pittsburgh School of Medicine, Student

James Zhou, M.D. 2013-2017
- Current: Barrow Neurological Institute, Neurological Surgery Resident
- Mentee: University of Pittsburgh School of Medicine, Student

Mentorship

NREF Medical Student Summer Research Fellowship 2026
- Faculty Advisor for Ben Carnovale

Medical Student Summer Research Scholarship in Neurosurgery 2023-2025
- Faculty Advisor

AO Spine NA Fellows Forum 2024-2025
- Invited Faculty

University of Pittsburgh School of Medicine Career Night 2023
- Invited Faculty

AO Spine Fellows Kick Off 2022
- Invited Panelist

Momentum Residency Match Bootcamp 2022
- Invited Faculty

YNC/NREF 4th Year Medical Student Prep for Your Sub-Internship Mini-Series 2021
- Invited Faculty

University of Pittsburgh Neurosurgery Student Interest Group 2014-2021
- Resident Advisor

Peter W. Carmel Neurosurgical Society 2011-2014
- Founder, President, Clinical Mentor
- Orchestrated Initiative for National Network of Neurosurgical Societies Under AANS

Benjamin F. Rush Surgical Society 2010-2014
- Vice President and Treasurer

Student Interest Group in Neurology 2010-2014
- Research Director

Student Family Health Care Center 2010-2014
- Clinic Run by Medical Students for the Medically Underserved

Collaborative Approaches to Learning Medicine 2010-2014
- Mentored First Year Medical Students

Instructional Courses

Global Spine Diploma Deformity Module Live Small-Group Discussions. AO Spine North America. Virtual Meeting. May 18, 2026. (Faculty)

General Small Group Session. Congress of Neurological Surgeons Fall Oral Board Virtual Review Course. March 14-15, 2026. (Faculty)

Cervical Trauma Paper Session, Global Spine Congress. Istanbul, Turkey. May 27-30, 2026. (Moderator)

Neurological Emergencies Course, Congress of Neurological Surgery. Virtual Meeting, April 1-8, 2026 (Faculty)

How to Apply to Residency: The Dos and Don'ts. 94th American Association of Neurological Surgeons. San Antonio, TX. May 1, 2026. (Moderator)

Brain and Blade: The World of Neurosurgery. University of Pittsburgh School of Medicine Annual Course. Pittsburgh, PA. August 13-October 29, 2025. (Course Director)

Interactive Session on Neurotrauma and Critical Care 2: Biomarkers: An Epidemiological and Clinical Perspective. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11-15, 2025. (Faculty)

Interactive Session on Neurotrauma and Critical Care 1: Crossfire Debates on Neurotrauma. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11-15, 2025. (Faculty)

Swimming with the Sharks Symposium. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11-15, 2025. (Symposium Chair)

Controversies in Complex Spinal Surgery for Fellows with Practice Essential Component. AO Spine NA Course. Palm Beach Gardens, FL. September 18, 2025. (Faculty)

General Small Group Session. Congress of Neurological Surgeons Fall Oral Board Review Course. September 6-7, 2025. (Faculty)

Global Spine Diploma Deformity Webinar. AO Spine North America. Virtual Meeting. June 16, 2025. (Panelist)

Global Spine Diploma Deformity Module Live Small-Group Discussions. AO Spine North America. Virtual Meeting. May 19, 2025. (Moderator)

Spine M&M: Case Presentations, Thoughtful Reflections and Strategies for Avoidance. 93rd American Association of Neurological Surgeons. Boston, MA. April 28, 2025.

Education Oral Paper Poster Session. 93rd American Association of Neurological Surgeons. Boston, MA. April 26, 2025. (Scientific Session Moderator)

Randall Smith Keynote Address and The Power of Optum Health in American Healthcare. 93rd American Association of Neurological Surgeons. Boston, MA. April 26, 2025. (Moderator)

How to Apply to Residency. 93rd American Association of Neurological Surgeons. Boston, MA. April 25, 2025. (Faculty)

Spinal Stabilization (Surgery, Bracing, Neither). Congress of Neurological Surgeons Neurosurgical Emergencies Course. Virtual Meeting. April 9, 2025. (Faculty)

Oral Board Hot Seat Mondays. Congress of Neurological Surgeons. Virtual Course. April 7, 2025. (Faculty)

General Small Group Session. Congress of Neurological Surgeons Spring Oral Board Review Course. March 1-2, 2025. (Faculty)

Sunrise Session and Late Breaking Abstract Session: Medical Education Training. Congress of Neurological Surgeons Annual Meeting. Houston, TX. October 2, 2024. (Scientific Session Moderator)

Swimming with the Sharks. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024. (Symposium Course Director)

Pushing the Envelope in Spinal Cord Injury: MAPS vs Spinal Cord Perfusion. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024. (Faculty)

The Bottom Line: Optimizing Finances for Neurosurgical Practice. 92nd American Association of Neurological Surgeons. Chicago, IL. May 4, 2024 (Scientific Session s)

How to Apply to Residency. 92nd American Association of Neurological Surgeons. Chicago, IL. May 3, 2024. (Faculty)

Spine Clearance: Brace Your Bracing. Congress of Neurological Surgeons Neurosurgical Emergencies Course. Virtual Meeting. April 17, 2024. (Faculty)

How to Get Published during Residency. SNS Virtual Junior Resident Course. April 5, 2024. (Faculty)

Controversies in Modern Spine Surgery. North American Spine Society 38th Annual Meeting. Los Angeles, CA. October 18-21, 2023. (Symposium Chair)

Swimming with the Sharks: Thriving in the Neurosurgery Match and Residency. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023. (Symposium Chair)

Building a Spine Deformity Practice: Tips and Tricks to Avoid Pitfalls. Scoliosis Research Society 58th Annual Meeting. Seattle, WA. September 6-9, 2023. (Symposium Chair)

Flex Week. Neurosurgery Investigative Group. University of Pittsburgh School of Medicine. Pittsburgh, PA. September 5-8, 2023. (Faculty)

Cleveland Spine Review Course. Cleveland Clinic. Cleveland, OH. July 19-24, 2023. (Lab Faculty)

Trauma Crani. 109th Pennsylvania Neurosurgical Society Annual Scientific Meeting. Hershey, PA. July 15, 2023.

Young Surgeons Session – Building Your Practice. International Society for the Advancement of Spine Surgery 23rd Annual Conference. San Francisco, CA. June 3, 2023.

Case Discussions: MIS Decompression vs. Endoscopic, Which is Better? International Society for the Advancement of Spine Surgery 23rd Annual Conference. San Francisco, CA. June 2, 2023.

AI/Predictive Analytics as a Tool to Select Ideal Patients. Lumbar Spine Research Society Instructional Course. Chicago, IL. May 10, 2023.

Guide to Successful Research for Medical Students, Residents, and Young Surgeons: The Dos and Don'ts. 91st American Association of Neurological Surgeons. Los Angeles, CA. April 20, 2023.

How to Apply to Residency. 91st American Association of Neurological Surgeons. Los Angeles, CA. April 20, 2023.

How to Get Published. The Society of Neurological Surgeons Virtual Junior Resident Course. Virtual Meeting. March 31, 2023.

Spine Clearance. Congress of Neurological Surgeons Neurosurgical Emergencies Course. Virtual Meeting. March 22, 2023

Portfolio Gaps – Spinal Cord Injury. SIREN Network Retreat. Tampa, FL. January 25-26, 2023. (Scientific Session Moderator)

Controversies in Spine: Top 5 Debates. North American Spine Society 37th Annual Meeting. Chicago, IL. October 12, 2022. (Symposium Chair)

Sunrise Session and Late Breaking Abstract Session: Medical Education and Training. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 11, 2022. (Scientific Session Moderator)

Swimming with the Sharks: Succeeding in the Neurosurgery Match and Residency. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 9, 2022. (Symposium Chair)

How to Apply to Residency. 90th American Association of Neurological Surgeons. Philadelphia, PA. April 29, 2022.

Spine Summit. Medical Student Neurosurgery Training Center. Virtual Meeting. October 23, 2021.

Interesting Spine Case Conference. Seattle Science Foundation. Virtual Meeting. October 11, 2021.

How to Apply to Residency. 89th American Association of Neurological Surgeons. Virtual Meeting. August 21, 2021.

Biomedical Masters Program Virtual Shadowing. University of Pittsburgh. October 17, 2020.

Summer Alumni Panel. AZ Seven Year Medical Society. Virtual Meeting. June 28, 2020.

How to Apply to Residency. 87th American Association of Neurological Surgeons. San Diego, CA. April 14, 2019.

How to Apply to Residency. 86th American Association of Neurological Surgeons. New Orleans, LA. April 28, 2018.

COMMUNITY SERVICE

University of Pittsburgh Medical Center Pittsburgh, PA
- Spine and Scoliosis Patient Support Group 2024-2026
  - Education and Counseling

ATA Martial Arts Flemington, NJ
- Matheny Medical and Educational Center 2010-2018
  - Hosted a Special Abilities Martial Arts Event
- Kicks for Kids Supported by Pozen Scholarship
  - Educating Disadvantaged Children in Martial Arts
- Kicks for Cans
  - Healthcare Oriented Charity Fund and Food Raising Event
- Tools 4 School
  - Partnered with United Way of Hunterdon County
  - Collected New School Supplies for Children in Need
- Division of Child Protection and Permanency
  - Advocated Lessons for Disadvantaged Children
- H.U. Lee Memorial Foundation
  - ATA Strong Hurricane Sandy Relief Fund

Knowledge Ticket NJ, NY, PA
- Volunteered Time to Tutor and Counsel Students 2010-2018
- Emphasis on Students from Lower Income Families

The Eat Right America Foundation Flemington, NJ
- Acting Director of the Non-Profit Foundation Summer 2009
- Public Education to Prevent Dietary Caused Diseases

Saint Lawrence Rehabilitation Center Lawrenceville, NJ
- Outpatient Therapy Assistant 2003-2007
- Patient Escort

Trenton Area Soup Kitchen Trenton, NJ
- Volunteering Time to Aid Underserved 2003-2007

GRANTS

Source: National Institute of Health
Institution: University of Pittsburgh School of Medicine
Project: Wireless Metamaterial Interbody Cage for Real-Time Assessment of Lumbar Spinal Fusion In Vivo
Role: Principal Investigator
Time Period: 2025-2027
Support: $ 352,213
Grant ID: R21AR085218

Source: Ethicon Inc.
Institution: University of Pittsburgh School of Medicine
Project: Evaluating Surgical and Clinical Outcomes of Ethicon Barbed-Sutures in Cranial and Spinal Neurosurgical Procedures
Role: Principal Investigator
Time Period: 2026-20028
Support: $250,052

Source: Clinical and Translational Science Institute, University of Pittsburgh School of Medicine, Pitt Un-Challenge

Institution: University of Pittsburgh School of Medicine
Project: inFiniteSpine: Preoperative Finite Element Spine Surgery Planning Tool
Role: Principal Investigator
Time Period: 2026
Support: $24,450

Source: Presbyterian Small Grants Application
Institution: University of Pittsburgh Medical Center
Project: Support with SCOLI
Role: Principal Investigator
Time Period: 2026
Support: $5,000

Source: Veteran Affairs Healthcare Network
Institution: Veteran Affairs Pittsburgh Healthcare System
Project: A Prospective Multiomic and Clinical Data Repository for Veterans with Degenerative Cervical Myelopathy: A Pilot Study
Role: Principal Investigator
Time Period: 2026
Support: $47,772

Source: Michael G. Wells Entrepreneurial Scholars Fund, University of Pittsburgh School of Medicine
Institution: Bioforce Spine
Project: Wells Student HealthTech Challenge
Role: Principal Investigator
Time Period: 2025-2026
Support: $20,000

Source: Clinical and Translational Science Institute, University of Pittsburgh School of Medicine
Institution: University of Pittsburgh School of Medicine
Project: Closing the Loop: A Multi-Layer Mask System to Capture, Convert, and Neutralize Anesthetic Gases
Role: Principal Investigator
Time Period: 2026
Support: $25,000

Source: Clinical and Translational Science Institute, University of Pittsburgh School of Medicine, Pitt Un-Challenge
Institution: University of Pittsburgh School of Medicine
Project: Blood-Based Biomarkers for Early Detection of Cervical Spondylotic Myelopathy
Role: Principal Investigator
Time Period: 2025-2026
Support: $23,120

Source: University of Pennsylvania Venture Lab
Institution: Novuosis Scientific
Project: Wharton Innovation Fund Boost Award
Role: Lead Applicant
Time Period: 2025-2026
Support: $5000

Source: Chuck Noll Foundation for Brain Injury Research
Institution: University of Pittsburgh School of Medicine
Project: Wireless, Self-Powered Metamaterial Intracranial Pressure Sensor for TBI
Role: Principal Investigator
Time Period: 2025-2027
Support: $25,000

Source: NREF Clinical Fellowship Grant
Institution: University of Pittsburgh Medical Center
Role: Fellowship Director
Time Period: 2025-2026
Support: $60,000

Source: AO Spine North America
Institution: West Virginia University
Role: Fellowship Director
Time Period: 2026-2027
Support: $2,500

Source: AO Spine North America
Institution: University of Pittsburgh Medical Center
Role: Fellowship Director
Time Period: 2025-2026
Support: $45,000

Source: Medtronic
Institution: University of Pittsburgh Medical Center
Role: Fellowship Director
Time Period: 2025-2026
Support: $50,000

Source: Presbyterian University Hospital Small Grants
Institution: University of Pittsburgh Medical Center
Project: UPMC Presbyterian Clinical Staff Education through Spine and Scoliosis Patient Support Group
Role: Project Owner/Principal Investigator
Time Period: 2025-2026
Support: $4,000

Source: Medtronic
Institution: University of Pittsburgh Medical Center
Project: The Ailliance Post-Market Clinical Study: All Enabling Technologies, Biologics, IDS, and Core Spine Product Collection
Role: Principal Investigator
Time Period: 2024-2027
Support: $111,193

Source: Medtronic
Institution: University of Pittsburgh Medical Center
Project: Prospective, Randomized, Controlled, Blinded Pivotal Study in Subjects Undergoing a Transforaminal Lumbar Interbody Fusion (TLIF) at One or Two Levels Using Infuse™ Bone Graft with an Intervertebral Body Fusion Device and Posterior Supplemental Fixation for the Treatment of Symptomatic Degenerative Disease of the Lumbosacral Spine
Role: Principal Investigator
Time Period: 2024-2027
Support: $22,900

Source: AO Spine North America
Institution: University of Pittsburgh Medical Center
Role: Fellowship Director
Time Period: 2024-2025
Support: $15,000

Source: NREF Clinical Fellowship Grant

Institution: University of Pittsburgh Medical Center
Role: Fellowship Director
Time Period: 2024-2025
Support: $60,000

Source: Medtronic
Institution: University of Pittsburgh Medical Center
Role: Fellowship Director
Time Period: 2024-2025
Support: $50,000

Source: The Beckwith Institute, Clinical Transformation Program
Institution: University of Pittsburgh Medical Center
Project: Utilizing AI to Investigate the Efficacy of Romosozumab in Boosting Bone Density and Muscle Mass for Improved Spine Surgery Outcomes
Role: Principal Investigator
Time Period: 2024-2025
Support: $119,000

Source: AO Spine North America Young Investigator
Institution: University of Pittsburgh School of Medicine
Project: Investigating the Efficacy of Romosozumab in Augmenting Bone Density and Muscle Mass to Enhance the Outcomes of Spine Surgery
Role: Principal Investigator
Time Period: 2024-2025
Support: $20,000

Source: DePuy Synthes
Institution: University of Pittsburgh School of Medicine
Project: Assess Clinical and Radiographic Outcomes of Viper Prime/Expedium and Fibergraft Bone Graft Putty
Role: Principal Investigator
Time Period: 2024-2026
Support: $327,446

Source: DePuy Synthes
Institution: University of Pittsburgh School of Medicine
Project: Assess Clinical and Radiographic Outcomes of Conduit Cages and Fibergraft in Cervical and Lumbar Procedures
Role: Principal Investigator
Time Period: 2024-2026
Support: $327,446

Source: Cerapedics
Institution: University of Pittsburgh Medical Center
Role: Fellowship Director
Time Period: 2023-2024
Support: $35,000

Source: AO Spine North America
Institution: University of Pittsburgh Medical Center
Role: Fellowship Co-Director
Time Period: 2023-2024
Support: $30,000

Source: Walter L. Copeland Fund of the Pittsburgh Foundation
Institution: University of Pittsburgh Medical Center
Project: Imaging Biomarkers for Traumatic Brain Injury
Role: Principal Investigator
Time Period: 2023-2024
Support: $9,000

Source: Walter L. Copeland Fund of the Pittsburgh Foundation
Institution: University of Pittsburgh Medical Center
Project: Technical Infrastructure for Custom Electronic Medical Record Applications and Development of a Novel Large Language Learning Model for Neurosurgery
Role: Co-Investigator
Time Period: 2023-2024
Support: $9,000

Source: Walter L. Copeland Fund of the Pittsburgh Foundation
Institution: University of Pittsburgh Medical Center
Project: Comparison of Pre-Injury Frailty Indexes in Predicting One-Year Mortality of Older Adults with Traumatic Brain Injuries
Role: Mentor
Time Period: 2023-2024
Support: $3,000

Source: The Foundation for Barnes-Jewish Hospital
Institution: Washington University School of Medicine
Project: Prospective Randomized Study of the Durability of Minimally Invasive Standalone Fusion for Adult Spinal Deformity
Role: Principal Investigator
Time Period: 2023
Support: $137,500

Source: Chuck Noll Foundation for Brain Injury Research
Institution: University of Pittsburgh School of Medicine
Project: Identifying Occult Traumatic Brain Injury in Professional Athletes Using a Novel Non-Invasive Biomarker
Role: Principal Investigator
Time Period: 2022-2026
Support: $175,000

Source: Neurosurgery Research and Education Foundation
Institution: University of Pittsburgh School of Medicine
Project: Predicting Spinal Cord Injury Prognosis Using a Novel Non-Invasive Biomarker
Role: Principal Investigator
Time Period: 2022-2023
Support: $40,000

Source: McDonnell Center for Systems Neuroscience
Institution: Washington University School of Medicine
Project: Predicting TBI Prognosis Using a Novel Non-Invasive Biomarker: A Preliminary Retrospective Study
Role: Principal Investigator
Time Period: 2022-2023
Support: $40,000

Source: Institute of Clinical and Translational Sciences Just-In-Time Core Usage Funding Program
Institution: Washington University School of Medicine
Project: Effect of Frailty on Recovery Patterns following Spine Surgery

Role: Principal Investigator
Time Period: 2022-2023
Support: $5,000

Source: AO Spine North America
Institution: University of California, San Francisco
Role: Complex and Minimally Invasive Spine Fellow
Time Period: 2021-2022
Support: $65,000

Source: NREF Charles L. Branch, Sr. Honor Your Mentor Fund
Institution: University of California, San Francisco
Project: "REDUCE" - Comparative Effectiveness of Reduction versus In-Situ Arthrodesis for High-Grade (Meyerding 3) Spondylolisthesis: A Quality Outcomes Database (QOD) Pilot Study
Role: Principal Investigator
Time Period: 2021-2022
Support: $2,500

Source: Walter L. Copeland Fund of the Pittsburgh Foundation
Institution: University of Pittsburgh Medical Center
Project: Continuous Monitoring Spinal Cord Injury: A Natural History of Physiological Biomarker Changes in the Acute and Subacute Phase
Role: Principal Investigator
Time Period: 2020-2021
Support: $6,000

Source: Walter L. Copeland Fund of the Pittsburgh Foundation
Institution: University of Pittsburgh Medical Center
Project: Defining the Severity of Perioperative Spinal Cord Injury: A Pilot Study to Establish Serum and Cerebrospinal Fluid Biomarkers
Role: Principal Investigator
Time Period: 2019-2020
Support: $10,000

Source: Walter L. Copeland Fund of the Pittsburgh Foundation
Institution: University of Pittsburgh Medical Center
Project: Defining the Severity of Perioperative Spinal Cord Injury: A Pilot Study to Establish Serum and Cerebrospinal Fluid Biomarkers
Role: Principal Investigator
Time Period: 2018-2019
Support: $8,000

Source: Walter L. Copeland Fund of the Pittsburgh Foundation
Institution: University of Pittsburgh Medical Center
Project: Defining the Severity of Perioperative Spinal Cord Injury: A Pilot Study to Establish Serum and Cerebrospinal Fluid Biomarkers
Role: Principal Investigator
Time Period: 2017-2018
Support: $15,000

Source: The Beckwith Institute, Clinical Transformation Program
Institution: University of Pittsburgh Medical Center
Project: VISION: Video Integration for Surgical Improvement of Outcomes after Neurosurgery
Role: Principal Investigator
Time Period: 2017-2018
Support: $25,000

Source: Society of Lateral Access Surgery
Institution: University of Pittsburgh Medical Center
Project" Efficacy of Intraoperative Trans-cranial Motor Evoked Potential (MEP) Recordings for Reducing Lumbar Plexopathy in L4-5 Extreme Lateral Lumbar Interbody Fusion (XLIF)
Role: Co-Investigator
Time Period: 2017-2018
Support: $5,000

Source: Walter L. Copeland Fund of the Pittsburgh Foundation
Institution: University of Pittsburgh Medical Center
Project: Treatment of Alzheimer's Disease Utilizing Lumbar-Peritoneal Shunts: A Pilot Study to Assess Cerebrospinal Fluid Biomarkers along the Rostral-Caudal Concentration Gradient
Role: Principal Investigator
Time Period: 2017-2018
Support: $4,000

Source: Walter L. Copeland Fund of the Pittsburgh Foundation
Institution: University of Pittsburgh Medical Center
Project: Treatment of Alzheimer's Disease Utilizing Lumbar-Peritoneal Shunts: A Pilot Study to Assess Cerebrospinal Fluid Biomarkers along the Rostral-Caudal Concentration Gradient
Role: Principal Investigator
Time Period: 2015-2016
Support: $5,000

Source: The Beckwith Institute, Clinical Transformation Program
Institution: University of Pittsburgh Medical Center
Project: Assessment of Patient Comprehension to Improve Health Outcomes
Role: Principal Investigator
Time Period: 2015-2016
Support: $25,000

RESEARCH EXPERIENCE

Spine Computational Outcomes Learning Institute (SCOLI) SCOLI.org
- Lab Director 2023-Present
  - Clinical Patient Outcomes Research
  - Translational Spine and Neurotrauma Research

University of California, San Francisco San Francisco, CA
- Department of Neurological Surgery 2021-2022
  - Transforming Research and Clinical Knowledge in Spinal Cord Injury (TRACK-SCI)
  - Spine Clinical Research

University of Pittsburgh Pittsburgh, PA
- Department of Neurological Surgery 2014-2021
  - Basic Science and Clinical Research

New Jersey Medical School Newark, NJ
- Reynolds Family Spine Laboratory 2010-2014
  - Basic Science Research on Spinal Cord Injury
  - Spine Biomechanics Laboratory
- Cerebral Vascular Computational Lab
  - Treatments and Outcome Studies for Cerebrovascular Disease

The Eat Right America Foundation Flemington, NJ
- Research Internship Summer 2009
- Prevention of Dietary Caused Diseases

Princeton University and The Lawrenceville School Princeton, NJ

- Research Internship and Mentorship Program Spring-Fall 2006
- Synthesis and Analysis of Cyanogels

Drexel University, School of Biomedical Engineering Philadelphia, PA
- Research Internship Summer 2006
- Synthesis, Modulation, and Analysis of Nanoparticles

EDITORIAL REVIEW

Peer-Reviewed Journals

Neurosurgery Practice 2025-Present
- Ad Hoc Reviewer

JAMA Surgery 2025-Present
- Ad Hoc Reviewer

Journal of Neurosurgery: Case Lessons 2024-Present
- Editorial Board

Journal of Neurosurgery 2021-Present
- Ad Hoc Reviewer

Journal of Neurosurgery: Spine 2021-Present
- Ad Hoc Reviewer

Spinal Cord 2021-Present
- Ad Hoc Reviewer

International Journal of Spine Surgery 2021-Present
- Ad Hoc Reviewer

PLOS One 2021-Present
- Ad Hoc Reviewer

The Spine Journal 2019-Present
- Ad Hoc Reviewer

World Neurosurgery 2019-Present
- Ad Hoc Reviewer

Neurosurgery
- Ad Hoc Reviewer 2018-Present
- Social Media Board Member 2018-2019

Operative Neurosurgery 2018-Present
- Ad Hoc Reviewer

Conference Abstracts

Cervical Spine Research Society
- Abstract Reviewer, Annual Meeting 2023-2026

American Association of Neurological Surgeons
- Socioeconomic Abstract Reviewer, Annual Meeting 2024-2025

Congress of Neurological Surgeons
- Abstract Reviewer, Annual Meeting 2025-2026
- Socioeconomic/CSNS Abstract Reviewer, Annual Meeting 2024-2025
- Neurotrauma and Critical Care Abstract Reviewer, Annual Meeting 2023-2025
- Spine Abstract Reviewer, Annual Meeting 2023-2024
- Education and Training Abstract Reviewer, Annual Meeting 2022-2023
- Council of State Neurological Societies Poster Judge, Annual Meeting 2023

AANS/CNS Section on Disorders of the Spine and Peripheral Nerve
- Abstract Reviewer, Annual Meeting 2024
- Abstract Reviewer, Annual Meeting 2023

Medical Student Summer Scholarship Zoom Symposium 2023
- Oral Presentation Judge

PUBLICATIONS

Peer-Reviewed Journal Articles

1. Wakelin, S.H., Schulien, A., Carnovale, B.J., McCarthy, D.J., Legarreta, A.D., Deng, H., Hudson, J.S., Zeeshan, Q., Miele, V.J., Hamilton, D.K., **Agarwal, N.**. *Bicortical Lateral Plate Screw Placement Reduces Subsidence Risk in Patients Undergoing Lateral Lumbar Interbody Fusion*. *World Neurosurgery* 2026;212:125054. doi:10.1016/j.wneu.2026.125054. PMID: 42155702.

2. Wakelin, S.H., Don, N., Carnovale, B.J., Waheed, A.A., Zeeshan, Q., McCarthy, D.J., Legarreta, A.D., Deng, H., Schulien, A., Miele, V.J., Hamilton, D.K., **Agarwal, N.**, Hudson, J.S. *Cage Overhang Ratio and Increased Radiographic Subsidence in Stand-Alone Lateral Lumbar Interbody Fusion*. *World Neurosurgery* Published Online, doi:10.1016/j.wneu.2026.125164. June 2026.

3. Mitha, R., Rao, S.A., Don, N., Mooney, J.H., Hamilton, D.K., **Agarwal, N.** *Management for Chronic Neck Pain: Identifying Groups at Risk for Increased Emergency Room Utilization and Healthcare Gaps*. *Neurosurgery* Published Online, doi:10.1227/neu.0000000000003994. June 2026.

4. Goulazian, J., Raman, A., Abdul-Rahman, N., Affolter, K., Niksic, A., Gerszten, P., **Agarwal, N.**, Hamilton, D.K., Snyderman, C. *Risk Factors for Elevated Endotracheal Tube Cuff Pressure in Anterior Cervical Spine Surgery*. *Journal of Neurosurgery: Spine* Published Online, doi:10.3171/2026.2.SPINE251178. June 2026.

5. Maroon, J.C., Wakelin, S.H., **Agarwal, N.,** Friedlander, R.M., Smith, M.A. *Occult Neurotrauma in Naval Special Warfare Combat Crewmen and Fast Boat Operators*. *Neurosurgery* Published Online, doi:10.1227/neu.0000000000004104. June 2026.

6. Ogunlade, J. O., Elsayed, G. A., Kumar, R. P., Patel, J. B., Waheed, A. A., Pugazenthi, S., Jaikumar, V., **Agarwal, N.** *Single Prone Position, Dual Surgeon Simultaneous Navigated Prone Lateral Interbody Placement with Endoscopic Laminectomy for Symptomatic Immobile Spondylolisthesis*. *Asian Journal of Neurosurgery* Published Online, doi:10.1055/s-0046-1819649. May 2026.

7. Sankar, A.*, Kann, M.R.*, Adida, S., Bhatia, S., Shanahan, R., Colan, J.A., Hurt, G., Sharma, N., Kass, N.M., Hudson, J.S., **Agarwal, N.**, Gerszten, P.C., Biehl, J.T., Legarreta, A., Andrews, E.G., McCarthy, D.J. *Open-source Machine Learning CT Scan Segmentation for Spine Osteoporosis Diagnostics*. *Neurosurgery* Published Online, doi:10.1227/neu.0000000000003928. February 2026.

8. Aydin, S., Carnovale, B., Wakelin, S.H., Manov, A., Waheed, A.A., Adida, S., Shanahan, R.M., Legarreta, A., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.** *Cervical Paraspinal Muscle Morphometry and Mechanical Failure: A Propensity-Matched Analysis*. *World Neurosurgery* Published Online, doi:10.1016/j.wneu.2026.125035. May 2026.

9. Quddus, D., Aydin, S., Waheed, A.A., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.,** Maroon, J.C. Administration of Ketogenic Diet as a Potential Treatment During Post-Traumatic Brain Injury Recovery: A Scoping Review. *Frontiers in Nutrition*. Published Online, April 2026.

10. Don, N., Wakelin, S.H., Spears, Z., Qazi, Z., McCarthy, D.J., Legarreta, A.D., Deng, H., Schulien, A., Miele, V.J., Hamilton, D.K., **Agarwal, N**., Hudson, J.S. Impact of Multiple Operative Levels on Radiographic Subsidence in Stand-Alone Lateral Lumbar Interbody Fusion. *World Neurosurgery*, Published Online,10.1016/j.wneu.2026.125035. April 2026.

11. Diamandi, J., Stepniak, A., Tetreault, H., Shanahan, R. M., Zeeshan, Q., Cabral, D. T. F., **Agarwal, N.**, Hamilton, D. K. Bibliometric analysis of the top 50 most-cited articles on cervical deformities: a Web of Science database study. *Spine Deformity* 14(4): 1147-1163, July 2026.

12. Patel, J.B., Waheed, A.A., Quddus, D., Patil, S., Wakelin, S.H., Hudson, J., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.** Current Applications of Radiomics in Neurotrauma. *Neurosurgical Review* 49(1):295, March 2026.

13. Hudson, J.S., McCarthy, D.J., Kumar, R.P., Wei, C.Z., Legarreta, A.D., Raymond, O., Mitha, R., Buell, B.J., Hamilton, D.K., **Agarwal, N.**, Okonkwo, D. O., Kanter, A.S., Miele, V.J. Impact of Lateral Plate and Screw Fixation in Long-Term Radiographic Subsidence in Lateral Lumbar Interbody Fusion. *Journal of Neurosurgery: Spin*e. Published Online, January 2026.

14. Shaw, J.D., Nelson, S.B., Simpfendorfer, C., Berbari, E.F., Henry, M.W., Kleck, C.J., Savage, J., **Agarwal, N.**, Oyekan, A.A., Rodrigues-Pinto, R., Wouthuyzen-Bakker, M., Tande, A.J. New Definition for Postoperative Spine Infection (PSI): From the Workgroup of the Musculoskeletal Infection Society (MSIS) and the European Bone & Joint Infection Society (EBJIS). *Spine*. Published Online, December 2025.

15. Stepniak, A., Diamandi, J., Shanahan, R.M., Garcia, J., Qazi, Z., Fernandes Cabral, D.T., **Agarwal, N.**, Hamilton, D.K. Mapping Influences in Pediatric Craniopharyngioma: The 50 Most Cited Articles. *Child's Nervous System* 41(1):432, December 2025.

16. Patel, J.B., Carnovale, B., Rabon, W., Kumar, R.P., Lavadi, R.S., Shah, M., Mooney, J. H., McDowell, M.M., Hamilton, D.K., **Agarwal, N**. Characterization of Neurological Injuries from Roller Coaster Rides among Minors. *American Journal of Emergency Medicine* 98:309-314, December 2025.

17. Agarwal, P., Kumar, R.P., Oleksiuk, L.M., Crall, V., Petrov, A.A., McCreary, E.K., Holder-Murray, J., Chang, Y.F., **Agarwal, N.**, Hamilton, D.K., Friedlander, R.M. Non-β-Lactam Antibiotic Use, β-Lactam Allergy, and Surgical Site Infections. *JAMA Surgery* 160(11):1260-1267, November 2025.

18. Waheed, A.A., Ozpinar, A., Muthiah, N., Mooney, J.H., Mushlin, H.M., Guha, D., Buell, T.J., Deng, H., Alan, N., Peretti, M., **Agarwal, N.**, Hamilton, D.K., Kanter, A.S., Okonkwo, D.O. Durability in Symptomatic and Radiographic Outcomes after Standalone Anterolateral Minimally Invasive Surgery for Adult Spinal Deformity. *Journal Clinical Neuroscience* 141:111555, November 2025

19. Daulat, S.R., Dholaria, N., Burnet, G., Patil, S., Manne, B., Choudhary, A., Mitha, R., Zeeshan, Q., Hamilton, D.K., **Agarwal, N**. Prompt Engineering and Follow-Up Questioning Improves the Readability of Spine Surgery Questions in Large Language Models. *World Neurosurgery* 203:124423, November 2025

20. Wakelin, S.H., Hudson, J.S., Legarreta, A.D., McCarthy, D.J., Hamilton, D.K., Miele, V.J., Maroon, J.C., Okonkwo, D.O., **Agarwal, N.** Endoscopic Diskectomy in Athletes: A Systematic Review and Meta-analysis. *Asian Journal of Neurosurgery*. Published Online, doi:10.1055/s-0045-1812043, October 2025.

21. Lavadi, R.S., Utt, K.L., Housley, S.N., Nouduri, S., Lin, T., Blum, J., Pennicooke, B.H., Song, S., **Agarwal, N.** Diffusion Basis Spectrum Imaging Detects Axonal Injury in the Optic Nerve following Traumatic Brain Injury. *Magnetic Resonance Imaging* 122:110451, October 2025

22. Balasubramanian, K., Kharbat, A.F., Denizhan, M., Call-Orellana, F., Sankarappan, K., Downes, A., Passias, P., Hwang, S., **Agrawal, N.**, Rajendran, S., Shakir, H.J., Burke, J.F., Jea, A., Graffeo, C.S., Janjua, M.B. Spinal Oligodendroglioma: A 70-year review of current literature. *Journal of Neurosurgery: Spine* 31:1-12, October 2025

23. Kann, M.R., Bhatia, S., Aizooky, T., Pugazenthi, S., Huguenard, A.L., Wang, M.Y., Arthur, A.S., **Agarwal, N.**, Zipfel, G.J. NREF Medical Student Summer Research Fellowship Applicant Trends and Impact on Future Career Trajectory. *Journal of Neurosurgery* 11;143(4):1096-1107, October 2025

24. Passias, P. G., Onafowokan, O. O., Lafage, R., Smith, J., Hamilton, K. D., Schoenfeld, A. J., Yung, A., Fisher, M. R., Diebo, B., Daniels, A. H., Eastlack, R., Mundis, G., Line, B., **Agarwal, N.,** Uribe, J., Wang, M., Fessler, R., Protopsaltis, T., Okonkwo, D., Kebaish, K., Soroceanu, A., Mummaneni, P., Chou, D., Kim, H.J., Hostin, R., Gupta, M., Ames, C., Schwab, F., Shaffery, C., Bess S., Lenke, L., Lafage, V., International Spine Study Group. Are we Getting Better at Achieving Optimal Lumbar Segmental Sagittal Alignment in Complex Adult Spine Deformity Surgery? *Spine,* August 2025

25. Hubertus, V., Badhiwala, J.H., Hejrati, N., Nouri, A., Ter Wengel P.V., Farahbakhsh, F., Hofstetter, C., Neal, C. J., Ganau, M., **Agarwal, N.**, Arnold, P., Koljonen, P., Harrop, J., Aarabi, B., Guest, J., Rodrigues, R., Fehlings, M.G., Evaniew, N., Margetis, K., Guha, D., Grassner, L., Kwon, B.K., Fisher, C.G., Kurpad, S. On Behalf of the AO Spine Knowledge Forum Spinal Cord Injury. AO Spine Clinical Practice Recommendations for the Surgical Management of Acute Traumatic Spinal Cord Injury: Contemporary Concepts. *Global Spine Journal* 8:15(8), 3572-3579, June 2025

26. Fernández de-Thomas, R.J., Adida, S., Cloney, M.B., Mitha, R., Lavadi, R.S., Deng, H., Lopez-Gross, A.S., Sen, A., Fernandes-Cabral, D.T., Abou-Al-Shaar, H., Gerszten, P.C., Okonkwo, D.O., Buell, T.J., Hamilton, D.K., **Agarwal, N**. Current Trends in the Use of Cervical Collar Immobilization after Cervical Spine Surgery: A Global Survey Analysis. *Clinical Spine Surgery* 10.1097, June 2025.

27. Mir, J.M., Smith, J.S., Yung, A., Onafowokan, O., Lafage, R., Gum, J., Line, B.G., Diebo, B., Daniels, A.H., Hamilton, D.K., **Agarwal, N.,** Buell, T.J., Scheer, J.K., Eastlack, R.K., Mullin, J.P., Mundis, G.M., Hosogane, N., Yagi, M., Anand, N., Mummaneni, P.V., Chou, D., Klineberg, E.O., Kebaish, K.M., Gupta, M.C., Kim, H.J., Lenke, L.G., Ames, C.P., Schwab, F.J., Lafage, V., Hostin, R.A., Bess, S., Burton, D.C., Shaffrey, C.I., Passias, P.G., International Spine Study Group. The Impact of Thoracolumbar Inflection Point on Outcomes and Complications in Adult Spinal Deformity. *Neurosurgical Focus*. Published online: 10.3171/2025.3.FOCUS24651, June 2025

28. Hubertus V., Badhiwala J.H., Hejrati N., Nouri A., Ter Wengel P.V., Farahbakhsh F., Hofstetter C., Neal C.J., Ganau M., **Agarwal N.**, Arnold P., Koljonen P., Harrop J., Aarabi B., Guest J., Rodrigues R., Fehlings M.G., Evaniew N., Margetis K., Guha D., Grassner L., Kwon B.K., Fisher C.G., Kurpad S.; on behalf of the AO Spine Knowledge Forum Spinal Cord Injury. AO Spine Clinical Practice Recommendations for the Surgical Management of Acute Traumatic Spinal Cord Injury: Contemporary Concepts. *Global Spine Journal* 15(8), 3572-3579, June 2025.

29. Adida, S., Sefcik, R.K., Fernández de-Thomas, R.J., Sen, A., Andrews, E.G., **Agarwal, N.**, Gardner, P.A., Hamilton, D.K. Occipitocervical Surgery Rescue: The "Catcher's Mitt" Technique. *Journal of Craniovertebral Junction and Spine* 16(2):254-256, April-June 2025

30. Balasubramanian, K., Kharbat, A.F., Call-Orellana, F., Ranganathan, S., Andrade de Almeida, R.A., Sankarappan, K., **Agarwal, N.**, Hwang, S., Passias, P., Downes, A., Shakir, H.J., Burke, J.F., Smith, Z.A., Jea, A., Graffeo, C.S., Janjua, M.B. Spinal Idiopathic Hypertrophic Pachymeningitis: A Systematic Review of Diagnostic Features, Clinical Management, and Surgical Outcomes. *World Neurosurgery* 198:124008, June 2025

31. Adida, S., Hudson, J., Legarreta, A., Taori, S., Shanahan, R.M., Jawad-Makki, M.H., Colan, J.A., Mitha, R., **Agarwal, N.,** Okonkwo, D.O., Hamilton, D.K., Buell, T.J. Revision Surgery for Proximal Junctional Failure: A Single-center Analysis. *Clinical Neurology and Neurosurgery* 253:108880, June 2025

32. **Agarwal, N.**, Bisson, E.F., Bydon, M., Asher, A.L., Chan, A.K., Wang, M.Y., Haid, R.W., Knightly, J.J., Gottfried, O.N., Shaffrey, C.I., Virk, M.S., Shaffrey, M.E., Park, P., Foley, K.T., Coric, D., Upadhyaya, C., Potts, E.A., Tumialán, L.M., Fu, K.G., Lavadi, R.S., Johnson, S.E., Chou, D., Mummaneni, P.V. Gain of Care Independence following Surgical Intervention for Cervical Spondylotic Myelopathy: A Quality Outcomes Database (QOD) Study. *Journal of Neurosurgery: Spine* 30;43(2):170-180, May 2025 (Cover Article)

33. Agarwal, P., Gaba, F., **Agarwal, N**., Crall, V., Mazurkiewicz, A., Friedlander, R.M. Physician Awareness Combined with Perioperative Infection Prevention Bundles Results in Durable Neurosurgical Infection Control and Cost Savings. *Neurosurgery* 9;97(4):780-785, May 2025

34. Dholaria, N., Daulat, S., Parmar, R., Gupta, Y., Singh, D., Hussein, A., Barbagli, G., Agarwal, V., **Agarwal, N.**, Elsayed, G., Baaj, A. Spine Disease Clinical Trial Representation: An Analysis of Racial, Ethnic, and Gender Diversity. *Neurosurgery* 97(5):1062-1071, May 2025.

35. Mitha, R., Kumar, R.P., **Agarwal, N.**, Gerszten, P. C., Hamilton, D. K., Friedlander, R. M., & Sefcik, R. Opportunities to Overcome Barriers to Lactation-Recommendations for Best Practices. *Journal of Surgical Education* 82(4):103445, April 2025.

36. Luo, J., Lu, W., Jiao, P., Jang, D., Barri, K., Wang, J., Meng, W., Kumar, R.P., **Agarwal, N.**, Hamilton, D.K., Wang, Z.L., Alavi, A.H. Wireless Electronic-Free Mechanical Metamaterial Implants. *Materials Today*. 2025; 83:145-156.

37. Rabon, W., Rode, M., Taylor, T., Muluk, P., Krishnamoorthy, A., Easow, H., Stout, G., Chang, Y., Hamilton, D.K., Thirumala, P.D., **Agarwal, N**. Establishing Indicative Neurofilament Gradients Based on Severity of Spinal Cord Injury. *World Neurosurgery* 195:123515, March 2025.

38. Lavadi, R.S., Carnovale, B., Tirmizi, Z., Gajjar, A.A., Kumar, R.P., Shah, M., Hamilton, D.K., **Agarwal, N**. Examining the Readability of AtlasGPT, The Premiere Resource for Neurosurgical Education. *World Neurosurgery* 194:123469, February 2025.

39. Gajjar, A.A., Covell, M.M., Kumar, R.P., Tang, O.Y., Ranganathan, S., Muzyka, L., Mualem, W., Rehman, I., Patel, S.V., Lavadi, R.S., Mitha, R., Lieber, B.A., Hamilton, D.K., **Agarwal, N**. Evidence Against a Traumatic Brain Injury "July Effect": An Analysis of 3,160,452 Patients from the National Inpatient Sample. *Neurosurgery* 96(2):447-453, February 2025.

40. Shabani, S., Lavadi, R.S., **Agarwal, N.**, Letchuman, V., Le, V.P., Jamieson, A.B., Chan, A.K., Johnson, S.E., Wang, M.Y., Haid, R.W., Knightly, J.J., Gottfried, O.N., Shaffrey, C.I., Virk, M.S., Shaffrey, M.E., Park, P., Foley, K.T., Coric, D., Upadhyaya, C., Potts, E.A., Uribe, J.S., Turner, J.D., Tumialán. L.M., Chou, D., Fu, K.G., Asher, A.L., Bisson, E.F., Bydon, M., Mummaneni, P.V. Urinary Control in Cervical Myelopathy: Does It Improve Post-Surgery? A Quality Outcomes Database (QOD) Study. *Journal of Neurosurgery: Spine,* February 2025

41. Kann, M.R., Lavadi, R.S., Crane, A., Aizooky, T., Hardi, A., Polavarapu, H., Kumar, R.P., Mitha, R., Shah, M., Hamilton, D.K., **Agarwal, N**. Fluid Biomarkers for Cervical Spondylotic Myelopathy. *Neurosurgical Review* 48(1):232, February 2025.

42. Carnovale, B., Lavadi, R.S., Choudhary, A., Gajjar, A.A., Kumar, R.P., Hudson, J.S., Shah, M., Hamilton, D.K., **Agarwal, N**. Accounts of Spine and Paraspinal Disease While Playing Golf. *World Neurosurgery* 194:123343, February 2025.

43. Arbuckle, B.B., Kasem, R.A., Shaik, A., Downes, A., Hwang, S., Passias, P.G., **Agarwal, N.**, Jea, A., Janjua, M. Microbial Analyses of Subdural Empyema: A Case Report and Literature Review. *Cureus* 17(1):e76800, January 2025.

44. Jiao, P., Zhang, C., Meng, W., Wang, J., Jang, D., Wu, Z., **Agarwal, N**., Alavi, A.H. Artificial Intelligence-Guided Inverse Design of Deployable Thermos-Metamaterial Implants. *ACS Applied Materials & Interfaces*. 15;17(2):2991-3001, January 2025

45. Gohel, P., Lavadi, R.S., Jawad-Makki, M.A., Kumar, R.P., Waheed, A.A., Elkaim, L.M., Jaikumar, V., Alan, N., Buell, T.J., Pennicooke, B.H., Hamilton, D.K., **Agarwal, N.** Comprehensive Guidelines for Prehabilitation in Spine Surgery. *Journal of Craniovertebral Junction and Spine* 16(1):5-15, January-March 2025

46. Lavadi, R.S., Kumar, R.P., Kann, M.R., Shah, M.J., Hamilton, D.K., Maroon, J.C., **Agarwal, N**. Video Analysis of Concussion Among Slap Fighting Athletes. *JAMA Surgery* 159(12):1435-1436, December 2024.

47. Ali, A., Kumar, R.P., Polavarapu, H., Lavadi, R.S., Mahavadi, A., Legarreta, A.D., Hudson, J.S., Shah, M., Paul, D., Mooney, J., Dietz, N., Fields, D.P., Hamilton, D.K., **Agarwal, N**. Bridging the Gap: Can Large Language Models Match Human Expertise in Writing Neurosurgical Operative Notes? *World Neurosurgery* 192:e34-e41, December 2024. (Editor's Choice)

48. Roy, S., Mitha, R., Lavadi, R.S., Kumar, R.P., Jaikumar, V., Pease, M., Alan, N., Ozpinar, A., Kuris, E., Daniels, A.H., Buell, T.J., Heary, R.F., **Agarwal, N.,** Hamilton, D.K. Emergent Spinal Pathologies in Late-Term Pregnancy. *Journal of Craniovertebral Junction and Spine* 15(4): 391-397, October-December 2024.

49. Monek, A.C., Mitha, R., Andrews, E., Sarkaria, I.S., **Agarwal, N.**, Hamilton, D.K. Multidisciplinary Surgical Approach Utilizing Augmented Reality Pre-Planning for Resection of Giant Thoracic Schwannoma with Robotic Assisted Thoracoscopic Mobilization. *Operative Neurosurgery*, 1;27(4):500-503, October 2024.

50. Mitha, R., Mahan, M.A., Patel, R.P., Colan, J.A., Leyendecker, J., Zaki, M.M., Harake, E.S., Kathawate, V., Kashlan, O., Konakondla, S., Huang, M., Elsayed, G.A., Hafez, D.M., Pennicooke, B., **Agarwal, N.**, Hofstetter, C.P., Ogunlade, J.O. Lumbar Endoscopic Unilateral Laminectomy for Bilateral Decompression in Degenerative Spondylolisthesis. *World Neurosurgery* 191:e644-e651, November 2024.

51. Lavadi, R.S., Anand, S., Culver, L.G., Deng, H., Ozpinar, A., Puccio, L.M., **Agarwal, N.**, Alan, N. Surgical Management of Hip-Spine Syndrome: A Systematic Review of the Literature. *World Neurosurgery* 189:10-16, September 2024.

52. Lavadi, R.S., Johnson, B.R., Chalif, J.I., Shanahan, R., Das, A., Hamilton, D.K., **Agarwal, N.**, Fields, D.P. Comparing Reactive Versus Empiric Cerebrospinal Fluid Drainage Strategies for Spinal Perfusion Pressure Optimization in Patients with Acute Traumatic Spinal Cord Injuries. *Journal of Clinical Neuroscience* 127:110757, September 2024.

53. Gajjar, A.A., Kumar, R.P., Paliwoda, E.D., Kuo, C., Adida, S., Legarreta, A., Deng, H., Anand, S.K., Hamilton, D.K., Buell, T., **Agarwal, N.**, Gerszten, P., Hudson, J. Usefulness and Accuracy of Artificial Intelligence Chatbot Responses to Patient Questions for Neurosurgical Procedures. *Neurosurgery* 95(1):171-178, July 2024.

54. Kumar, R.P., Adida, S., Lavadi, R.S., Mitha, R., Legarreta, A.D., Hudson, J.S., Shah, M., Diebo, B., Fields, D.P., Buell, T.J., Hamilton, D.K., Daniels, A.H., **Agarwal, N**. A Guide to Selecting Upper-Thoracic versus Lower-Thoracic Uppermost-Instrumented Vertebra in Adult Spinal Deformity Correction. *European Spine Journal*, 33(7):2742-2750. July 2024.

55. Dietz, N., Alkin, V., **Agarwal, N.**, Bjustrom, M.F., Ugiliwenza, B., Wang, D., Sharma, M., Drazin, D., Boakye, M. Polypharmacy in spinal cord injury: Matched cohort analysis comparing drug classes, medical complications, and healthcare utilization metrics with 24-month follow-up. *The Journal of Spinal Cord Medicine* 22:1-10, July 2024.

56. Lee, J., Ruiz-Cardozo, M.A., Patel, R.P., Javeed, S., Lavadi, R.S., Newsom-Stewart, C., Alyakin, A., Molina, C.A., **Agarwal, N.**, Ray, W.Z., Santacatterina, M., Pennicooke, B. Clinical Prediction for Surgical versus Nonsurgical Interventions in Patients with Vertebral Osteomyelitis and Discitis. *Journal of Spine Surgery* 10(2):204-213, June 2024.

57. Hudson, J.S., Legarreta, A., Fields, D.P., Deng, H., McCarthy, D.J., Sefcik, R., **Agarwal, N.**, Hamilton, D.K. Intradiscal Osteotomy and Bilateral Expandable Transforaminal Interbody Fusion Cages for Iatrogenic Kyphotic Deformity: A Technical Report. *Asian Journal of Neurosurgery* 19(2):317-320, June 2024.

58. Anand, S.K., Lavadi, R.S., Johnston, B.R., Chalif, J.I., Scanlon, J.M., Wang, W., **Agarwal, N.**, Hamilton, D.K., Fields, D.P. Time of Day Does Not Impact Spinal Serotonin Levels in Humans. *Synapse* 78(3):e22291, May 2024.

59. **Agarwal, N.,** Anand, S.K., Nwachuku, E.L., Wilkins, T.E., Algattas, H., Kumar, R.P., Deng, H., Chang, Y.F., Puccio, A., Okonkwo, D.O. Neuroimaging with Rotterdam Scoring System and Long-term Outcomes in Severe Traumatic Brain Injury Patients. *British Journal of Neurosurgery* 17:1-6, May 2024.

60. Alan, N., Zenkin, S., Lavadi, R.S., Legarreta, A.D., Hudson, J.S., Fields, D.P., **Agarwal, N.,** Mamindla, P., Ak, M., Peddagangireddy, V., Puccio, L., Buell, T.J., Hamilton, D.K., Kanter, A.S., Okonkwo, D.O., Zinn, P.O., Colen, R.R. Associating T1-weighted and T2-weighted Magnetic Resonance Imaging Radiomic Signatures with Preoperative Symptom Severity in Patients with Cervical Spondylotic Myelopathy. *World Neurosurgery* 184:e137-e143, April 2024. (Editor's Choice)

61. Mummaneni, P.V., Bisson, E.F., Michalopoulos, G.D., Mualem, W.J., Sammak, S.E., Wang, M.Y., Chan, A.K., Haid, R.W., Knightly, J.J., Chou, D., Sherrod, B.A., Gottfried, O.N., Shaffrey, C.I., Goldberg, J.L., Virk, M.S., Hussain, I., **Agarwal, N.**, Glassman, S.D., Shaffrey, M.E., Park, P., Foley, K.T., Pennicooke, B., Coric, D., Slotkin, J.R., Potts, E.A., Fu, K.G., Asher, A.L., Bydon, M. Comparing Posterior Cervical Foraminotomy with Anterior Cervical Discectomy and Fusion in Radiculopathic Patients: An Analysis from the QOD. *Journal of Neurosurgery: Spine***,** 41(1), 56-68, April 2024.

62. **Agarwal, N.**, DiGiorgio, A., Michalopoulos, G.D., Letchuman, V., Chan, A.K., Shabani, S., Lavadi, R.S., Lu, D.C., Wang, M.Y., Haid, R.W., Knightly, J.J., Sherrod, B.A., Gottfried, O.N., Shaffrey, C.I., Goldberg, J.L., Virk, M.S., Hussain, I., Glassman, S.D., Shaffrey, M.E., Park, P., Foley, K.T., Pennicooke, B., Coric, D., Slotkin, J.R., Upadhyaya, C., Potts, E.A., Tumialán, L.M., Fu, K.G., Asher, A.L., Bisson, E.F., Chou, D., Bydon, M., Mummaneni, P.V. Impact of Educational Background on Preoperative Disease Severity and Postoperative Outcomes among Patients with Cervical Spondylotic Myelopathy. *Clinical Spine Surgery* 37(3):E137-E146, April 2024.

63. **Agarwal, N.**, Chan, A.K., Bisson, E.F., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Gottfried, O.N., Tumialán, L.M., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Ibrahim, S., Mitha, R., Michalopoulos, G.D., Park, P., Wang, M.Y., Fu, K., Slotkin, J.R., Asher, A.L., Virk, M.S., Guan, J., Haid, R.W., Chou, D., Bydon, M., Mummaneni, P.V. Impact of Educational Background on Preoperative Disease Severity and Postoperative Outcomes among Patients with Lumbar Spondylolisthesis: A Quality Outcomes Database (QOD) Study. *Journal of Neurosurgery: Spine* 41(3):341-52, May 2024.

64. Dietz, N., Alkin, V., **Agarwal, N.**, Sharma, M., Oxford, B.G., Wang, D., Ugiliweneza, B., Mettille, J., Boakye, M., Drazin, D. Cannabis Use Disorder Trends and Health Care Utilization Following Cervical and Lumbar Spine Fusions: A MarketScan National Database Analysis. *Spine* 49(4):E28-E45, February 2024.

65. **Agarwal, N.**, Letchuman, V., Lavadi, R.S., Le, V.P., Aabedi, A., Shabani, S., Chan, A.K., Park, P., Uribe, J.S., Turner, J.D., Eastlack, R.K., Fessler, R.G., Fu, K., Wang, M.Y., Kanter, A.S., Okonkwo, D.O., Nunley, P.D., Anand, N., Mundis, G.M., Passias, P.G., Bess, S., Shaffrey, C.I., Chou, D., Mummaneni, P.V., International Spine Study Group. What is the Effect of Preoperative Depression on Outcomes after Minimally Invasive Surgery for Adult Spinal Deformity? A Prospective Cohort Analysis. *Journal of Neurosurgery: Spine* 40(5):602-610, February 2024.

66. **Agarwal, N.**, Johnson, S.E., Bydon, M., Bisson, E.F., Chan, A.K., Shabani, S., Letchuman, V., Michalopoulos, G.D., Lu, D.C., Wang, M.Y., Lavadi, R.S., Haid, R.W., Knightly, J.J., Sherrod, B.A., Gottfried, O.N., Shaffrey, C.I., Goldberg, J.L., Virk, M.S., Hussain, I., Glassman, S.D., Shaffrey, M.E., Park, P., Foley, K.T., Pennicooke, B., Coric, D., Slotkin, J.R., Upadhyaya, C., Potts, E.A., Tumialán, L.M., Chou, D., Fu, K., Asher, A.L., Mummaneni, P.V. Cervical Spondylotic Myelopathy and Driving Abilities: Defining the Prevalence and Long-Term Postoperative Outcomes using the Quality Outcomes Database (QOD). *Journal of Neurosurgery: Spine* 40(5):630-641, February 2024. (Cover Article)

67. Bin-Alamer, O., Qedair, J., Abou-Al-Shaar, H., Mallela, A.N., Balasubramanian, K., Alnefaie, N., Abou-Al-Shaar, A.R., Plute, T., Lu, V.M., McCarthy, D.J., Fields, D.P., **Agarwal, N.**, Gerszten, P.C., Hamilton, D.K. Surgical intervention ≤ 24 hours versus > 24 hours after injury for the management of acute traumatic central

cord syndrome: a systematic review and meta-analysis. *Journal of Neurosurgery: Spine* 40(5):653-661, February 2024.

68. Algattas, H., Mitha, R., **Agarwal, N.**, Lang, M. Bow Hunter's Syndrome: An Illustrative Case and Operative Management. *World Neurosurgery* 182:135, February 2024.

69. Park, C., Shaffrey, C.I., Than, K.D., Bisson, E.F., Sherrod, B.A., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buchholz, A.L., Tumialán, L.M., Turner, J., **Agarwal, N.**, Chan, A.K., Chou, D., Chaudhry, N.S., Haid, R.W., Mummaneni, P.V., Michalopoulos, G., Bydon, M., Gottfried, O.N. Does the Number of Social Factors Affect Long-Term Patient-Reported Outcomes and Satisfaction in Those with Cervical Myelopathy? A QOD Study. *Journal of Neurosurgery: Spine* 40(4):428-438, January 2024.

70. Mitha, R., Colan, J.A., Hernandez-Rovira, M.A., Jawad-Makki, M.H., Patel, R.P., Elsayed. G.A., Shaw, J.D., Okonkwo, D.O., Buell, T.J., Hamilton, D.K., **Agarwal, N.** Topical Tranexamic Acid (TXA) is Non-Inferior to Intravenous TXA in Adult Spine Surgery: A Meta-Analysis. *Neurosurgical Review* 47(1):48, January 2024.

71. Adida, S., Legarreta, A., Hudson, J., McCarthy, D., Andrews, E., Shanahan, R., Taori, S., Lavadi, R.S., Buell, T.J., Hamilton, D.K., **Agarwal, N.**, Gerszten, P.C. Machine Learning in Spine Surgery: A Narrative Review. *Neurosurgery* 94(1):53-64, January 2024.

72. Gajjar, A.A., Patel, S.V., Lavadi, R.S., Mitha, R., Kumar, R.P., Taylor, T., Elsayed, G.A., Hamilton, D.K., **Agarwal, N.** Art and Neurosurgery: The Importance of Medical Illustration. *World Neurosurgery* 181:82-89, January 2024.

73. Chan, A.K., Park, C., Shaffrey, C.I., Gottfried, O.N., Than, K.D., Bisson, E.F., Bydon, M., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buccholz, A.L., Tumialán, L.M., Turner, J., Michalopoulos, G., Sherrod, B.A., **Agarwal, N.**, Chou, D., Haid, R.W., Mummaneni, P.V. What Predicts the Best 24-Month Outcomes Following Surgery for Cervical Spondylotic Myelopathy (CSM)? A QOD Prospective Registry Study. *Journal of Neurosurgery: Spine* 40(4):453-464, January 2024.

74. Fields, D.P., Lavadi, R.S., Hudson, J.S., McCarthy, D.J., Hect, J., Wawrose, R., Capuk, O., **Agarwal, N.**, McDowell, M.M., Simon, D., Abel, T.J., Greene, S. Patterns in Follow-Up Imaging Utilization for Pediatric Patients with Whiplash Associated Disorder. *World Neurosurgery* 180:e786-e790, December 2023.

75. Mooney, J., Nathani, K.R., Zeitouni, D., Michalopoulos, G.D., Wang, M.Y., Coric, D., Chan, A.K., Lu, D.C., Sherrod, B.A., Gottfried, O.N., Shaffrey, C.I., Than, K.D., Goldberg, J.L., Hussain, I., Virk, M.S., **Agarwal, N.**, Glassman, S.D., Shaffrey, M.E., Park, P., Foley, K.T., Chou, D., Slotkin, J.R., Tumialán, L., Upadhayaya, C., Potts, E.A., Fu, K., Haid, R.W., Knightly, J.J., Mummaneni, P.V., Bisson, E.F., Asher, A.L., Bydon, M. Does Diabetes Affect Outcome or Reoperation Rate after Lumbar Decompression or Arthrodesis? A Matched Analysis of the QOD Dataset. *Journal of Neurosurgery: Spine* 40(3):331-342, December 2023.

76. Adida, S., Legarreta, A.D., Hudson, J.S., Kumar, R.P., Kass, N.M., **Agarwal, N.**, Gerszten, P.C., Andrews, E.G. 2023. Application of Machine Learning for Automatic Segmentation of Paraspinal Musculature. *World Neurosurgery* 180:228-230, December 2023.

77. Park, C., Shaffrey, C.I., Than, K.D., Michalopoulos, G., Sammak, S.E., Chan, A.K., Bisson, E.F., Sherrod, B.A., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buchholz, A.L., Tumialán, L.M., Turner, J., **Agarwal, N.**, Chou, D., Chaudhry, N.S., Haid, R.W., Mummaneni, P.V., Bydon, M., Gottfried, O.N. What Factors Influence Surgical Decision Making in Anterior Versus Posterior Surgery for Cervical Myelopathy? A QOD analysis. *Journal of Neurosurgery: Spine*, 40(2):206-215, November 2023.

78. Campbell, L.J., Mummaneni, P.V., Letchuman, V., Langnas, E., **Agarwal, N.**, Guan, L.S., Croci, R., Vargas, E., Reisner, L., Bickler, P., Chou, D., Chang, E., Guan, Z. Mismatched Opioid Prescription in Patients Discharged after Neurological Surgeries: A Retrospective Cohort Study. *Pain* 164(11):2615-2621, November 2023.

79. Pugazenthi, S., Hernandez-Rovira, M.A., Mitha, R., Rogers, J.L., Lavadi, R.S., Kann, M.R., Cardozo, M.R., Hardi, A., Elsayed, G.A., Joseph, J., Housley, S.N., **Agarwal, N**. Evaluating the State of Non-Invasive Imaging Biomarkers for Traumatic Brain Injury. *Neurosurgical Review* 46(1):232, September 2023.

80. Gajjar, A.A., Le, A.H.D., Lavadi, R.S., Boddeti, U., Barpujari, A., Abou-Al-Shaar, H., **Agarwal, N.** Evolution of Robotics in Neurosurgery: A Historical Perspective. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 33:101721, September 2023.

81. Gajjar, A.A., Le A.H.D., Jacobs, R., Mooney, J.H., Lavadi, R.S., Kumar, R.P., White, M.D., Elsayed, G.A., **Agarwal N.** Patient Perception of Spinal Cord Injury through Social Media: An Analysis of 703 Instagram and 117 Twitter Posts. *Journal of Craniovertebral Junction and Spine* 14(3):288-291, September 2023.

82. Barpujari, A., Gajjar, A.A., Lavadi, R.S., **Agarwal, N.**, Chan, A.K., Mummaneni, P.V. Neurosurgery Residency Rankings: An Assessment of Doximity's Survey-Based Data and Objective Program Characteristics. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 33:101784, September 2023.

83. **Agarwal, N.**, Roy, S., Lavadi, R.S., Alan, N., Ozpinar, A., Buell, T.J., Hamilton, D.K., Kanter, A.S., Okonkwo, D.O. Durability of Stand-alone Anterolateral Interbody Fusion in Staged Minimally Invasive Circumferential Scoliosis Surgery with Delayed Posterior Instrumentation due to Medical Necessity. *Spine* Deformity 11:1495-1501, August 2023.

84. Muzyka, L., Pugazenthi, S., Lavadi, R.S., Shah, D., Patel, A., Rangwalla, T., Javeed, S., Elsayed, G., Greenberg, J., Pennicooke, B., **Agarwal, N.** Geographic Distribution in Training and Practice of Academic Neurological and Orthopedic Spine Surgeons in The United States. *World Neurosurgery* 176:e281-e288, August 2023.

85. Yang, E., Mummaneni, P.V., Chou, D., Bydon, M., Bisson, E.F., Shaffrey, C.I., Gottfried, O.N., Asher, A.L., Coric, D., Potts, E., Foley, K.T., Wang, M.Y., Fu, K., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buchholz, A.L., Tumialan, L.M., Turner, J., Michalopoulos, G., Sherrod, B.A., **Agarwal, N.**, Haid, R.W., Chan, A.K. Cervical Laminoplasty Versus Laminectomy and Posterior Spinal Fusion for Cervical Myelopathy: Propensity Matched Analysis of 24-Month Outcomes From the Quality Outcomes Database. Journal of Neurosurgery: Spine 39(5):671-681, August 2023

86. Hussain, O., Kaushal, M., **Agarwal, N.**, Kurpad, S., Shabani, S. The Role of Magnetic Resonance Imaging and Computed Tomography in Spinal Cord Injury. *Life* 13(8):1680, August 2023.

87. **Agarwal, N.**, Roy, S., Lavadi, R.S., Patel, K.P., Ozpinar, A., Alan, N., Buell, T.J., Hamilton, D.K. The 'Candy Cane' Technique for Construct Augmentation and Correction of Severe Angular Chin-On-Chest Kyphoscoliosis. *Spine Deformity* 11:1027-1030, July 2023.

88. **Agarwal, N.**, White, M., Roy, S., Ozpinar, A., Alan, N., Lavadi, R.S., Okonkwo, D., Hamilton, D.K., Kanter, A. Long-term Durability of Stand-Alone Lateral Lumbar Interbody Fusion. *Neurosurgery* 93(1):60-65, July 2023.

89. Lavadi, R.S., Gajjar, A., Elsayed, G.A., Desai, R.R., Mitha, R., Puram, S.V., **Agarwal, N.** Removal of a Floating and Migrated Plate Screw in a Patient with a Failed Anterior Cervical Discectomy and Fusion. *World Neurosurgery* 175:98-101, July 2023.

90. Shabani, S., **Agarwal, N.**, Rechav Ben-Natan, A., Huang, J., Le, V., Chou, D., Mummaneni, P.V. Technical Note: Hinged Table for Single Position Navigated Lateral Surgery. *Operative Neurosurgery* 24(6):e441, June 2023.

91. Park, C., Mummaneni, P.V., Gottfried, O.N., Shaffrey, C.I., Tang, A.J., Bisson, E.F., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buchholz, A.L., Tumialán, L.M., Turner, J.D., Sherrod, B.A., **Agarwal, N.**, Chou, D., Haid, R.W.,

Bydon, M., Chan, A.K. Which Supervised Machine Learning Algorithm Can Best Predict Achievement of Minimum Clinically Important Difference in Neck Pain after Surgery in Patients with Cervical Myelopathy? A QOD Study. *Neurosurgical Focus* 54(6):E5, June 2023.

92. Shahrestani, S., Chan, A.K., Bisson, E.F., Bydon, M., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Park, P., Wang, M.Y., Fu, K., Slotkin, J.R., Asher, A.L., Virk, M.S., Michalopoulos, G.D., Guan, J., Haid, R.W., **Agarwal, N.**, Chou, D., Mummaneni, P.V. (2023). Developing Nonlinear K-Nearest Neighbors Classification Algorithms to Identify Patients at High Risk of Increased Length of Hospital Stay Following Spine Surgery. *Neurosurgical Focus* 54(6):E7, June 2023.

93. Elsayed, G.A., Lavadi, R.S., Pugazenthi, S., Jaikumar, V., Mitha, R., Hafez, D.M., Ogunlade, J.O., **Agarwal, N.** Spatial Computing for Preoperative Planning and Postoperative Evaluation of Single Position Lateral Approaches in Spinal Revision Surgery. *Journal of Craniovertebral Junction and Spine* 14(2):208-211, June 2023.

94. Gohel, P., Patel, K.P., Lavadi, R.S., Fields, D.P., **Agarwal, N.**, Alan, N. Top-Ten Most-Cited Articles on Anterior Column Release in the Context of Minimally Invasive Lumbar Interbody Fusion. *Journal of Craniovertebral Junction and Spine* 14(2):127-136, June 2023.

95. Javeed, S., Greenberg, J.K., Plog, B., Zhang, J.K., Yahanda, A.T., Dibble, C.F., Khalifeh, J.M., Ruiz-Cardozo, M., Lavadi, R.S., Molina, C.A., Santiago, P., **Agarwal, N.**, Pennicooke, B.H., Ray, W.Z. Clinically Meaningful Improvement in Disabilities of Arm, Shoulder, and Hand (DASH) following Cervical Spine Surgery. *The Spine Journal* 23(6):832-840, June 2023.

96. Alan, N., Deng, H., Muthiah, N., Vodovotz, L., Dembinski, R., Guha, D., **Agarwal, N.**, Ozpinar, A., Hamilton, D.K., Kanter, A.S., Okonkwo, D.O. Graft Subsidence and Reoperation after Lateral Lumbar Interbody Fusion: A Propensity Score-Matched and Cost Analysis of Polyetheretherketone versus 3D-printed Porous Titanium Interbodies. *Journal of Neurosurgery: Spine* 39(2):187-195, May 2023.

97. Raman, A.G., Parikh, N., Gupta, R., Lavadi, R.S., Gupta, R., Heary, R.F., Kimmell, K., Singer, J., **Agarwal, N.** Augmenting Career Longevity: An Analysis of Ergonomics Training among 134 Neurological Surgeons. *World Neurosurgery* 173:e11-e17, May 2023.

98. Passias, P.G., Tretiakov, P.S., Nunley, P.D., Wang, M.Y., Park, P., Kanter, A.S., Okonkwo, D.O., Eastlack, R.K., Mundis, G.M., Chou, D., **Agarwal, N.**, Fessler, R.G., Uribe J.S., Anand, N., Than, K.D., Brusko G., Fu, K., Turner, J.D., Le, V.P., Line, B.G., Ames, C.P., Smith, J.S., Shaffrey, C.I., Hart, R.A., Burton, D., Lafage, R., Lafage, V., Schwab, F., Bess, S., Mummaneni, P.V., International Spine Study Group. Incremental Benefits of Circumferential Minimally Invasive Surgery for Increasingly Frail Patients with Adult Spinal Deformity. *Journal of Neurosurgery: Spin*e 39(2):168-174, April 2023.

99. Bisson, E.F., Mummaneni, P.V., Michalopoulos, G.D., Sammak, S.E., Chan, A.K., **Agarwal, N.**, Wang, M.Y., Knightly, J.J., Sherrod, B.A., Gottfried, O.N., Than, K.D., Shaffrey, C.I., Goldberg, J.L., Virk, M.S., Hussain, I., Shabani, S., Glassman, S.D., Tumialan, L.M., Turner, J.D., Uribe, J.S., Meyer, S.A., Lu, D.C., Buchholz, A.L., Upadhyaya, C., Shaffrey, M.E., Park, P., Foley, K.T., Coric, D., Slotkin, J.R., Potts, E.A., Stroink, A.R., Chou, D., Fu, K.G., Haid, R.W., Asher, A.L., Bydon, M. Sleep Disturbances in CSM: Prevalence and Postoperative Outcomes – An Analysis from the Quality Outcomes Database. *Clinical Spine Surgery* 36(3):112-119, April 2023.

100. Habib, A., Muthiah, N., Alattar, A., Hoppe, M., **Agarwal, N.**, Alan, N., Hamilton, D.K., Ozpinar, A. Direct Iliac Screw vs. Sacral-2-Alar-Iliac Screws Technique for Sacropelvic Fixation: Technical Nuances and A Review of Literature. *International Journal of Spine Surgery* 17(3):8449, April 2023. (Top 2023 IJSS Article)

101. **Agarwal, N.**, Biltstein, J., Lui, A., Torres-Espin, A., Vasnarungruengkul, C., Burke, J., Mummaneni, P.V., Dhall, S.S., Weinstein, P.R., Duong-Fernandez, X., Chou, A., Pan, J., Singh, V., Ferguson, A.R., Hemmerle, D.D., Kyritsis, N., Talbott, J.F., Whetstone, W.D., Bresnahan, J.C., Beattie, M.S., Manley, G.T., Digiorgio, A. Hypotension Requiring Vasopressor Treatment Increases Cardiac Complications in Elderly Spinal Cord Injury

Patients: A Prospective TRACK-SCI Registry Study. *Journal of Neurosurgery: Spine* 38(6):735-743, March 2023.

102. Pugazenthi, S., Hernandez-Rovira, M.A., Fabiano, A.S., Rogers, J.L., Gajjar, A.A., Lavadi, R.S., Elsayed, G.A., Greenberg, J.K., Hafez, D.M., Janjua M.B., Ogunlade J.O., Pennicooke, B.H., **Agarwal N.** Mapping Geographic Migration of United States neurosurgeons Across Training and Current Practice: Associations with Academic Productivity. *Journal of Neurosurgery* 139(4):1109-1119, March 2023.

103. Chan, A.K., Shaffrey, C.I., Park, C., Gottfried, O.N., Than, K.D., Bisson, E.F., Bydon, M., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C.D., Shaffrey, M.E., Buchholz, A.L., Tumialán, L.M., Turner, J.D., Michalopoulos, G.D., Sherrod, B.A., **Agarwal, N.**, Chou, D., Haid, R.W., Mummaneni, P.V. Do Comorbid Self-Reported Depression and Anxiety Influence Outcomes Following Surgery for Cervical Spondylotic Myelopathy? Journal of Neurosurgery: Spine 39(1):11-27, March 2023.

104. Greenberg, J.K., Frumkin, M.R., Javeed, S., Zhang, J.K., Dai, R., Molina, C.A., Pennicooke, B.H., **Agarwal, N.**, Santiago, P., Goodwin, M.L., Jain, D., Pallotta, N., Gupta, M.C., Buchowski, J.M., Leuthardt, E.C., Ghogawala, Z., Kelly, M.P., Hall, B.L., Piccirillo, J.F., Lu, C., Rodebaugh, T.L., Ray, W.Z. Feasibility and Acceptability of a Preoperative Multimodal Mobile Health Assessment in Spine Surgery Candidates. *Neurosurgery* 92(3):538-546, March 2023.

105. Gupta, A., Reddy, V., Barpujari, A., Lavadi, R.S., Agarwal, P., Chang, Y.F., Mooney, J., Elsayed, G.A., **Agarwal, N.** Current Trends in Subspecialty Fellowship Training for 1,691 Academic Neurological Surgeons. *World Neurosurgery* 171:e47-e56, March 2023. (Editor's Choice)

106. Letchuman, V., He, L., Mummaneni, P.V., **Agarwal, N.,** Campbell, L.J., Shabani, S., Chan, A., Abrecht, C.R., Miller, C., Sankaran, S., Rambachan, A., Croci, R., Berven, S.H., Chou, D., Holly, L., Guan, Z. Racial Differences in Postoperative Opioid Prescribing Practices Use in Spine Surgical Patients. *Neurosurgery* 92(3):490-496, March 2023.

107. Chan, A.K., Bydon, M., Bisson, E.F., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Park, P., Wang, M.Y., Fu, K., Slotkin, J.R., Asher, A.L., Virk, M.S., Michalpoulos, G., Guan, J., Haid, R.W., **Agarwal, N.**, Park, C., Chou, D., Mummaneni, P.V. Minimally Invasive versus Open Transforaminal Lumbar Interbody Fusion for Grade 1 Lumbar Spondylolisthesis: 5-Year Follow-Up from the QOD Multi-Center Prospective Registry. *Neurosurgical Focus* 54(1):E2, January 2023. (Journal Cover)

108. **Agarwal, N.**, Wilkins, T.E., Nwachuku, E.L., Deng, H., Algattas, H., Lavadi, R.S., Chang, Y.F., Puccio, A., Okonkwo, D.O. Long-term Benefits for Younger Patients with Aggressive Immediate Intervention following Severe Traumatic Brain Injury: A Longitudinal Cohort Analysis of 175 Patients from a Prospective Registry. *Clinical Neurology and Neurosurgery* 224:107545, January 2023.

109. Fields, D.P., McDowell, M.M., Schulien, A.J., Algattas, H., Abou-Al-Shaar, H., **Agarwal, N.**, Alan, N., Costcou, T., Wang, E.W., Snyderman, C.H., Gardner, P.A., Zenonos, G.A. Low Preoperative Prealbumin Levels are a Strong Independent Predictor of Postoperative Cerebral Spinal Fluid Leak following Endoscopic Endonasal Skull Base Surgery. *World Neurosurgery* 167:e110-e116, November 2022.

110. Mallela, A.N., Beiriger, J., Gersey, Z.C., Shariff, R.K., Gonzalez, S.M., **Agarwal, N.,** González-Martínez, J.A., Abou-Al-Shaar, H. Targeting the Future: Developing a Training Curriculum for Robotic Assisted Neurosurgery. *World Neurosurgery* 167:e770-777, November 2022.

111. **Agarwal, N.**, Aabedi, A.A., Chan, A.K., Letchuman, V., Shabani, S., Bisson, E.F., Bydon, M., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Park, P., Wang, M.Y., Fu, K., Slotkin, J.R., Asher, A.L., Virk, M.S., Haid, R.W., Chou, D., Mummaneni, P.V. Leveraging Machine Learning to Ascertain the Implications of Preoperative Body Mass Index on Surgical Outcomes for 282 Patients with Preoperative Obesity and Lumbar Spondylolisthesis in the Quality Outcomes Database. *Journal of Neurosurgery: Spine* 38(2):182-191, October 2022.

112. Sherrod, B.A., Michalopoulos, G.D., Mulvaney, G., **Agarwal, N.**, Chan, A.K., Asher, A.L., Coric, D., Virk, M.S., Fu, K., Foley, K.T., Park, P., Upadhyaya, C.D., Knightly, J.J., Shaffrey, M.E., Potts, E.A., Shaffrey, C.I., Gottfried, O.N., Than, K., Wang, M.Y., Tumialan, L.M., Chou, D., Mummaneni, P.V., Bydon, M., Bisson, E.F. Development of New Postoperative Neck Pain at 12 and 24 Months after Surgery for Cervical Spondylotic Myelopathy: A Quality Outcomes Database Study. *Journal of Neurosurgery: Spine* 38(3):357-365, October 2022.

113. Walker, C.T., **Agarwal, N.**, Eastlack, R.K., Mundis, G.M., Alan, N, Iannacone, T., Akbarnia, B.A., Okonkwo, D.O. Surgical Treatment of Young Adults with Idiopathic Scoliosis. *Journal of Neurosurgery: Spine* 38(1):84-90, September 2022.

114. Siddiqui, N., Reddy, V. P., Rogers, J. L., Detchou, D. K. E., Casubhoy, I., Gopali, R., Bhalla, S., Janbahan, M., Morris, E., Peesapati, M. P., **Agarwal, N.** Trends in Matriculation from Neurological Surgery Training Programs into Academic versus Private Practice. *World Neurosurgery* 165:e635-e642, September 2022.

115. Chan, A.K., Shaffrey, C.I., Gottfried, O.N., Park, C., Than, K.D., Bisson, E.F., Bydon, M., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K.M., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buchholz, A.L., Tumialan, L.M., Turner, J., Michalopoulos, G., Sherrod, B.A., **Agarwal, N.**, Chou, D., Haid, R.W., Mummaneni, P.V. Cervical Spondylotic Myelopathy with Severe Axial Neck Pain: Is Anterior or Posterior Approach Better? *Journal of Neurosurgery: Spine* 38(1):42-55, August 2022.

116. Shlobin, N.A., Shahrestani, S., Shabani, S., **Agarwal, N.**, Tan, L.A. Cerebrospinal Fluid Venous Fistula: Illustrative Case. *Surgical Neurology International* 13:374, August 2022.

117. Chan, A.K., Letchuman, V., Mummaneni, P.V., Burke, J.F., **Agarwal, N.**, Bisson, E.F., Bydon, M., Foley, K.T., Shaffrey, C.I., Glassman, S.D., Wang, M.Y., Park, P., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Fu, K.M., Slotkin, J.R., Asher, A.L., Virk, M.S., Kerezoudis, P., Alvi, M.A., Guan, J., Haid, R.W., DiGiorgio, A. Inferior Clinical Outcomes for Patients with Medicaid Insurance following Surgery for Degenerative Lumbar Spondylolisthesis: A Prospective Registry Analysis of 608 Patients. *World Neurosurgery* 164:e1024-1033, August 2022.

118. Habib, A., Jovanovich, N., Muthiah, N., Alattar, A., Alan, N., **Agarwal, N.**, Ozpinar, A., Hamilton, D.K. 3D Printing Applications in Spine Surgery: An Evidence-Based Assessment towards Personalized Patient Care. *European Spine Journal* 31(7):1682-1690, July 2022.

119. Luy, D.D., **Agarwal, N**., McDowell, M.M., Tonetti, D.A., Goldschmidt, E., Friedlander, R. M. Acquired Chiari Type I Malformation Associated with Type IV Dural Arteriovenous Fistula: Case Report. *Journal of Neurological Surgery. Part A, Central European Neurosurgery* 85(1):94–99, January 2024.

120. Ozpinar, A., Perez, J.L., Hacker, E., Alan, N., **Agarwal, N.**, Deng, H., Okonkwo, D.O., Kanter, A.S., Hamilton, D.K. Operative Outcomes after Cervical Diffuse Idiopathic Skeletal Hyperostosis Fractures in the Elderly. *International Journal of Spine Surgery* 16(3):435-441, June 2022.

121. Muthiah, N., Yolcu, Y.U., Alan, N., **Agarwal, N.**, Hamilton, D. K., Ozpinar, A. Evolution of Polyetheretherketone (PEEK) and Titanium Interbody Devices for Spinal Procedures: A Comprehensive Review of the Literature. *European Spine Journal* 31:2547-2556, June 2022.

122. Gohel, P., White, M.D., **Agarwal, N.**, Fields, D.P., Ozpinar, A., Alan, N. Longitudinal Analysis of Peripheral Nerve Surgery Training: Comparison of Neurosurgery to Plastic and Orthopedic Surgery. *World Neurosurgery* 162:e41-e48, June 2022.

123. Gupta, A., Gupta, R., White, M.D., Reddy, V., Chang, Y.F., Agarwal, P., Alan, N., **Agarwal, N.** Patient Satisfaction Reviews for 967 Spine Neurosurgeons on Healthgrades. *Journal of Neurosurgery: Spine* 36(5):869-875, May 2022.

124. Alan, N., Vodovotz, L., Muthiah, N., Deng, H., Guha, D., **Agarwal, N.**, Ozpinar, A., Mushlin, H.M., Puccio, L., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Subsidence after Lateral Lumbar Interbody Fusion Using a 3D-Printed Porous Titanium Interbody Cage: Single Institution Case Series. *Journal of Neurosurgery: Spine* 37(5) 663-669, May 2022.

125. Guha, D., Mushlin, H.M., Muthiah, N., Vodovotz, L.L., **Agarwal, N.**, Alan, N., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Computed Tomography Hounsfield Units as a Predictor of Reoperation and Graft Subsidence after Standalone and Multi-Level Lateral Lumbar Interbody Fusion. *World Neurosurgery* 161:e417-e426, May 2022.

126. Mooney, J., Erickson, N., Salehani, A., Laskay, N., Mahavadi, A., Ilyas, A., Mainali, B., **Agarwal, N.**, Godzik, J. Microendoscopic Lumbar Discectomy with General versus Local Anesthesia: A Systematic Review and Meta-Analysis. *North American Spine Society Journal* 10:100129, May 2022.

127. **Agarwal, N.**, Aabedi, A.A., Torres-Espin, A., Chou, A., Wozny, T., Mummaneni, P.V., Burke, J.F., Ferguson, A.R., Kyritsis, N., Dhall, S.S., Weinstein, P.R., Duong-Fernandez, X., Pan, J., Singh, V., Hemmerle, D.D., Talbott, J.F., Whetstone, W.D., Bresnahan, J.C., Manley, G.T., Beattie, M.S., DiGiorgio, A. Decision Tree-based Machine Learning Analysis of Intraoperative Vasopressor Use to Optimize Neurological Improvement in Acute Spinal Cord Injury. *Neurosurgical Focus* 52(4):E9, April 2022.

128. Nayar, G., Desai, A., **Agarwal, N.**, Alan, N., Moossy, J.J. Cervical Arterial Dissection and Traumatic Myelopathy Following Yoga: Surgical Case Report. *Spinal Cord Series and Cases* 8, April 2022.

129. Letchuman, V., **Agarwal, N.**, Mummaneni, V.P., Wang, M.Y., Shabani, S., Patel, A., Rivera, J., Haddad, A., Le, V., Chang, J.M., Chou, D., Gandhi, S., Mummaneni, P.V. Awake Spinal Surgery: Simplifying the Learning Curve with a Patient Selection Algorithm. *Neurosurgical Focus* 51(6):E2, December 2021. (Journal Cover)

130. **Agarwal, N.**, Rahman, A., Jacobs, R., Taylor, T., Muthiah, N., Alan, N., Ozpinar, A., Fields, D., Hamilton, D.K. Patient Perception of Scoliosis Correction Surgery on Instagram. *Neurosurgical Focus* 51(5):E6, November 2021.

131. Lad, M., Gupta, R., Para, A., Gupta, A., White, M.D., **Agarwal, N.**, Moore, J.M., Heary, R.F. An ACGME-based Comparison of Neurosurgical and Orthopedic Resident Training in Adult Spine Surgery via a Case Volume and Hours-based Analysis. *Journal of Neurosurgery: Spine* 35(5):553-563, November 2021.

132. Zhao, Z., Shabani, S., **Agarwal, N.**, Mummaneni, P.V., Chou, D., Intradural View of the Spinal Cord and Dura after Three-Column Osteotomy: Illustrative Case. *Journal of Neurosurgery: Case Lessons* 2(19): CASE21497, November 2021.

133. Muthiah, N., McDowell, M.M., Zenonos, G.A., **Agarwal, N.**, Snyderman, C.H., Friedlander, R.M., Gardner, P.A. Endoscopic Endonasal Resection of Cranio-Cervical Junction Chordoma and Ventral Chiari Decompression: A Case Report. *Operative Neurosurgery* 21(5):e421-426, November 2021.

134. Deng, H., Goldschmidt, E., Nwachuku, E., Yue, J.K., Angriman, F., Wei, Z., **Agarwal, N.**, Puccio, A.M., Okonkwo, D.O. Hydrocephalus and Cerebrospinal Fluid Analysis Following Severe Traumatic Brain Injury: Evaluation of a Prospective Cohort. *Neurology International* 13(4):527-534, October 2021.

135. Casillo, S., Venkatesh, A., Muthiah, N., McDowell, M.M, **Agarwal, N.** First Female Neurosurgeon in the United States: Dorothy Klenke Nash, M.D. *Neurosurgery* 89(4):E223-E228, October 2021.

136. Agarwal, P., Frid, I., Singer, J., Zalatimo, O., Schirmer, C.M., Kimmel, K.T., **Agarwal, N.** Neurosurgery Perception of Enhanced Recovery after Surgery (ERAS) Protocols. *Journal of Clinical Neuroscience* 92:110-114, October 2021.

137. Faramand, A., Alan, N., Kano, H., Niranjan, A., **Agarwal, N.**, Ozpinar, A., Flickinger, J., Lunsford, L.D. Does Variceal Drainage Affect Arteriovenous Malformation Obliteration and Hemorrhage Rates after Stereotactic Radiosurgery? A Case-Matched Analysis. *Neurosurgery* 84(4):680-685, October 2021.

138. Alan, N., Donohue, J., Ozpinar, A., **Agarwal, N.**, Kanter, A.S., Okonkwo, D.O., Hamilton, D.K. Load-Sharing Classification Score as Supplemental Grading System in the Decision-Making Process for Patients with TLICS 4. *Neurosurgery* 89(3):428-434, September 2021.

139. Nayar, G., Roy, S., Lutfi, W., **Agarwal, N.**, Alan, N., Ozpinar, A., Hamilton, D.H., Okonkwo, D.O., Kanter, A.S. Incidence of Adjacent Segment Surgery Following Stand-alone Lateral Lumbar Interbody Fusion. *Journal of Neurosurgery: Spine*. 35(3):270-274, September 2021.

140. Alan, N., Patel, A., Abou-Al-Shaar, H., **Agarwal, N.**, Zenonos, G.A., Jankowitz, B.T., Gross, B.A. Intraparenchymal Hematoma and Intraventricular Catheter Placement Using Robotic Stereotactic Assistance (ROSA): A Single Center Preliminary Experience. *Journal of Clinical Neuroscience* 91:391-395, September 2021.

141. Agarwal, P., Roy, S., Sharma, N., Stone, J., **Agarwal, N.**, Moossy, J.J. Arachnoid Web Associated with an Intrathecal Pain Pump. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 25:101252, September 2021.

142. Maroon, J.C., Faramand, A., **Agarwal, N.**, Harrington, A.L., Agarwal, V., Norwig, J., Okonkwo, D.O. Management of Thoracic Spinal Cord Injury in a Professional American Football Athlete: Illustrative Case. *Journal of Neurosurgery: Case Lessons* 2(6):1-6, August 2021.

143. Algattas, H.N., McCarthy, D., Kujawski, B., **Agarwal, N.**, Brown, J., Forsythe, R.M., Leonardo, J., Walsh, K., Gross, B.A., Friedlander, R.M., Okonkwo, D.O., Whiting, D., Miele, V.J. Impact of COVID-19 Shutdown on Neurotrauma Volume in Pennsylvania. *World Neurosurgery* 151:e178-184, July 2021.

144. Baraldi, J., Reddy, V., White, M.D., Zelina, A., Reddy, A., **Agarwal, N**., Analysis of Factors That Influence Academic Productivity among Neurological and Orthopedic Spine Surgeons. *World Neurosurgery* 151:e163-169, July 2021.

145. Algattas, H., Roy, S., **Agarwal, N.**, Maroon, J.C. COVID-19 Impact in Residency: Grit in the Face of Pandemic. *World Neurosurgery* 151:e395-398, July 2021.

146. Kandregula, S., Lefever, D., Trosclair, K., Savardekar, A., Menger, R., **Agarwal, N.**, Kimmell, K., Mazzola, C., Cozzens, J., Rosenow, J., Schirmer, C., Guthikonda, B., Council of State Neurosurgical Societies. There's Got to be a Better Way": Global Perspectives of Medico-Legal Environment and Neurosurgical Socioeconomics. *World Neurosurgery* 151:341-347, July 2021.

147. Menger, R., Youngerman, B., Dossani, R.H., Godzik, J., Tenny, S., Cozzens, J., **Agarwal, N.**, Guthikonda, B., Kimmell, K.T., Schirmer, C., Rosenow, J.M., Tumialan, L.M., Council of State Neurosurgical Societies. Neurosurgery Billing and Reimbursement in 2021. *World Neurosurgery* 151:348-352, July 2021.

148. **Agarwal, N.**, Casillo, S., Simonds, G., Wakefield, A., Phelps, J., Linskey, M.E., Bell, R., Zalatimo, O., Akbari, S.H., Decker, M., Benko, M.J., Harraher, C., Wang, V., Guthikonda, B., Kimmell, K.T., Menger, R., Rosenow, J.M. Cozzens, J., Schirmer, C., Council of State Neurosurgical Societies. Socioeconomic Implications of Professional Relationships within Modern Care Delivery Systems. *World Neurosurgery* 151:353-363, July 2021.

149. Pieters, T.A., Susa, S., **Agarwal, N.**, Guthikonda, B., Menger, R., Schirmer, C., Cozzens, J., Steinmetz, M., Rosenow, J.M., Kimmell, K.T. Council of State Neurosurgical Societies Credentialing, Certification, and Peer Review Essentials for the Neurosurgeon. *World Neurosurgery* 151:364-369, July 2021.

150. Lefever, D., Esfahani, D.R., Kandregula, S., Trosclair, K., Demand, A., Vega, A., Stacy, J., Hussein, N., Dossani, R., Pendharkar, A., Menger, R., Kosty, J., Mazzola, C., **Agarwal, N.**, Kimmell, K., Rosenow, J.M., Cozzens, J., Schirmer, C., Guthikonda, B., Council of State Neurosurgical Societies. The Medical Legal Environment in Neurosurgery: An Informative Overview of the Stages of Litigation and Distinct Challenges. *World Neurosurgery* 151:370-374, July 2021.

151. **Agarwal, N.**, Youngerman, B., Kaakaji, W., Smith, G., McGregor, J.M., Powers, C.J., Guthikonda, B., Menger, R., Schirmer, C.M., Rosenow, J.M., Cozzens, J., Kimmell, K.T., Council of State Neurosurgical Societies. Optimizing Medical Care via Practice Guidelines and Quality Improvement Initiatives. *World Neurosurgery* 151:375-379, July 2021.

152. Lefever, D., Kelly, P.D., Zuckerman, S.L., **Agarwal, N.**, Guthikonda, B., Kimmell, K.T., Schirmer, C., Rosenow, J.M., Cozzens, J., Orrico, K.O., Menger, R. Council of State Neurosurgical Societies. Advocacy to Government and Stakeholders. *World Neurosurgery* 151:380-385, July 2021.

153. Donohue, J., Kashkoush, A., Alan, N., **Agarwal, N.** Bibliometric Profiles of Contemporary Leaders in Neurosurgery. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 24:101087, June 2021.

154. White, M.D., McDowell, M.M., **Agarwal, N.**, Greene, S. Shunt Infection and Malfunction in Patients with Myelomeningocele. *Journal of Neurosurgery: Pediatrics* 27(5):518-524, May 2021. (Editor's Choice)

155. Casillo, S.M., Agarwal, P. Nwachuku, E.L., **Agarwal, N.**, Miele, V.J., Hamilton, D.K., Alan, N. Evaluation of Free-Hand Screw Placement in Cervical, Thoracic, and Lumbar Spine by Neurosurgical Residents. *Clinical Neurology and Neurosurgery* 204:106585, May 2021.

156. White, M.D., Fox, B.M., **Agarwal, N.** The COVID-19 Pandemic and the Inequities of the Neurosurgery Match. *Journal of Neurosurgery* 34(4):1351-1352, April 2021.

157. Perez, J.L., Ozpinar, A., **Agarwal, N.**, Hacker, E., Alan, N., Gerszten, P.C. Safety and Efficacy of Balloon Kyphoplasty for Vertebral Fractures with Posterior Wall Disruption. *International Journal of Spine Surgery* 5(2):353-358, April 2021.

158. **Agarwal, N.**, Goldschmidt, E., Taylor, T., Roy, S., Altieri Dunn, S.C., Bilderback, A., Friedlander, R.M., Kanter, A.S., Okonkwo, D.O., Gerszten, P.C., Hamilton, D.K., Hall, D.E. Impact of Frailty on Outcomes following Elective Spine Surgery: A Prospective Cohort Analysis of 668 Patients. *Neurosurgery* 88(3):552-557, March 2021.

159. Grogan, D., Reddy, V., Gupta, A., Chang, Y., Fields, D., **Agarwal, N.** Trends in Academic Spine Neurosurgeon Productivity as Measured by the Relative Citation Ratio (RCR). *World Neurosurgery* 147:e40-46, March 2021. (Editor's Choice)

160. Hacker, E., Ozpinar, A., Fernandes, D., **Agarwal, N.**, Gross, B.A., Alan, N. The Utility of Routine Head CT for Hemorrhage Surveillance in Post-Craniotomy Patients Undergoing Anticoagulation for Venous Thromboembolism. *Journal of Clinical Neuroscience* 85:78-83, March 2021.

161. Casillo, S.M., Venkatesh, A., Muthiah, N., **Agarwal, N.**, Scott, T., Romani, R., Fernández, L.L., Aristizabal, S., Ginalis, E.E., Ozair, A., Bhat, V., Faruqi, A., Bajaj, A., Sonkar, A.A., Ikeda, D.S., Chiocca, E.A., Lonser, R.R., Sutton, T.E., McGregor, J.M., Rea, G.L., Schunemann, V.A., Ngwenya, L.B., Marlin, E.S., Porensky, P.N., Shaikhouni, A., Huntoon, K., Dornbos, D., Shaw, A.B., Powers, C.J., Gluski, J.M., Culver, L.G., Goodwin, A.M., Ham, S., Marupudi, N.I., Bhat, D.I., Berry, K.M., Wu, E., Wang, M.Y. Biographies of International Women Leaders in Neurosurgery. *Neurosurgical Focus* 50(3):E19, March 2021.

162. Reddy, V., Gupta, A., White, M.D., Gupta, R., Agarwal, P., Prabhu, A.V., Lieber, B., Chang, Y., **Agarwal, N.** Assessment of the NIH-Supported Relative Citation Ratio as a Measure of Research Productivity among 1687 Academic Neurological Surgeons. *Journal of Neurosurgery* 134(2):638-645, February 2021.

163. White, M.D., **Agarwal, N.**, Alan, N. Longitudinal Survey of Trainee Case Log Entry for Carotid Endarterectomy: Trends in Neurologic, General and Vascular Surgery. *World Neurosurgery* 146:e658-e663, February 2021.

164. Kamath, P., Zheng, R., Narasimman, M., Ayyaswami, V., Prabhu, A.V., Hansberry, D.R., **Agarwal, N.**, Koch, E. Evaluation of Online Patient Education Materials Concerning Skin Cancers. *Journal of the American Academy of Dermatology* 84(1):190-191, January 2021.

165. Para, A., Thelmo, F., Rynecki, N.D., Zelman, B., Gupta, R., Coban, D., Ayyaswami, V., Prabhu, A.V., Ippolito, J.A., **Agarwal, N.**, Moore, J.M., Beebe, K.S. Evaluating the Readability of Online Patient Education Materials Related to Orthopedic Oncology. *Orthopedics* 44(1):38-42, January 2021.

166. **Agarwal, N.**, Luy, D.D., Bonaminio J.M., Philips, C.A., Dattomo, K.A., Heary, R.F., Branch, C.L., Robertson, J.H., Groff, M.W., Haid, R.W. Chronicling the Philanthropic Arm of Neurological Surgery: A Review of the Growth and Development of the Neurosurgical Research and Education Foundation. *Journal of Neurosurgery* 133(6):1905-1912, December 2020. (Journal Cover)

167. Kim, S., Ozpinar, A., **Agarwal, N.**, Hacker, E., Alan, N., Okonkwo, D.O., Kanter, A.S., Hamilton, D.K. Relationship between Preoperative Opioid Use and Postoperative Pain in Patients Undergoing Minimally-Invasive Stand-Alone Lateral Lumbar Interbody Fusion. *Neurosurgery* 87(6):1167-1173, December 2020.

168. White, M.D., Hansberry, D.R., Prabhu, A.V., **Agarwal, N.**, Kandula, V. Grisel's Syndrome: A Rare Cause of Torticollis with Subluxation of the Atlantoaxial Joint Secondary to a Retropharyngeal Abscess. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 22:100872, December 2020.

169. **Agarwal, N.**, Nwachuku, E.L., Mehta, A., Kashkoush, A., Alan, N., Hamilton, D.K., Thirumala, P.D. Perioperative Neurological Deficits Following Anterior Lumbar Interbody Fusion: Risk Factors and Clinical Impact. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 22:100791, December 2020.

170. **Agarwal, N.**, Salvetti, D.J., Nowicki, N.W., Alan, N., Ghandoke, G.S., Kanter, A.S., Okonkwo, D.O., Hamilton, D.K. Preoperative Chronic Opiate Use and Patient Reported Outcomes following Adult Spinal Reconstructive Surgery. *World Neurosurgery* 143:e166-e171, November 2020.

171. White, M.D., Latour, K., Giordano, M., Taylor, T., **Agarwal, N.** The Reliability and Quality of Online Patient Education Videos for Lateral Lumbar Interbody Fusion. *Journal of Neurosurgery: Spine* 33(5):652-665, November 2020.

172. Alan, N., Kim, S., **Agarwal, N.**, Clarke, J., Yealy, D.M., Cohen-Gadol, A.A., Sekula, R.F. Inter-facility Transfer of Patients with Traumatic Intracranial Hemorrhage and GCS 14–15: The Pilot Study of a Screening Protocol by Neurosurgeon to Avoid Unnecessary Transfers. *Journal of Clinical Neuroscience* 81:246-251, November 2020.

173. Cabral, D.T.F., Alan, N., **Agarwal, N.**, Lunsford, L.D., Monaco, E.A. Coronavirus Disease 2019 (COVID-19) and Neurosurgery Residency Action Plan: An Institutional Experience from the United States. *World Neurosurgery* 143:e172-e178, November 2020.

174. Kamath, P., Egger, A., Karanfilian, T.S., Karanfilian, K.M., **Agarwal, N.**, Lambert, W.C. The 100 Most Influential Skin Cancer Publications: A Citation Analysis. *Dermatology Online Journal* 26(11):3, November 2020.

175. McDowell, M.M., **Agarwal, N.**, Mao, G., Johnson, S., Kano, H., Lunsford, L.D., Greene, S. Long-term Outcomes of Pediatric Arteriovenous Malformations: The 30-Year Pittsburgh Experience. *Journal of Neurosurgery: Pediatrics* 26(3):275-282, September 2020. (Journal Cover)

176. Kamath, D., Mcintyre, S., Peskin, E., Stratman, S., **Agarwal, N.**, Kamath, P.D., Gupta, R., Schwartz, R., Abd-Elsayed, A., Urits, I., Viswanath, O., Kaye, A.D., Horn, D.B. Readability of Online Patient Education Materials for Interventional Pain Procedures. *Cureus* 12(9):e10684, September 2020.

177. Gersey, Z., Zheng, I., Bregy, A., **Agarwal, N.**, Komotar, R.J. Intracranial Langerhans Cell Histiocytosis: A Review. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 21:100729, September 2020.

178. Kashkoush, A., **Agarwal, N.**, Ayres, A., Novak, V., Chang, Y.F., Friedlander, R.M. Scrubbing Technique and Surgical Site Infections: An Analysis of 14,200 Neurosurgical Cases. *Journal of Neurosurgery* 133(2):580-587, August 2020.

179. Kamath, D., McIntyre, S., Byerly, S., **Agarwal, N.**, Kamath, P., Peskin, E., Gupta, R., Roy, S., Schwartz, R., Kaye, A.D., Viswanath, O., Uritis, I., Horn, D.B. Descriptive Analysis of Federal and State Interventional Pain Malpractice Litigation in the United States: A Pilot Investigation. *Pain Physician* 23(4):413-422, July 2020.

180. **Agarwal, N.**, Funahashi, R., Taylor, T., Jorge, A., Feroze, R., Zhou, J., Hansberry, D.R. Gross, B.A., Jankowitz, B.T., Friedlander, R.M. Patient Education and Engagement Through Multimedia: Prospective Pilot Study on Health Literacy in Patients with Cerebral Aneurysms. *World Neurosurgery* 138:e819-e826, June 2020.

181. McDowell, M.M., Zhu, X., **Agarwal, N.**, Zenonos, G.A., Gardner, P.A. Endolymphatic Mass in a Patient with Undiagnosed Multiple Myeloma. *Archives of Hematology Case Reports and Review* 5(1):20-22, June 2020.

182. **Agarwal, N.**, White, M.D., Zhang, X., Alan, N., Ozpinar, A., Salvetti, D.J., Tempel, Z.J., Okonkwo, D.O., Kanter, A.S., Hamilton, D.K. Impact of Endplate-Implant Area Mismatch on Rates and Grades of Subsidence Following Stand-alone Lateral Lumbar Interbody Fusion: An Analysis of 623 Levels. *Journal of Neurosurgery: Spine* 33(1):12-16, March 2020.

183. **Agarwal, N.**, Agarwal, P., Taylor, T.M., Mortimer, A.R., Stacy, J.D., Spatola, M., Mazzola, C.A., Orrico, K.O., Heary, R.F. Contributions to the United States Neurosurgery Political Action Committee (NeurosurgeryPAC): A Historical Perspective. *World Neurosurgery* 135:273-279, March 2020.

184. Goldschmidt, E., Angriman, F., **Agarwal, N.**, Trevisan, M., Zhou, Z., Chen, K., Gerszten, P.C., Kanter, A.S., Okonkwo, D.O., Passias, P.G., Scheer, J.K., Protopsaltis, T., Lafage, V., Lafage, R., Schwab, F., Bess, S., Ames, C.P., Smith, J.S., Shaffrey, C.I., Miller, E., Jain, A., Neuman, B., Sciubba, D.M., Burton, D.C., Hamilton, D.K., International Spine Study Group. A New Piece of the Puzzle to Understand Cervical Sagittal Alignment: Utilizing a Novel Angle δ to Describe the Relationship among T1 Vertebral Body Slope, Cervical Lordosis, and Cervical Sagittal Alignment. *Neurosurgery* 86(3):446-451, March 2020.

185. Hansberry, D.R., D'Angelo, M., Prabhu, A.V., White, M.D., Tilwa, S., Li, Z., Cox, M., **Agarwal, N.**, Vinay Kandula, V. Lemierre's Syndrome: Acute Oropharyngeal Infection leading to Septic Thrombophlebitis of the Internal Jugular Vein with Pulmonary Septic Emboli. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 19:100573, March 2020.

186. Yakar F., Jacobs, R.C., **Agarwal, N**. The Current Usage of Instagram in Neurosurgery. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 19:100553, March 2020.

187. Heary R.F., **Agarwal, N.**, Parvathreddy, N.K., Hansberry, D.R., Ferrara, L.A. Kinematics Following 3-Screw Integrated Interbody Spacers in the Lumbar Spine. *Operative Neurosurgery* 18(2):175-182, February 2020.

188. Jani, R.H., Prabhu, A.V., Zhou, J.J., Alan, N., **Agarwal, N.** Citation Analysis of the Most Influential Articles on Traumatic Spinal Cord Injury. *Journal of Spinal Cord Medicine* 43(1):31-38, February 2020.

189. Chandra, V., **Agarwal, N.**, Zenonos, G.A., Zhang, X., Hamilton, R.L., Gardner, P.A. Concomitant Parasagittal Meningioma and Adjacent Intracranial Abscess of Occult Etiology. *Journal of Clinical Neuroscience* 72:474-480, February 2020.

190. Jorge, A., Taylor, T., **Agarwal, N.**, Hamilton, D.K. Current Agents and Related Therapeutic Targets for Inflammation Following Acute Traumatic Spinal Cord Injury. *World Neurosurgery* 132:138-147, December 2019.

191. **Agarwal, N.**, Angriman, F., Goldschmidt, E., Zhou, J., Kanter, A.S., Okonkwo, D.O., Passias, P.G., Protopsaltis, T., Lafage, V., Lafage, R., Schwab, F., Bess, S., Ames, C., Smith, J.S., Shaffrey, C.I., Burton, D., Hamilton, D.K., International Spine Study Group. Relationship between Body Mass Index and Sagittal Vertical Axis Change as well as Health-Related Quality of Life in 564 Patients following Deformity Surgery. *Journal of Neurosurgery: Spine* 31(5):697-702, November 2019.

192. **Agarwal, N.,** White, M.D., Pannullo, S.C., Chambless, L.B. Analysis of National Trends in Neurosurgical Resident Attrition. *Journal of Neurosurgery* 131(5):1668-1673, November 2019.

193. Heary, R.F., **Agarwal, N.,** Agarwal, P., Goldstein, I.M. Surgical Treatment with Thoracic Pedicle Screw Fixation of Vertebral Osteomyelitis with Long-Term Follow-Up. *Operative Neurosurgery* 17(5):443-451, November 2019.

194. Kamath, P. Kursewicz, C., Ingrasci, G., Jacobs, R., **Agarwal, N.**, Nouri, K. Analysis of Patient Perceptions of Mohs Surgery on Social Media Platforms. *Archives of Dermatological Research* 311(9):731-734, November 2019.

195. Kim, W.J., Zhang, X., **Agarwal, N.**, Gross, B.A., Safonova, A., Jankowitz, B.T., Friedlander, R.M. Utility of Surveillance Imaging for Spontaneous Intracerebral Hemorrhage. *Journal of Clinical Neuroscience* 69:132-138, November 2019.

196. Gersey, Z., Osiason, A.D., Bloom, L., Shah, S., Thompson, J.W., Bregy, A., **Agarwal, N.**, Komotar, R.J. Therapeutic Targeting of the Notch Pathway in Glioblastoma. *World Neurosurgery* 131:252-263, November 2019.

197. Kim, S., Alan, N., Sansosti, A., **Agarwal, N.**, Wecht, D.A. Complications after 3- and 4-Level Anterior Cervical Discectomy and Fusion. *World Neurosurgery* 130:e1105-e1110, October 2019.

198. Karanfilian, K.M, De Guzman, E., Kim, C., Madill, E., Ayyaswami, V., Kamath, P., **Agarwal, N.**, Koch, E., Prabhu, A.V. What Patients See Online: Assessing the Online Identities of Pennsylvania Dermatologists. *Dermatology Online Journal* 25(9):3, September 2019.

199. Kashkoush, A., Mehta, A., **Agarwal, N.**, Nwachuku, E.L., Fields, D.P., Alan, N., Kanter, A.S., Okonkwo, D.O., Hamilton, D.K., Thirumala, P.D. Perioperative Neurological Complications Following Anterior Cervical Discectomy and Fusion: Clinical Impact on 317,789 Patients from the National Inpatient Sample. *World Neurosurgery* 128:e107-e115, August 2019.

200. Joshi, N.D., Lieber, B., Wong, K., Al-Alam, E., **Agarwal, N.**, Diaz, V. Social Media in Neurosurgery: Utilizing ResearchGate. *World Neurosurgery* 127:e950-e956, July 2019.

201. **Agarwal, N.**, White, M.D., Cohen, J., Lunsford, L.D., Hamilton, D.K. Longitudinal Survey of Cranial Case Log Entries during Neurological Surgery Residency Training. *Journal of Neurosurgery* 130(6):2025–2031, June 2019.

202. Agarwal, P., **Agarwal, N.**, Hansberry, D.R., Majmundar, N., Goldstein I.M. Sternoclavicular Joint Arthropathy Mimicking Radiculopathy in a Patient with Concurrent C4-5 Disc Herniation. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 18, June 2019.

203. White, M.D., **Agarwal, N.**, Tonetti, D.A. The Utility of Whole Body Imaging in the Evaluation of Solitary Brain Tumors. *World Neurosurgery* 126:e1206-e1210, June 2019.

204. Reseland, E., **Agarwal, N.**, McDowell, M.M., Stone, J.G., Tonetti, D.A., Awad, I.A., Hodge, C.J., Koenig, K.S., Friedman, A.H., Friedlander, R.M. Research Update in Neuroscience for Neurosurgeons: A Historical Perspective. *Journal of Neurosurgery* 131(2):639-648, May 2019.

205. Kamath, P.D., **Agarwal, N.**, Salgado, C.J., Kirsner, R. Wound Healing Elective: An Opportunity to Improve the Medical Education Curriculum to Better Manage the Increasing Burden of Chronic Wounds. *Dermatology Online Journal* 25(5), May 2019.

206. White, M.D., Zollman, J., McDowell, M.M., **Agarwal, N.**, Abel, T., Hamilton, D.K. Neurosurgery Resident Surgical Experience in Pediatric Cases. *Pediatric Neurosurgery* 54(3):181-187, May 2019.

207. **Agarwal, N.**, Faramand, A.M., Bellon, J., Borrebach, J., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Limitations of the Patient Experience Reports in Spine Surgery: Analysis of 7485 Surveys. *Journal of Neurosurgery: Spine* 30(4):520-523, April 2019.

208. **Agarwal, N.**, Kashkoush, A., McDowell, M.M., Lariviere, W.R., Ismail, N., Friedlander, R.M. Comparative Durability and Costs Analysis of Ventricular Shunts. *Journal of Neurosurgery* 130(4):1252-1259, April 2019.

209. McDowell, M.M. Parry P.V., **Agarwal, N.**, Miele, V.J., Maroon, J.C. Long Term Delay in Onset of Prevertebral Hematoma Following Anterior Cervical Discectomy and Fusion: A Case Report. *Journal of Clinical Neuroscience* 62:234-237, April 2019.

210. Ayyaswami, V., Padmanabhan, D., Patel, M., Prabhu, A.V., Hansberry, D.R., **Agarwal, N.**, Magnani, J.W. A Readability Analysis of Online Cardiovascular Disease-Related Health Education Materials. *Health Literacy Research and Practice* 3(2):75-80, April 2019.

211. Kim, C., Prabhu, A.V., Hansberry, D.R., **Agarwal N.**, Heron, D.E., Beriwal, S. Digital Era of Mobile Communications and Smartphones: A Novel Analysis of Patient Comprehension of Cancer-Related Information Available Through Mobile Applications. *Cancer Investigation* 37(3):127-133, March 2019.

212. **Agarwal, N.**, Zenonos, G.A. Agarwal, P., Walch, F.J., Roach, E., Stokes, S.J., Friedlander, R.M., Gerszten, P.C. Risk-to-Benefit Ratio of Venous Thromboembolism Prophylaxis for Neurosurgical Procedures at a Quaternary Referral Center. *Neurosurgery* 84(2):355-361, February 2019.

213. Gandhi, S.V., Januszewski, J., Bach, K., Graham, R., Vivas, A.C., Paluzzi, J., Kanter, A.S., Okonkwo, D.O. Tempel, Z.J., **Agarwal, N.**, Uribe, J.S. Development of Proximal Junctional Kyphosis after Minimally Invasive Lateral Anterior Column Realignment for Adult Spinal Deformity. *Neurosurgery* 84(2):442-250, February 2019.

214. **Agarwal, N.**, Kashkoush, A., Baucom, E.T., Ratliff, J.K., Stroink, A.R., Council of State Neurosurgical Societies. Quality Reporting in Neurological Surgery: Practice Adherence to Quality Payment Program Guidelines. *Neurosurgery* 84(2):537-543, February 2019.

215. **Agarwal, N.**, Lariviere, W.R., Henry, L.C., Faramand, A., Koschnitzky, J.E., Friedlander, R.M. Observations from Social Media Regarding the Symptomatology of Adult Hydrocephalus Patients. *World Neurosurgery* 122:e307-e314, February 2019.

216. Kanter, A.S., Tempel, Z.J., **Agarwal, N.**, Hamilton, D.K., Zavatsky, J.M., Mundis, G.M., Tran, S., Chou, D., Park, P., Uribe, J.S., Wang, M.Y., Anand, N., Eastlack, R., Mummaneni, P.V., Okonkwo, D.O., International Spine Study Group. Curve Laterality for Lateral Lumbar Interbody Fusion in Adult Scoliosis Surgery: The Concave versus Convex Controversy. *Neurosurgery* 83(6):1219-1225, December 2018.

217. Jorge, A., White, M.D. **Agarwal, N.** Outcomes in Socioeconomically Disadvantaged Patients with Spinal Cord Injury: A Systematic Review. *Journal of Neurosurgery: Spine* 29(6):680-686, December 2018.

218. Nwachuku, E.L., Mehta, A. Alan, N., **Agarwal, N.**, Okonkwo, D.O., Hamilton, D.K., Kanter, A.S., Thirumala, P.D. Risk Factors and Clinical Impact of Perioperative Neurological Deficits Following Thoracolumbar Arthrodesis. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 14:18-23, December 2018.

219. Feroze, R.A., **Agarwal, N.**, Sekula, R.F. Utility of Calcium Phosphate Cement Cranioplasty following Supraorbital Approach for Tumor Resection. *International Journal of Neuroscience* 128(12):1199-1203, December 2018.

220. Perez, J.L., Kashkoush A., Karnati, T., Zhou, J., **Agarwal, N.**, Hamilton, D.K. The 100 Most Influential Publications in Acute Ischemic Stroke. *Journal of Neurology and Neurobiology* 4(3), December 2018.

221. McDowell, M.M., Chiang, M.C., **Agarwal, N.**, Friedlander, R.M., Wecht, D.A. Exclusive Use of Fixed Pressure Valves for Cerebrospinal Fluid Diversion in a Modern Adult Cohort. *Heliyon* 4(12):e01099, December 2018.

222. **Agarwal, N.**, Faramand, A.M., Alan, N., Tempel, Z.J., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Lateral Lumbar Interbody Fusion in the Elderly: A 10 Year Experience. *Journal of Neurosurgery: Spine* 29(5): 525–529, November 2018.

223. Salvetti, D.J., Tempel, Z.J., Goldschmidt, E., Colwell, N.A., Angriman, F., Panczykowski, D.M., **Agarwal, N.**, Kanter, A.S., Okonkwo, D.O. Low Preoperative Serum Prealbumin Levels and the Postoperative Surgical Site Infection Risk in Elective Spine Surgery: A Consecutive Series. *Journal of Neurosurgery: Spine* 29(5): 549–552, November 2018.

224. Dayananda, S., Mehta, A., **Agarwal, N.**, Nwachuku, E.L. Hamilton, D.K., Thirumala, P.D. Impact of Perioperative Neurologic Deficits on Clinical Outcomes after Posterior Cervical Fusion. *World Neurosurgery* 119:e250-e261, November 2018.

225. **Agarwal, N.**, White, M.D. Hamilton, D.K. A Longitudinal Survey of Adult Spine and Peripheral Nerve Case Entries during Neurosurgery Residency Training. *Journal of Neurosurgery: Spine* 29(4):442-447, October 2018.

226. Farber, S.H., McDowell, M.M., Alhourani, A., **Agarwal, N.**, Friedlander, R.M. Duraplasty Type as a Predictor of Meningitis and Shunting after Chiari I Decompression. *World Neurosurgery* 118:e778-e783, October 2018.

227. Kamath, P.D., Stratman, S. **Agarwal, N.** Augmenting the Scope of Dermatologic Care and Training via Student-Run Health Clinics. *Dermatology Online Journal* 24(10), October 2018.

228. Jacobs, R., Prabhu, A.V., Monaco, E.A., Tonetti, D., **Agarwal, N.** Patient Perception of Gamma Knife Stereotactic Radiosurgery through Twitter and Instagram. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 13:138-140, September 2018.

229. **Agarwal, N.**, Agarwal, P., Querry, A., Mazurkiewicz, A., Tempel, Z.J., Friedlander, R.M., Gerszten, P.C., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Implementation of an Infection Prevention Bundle and Increased Physician Awareness Improves Surgical Outcomes and Reduces Costs Associated with Spine Surgery. *Journal of Neurosurgery: Spine* 29(1):108-114, July 2018.

230. **Agarwal, N.**, Gupta, R., Agarwal, P., Matthew, P., Wolferz, R., Shah, A., Adeeb, N., Prabhu, A.V., Kanter, A.S., Okonkwo, D.O., Hamilton, D.K. Descriptive Analysis of State and Federal Spine Surgery Malpractice Litigation in the United States. *Spine Journal* 43(14):984-990, July 2018.

231. Grandhi, R., Weiner, G.M., **Agarwal, N.**, Panczykowski, D.M., Ares, W.J., Rodriguez, J.S., Gelfond, J.A., Myers, J.G., Alarcon, L.H., Okonkwo, D.O., Jankowitz, B.T. Limitations of Multidetector Computed Tomography Angiography for Diagnosis of Blunt Cerebrovascular Injury. *Journal of Neurosurgery* 128(6):1642-1657, June 2018.

232. Zhou, J., **Agarwal, N.,** Gandhoke, G.S., Koltz, M., Kanter, A.S., Okonkwo, D.O, Hamilton. D.K. Long-term Clinical Outcomes Following Surgical Management of Cervical Spine Fractures in Elderly Patients. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 12:10-14, June 2018.

233. Hansberry, D.R., Kush, S., **Agarwal, N.**, Kim, S.M., Intenzo, C.M. Nuclear Medicine and Resources for Patients: How Complex are Online Patient Educational Materials? *Journal of Nuclear Medicine Technology* 46(2): 144-146, June 2018.

234. **Agarwal, N.**, Agarwal, P., Querry, A., Mazurkiewicz, A., Whiteside. B., Marroquin, O.C., Koscumb, S.F., Wecht, D.A., Friedlander, R.M. Reducing Surgical Infections and Implant Costs via a Novel Paradigm of Enhanced Physician Awareness. *Neurosurgery* 82(5):661-666, May 2018.

235. Kim, C., Gupta, R., Shah, A., Madill, E., Prabhu, A.V, **Agarwal, N.** Digital Footprint of Neurological Surgeons. *World Neurosurgery* 113:e172–e178, May 2018.

236. Reseland, E., **Agarwal, N.**, Lunsford, L.D., Friedlander, R.M. Commentary: The Continuing Evolution of the Department of Neurological Surgery at the University of Pittsburgh. *Neurosurgery* 82(5):E125-E131, May 2018.

237. Hansberry, D.R., D'Angelo, M., White, M.D., Prabhu, A.V., Cox, M., **Agarwal, N.**, Deshmukh, S. Quantitative Analysis of the Level of Readability of Online Emergency Radiology-Based Patient Education Resources. *Emergency Radiology* 25(2):147-152, April 2018.

238. Hansberry, D.R., Bornstein, J., **Agarwal, N.**, McClure, K.E., Deshmukh, S.P., Long S. An Assessment of Radiology Residency Program Websites. *Journal of the American College of Radiology* 15(4):663-666, April 2018.

239. Prabhu, A.V., Donovan, A.L., Crihalmeanu, T., Hansberry, D.R., **Agarwal, N.**, Beriwal, S., Kale, H., Heller, M. Radiology Online Patient Education Materials Provided by Major University Hospitals: Do They Conform to NIH and AMA Guidelines? *Current Problems in Diagnostic Radiology* 47(2):75-79, March-April 2018.

240. **Agarwal, N.**, Heary, R.F., Agarwal, P. Adjacent-Segment Disease after Thoracic Pedicle Screw Fixation. *Journal of Neurosurgery: Spine* 28(3):280-286, March 2018.

241. **Agarwal, N.**, Mistry, J.B., Khandge, P.V., Hansberry, D.R., Goldstein, I.M. Meralgia Paresthetica after Spine Surgery on the Jackson Table. *Clinical Spine Surgery* 31(2):53-57, March 2018.

242. Goldschmidt, E., Angriman, F., Ferreyro, B., **Agarwal, N.**, Zhou, J., Chen, K., Tempel, Z.J., Gerszten, P.C., Kanter, A.S., Okonkwo, D.O., Passias, P., Scheer, J., Protopsaltis, T., Lafage, V., Lafage, R., Schwab, F., Bess, S., Ames, C., Smith, J.S., Burton, D., Hamilton, D.K., International Spine Study Group (ISSG). Design and Testing of 2 Novel Scores that Predict Global Sagittal Alignment Utilizing Cervical or Lumbar Plain Radiographs. *Neurosurgery* 82(2):163-171, February 2018.

243. Thomas, R., Gupta, R., Griessenauer, C.J., Moore, J.M., Adeeb, N., Motiei-Langroudi, R., Guidal, B., **Agarwal, N.**, Alterman, R.L., Friedlander, R.M., Ogilvy, C.S., Thomas, A.J. Medical Malpractice in Neurosurgery: A Comprehensive Analysis. *World Neurosurgery* 110:e552-e559, February 2018.

244. Prabhu, A.V., Quang, T.S., Funahashi, R., Gupta, R., Badeti, S., Adeeb, N., Moore, J.M., **Agarwal, N.**, Heron, D.E., Beriwal, S. A National WestlawNext Database Analysis of Malpractice Litigation in Radiation Oncology. *Federal Practitioner* 35(1):S44-S52, February 2018.

245. Crihalmeanu, T., Prabhu, A.V., Hansberry, D.R., **Agarwal, N.**, Fine, M.J. Readability of Online Allergy and Immunology Educational Resources for Patients: Implications for Physicians. *Journal of Allergy and Clinical Immunology: In Practice* 6(1):286-288, January-February 2018.

246. Kashkoush, A.I., Weisgerber, A., Dharaneeswaran, K., **Agarwal, N.**, Shutter, L. Medical Training and the Brain Death Exam: A Single Institution's Experience. *World Neurosurgery* 108:374-378, December 2017.

247. Prabhu, A.V., Lieber, B.A., Henry, J.K., **Agarwal, N.**, Tabbosha, M., Okonkwo, D.O. Early Postoperative Complications for Elderly Patients Undergoing Single-Level Decompression for Lumbar Disc Herniation, Ligamentous Hypertrophy, or Neuroforaminal Stenosis. *Neurosurgery* 81(6):1005-1010, December 2017.

248. Ares, W.J., **Agarwal, N.**, Balzer, J., Jankowitz, B.T. Hemorrhagic Complications of Intraoperative Neurophysiologic Monitoring Needle Electrodes. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 10:4-7, December 2017.

249. Ricks, C.B, **Agarwal, N.**, Jankowitz, B.T. Wound Dehiscence from a Prominent External Occipital Protuberance: An Indication for Prophylactic Drilling? *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 10:49-51, December 2017.

250. Kashkoush, A., Feroze, R., Myal, S., Prabhu, A.V., Sansosti, A., Tonetti, D., **Agarwal, N.** Fostering Student Interest in Neurological Surgery: The University of Pittsburgh Experience. *World Neurosurgery* 108:101-106, December 2017.

251. Prabhu, A.V., Kim, C., De Guzman, E., Zhao, E., Madill, E., Cohen, J., Hansberry, D.R., **Agarwal, N.**, Heron, D.E., Beriwal, S. Reputation Management and Content Control: An Analysis of Radiation Oncologists' Digital Identities. *International Journal of Radiation Oncology, Biology, Physics* 99(5):1083-1091, December 2017.

252. Heary, R.F., Parvathreddy, N.K., **Agarwal, N.** Biomechanical Analysis of Range of Motion and Failure Characteristics of Osteoporotic Spinal Compression Fractures in Human Cadaver. *Indian Journal of Orthopaedics* 51(6):672-676, November 2017.

253. Patel, D., Prabhu, A.V., **Agarwal, N.** "Geriatrics Week": A Teaching Opportunity to Improve the Medical Education Curriculum in the Context of an Aging Population. *Journal of Graduate Medical Education* 9(5):669-669, October 2017.

254. Prabhu, A.V., Crihalmeanu, T., Hansberry, D.R., **Agarwal, N.**, Glaser, C., Clump, D.A., Heron, D.E., Beriwal, S. Online Palliative Care and Oncology Patient Education Resources through Google: Do They Meet National Health Literacy Recommendations? *Practical Radiation Oncology* 7(5):306-310, September-October 2017.

255. Hansberry, D.R., Gupta, R., Prabhu, A.V., **Agarwal, N.**, Cox, M., Joneja, U., Curtis, M.T., Harrop, J.S., Flanders, A.E. Thoracic Spinal Osteochondroma: A Rare Presentation of Spinal Cord Compression. *Clinical Imaging* 45:18-21, September-October 2017.

256. Goldstein, I.M, Singh, R., **Agarwal, N.** Resolution of Screw Radiolucency following Instrumentation with a Hybrid Rigid to Dynamic Stabilization System. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 9:71-75, September 2017

257. Mao, G., **Agarwal, N.**, Zuccoli, G., Tyler-Kabara, E.C. Intermittent Entrapment of Choroid Plexus in Ventricular Catheter. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 9:17-19, September 2017.

258. Kashkoush, A., Prabhu, A.V., Tonetti, D., **Agarwal, N.** The Neurosurgery Match: A Bibliometric Analysis of 206 First-Year Residents. *World Neurosurgery* 105:341-347, September 2017.

259. Zwagerman, N.T., **Agarwal, N.**, Jankowitz, B.T. Natural History of Intracranial Absorbable Gelatin Powder. *World Neurosurgery* 104:1044, August 2017.

260. Zhou, J., **Agarwal, N.**, Hamilton, D.K., Koltz, M.T. The 100 Most Influential Publications Pertaining to Intracranial Aneurysms and Aneurysmal Subarachnoid Hemorrhage. *Journal of Clinical Neuroscience* 42:28-42, August 2017.

261. **Agarwal, N.**, Hansberry, D.R., Goldstein, I.M. Tethered Cord as a Complication of Chronic Cerebral Spinal Fluid Diversion. *International Journal of Spine Surgery* 11(4):208-211, August 2017.

262. Alan, N., Cohen, J., Ozpinar, A., **Agarwal, N.**, Kanter, A.S., Okonkwo, D.O., Hamilton, D.K. Top 50 Most Cited Articles on Primary Tumors of the Spine. *Journal of Clinical Neuroscience* 42:19-72, August 2017.

263. Goldschmidt, E., Angriman, F., **Agarwal, N.**, Zhou, J., Chen, K., Tempel, Z.J., Gerszten, P.C., Kanter, A.S., Okonkwo, D.O., Passias, P., Scheer, J., Protopsaltis, T., Lafage, V., Lafage, R., Schwab, F., Bess, S., Ames, C., Smith, J.S., Shaffrey, C.I., Miller, E., Jain, A., Neuman, B., Sciubba, D.M., Burton, D., Hamilton, D.K., International Spine Study Group. A Novel Tool for Deformity Surgery Planning: Determining the Magnitude of Lordotic Correction Required to Achieve a Desired Sagittal Vertical Axis. *World Neurosurgery* 104:904-908, August 2017.

264. Kashkoush, A.I., Prabhu, A.V., **Agarwal, N.** Advocating for Preclinical Surgical Skills Curricula during Medical School. *Medical Teacher* 39(7):788, July 2017.

265. Prabhu, A.V., Kim, C., Crihalmeanu, T., Hansberry, D.R., **Agarwal, N.**, DeFrances, M.C., Trejo Bittar, H.E. An Online Readability Analysis of Pathology-Related Patient Education Articles: An Opportunity for Pathologists to Educate Patients. *Human Pathology* 65:15-20, July 2017.

266. **Agarwal, N.**, Kashkoush, A.I., Prabhu, A.V., Sekula, R.F. Ventral Spontaneous Durotomy Following Vaginal Delivery. *World Neurosurgery* 102:697, June 2017.

267. Heary, R.F., Parvathreddy, N., Sampath, S., **Agarwal, N.** Elastic Modulus in the Selection of Interbody Implants. *Journal of Spine Surgery* 3(2):163-167, June 2017.

268. Algattas, H., Cohen, J., **Agarwal, N.**, Hamilton, D.K. Trends in the Use of Patient-Reported Outcome Instruments in Neurosurgical Adult Thoracolumbar Deformity and Degenerative Disease Literature. *Journal of Craniovertebral Junction and Spine* 8(2):103-107, June 2017.

269. Shin, S.S., Gardner, P.A., Ng, J., Faraji, A.H., **Agarwal, N.**, Chivukula, S., Fernandez-Miranda, J.C., Snyderman, C.H., Challinor, S.M. Endoscopic Endonasal Approach for Adrenocorticotropic Hormone-Secreting-Secreting Pituitary Adenomas: Outcomes and Analysis of Remission Rates and Tumor Biochemical Activity with Respect to Tumor Invasiveness. *World Neurosurgery* 102:651-658, June 2017.

270. Hansberry, D.R., Donovan, A.L., Prabhu, A.V., **Agarwal, N.**, Cox, M., Flanders, A.E. Enhancing the Radiologist-Patient Relationship Through Improved Communication: A Quantitative Readability Analysis in Spine Radiology. *American Journal of Neuroradiology* 38(6):1252-1256, June 2017.

271. Hansberry, D.R., **Agarwal, N.**, John E.S., John A.M., Agarwal, P., Reynolds, J.C., Baker, S.R. Evaluation of Internet-Based Patient Education Materials from Internal Medicine Subspecialty Organizations – Will Patients Understand Them? *Internal and Emergency Medicine* 12(4):535-543, June 2017.

272. Hansberry, D.R., Patel, S.R., Agarwal, P., **Agarwal, N.**, John E.S., John A.M., Reynolds, J.C. A Quantitative Readability Analysis of Patient Education Resources from Gastroenterology Society Websites. *International Journal of Colorectal Disease* 32(6):917-920, June 2017.

273. Kellogg, M., Petrov, D., **Agarwal, N.**, Patel, N.V., Hansberry, D.R., Agarwal, P., Brimacombe, M., Gandhi, C.D., Prestigiacomo, C.J. Effects of Meteorological Variables on the Incidence of Rupture of Intracranial Aneurysms in Central New Jersey. *Journal of Neurological Surgery Part A: Central European Neurosurgery* 78(3):238-244, May 2017.

274. Hansberry, D.R., **Agarwal, N.**, Sharer, L.R., Goldstein, I.M. Minimally Manipulative Extraction of Polycystic Cervical Neurocysticercosis *European Spine Journal* 26(1):63-68, May 2017.

275. Kashkoush, A.I., Ma, H., **Agarwal, N.**, Panczykowski, D., Tonetti, D., Weiner, G.M., Ares, W., Kenmuir, C., Jadhav, A., Jovin, T., Jankowitz, B.T., Gross, B.A. Cerebral Venous Sinus Thrombosis in Pregnancy and Puerperium: A Pooled, Systematic Review. *Journal of Clinical Neuroscience* 39:9-15, May 2017.

276. **Agarwal, N.**, Kommana, S.S., Hansberry, D.R., Kashkoush, A.I., Friedlander, R.M. Lunsford, L.D. The Accessibility, Reliability, and Usability of Neurological Surgery Resources. *Journal of Neurosurgery* 126(4):1263-1268, April 2017.

277. Feroze, R., Prabhu, A.V, **Agarwal, N.** Stroke Education Underrepresented in American Medical School Clinical Curriculum. *Academic Medicine* 92(4):435, April 2017.

278. Hansberry, D.R., Ayyaswami, V., Sood, A., Prabhu, A.V., **Agarwal, N.**, Deshmukh, S.P. Abdominal Imaging and Patient Education Resources: Enhancing the Radiologist-Patient Relationship through Improved Communication Abdominal Radiology. *Abdominal Radiology* 42(4):1276-1280, April 2017.

279. **Agarwal, N.**, Hamilton, D.K., Ozpinar, A., Choi, P., Hart, R., Yaylali, I. Intraoperative Neurophysiological Monitoring for Adult Patients Undergoing Posterior Spinal Fusion. *World Neurosurgery* 99:267-274, March 2017.

280. **Agarwal, N.**, Hansberry, D.R., Kavi, A., Agarwal, P., Baisre, A., Goldstein, I.M. Prognostic Differences: Epstein-Barr Virus Associated Primary Leiomyosarcoma of the Spine versus Spinal Leiomyosarcoma Metastases. *World Neurosurgery* 99:484-490, March 2017.

281. Zhou, J.J., Koltz, M.T., **Agarwal, N.**, Tempel, Z.J., Kanter, A.S., Okonkwo, D.O., Hamilton, D.K. 100 Most Influential Publications in Scoliosis Surgery. *Spine Journal* 42(5):336-344, March 2017.

282. Lieber, B.A., Henry, J.K., **Agarwal, N.**, Day, J.D., Morris, T.W., Stephens, M.L., Abla, A.A. Impact of Surgical Specialty on Outcomes Following Carotid Endarterectomy. *Neurosurgery* 80(2):217-225, February 2017.

283. **Agarwal, N.**, Choi, P.A., Okonkwo, D.O., Barrow, D.L., Friedlander, R.M. Financial Burden Associated with the Residency Match in Neurological Surgery. *Journal of Neurosurgery* 126(1):184-190, January 2017.

284. Weiner, G.M., Feroze, R., Panczykowski, D.M., Aghaebrahim, A., Ares, W., **Agarwal, N.**, Enis, J., Zhu, X., Ducruet, A.F. Endovascular Treatment of Tandem Common Carotid Artery Origin and Distal Intracranial Occlusion in Acute Ischemic Stroke. *World Neurosurgery* 97:360-365, January 2017.

285. Hansberry, D.R., Shah, K., Agarwal, P., **Agarwal, N.** Fecal Myeloperoxidase as a Biomarker for Inflammatory Bowel Disease. *Cureus* 9(1): e1004, January 2017.

286. **Agarwal, N.**, Choi, P.A., Shin, S.S., Hansberry, D.R., Mammis, A. Anterior Cingulotomy for Intractable Pain. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 6:80-83, December 2016.

287. **Agarwal, N.**, Zuccoli, G., Murdoch, G., Jankowitz, B.T., Greene, S. Developmental Venous Anomaly Presenting as a Spontaneous Intraparenchymal Hematoma without Thrombosis. *The Neuroradiology Journal* 29(6):465-469, December 2016.

288. Agarwal, P., Sarris, C.E., Herschman, Y., **Agarwal, N.**, Mammis, A. Schizophrenia and Neurosurgery: A Dark Past with Hope of a Brighter Future. *Journal of Clinical Neuroscience* 34:53-58, December 2016.

289. Grover, K., Agarwal, P., **Agarwal, N.**, Tabakin, M.D., Swan, K.G. Students to Surgeons: Increasing Matriculation into Surgical Specialties. *Surgical Innovation* 23(5):623-634, December 2016

290. **Agarwal, N.**, Quinn, J.C., Zhu, X., Mammis, A. Neuroanatomical Considerations of Isolated Bilateral Hearing Loss in Thalamic Hemorrhage. *Interdisciplinary Neurosurgery: Advanced Techniques and Case Management* 6:42-44, December 2016.

291. McDowell, M.M., Zhu, X., **Agarwal, N.**, Nikiforova, M.N., Lieberman, F.S., Drappatz, J. Response of Relapsed Central Nervous System Hairy Cell Leukemia to Vemurafenib. *Leukemia and Lymphoma* 57(12):2952-2954, December 2016.

292. **Agarwal, N.**, Choi, P.A., Sekula, R.F. Minimally Invasive Spine Surgery for Unstable Thoracolumbar Burst Fractures: A Case Series. *The Surgery Journal* 2(4):e131-e138, November 2016.

293. **Agarwal, N.**, Gala, N., Baumrind, B., Hansberry, D.R., Thabet, A.M., Gandhi, C.D, Prestigiacomo, C.J. Endovascular Management of Central Retinal Arterial Occlusion: A Case Report. *Vascular and Endovascular Surgery* 50(8):579-581, November 2016.

294. **Agarwal, N.**, Hansberry, D.R. Meleis, A., Lieber, B.A., Gandhi, C.D., Prestigiacomo, C.J. Endovascular Management of Spinal Dural Arteriovenous Malformations. *Journal of Neurological Surgery Part A: Central European Neurosurgery* 77(6):523-526, November 2016.

295. Prabhu, A.V., Hansberry, D.R., **Agarwal, N.**, Clump, D.A., Heron, D.E. Radiation Oncology and Online Patient Education Materials: Deviating from NIH and AMA Recommendations. *International Journal of Radiation Oncology, Biology, Physics* 96(3):521-528, November 2016.

296. Tempel, Z., Zhu, X., McDowell, M.M., **Agarwal, N.**, Monaco, E.A. Severe Intradural Lumbar Disc Herniation with Cranially-Oriented Free Fragment Migration. *World Neurosurgery* 92:582.e1-4, August 2016.

297. Weiner, G.M., Feroze, R.A., **Agarwal, N.**, Pancykowski, D.M., Ares, A.J., Kooshkabadi, A., Cummings, D.D., Carson, V., Aghaebrahim, A., Jankowitz, B.T. Successful Manual Aspiration Thrombectomy in a Pediatric Patient. *Pediatric Neurology* 61:107-113, August 2016.

298. Lieber, B.A., Han, B., Allen, J., Fatterpekar, G., **Agarwal, N.**, Kazemi, N., Zagzag, D. Utility of Positron Emission Tomography in Schwannomatosis. *Journal of Clinical Neuroscience* 30:138-140, August 2016.

299. Heary, R.F., Parvathreddy, N.K., Qayumi, Z.S., Ali, N.S., **Agarwal, N.** Suitability of Carbon Fiber-Reinforced PEEK Cages for Use as Anterior Struts Following Corpectomy. *Journal of Neurosurgery: Spine* 25(2):248-255, August 2016.

300. Prabhu, A.V., Gupta, R., Kim, C., Kashkoush, A., Hansberry, D.R., **Agarwal, N.**, Koch, E. Patient Education Materials in Dermatology: Addressing the Health Literacy Needs of Patients. *JAMA Dermatol*ogy 152(8):946-947, August 2016.

301. Lieber, B.A., Appelboom, G., Taylor B.E.S., Malone, H., **Agarwal N.**, Connolly, E.S. Assessment of the 'July Effect': Outcomes after Early Resident Transition in Adult Neurosurgery. *Journal of Neurosurgery* 125(1):213-221, July 2016.

302. Wilson, T.A., Rodgers, S., Tanweer, O., Agarwal, P., Lieber, B.A., **Agarwal, N.**, McDowell, M., Devinsky, O., Weiner, H., Harter, D.H. Tuberous Sclerosis Healthcare Utilization based on the National Inpatient Sample Database: A Review of 5,655 Hospitalizations. *World Neurosurgery* 91:97-105, July 2016.

303. Lieber, B.A., Chiang, V., Prabhu, A.V., **Agarwal, N.**, Henry, J.K., Lin, D., Kazemi, N., Tabbosha, M. Post-Operative Outcomes for Elderly Patients after Single-Level Lumbar Fusions for Spondylolisthesis. *World Neurosurgery* 91:149-153, July 2016.

304. Kashkoush, A.I., **Agarwal, N.**, Paschel, E., Goldschmidt, E., Gerszten, P.C. Evaluation of a Hybrid Dynamic Stabilization and Fusion System in the Lumbar Spine: A 10 Year Experience. *Cureus* 8(6): e637, June 2016.

305. Zenonos, G.A., **Agarwal, N.**, Monaco, E.A., Okonkwo, D.O., Kanter, A.S. Traumatic L4-5 Bilateral Locked Facet Joints. *European Spine Journal* 25(Supplement 1):129-133, May 2016.

306. Lieber, B.A., Han, B.J., Strom, R.G., Mullin, J., Frempong-Boadu, A.K., **Agarwal, N.**, Kazemi, N., Tabbosha, M. Preoperative Predictors of Spinal Infection within the National Surgical Quality Inpatient Database. *World Neurosurgery* 89:517-524, May 2016.

307. Lieber, B.A., Han, J., Appelboom, G., Taylor, B.E.S., Han, B., **Agarwal, N.**, Connolly, E.S. Association of Steroid Use with Deep Venous Thrombosis and Pulmonary Embolism in Neurosurgical Patients: A National Database Analysis. *World Neurosurgery* 89:126-132, May 2016.

308. Khattar, N.K., Parry, P.V., **Agarwal, N.,** George, H.K., Kretz, E.S., Larkin, T.M., Gruen, G.S., Abla, A.A. Total Hip Arthroplasty Complicated by a Gluteal Hematoma Resulting in Acute Foot Drop. *Orthopedics* 39(2):e374-e376, March 2016.

309. Tanweer, O., Kalhorn, S.P., Snell, J.T., Wilson, T.A., Lieber, B.A., **Agarwal, N.**, Huang, P.P., Sutin, K.M. Epidural Blood Patch Performed for Severe Intracranial Hypotension Following Lumbar Cerebrospinal Fluid Drainage for Intracranial Aneurysm Surgery: Retrospective Series and Literature Review. *Journal of Cerebrovascular and Endovascular Neurosurgery* 17(4):318-323, December 2015.

310. **Agarwal, N.**, Shah, K., Stone, J.G., Ricks, C.B., Friedlander, R.M. Educational Resources "Over the Head" of Neurosurgical Patients: The Economic Impact of Inadequate Health Literacy. *World Neurosurgery* 84(5):1223-1236, November 2015.

311. Gupta, R., Kim, C., **Agarwal, N.**, Lieber, B.A., Monaco, E.A. Understanding the Influence of Parkinson's Disease on Adolf Hitler's Decision-Making during World War II. *World Neurosurgery* 84(5):1447-1452, November 2015.

312. Chang, C.Y., Goldstein, E., **Agarwal, N.**, Swan, K.G. Ether in the Developing World: Rethinking an Abandoned Agent. *BMC Anesthesiology* 15(1):149, October 2015.

313. Khattar, N.K., Zussman, B.M., **Agarwal, N.**, George, H.K., Abla, A.A. Use of Omnipaque Intraoperative Dye in the Surgical Treatment of Pan-spinal Epidural Abscesses: Technical Case Report. *Neurosurgery* 11(Supplement 3):E479-482, September 2015.

314. Dorcely, B., **Agarwal, N.**, Raghuwanshi, M. Quality Assessment of Diabetes Online Patient Education Materials from Academic Institutions. *Health Education Journal* 74(5):568-577, September 2015.

315. Patel, D.M., **Agarwal, N.**, Hansberry, D.R., Tomei, K.L., Goldstein, I.M. Optimal Timing of Whole Brain Radiation Therapy following Craniotomy for Cerebral Malignancies. *World Neurosurgery* 84(2):412-419, August 2015.

316. Pecor, K.W., Tsemo, G.B., **Agarwal, N.**, Ming, X. Procedure Use in Encephalitis, Epilepsy, and Meningitis: A Kids' Inpatient Database Study. *Journal of Pediatric Neurology* 13(2):67-73, June 2015.

317. Huang, G., Fang, C.H., **Agarwal, N.**, Bhagat, N., Eloy, J.A., Langer, P.D. Assessment of Online Patient Education Materials from Major Ophthalmologic Associations. *JAMA Ophthalmology* 133(4):449-54, April 2015.

318. Goldstein, I.M., **Agarwal, N.**, Mammis, A., Barrese, J.C., Christiano, L.D. Dynamic Stabilization: A Nidus for Infection. Compared to Posterior Instrumented Fusion. *International Journal of Neuroscience* 125(3):191-200, March 2015.

319. Patel, N.V., **Agarwal, N.**, Mammis, A., Danish, S.F. Frameless Stereotactic MRI-guided Laser Interstitial Thermal Therapy to Perform Bilateral Anterior Cingulotomy for Intractable Pain: Feasibility, Technical Aspects, and Initial Experience in 3 Patients. *Operative Neurosurgery* 11(1):17-25, March 2015.

320. Weiner, G.M., Grandhi, R., Zwagerman, N.T., **Agarwal, N.**, Friedlander, R.M. Aneurysmal Subarachnoid Hemorrhage with Concomitant Posterior Communicating Artery Fenestration. *International Journal of Neuroscience* 125(2):154-8, February 2015.

321. Li, X., **Agarwal, N.**, Hansberry, D.R., Prestigiacomo, C.J., Gandhi, G.D. Contemporary Therapeutic Strategies for Occlusion of the Artery of Percheron: A Review of the Literature. *Journal of NeuroInterventional Surgery* 7(2):95-98, February 2015.

322. Hansberry, D.R., **Agarwal, N.**, Baker, S.R. Health Literacy and Online Education Resources: An Opportunity to Educate Patients. American Journal of Roentgenology 204(1):111-116, January 2015.

323. Heary, R.F., Goldstein, I.M., Getto, K.M., **Agarwal, N.** Solid Radiographic Fusion with a Non-Constrained Device Five Years after Cervical Arthroplasty. *Journal of Neurosurgery: Spine* 21(6):951-955, December 2014.

324. Punia, V., Dagar, A., **Agarwal, N.**, He, W., Hillen, M. Comparison of Neurological Healthcare Oriented Resources for Patients on the Internet. *Journal of Clinical Neuroscience* 21(12):2179-83, December 2014.

325. **Agarwal, N.**, Gala, N., Choudhry, O.J., Assina, R., Prestigiacomo, C.J., Duffis, E.J., Gandhi, C.D. Prevalence of Asymptomatic Incidental Aneurysms: A Review of 2685 Computed Tomographic Angiograms. *World Neurosurgery* 82(6):1086-1090, December 2014.

326. Feghhi, D.P., Komlos, D., **Agarwal, N.**, Sabharwal, S. Quality of Online Pediatric Orthopaedic Materials. *Journal of Bone and Joint Surgery* 96(23):e194, December 2014.

327. Mammis, A., **Agarwal, N.**, Mogilner, A.Y. Alternative Treatment of Intracranial Hypotension Presenting as Postdural Puncture Headaches using Epidural Fibrin Glue Patches: Two Case Reports. *International Journal of Neuroscience* 124(11):863-866, November 2014.

328. Heary, R.F., **Agarwal, N.**, Barrese, J.C., Barry, M.T., Baisre, A. Metastatic Renal Cell Carcinoma, with a Radiographically Occult Primary, Presenting in the Operative Site of a Thoracic Meningioma: Long-term Follow-up. *Journal of Neurosurgery: Spine* 21(4):628-633, October 2014.

329. Cherla, D.V., Sanghvi, S., **Agarwal, N.**, Eloy, J.A., Couldwell, W.T., Liu, J.K. Analysis of Internet-Based Patient Education Materials Related to Pituitary Tumors. *Endocrine Practice* 20(10):1044-1050, October 2014.

330. **Agarwal, N.**, Feghhi, D.P., Gupta, R., Hansberry, D.R., Quinn, J.C., Heary, R.F., Goldstein, I.M. A Comparative Analysis of Minimally Invasive and Open Spine Surgery Patient Education Resources. *Journal of Neurosurgery: Spine* 21(3):468-74, September 2014.

331. **Agarwal, N.**, Hansberry, D.R., Goldstein, I.M. Infection with *Bacteroides thetataomicron* during Posterior Decompression and Dynamic Stabilization of the Lumbar Spine: A Case Report and Review of the Literature. *International Journal of Neuroscience* 124(8):621-625, August 2014.

332. Hansberry, D.R., Ramchand, T., Patel, S., Kraus, C., Jung, J., **Agarwal, N.**, Gonzales, S.F., Baker, S.R. Are We Failing to Communicate? Internet-Based Patient Education Materials and Radiation Safety. *European Journal of Radiology* 83(9):1698-1702, September 2014.

333. Hansberry, D.R., Kraus, C., **Agarwal, N.**, Baker, S.R., Gonzales, S.F. Health Literacy in Vascular and Interventional Radiology: A Comparative Analysis of Online Patient Education Resources. *CardioVascular and Interventional Radiology* 37(4):1034-1040, August 2014.

334. Feghhi, D.P., **Agarwal, N.**, Hansberry, D.R., Berberian, W.S., Sabarwal, S. Critical Review of Patient Education Materials from the American Academy of Orthopaedic Surgeons. *The American Journal of Orthopedics* 43(8):E168-174, August 2014.

335. Tomei, K.L., Nahass, M.M., Husain, Q., **Agarwal, N.**, Patel, S.K., Svider, P.F., Eloy, J.A., Liu, J.K. A Gender-Based Comparison of Academic Rank and Scholarly Productivity in Academic Neurological Surgery. *Journal of Clinical Neuroscience* 21(7):1102-1105, July 2014.

336. Hansberry, D.R., **Agarwal, N.**, Gonzales, S.F., Baker, S.R. Are We Effectively Informing Patients? A Quantitative Analysis of Online Patient Education Resources from the American Society of Neuroradiology. American Journal of Neuroradiology 35(7):1270-1275, July 2014.

337. Shah, M., **Agarwal, N.**, Gala, N., Prestigiacomo, C.J., Gandhi, C.D. Management of Dural Venous Sinus Thrombosis in Pregnancy. *EJVES Short Reports* 27(5):e41-e42, July 2014.

338. **Agarwal, N.**, Hansberry, D.R., Singh, P.L., Heary, R.F., Goldstein, I.M. Quality Assessment of Spinal Cord Injury Patient Education Resources. *Spine* 39(11):E701–E704, May 2014.

339. Hansberry, D.R., John, A., John, E., **Agarwal, N.**, Gonzales, S.F., Baker, S.R. A Critical Review of the Readability of Online Patient Education Resources from RadiologyInfo.org. *American Journal of Roentgenology* 202(3):566-75, March 2014.

340. **Agarwal, N.**, Shah, J., Hansberry, D.R., Mammis, A., Sharer, L.R., Goldstein, I.M. Presentation of Cauda Equina Syndrome due to an Intradural Extramedullary Abscess: A Case Report. *The Spine Journal* 14(2):e1-6, February 2014.

341. Hansberry, D.R., **Agarwal, N.**, Shah, R., Schmitt, P.J., Baredes, S., Setzen, M., Carmel, P.W., Prestigiacomo, C.J., Liu, J.K., Eloy, J.A. Analysis of the Readability of Patient Education Materials from Surgical Subspecialties. *The Laryngoscope* 124(2):405-412, February 2014.

342. **Agarwal, N.**, Gala, N., Karimi, R.J., Gandhi, C.D, Prestigiacomo, C.J. Current Endovascular Treatment Options of Central Retinal Arterial Occlusion: A Review of the Literature. *Neurosurgical Focus* 36(1):E7, January 2014.

343. **Agarwal, N.**, Hansberry, D.R., Goldstein, I.M. Cortical Blindness Following Posterior Lumbar Decompression and Fusion: A Case Report. *Journal of Clinical Neuroscience* 21(1):155-159, January 2014.

344. **Agarwal, N.**, Guerra, J.C., Gala, N., Agarwal, P., Zouzias, A., Gandhi, C.D., Prestigiacomo, C.J. Current Treatment Options for Cerebral Arteriovenous Malformations in Pregnancy: A Review of the Literature. *World Neurosurgery* 81(1):83-90, January 2014.

345. **Agarwal, N.**, Chaudhari, A., Hansberry, D.R., Prestigiacomo, C.J. Redefining Thalamic Vascularization Vicariously through Gerald Percheron: A Historical Vignette. *World Neurosurgery* 81(1):198-201, January 2014.

346. **Agarwal, N.**, Clark, P., Svider, P.F., Eloy, J.A., Liu, J.K. Impact of Fellowship Training on Research Productivity in Academic Neurological Surgery. *World Neurosurgery* 80(6):738-744, December 2013.

347. **Agarwal, N.**, Norrmén-Smith, I.O., Tomei, K.L., Prestigiacomo, C.J., Gandhi, C.D. Improving Medical Student Recruitment into Neurological Surgery: A Single Institution's Experience. *World Neurosurgery*. 80(6):745-750, December 2013.

348. Mammis, A., **Agarwal, N.**, Eloy, J.A., Liu, J.K. Intraventricular Tension Pneumocephalus after Endoscopic Skull Base Surgery. *Journal of Neurological Surgery Part A: Central European Neurosurgery* 74(Supplement 1):e96-99, December 2013.

349. **Agarwal, N.**, Chaudhari, A., Hansberry, D.R., Tomei, K.L., Prestigiacomo, C.J. A Comparative Analysis of Neurosurgical Subspecialty Online Education Materials to Assess Patient Comprehension. *Journal of Clinical Neuroscience* 20(10):1357-1361, October 2013.

350. Schmitt, P., **Agarwal, N.**, Prestigiacomo, C.J. From Planes to Brains: Parallels Between Virtual Neurosurgery and Military Development of Virtual Reality Environments. *World Neurosurgery* 78(3-4):214-219, September-October 2013.

351. **Agarwal, N.**, Tolia, A., Hansberry, D.R., Duffis, E.J., Barrese, J.C., Gandhi, C.D., Prestigiacomo, C.J. Current Differential Diagnoses and Treatment Options of Vascular Occlusions Presenting as Bilateral Thalamic Infarcts: A Review of the Literature. *Journal of NeuroInterventional Surgery* 5(5):419-425, September 2013.

352. Hansberry, D.R., **Agarwal, N.**, Tomei, K.L., Goldstein, I.M. Posterior Reversible Encephalopathy Syndrome in a Patient with a Chiari I Malformation. *Surgical Neurology International* 4:130, September 2013.

353. **Agarwal, N.**, Singh, P.L., Karimi, R.J., Gandhi, C.D., Prestigiacomo, C.J. Persistent Vestige of Dorsal Ophthalmic Artery: A Case Report. *Journal of NeuroInterventional Surgery* 5(4):e25, July 2013.

354. **Agarwal, N.**, Hansberry, D.R., Sabourin, V., Tomei, K.L., Prestigiacomo, C.J. A Comparative Analysis of the Quality of Patient Education Materials from Medical Specialties. *JAMA: Internal Medicine* 173(13):1257-1259, July 2013.

355. **Agarwal, N.**, Vernier, E., Ravenscrost, S., Schwartz, L., Oleske, J.M., Ming, X. Slit Ventricle Syndrome: A Case Report of Intermittent Intracranial Hypertension. *Journal of Child Neurology* 28(6):784-786, June 2013.

356. Heary, R.F., Choudhry, O.J., Jalan, D., **Agarwal, N.** Analysis of Cervical Sagittal Alignment after Screw-Rod Fixation. *Neurosurgery* 72(6): 983-992, June 2013.

357. Svider, P.F., Pashkova, A., Choudhry, Z., **Agarwal, N.**, Baredes, S., Liu, J.K., Eloy, J.A. Comparison of Scholarly Impact among Surgical Specialties: An Examination of 2,429 Academic Surgeons. *The Laryngoscope* 123(4):884-889, April 2013.

358. Kasabwala, K., Misra, P., Hansberry, D.R., **Agarwal, N.**, Baredes, S., Setzen, M., Eloy, J.A. Readability of Assessment of the American Rhinologic Society Patient Education Materials. *International Forum of Allergy and Rhinology* 3(4):325-333, April 2013.

359. Colaco, M., Svider, P.F., **Agarwal, N.**, Eloy, J.A., Jackson, I.M. Readability Assessment of Online Urology Patient Education Materials. *The Journal of Urology* 189(3):1048-1052, March 2013.

360. Hansberry, D.R., Suresh, R., **Agarwal, N.**, Heary, R.F., Goldstein, I.M. Quality Assessment of Online Patient Education Resources for Peripheral Neuropathy. *Journal of Peripheral Nervous System* 18(1):44-47, March 2013.

361. Svider, P.F., **Agarwal, N.**, Choudhry, O.J., Hajart, A.F., Baredes, S., Liu, J.K., Eloy, J.A. Readability Assessment of Online Patient Education Materials from Academic Otolaryngology – Head and Neck Surgery Departments. *American Journal of Otolaryngology* 34(1):31-35, January-February 2013.

362. Gala, N., **Agarwal, N.**, Barrese, J.C., Gandhi, C.D., Prestigiacomo, C.J. Current Endovascular Treatment Options of Dural Venous Sinus Thrombosis: A Review of the Literature. *Journal of NeuroInterventional Surgery* 5(1):28-34, January 2013.

363. Misra, P., **Agarwal, N.**, Kasabwala, K., Hansberry, D.R., Setzen, M., Eloy, J.A. Readability Analysis of Healthcare-Oriented Education Resources from the American Academy of Facial Plastic and Reconstructive Surgery. *The Laryngoscope 123*(1):90-96, January 2013.

364. **Agarwal, N.**, Sarris, C., Hansberry, D.R., Lin, M.J., Barrese, J.C., Prestigiacomo, C.J. Quality of Patient Education Materials for Rehabilitation after Neurological Surgery. *NeuroRehabilitation* 32(4):817-821, January 2013.

365. Eloy, J.A., Li, S., Kasabwala, K., **Agarwal, N.**, Hansberry, D.R., Baredes, S., Setzen, M. Readability Assessment of Patient Education Materials on Major Otolaryngology Association Websites. *Otolaryngology – Head and Neck Surgery* 147(5):848-854, November 2012.

366. **Agarwal, N.**, Schalet, G., Shah, M., Svider, P.F., Prestigiacomo, C.J., Gandhi, C.D., Endovascular Management of Cerebral Arteriovenous Malformations in Pregnancy: Two Case Reports and a Review of the Literature. *Journal of Neurology Research* 2(5):215-220, October 2012.

367. Kasabwala, K., **Agarwal, N.**, Hansberry, D.R., Baredes, S., Eloy, J.A. Readability Assessment of the American Academy of Otolaryngology-Head and Neck Surgery Foundation Patient Education Materials. *Otolaryngology – Head and Neck Surgery* 147(3):466-471, September 2012.

368. Misra, P., Kasabwala, K., **Agarwal, N.**, Eloy, J.A., Liu, J.K. Readability of Internet-Based Patient Information Regarding Skull Base Tumors. *Journal of Neuro-Oncology* 109(3):573-580, September 2012.

369. Singh, P.L., **Agarwal, N.**, Barrese, J.C., Heary, R.F. Current Therapeutic Strategies for Inflammation Following Traumatic Spinal Cord Injury: A Review of the Literature. *Neural Regeneration Research* 7(23):1812-1821, August 2012.

370. **Agarwal, N.,** Schmitt, P., Sukul, V., Prestigiacomo, C.J. Surgical Approaches to Complex Vascular Lesions: The Use of Virtual Reality and Stereoscopic Analysis as a Tool for Resident and Student Education. *BMJ Case Reports*. Published Online, doi:10.1136/bcr.02.2012.585, August 2012.

371. Wakelin, S.H., Waheed, A.A., Carnovale, B., Shanahan, R., Adida, S., Legarreta, A.D., Hudson, J.S., Deng, H., **Agarwal, N.**, Hamilton, D.K. Risk Factors for Hardware Failure Involving the Cervicothoracic Junction Following Posterior Cervical Instrumentation. *Journal of Neurosurgery: Spine* (In Press)

372. Aizooky, T., Carnovale, B., Manov, A., Zeeshan, Q., Haeri, N.S., Hamilton, D.K., **Agarwal, N.** *Region-Specific Effects of Osteoporosis Treatments and Implications for Patient Optimization for Spine Surgery*. *World Neurosurgery*. (In Press)

373. Nouduri, S., Waheed, A.A., Triplett, H., Rabon, W., Mooney, J.H., Qazi, Z., Balzer, J., Hamilton, D.K., **Agarwal, N.** *Implementation of Bedside and Intraoperative Neurophysiological Monitoring in the Diagnosis of Functional Neurological Symptom Disorder Following Spinal Surgery: Illustrative Case*. *Journal of Neurosurgery: Case Lessons*. (In Press)

374. Carnovale, B.J., Wakelin, S.H., Waheed, A.A., Lafage, V., Smith, J.S., Lafage, R., Klineberg, E.O., Lenke, L.G., Passias, P.G., Gum, J.L., Daniels, A.H., Bess, S., Protopsaltis, T., Line, B.G., Shaffrey, C.J., Mullin, J.P., Kelly, M.P., Diebo, B.G., Kebaish, K.M., Eastlack, R.K., Hostin, R., Gupta, M.C., Schwab, F.J., Ames, C.P., Nayak, P., Kim, H.J., Soroceanu, A., Liu, D.D., Greenberg, J.K., Lau, D., Bunch, J.T., Carlson, B.B., Zuckerman, S.L., Stephens, B.F., Lewis, S., Lee, S.H., **Agarwal, N.,** Hamilton, D.K. *Temporal Predictors of Patient Satisfaction in Complex Adult Spinal Deformity Surgery: What Matters to Patients? Journal of Neurosurgery: Spine*. (In Press)

Peer-Reviewed Journal Videos

1. Tawil, M., Sorour, O., Morshed, R., Huang, J., **Agarwal, N.**, Shabani, S., Theodosopoulos, P., Mummaneni, P.V. Use of Intraoperative Ultrasound to Achieve Gross Total Resection of a Large Cervicomedullary Ependymoma: 2-Dimensional Operative Video. *Operative Neurosurgery* 24(4):e298, April 2023.

2. Li, B., Kuzmik, G.A., Shabani, S., **Agarwal, N.**, Jamieson, A., Wozny, T., Ammanuel, S., Mummaneni, P.V., Chou, D. Short Segment Rib Resection to Mitigate Risk of Pleural Violation During Retropleural Lateral Thoracic Interbody Fusion. *Neurosurgical Focus: Video* 7(1):V4, Lateral Access Spine Surgery, September 2022.

3. Rechav Ben-Natan, A., **Agarwal, N.**, Shabani, S., Chung, J., Chou, D., Mummaneni, P.V. Use of an Exoscope for Enhanced Visualization of a Schwab Grade 5 Osteotomy to Correct Kyphotic Deformity. *Neurosurgical Focus: Video* 4(1):V19, Intraoperative Visualization, January 2022. (Journal Cover)

Invited Articles

1. **Agarwal, N.**, Letchuman, V., Lavadi, R.S., Le, V.P., Aabedi, A., Shabani, S., Chan, A.K., Park, P., Uribe, J.S., Turner, J.D., Eastlack, R.K., Fessler, R.G., Fu, K., Wang, M.Y., Kanter, A.S., Okonkwo, D.O., Nunley, P.D., Anand, N., Mundis, G.M., Passias, P.G., Bess, S., Shaffrey, C.I., Chou, D., Mummaneni, P.V., International Spine Study Group. Response to "Preoperative Depression among Patients Undergoing Spine Surgery". *Journal of Neurosurgery: Spine*. *Journal of Neurosurgery: Spine* 41:460, September 2024.

2. Gajjar A.A., Kumar R.P., Hamilton D.K., Buell T.J., **Agarwal N.,** Gerszten P.C., Hudson J. In Reply: "Usefulness and Accuracy of Artificial Intelligence Chatbot Responses to Patient Questions for Neurosurgical Procedures." *Neurosurgery* 95(3):e98, September 2024.

3. Gajjar A.A., Kumar R.P., Hamilton D.K., Buell T.J., **Agarwal N.,** Gerszten P.C., Hudson J. In Reply: "Usefulness and Accuracy of Artificial Intelligence Chatbot Responses to Patient Questions for Neurosurgical Procedures." *Neurosurgery* 95(3):e98, September 2024.

4. Carnovale, B., Choudhary, A., Lavadi, R.S., Hamilton, D.K., **Agarwal, N**. Letter to the Editor Regarding: "Neurosurgical Outcomes Among Non-English Speakers: A Systematic Review and a Framework for Future Research". *World Neurosurgery* 187:272, July 2024.

5. Kumar, R.P., Elsayed, G.A., Hafez, D.M., **Agarwal, N.** Advances in Anterolateral Approaches to the Lumbar Spine: A Focus on Technological Developments. *Neurosurgery Clinics* 35(2):199-205, April 2024.

6. Park, C., **Agarwal, N.**, Mummaneni, P.V., Berven, S.H. Spinopelvic Alignment: Importance in Spinal Pathologies and Realignment Strategies. *Neurosurgery Clinics* 34(4):519-526, October 2023.

7. Park, C., Shabani, S., **Agarwal, N.**, Tan, L., Mummaneni, P.V. Robotic-Assisted Surgery and Navigation in Deformity Surgery. *Neurosurgery Clinics* 34(4):659-664, October 2023.

8. Lavadi, R.S., Elsayed, G.A., Buell, T.J., Hamilton, D.K., **Agarwal, N.** Strategies for Spine Surgeons to Enhance a Clinical Practice and Research Program: Stepping Stones for Practice Management. *Journal of Neurosurgery: Spine* 39(1):132-135, March 2023.

9. **Agarwal, N.**, Shabani, S., Huang, J., Rechav Ben-Natan, A., Mummaneni, P.V. Intraoperative Monitoring for Spinal Surgery. *Neurologic Clinics* 40(2):269-281, May 2022.

10. Letchuman, V., **Agarwal, N.**, Mummaneni, V.P., Wang, M.Y., Shabani, S., Patel, A., Rivera, J., Haddad, A., Le, V., Chang, J.M., Chou, D., Gandhi, S., Mummaneni, P.V. Pearls and Pitfalls of Awake Spine Surgery: A Simplified Patient-Selection Algorithm. *World Neurosurgery* 161:154-155, May 2022.

11. Shabani, S., Mummaneni, P.V., Chan, A., Huang, J., **Agarwal, N.**, Deviren, V., Chou, D. Management of Thoracic Disc Pathology via the Lateral Approach: Advances Using the Minimally Invasive Approach and Navigation *International Journal of Spine Surgery* 16(S1):S44-S52, April 2022.

12. Lad, M., Gupta, R., Para, A., Gupta, A., White, M. D., **Agarwal, N.**, Moore, J. M., Heary, R. F. Response to Editorial: "Training the Next Generation of Spine Surgeons: An Orthopaedic and Neurosurgical Collaboration with Historical Precedence." *Journal of Neurosurgery: Spine* 35(5):549-551, November 2021.

13. White, M.D., Fox, B.M, **Agarwal, N.** Response to Letter to the Editor: Academic and Research Interest Groups in Neurosurgery: A Smart Strategy in Times of COVID-19. *Journal of Neurosurgery* 132(2):668-669, August 2021.

14. Joshi, N.D., Lieber, B., Wong, K., Al-Alam, E., **Agarwal, N.**, Diaz, V. In Reply to "No Article an Island: Letter in Response to 'Social Media in Neurosurgery: Using ResearchGate.'" *World Neurosurgery* 128:633, August 2019.

15. Heary, R.F., MacDowall, A., **Agarwal, N.** Cervical Spondylotic Myelopathy: A Two Decade Experience. *The Journal of Spinal Cord Medicine* 42(4):407-415, July 2019.

16. Agarwal, P., **Agarwal, N.**, Friedlander, R.M. Solving Healthcare's "Iron Triangle": A Neurosurgical Perspective. *World Neurosurgery* 123:244-245, March 2019.

17. Gupta, R., Kim, C., **Agarwal, N.**, Lieber, B.A., Monaco, E.A. In Reply to the Letter to the Editor, "Influence of Parkinsonism on Hitler's Decision-Making." *World Neurosurgery* 86:5, February 2016.

18. Mitha, R., Lavadi, R.S., Elsayed, G.A., **Agarwal, N.** Book Review: The Neurosurgical Consult Book. *World Neurosurgery*. (In Press)

Books and Monographs

1. Greenberg, M.S., **Agarwal, N.** (Assoc. Ed.). *Greenberg's Handbook of Neurosurgery, 11th Edition*. New York, NY: Thieme Medical Publishers, 2026.
2. **Agarwal, N.,** Andrews, E., Nowicki, K., Algattas, H., Zhang, X. *Operative Fundamentals in Neurological Surgery.* New York, NY: Thieme Medical Publishers, 2026

3. Crum, A., **Agarwal, N.** *Neurosurgery Fundamentals for Advanced Practice Providers*. New York, NY: Thieme Medical Publishers, 2026

4. **Agarwal, N.** *Neurosurgery Fundamentals, 2nd Edition*. New York, NY: Thieme Medical Publishers, 2025

5. **Agarwal, N.**, Hansberry, D.R., Prabhu, A.V. *The Evolution of Health Literacy: Empowering Patients through Improved Education, 2nd Edition.* Hauppauge, NY: Nova Science Publishers, 2025.

6. **Agarwal, N.**, Fernandes Cabral, D.T. (Eds.). *Neurosurgery Infographics*. New York, NY: Thieme Medical Publishers, 2026. ISBN 978-1-68420-767-1.

7. Thomas, J. Wagner, P., Funahashi, R. **Agarwal, N**. *Pre-Medicine: The Complete Guide for Aspiring Doctors*. New York, NY: Thieme Medical Publishers, 2023.

8. **Agarwal N.**, Reddy, V. *Surviving Neurosurgery: Vignettes of Resilience*. Cham, Switzerland: Springer International Publishing, 2022.

9. **Agarwal, N.** *Neurosurgery Fundamentals*. New York, NY: Thieme Medical Publishers, 2018.

10. **Agarwal, N.**, Hansberry, D.R., Prabhu, A.V. *The Evolution of Health Literacy: Empowering Patients through Improved Education*. Hauppauge, NY: Nova Science Publishers, 2017.

11. **Agarwal N.** *Surviving Neurosurgery: Vignettes of Resilience, 2nd Edition*. Cham, Switzerland: Springer International Publishing (In Press)

Book Chapters

1. Haddad, A.F., Kuzmik, G.A., **Agarwal, N**, Shabani, S., Berven, S.H., Chou, D., Mummaneni, P.V. Impact of Neuromuscular Disorders and Ensuing Adult Spinal Deformity. In Burger, E., Kleck, C., eds. *Comprehensive Guide to Adult Spinal Deformity* Newcastle upon Tyne, UK: Cambridge Scholars Publishing, 2024:53-61.

2. **Agarwal, N.**, Letchuman, V., Shabani, S., Shaffrey, C.I., Berven, S.H., Praveen V. Mummaneni, P.V. Lumbar Pedicle Subtraction Osteotomy. In Zdeblick, T., Albert, T., eds. *Master Techniques in Orthopaedic Surgery: The Spine*, *4th Edition* Philadelphia, PA: Lippincott Williams & Wilkins, 2023:263-274.

3. Muthiah, N., **Agarwal, N.**, Hamilton, D.K. Antithrombotic Management in Spine Surgery in the Elderly. In Fu, K.M., Wang, M.Y., Virk, M.S., Dimar, J.R. Mummaneni, P.V., eds. *Treatment of Spine Disease in the Elderly: Cutting Edge Techniques and Technologies*. Cham, Switzerland: Springer International Publishing, 2023:19-49.

4. Bai, M.Y., Abou-Al-Shaar, H., Gersey, Z.C., Fields, D.P., **Agarwal, N.** Robotics in Neurosurgical Training. In Gonzalez-Martinez, J.A., Cardinale F., eds. *Robotics in Neurosurgery*. Cham, Switzerland: Springer International Publishing, 2022:279-295.

5. Jacobs, R., **Agarwal, N.**, Jankowitz, B.T., Gross, B.A. Wada and Selective Wada Tests. In Park, M.S., Kalani, M.Y.S., Stiefel, M.F., eds. *Neurointerventional Surgery: An Evidence Based Approach*. New York, NY: Thieme Medical Publishers, 2021.

6. Roy, S., **Agarwal, N.,** Burton, S.A., Flickinger, J.C., Gerszten, P.C. Spinal Metastases. In Conti, A., Romanelli, P., Pantelis, E., Soltys, S.G., Cho, Y.H., Lim, M., eds. *CyberKnife NeuroRadiosurgery: A Practical Guide.* Cham, Switzerland: Springer International Publishing, 2020:439-449.

7. Heary, R.F., **Agarwal, N.** Occipitocervical Stabilization. In Kaiser, M.G., Haid, R.W., Shaffrey, C.I., Fehlings, M.G., eds. *Degenerative Cervical Myelopathy and Radiculopathy: Treatment Approaches and Options*. Cham, Switzerland: Springer International Publishing, 2019:351-360.

8. **Agarwal, N.**, Ducruet, A.F. External Ventricular Drainage: Clinical Indications, Surgical Technique, and Management. In Shutter, L.A., Molyneaux, B.J., eds. *Neurocritical Care*. New York, NY: Oxford University Press, 2019:165-172.

9. Heary, R.F., **Agarwal, N.**, Ghogawala, Z., Amankulor, N. Spondylotic and Myelopathic Myelopathies. In Kirshblum, S., Lin, V.W., eds. *Spinal Cord Medicine, 3rd Edition*. New York, NY: Springer Publishing Company, 2018:635-644.

10. **Agarwal, N.**, Alonso, F., Miller, C., Tenny, S., Youngerman, B. In Johnson, J., Singer, J., Veeravagu, A., eds. *Transition to the "Real" World for Residents*. The Neurosurgical Atlas by Aaron Cohen-Gadol, 2018; doi:10.18791/nsatlas.v11.ch01.

11. Hamilton, D.K., **Agarwal, N.**, Shaffery, C.I., Smith, J.S. Thoracolumbar Iatrogenic Post-Laminectomy Kyphosis. In E-Text Committee, ed. *Scoliosis Research Society E-Text*. Scoliosis Research Society, 2016; http://etext.srs.org.

12. Vander Werff, T.K., **Agarwal, N.** History of Spinal Cord Stimulation. In Mammis, A., ed. *Spinal Cord Stimulation: Principles and Practice*. Hauppauge, NY: Nova Science Publishers, 2016:1-6.

13. Mammis, A., **Agarwal, N.**, Mogilner, A.Y. Occipital Nerve Stimulation. In Schramm, J., ed. *Advances and Technical Standards in Neurosurgery*. Cham, Switzerland: Springer International Publishing, 2014:23-32.

14. Mammis, A., **Agarwal, N.** Neuromodulation Therapies for Headache. In Mammis, A., ed. *Migraine Surgery*. Hauppauge, NY: Nova Science Publishers, 2014:121-130

15. Baisre, A., **Agarwal, N.**, Rojiani, A.M. Pathology of Gliomas. In Wiranowska, M., Vrionis, F.D., eds. *Glioma: Symptoms, Diagnosis and Treatment Options*. Hauppauge, NY: Nova Science Publishers, 2013:17-32.

16. Mammis, A. Quinn, J.C., **Agarwal, N.**, Prestigiacomo, C.J. Neurosurgical Applications for Erythropoietin Administration. In Gotsiridze-Columbus, N., ed. *Erythropoietin: Human Production, Potential Uses and Adverse Effects*. Hauppauge, NY: Nova Science Publishers, 2013:75-92.

17. Hansberry, D.R., Bastian, R., Clark, P.M., **Agarwal, N.** Quantum Dots for Bioimaging, Cellular Labeling, and Diagnostics. In Ciftja, O., ed. *Quantum Dots: Applications, Synthesis and Characterization*. Hauppauge, NY: Nova Science Publishers, 2012:173-191.

18. Lavadi, R.S., Shah, M.J., Hamilton, D.K., **Agarwal, N**. Cervical Laminoplasty. In Baaj, A.A., Than, K., Baessa, S., Shankar, G., Daniels, A., eds. *Cervical Spine Surgery*. New York, NY: Thieme Medical Publishers. (Submitted)

19. Ambati, V.A., Shabani, S., Lee, A., **Agarwal, N.**, Huang, J., Chou, D., Mummaneni, P.V. Surgical Techniques for Posterior Iliac Crest Harvesting. In Dewald, R.L., ed. *Spinal Deformities: The Comprehensive Text, 2nd Edition*. New York, NY: Thieme Medical Publishers. (Submitted)

20. Shabani, S., Krishnan, N., Lee, A., **Agarwal, N.**, Chou, D., Mummaneni, P.V. Minimally Invasive Sacropelvic Fixation. In Dewald, R.L., ed. *Spinal Deformities: The Comprehensive Text, 2nd Edition*. New York, NY: Thieme Medical Publishers. (Submitted)

21. Lavadi, R.S., Yahanda, A., Elsayed, G.A., **Agarwal, N.** Spine Biologics. In Baaj, A.A., Mummaneni, P.V., Uribe, J.S., Vaccaro, A.R., Greenberg, M.S., ed. *Handbook of Spine Surgery, 3rd Edition*. New York, NY: Thieme Medical Publishers. (Submitted)

22. Lavadi, R.S., Buell, T.J., **Agarwal, N**., Hamilton, D.K. Lumbo Sacral-Pelvic Constructs. In Boakye, M., Benzel, E., Ghogawala, Z., Brodke, D.S., Chapman, J.R., eds. *Biomechanics of Spine Stabilization: Self-Assessment and Review*. New York, NY: Thieme Medical Publishers, 2025. (Submitted)

23. Lavadi, R.S., Mitha, R., Shah, M.J., Kuris, E.O., Daniels, A.H., Hamilton, D.K., **Agarwal, N**. Cauda Equina Syndrome in Pregnancy. In Bydon, M., Loftus, M., eds. *Surgical Insights: Cauda Equina Syndrome*. New York City, NY: Springer. (Submitted)

24. Shah, M., Hamilton, D.K., Daniels, A., **Agarwal, N.** Surgical Approaches for Sacral Fractures and Sacropelvic Injuries. In Steinmetz, M.P., Berven, S.H., Benzel, E.C., eds. *Benzel's Spine Surgery*. Philadelphia, PA: Elsevier. (In Preparation)

Media Appearances

1. Laska, M. Entrepreneurship at Every Stage: How EMBA Students Engage With Venture Lab. *Wharton Stories*. February 2, 2026.

2. Slap Fighting is 'Barbaric'… and Built for Social Media. *The Telegraph.* May 18, 2025.

3. Pitt Study First to Find Signs of Trauma in Slap Fighters. *UPMC Health Beat*. December 10, 2024.

4. Lardieri, A. UFC Boss Dana White Hits Back at Neuroscientists Who Say His New Power Slap Sport Causes Brain Damage. *DailyMail*. October 21, 2024.

5. Gonzaga, I., Alves, M.C. Campeonato De Tapa Na Cara De Dono Do UFC Resulta Em Danos Cerebrais Nos Lutadores, Aponta Estudo. *Estadão*. October 19, 2024.

6. Riddle, M. Exclusive: Neurosurgeons React to Power Slap & Respond to Dana White. *MMA Knockout on Sports Illustrated*. October 18, 2024

7. Doctors Talk Power Slap Study, Risks, Dana White, Medical Trials & More. *MMA Knockout on YouTube*. October 17, 2024.

8. **Agarwal, N**. Sports Medicine, *Doctor Radio-SiriusXM 110*. October 10, 2024.

9. New Study Highlights Dangers of Slap Fighting. *Brain Injury Association of America*. September 30, 2024.

10. Sostek, A. 'It's Barbaric': Pitt Study Quantifies Concussions in Slap Fighting. *Pittsburgh Post-Gazette*. September 27, 2024.

11. Melore, C. Competitive Slap Fighting Exposed: First Study Finds 78% Show Signs of Brain Injuries. *StudyFinds*. September 26, 2024.

12. Slap in the Face Study Reveals 78% of Competitors Suffer Brain Damage. *Hypescience*. September 26, 2024.

13. Pitt Study Is First to Record Signs of Concussion in Slap Fighters. *Pitt Health Sciences*. September 26, 2024.

14. Cassella, C. Study of 'Slap Fighting' Reveals Signs of Brain Injury in 78% of Participants. *ScienceAlert*. September 25, 2024.

15. Study Says Almost 80% of Slap Fighting Contenders at Risk of Brain Damage. *Men's Health*. September 25, 2024.

16. Slap Fighting Leads to Brain Injury: A Knockout Sport with Neurological Risks. *MSN via India Today*. September 25, 2024.

17. Slap Fighting Leads to Brain Injury: A Knockout Sport with Neurological Risks. *India Today*. September 25, 2024.

18. Slap Fighting Raises Concerns Over Brain Injuries Among Medical Experts. *The Express Tribune*. September 25, 2024.

19. Felstead S. Slap Fighting Study Raises Concerns over Brain Injuries. *Muscle and Fitness*. September 25, 2024.

20. Estudo Indica Sinais De Lesão Cerebral Em 80% Dos Atletas Das Ligas De Tapa Na Cara. *ESPN Brazil*. September 24, 2024.

21. Slap Fighting Study Raises Concerns over Brain Injuries. *Brain Athlete Sportz*. September 24, 2024.

22. Moul R. Slap Fighting: Competitors Show Signs of Concussion as Fears About the Sport Grow. *IFLScience*. September 23, 2024.

23. Slap Fighting Causes High Risk of Brain Injury, Doctors Call for Safeguards Over Alarming Concussion Rates. *MSN*. September 23, 2024.

24. Kauppila, I. Doctors Warn Slap Fighting May (Shockingly!) Cause Brain Damage. *Oddee*. September 23, 2024.

25. Caramela, S. Slap Fighting Study Finds Brain Injury Signs in 80% of Competitors. *Vice*. September 23, 2024.

26. Slap Fighting Causes High Risk of Brain Injury, Doctors Call for Safeguards Over Alarming Concussion Rates. *Malay Mail*. September 23, 2024.

27. Correa, J. Brain Damage Risks: Why Doctors Fear the Rise of Slap Fighting. *Frontproof Media*. September 23, 2024.

28. Magraken, E. Study – PowerSlap Has Absurd Rates of Brain Injury. *Combat Sports Law*. September 22, 2024.

29. Unique New Sport, ‘Slap Fighting,’ Could Cause Serious Brain Damage. *WKRC*. September 22, 2024.

30. Valente, M. 'They're Soft': Local 'Slap Fighter' Brushes Off Concerns Raised by Pitt Neurological Researchers. *WTAE-TV*. September 20, 2024.

31. Roopanarine, L. Inside Bizarre World Of Slap Fighting: How 'Ultimate Test Of Toughness' Has Gained Millions of Followers and Celebrity Fans - As Competitors Are Warned They Risk Brain Damage. *DailyMail*. September 19, 2024.

32. First Academic Study on Slap Fighting Highlights Risks to Participants' Neurological Health. *MDLinx*. September 19, 2024.

33. Bond, CH. Slap Fighting, Championed by UFC Founder, Leaves Most Participants with Concussion Signs, Pitt Study Warns. *Philly Voice*. September 19, 2024.

34. Limberg, A. Pitt Study Shows Concussion Dangers of Growing Sport, Slap Fighting. *KDKA News Radio*. September 19, 2024.

35. First Academic Study on Slap Fighting Highlights Risks to Participants' Neurological Health. *Medical Express*. September 18, 2024.

36. Researchers Publish Study to Record Signs of Concussion In Slap Fighters. *Yahoo News*. September 18, 2024.

37. Whipple, T. Face It, Slap Fighters Told, Your Brains Are Taking a Beating Too. *The Times (London)*. September 18, 2024.

38. Hood, J.R. Slap Fighting May Be Fun to Watch but It's Not Great for The Participants' Brains. *Consumer Affairs*. September 18, 2024.

39. Roberts, M. Concussion Warning over Face-Slap Fighting. *MSN Via BBC News*. September 18, 2024.

40. Roberts, M. Health Warning over Face-Slap Fighting. *BBC News*. September 18, 2024.

41. First Academic Study on Slap Fighting Highlights Risks to Participants' Neurological Health. *ScienceDaily*. September 18, 2024.
42. Gorelova, A., Reid, L. Study Examines Trauma Signs in Slap Fighters. *UPMC News Release*. September 18, 2024.

43. Guay, J. Pittsburgh Researchers Publish Study to Record Signs of Concussion In Slap Fighters. *CBS Pittsburgh*. September 18, 2024.

44. Haeffele, P. 10 Spine Surgeons Younger than 45 to Know. Becker's Spine Review. September 13, 2023.

45. Yew, A, **Agarwal, N.** Transition to Practice: Taking the Next Step, Pearls and Pitfalls**.** AANS/CNS Spine Section Early Career Neurosurgeons Committee Webinar Series. August 21, 2023.

46. Greenberg, M.K., Phelps, R., **Agarwal, N.** Mark Greenberg Talks the Legacy and Future of Handbook of Neurosurgery. Thieme. June 15, 2023.

47. **Agarwal, N.** Episode 63: Scoliosis Awareness Month. Scoliosis Dialogues: An SRS Podcast. June 14, 2023.

48. **Agarwal, N.** AAPI Heritage Month Interview. Thieme. May 2023.

49. Lavadi, R.S., Hamilton, D.K., **Agarwal, N**. Tips to Excel in Neurosurgery Residency. Inside the Match. March 2023

50. **Agarwal, N.** Episode 55: Awards, Fellowships, and Scholarships. Scoliosis Dialogues: An SRS Podcast. January 11, 2023.

51. Hill, G.A. The UFC's Dana White is Creating a Slap Fighting League. Doctors Have Concerns. *The Washington Post*. November 12, 2022.

52. **Agarwal, N.** Episode 51: Poster Award Winners. Scoliosis Dialogues: An SRS Podcast. November 16, 2022.

53. Berg, S. 10 Physician Memoirs that Offer Inspiring Accounts of Life in Medicine. AMA "Shadow Me" Specialty Series. October 27, 2022.

54. **Agarwal, N.** Episode 44: 57th SRS Annual Meeting Preview. Scoliosis Dialogues: An SRS Podcast. September 7, 2022.

55. Berg, S. What It's Like in Neurological Surgery: Shadowing Dr. Agarwal. AMA "Shadow Me" Specialty Series. February 3, 2022.

56. **Agarwal, N.** The Origins of Neurosurgery and Lessons for Today**.** AANS Young Neurosurgeon's Committee Webinar Series. February 10, 2022.

57. **Agarwal, N.** Neurosurgeons Impacting the World**.** AANS Young Neurosurgeon's Committee Webinar Series. January 25, 2022.

58. **Agarwal, N.** Awake Spinal Surgery: Simplifying the Learning Curve with a Patient Selection Algorithm. JNSPG Journal Club: Anesthetic and Monitoring Techniques in Awake Spinal Surgery. December 21, 2021.

59. **Agarwal, N.** Neuroscience100 Podcast. November 8, 2021.

60. **Agarwal, N.** Complex Spine / Sports Medicine Webinar Presentation. Neurosurgery Summer Series. Tuesday, July 27, 2021.

61. **Agarwal, N.** You Are Graduating, Now What? Principles for Securing a Neurosurgery Job**.** AANS Young Neurosurgeon's Committee Webinar Series. April 28, 2021.

62. **Agarwal, N.** The Foundation: The Why and How I Became a Spine Neurosurgeon**.** AANS Young Neurosurgeon's Committee Webinar Series. December 3, 2020.

63. **Agarwal, N.** Education is Everything: A Chief Resident's Perspective. Fridays with Friedlander. October 2, 2020.

64. **Agarwal, N.** Managing Early Success. Neurosurgery Podcast. February 9, 2020.

65. **Agarwal, N.**, Stacy, J., Babu, M., Veeravagu, A. NeurosurgeryPAC: Nonpartisan Support of Candidates Advocating for Neurosurgeons. *Young Neurosurgeons News*. February 2019.

66. Karsy, M. Veeravagu, A. Update for Young Neurosurgeons from the CSNS Spring 2018 Meeting. *Young Neurosurgeons News*. Summer/Fall 2018.

67. Tingle, C. Increased Physician Awareness May Decrease Infection Incidence, Implant Cost. *Orthopedics Today*. September 13, 2018.

68. Vasiliu, N. Dr. Nitin Agarwal '07 Writes Second Neurosurgery Book. *The Lawrenceville School Alumni News*. July 17, 2018.

69. Darves, B. Physician Mentorship: Why It's Important, and How to Find and Sustain Relationships. *NEJM CareerCenter*. February 28, 2018.

70. **Agarwal, N.** Interview with Manish N. Shah, M.D., Winner of the YNC Public Service Citation. *Young Neurosurgeons News*. Summer 2017.

71. Kimmell, K. Chapter Profile: Pitt Neurosurgery Interest Group. *Young Neurosurgeons News*. Winter 2016.

72. Birkenstock, K. Nitin Agarwal '07 Offers a Complete Mind-Body Solution. *The Lawrenceville School Alumni News*. March 6, 2015.

73. ATA Martial Arts of Flemington Donates $500 to Breast Cancer Program. *Hunterdon County Democrat.* January 15, 2014.

74. Jacobs, E. What We Have Here is a Failure to Communicate. *UMDNJ Magazine*. Newark, NJ. Spring/Summer 2013.

75. Littell, M. Health Info on the Web: A Failure to Communicate? *This Week at UMDNJ*. Newark, NJ. June 6, 2013.

76. Oransky, I. Health Sites too Complex, Full of Clichés: Study. *Reuters Health*. New York, NY. May 20, 2013.

Resolutions

1. Waheed, A.A., Tang, O.Y., **Agarwal, N.**, McGuire, L. Characterizing Radiation-Related Occupational Hazards and Improving Radiation Safety for Female Neurosurgeons. Council of State Neurosurgical Societies Biannual Meeting. Los Angeles, CA. Oct. 10-11, 2025.

2. Wakelin, S.H., Waheed, A.A., Patel, J.B., Maroon, J.C., **Agarwal, N.** Implementing Periodic Neurotrauma Screenings for Contact-Sport Athletes and Military Personnel. Council of State Neurosurgical Societies Biannual Meeting. Los Angeles, CA. Oct. 10-11, 2025.

3. Lavadi, R.S., Hamilton, D.K., Maroon, J.C., Miele, V.J., **Agarwal, N.** Consensus Statement Against Slap Fighting. Council of State Neurosurgical Societies Biannual Meeting. Boston, MA. April 24-25, 2025.

4. Manov, A., Mitha, R., Mooney, J., Hamilton, D.K., **Agarwal, N.** Creation of a CSNS Social Media Committee to Enhance Neurosurgery Adeptness, Professional Development, and Event Participation. Council of State Neurosurgical Societies Biannual Meeting. Boston, MA. April 24-25, 2025.

5. Mitha, R., **Agarwal, N.**, Gerszten, P.C., Hamilton, D.K., Sefcik, R. Optimizing Post-Partum Lactation Opportunities in Neurosurgery. Council of State Neurosurgical Societies Biannual Meeting. Chicago, IL. May 2-3. 2024.

6. Das, N., Sharma, A., Vessell, M., Agarwal, P., Lavadi, R.S., Pirris, S.M., Oravec, C.S., Krishnamurthy, S., Pannullo, S.C., Blatt, J.E., Karshy, M., Phelps, J.T., **Agarwal, N.**, Razmara, A., Wali, A.R., Shi, H.H., Lucke-Wold, B., Adogwa, O. Endorsing Neurosurgery-Related Electives in Medical School Curriculum. Council of State Neurosurgical Societies Biannual Meeting. Chicago, IL. May 2-3, 2024.

7. Lavadi, R.S., Hess, R., Im, J., **Agarwal, N.**, Mullin, J., Levy, E. Current State of Ambulatory Spine Centers. Council of State Neurosurgical Societies Biannual Meeting. Washington, D.C. September 8-9, 2023.

8. Gohel, P., Chambless, L., Mazzola, C., Heary, R., **Agarwal, N.** Optimization of Child Care and Pregnancy Accommodation in Neurosurgery Residency Programs to Improve Equality and Gender Diversity among Neurosurgery Residents. Council of State Neurosurgical Societies Biannual Meeting. Philadelphia, PA. April 28-29, 2022.

9. **Agarwal, N.,** Heary, R.F., Ratliff, J.K., Mummaneni, P.V. Establishing Curriculum for the Practice of Neurological Surgery during Residency Training. Council of State Neurosurgical Societies Biannual Meeting. Virtual Meeting. April 23-24, 2021.

10. **Agarwal, N.**, Stroink, A.R., Mazzola, C.A., Heary, R.F. Defining Veritable Legal and Fiscal Counseling. Council of State Neurosurgical Societies Biannual Meeting. Virtual Meeting. April 23-24, 2021.

11. **Agarwal N.**, Reddy V., Singer J. Optimizing the Neurosurgical Residency Interview Process. Council of State Neurosurgical Societies Biannual Meeting. Virtual Meeting. September 11-12, 2020.

12. **Agarwal, N.**, Heary, R.F. Augmenting the Allocation of Resources for Socioeconomic Education. Council of State Neurosurgical Societies Biannual Meeting. San Francisco, CA. October 18-19, 2019.

13. Alan, N., **Agarwal, N.** Expanding Subspecialty Focused Traveling Fellowship during Neurological Surgery Residency. Council of State Neurosurgical Societies Biannual Meeting. San Francisco, CA. October 18-19, 2019.

14. **Agarwal, N.**, Gupta, R., Agarwal, P., Heary, R.F. Reducing the Financial Burden on Medical Students Associated with Attending Neurosurgery Meetings. Council of State Neurosurgical Societies Biannual Meeting. San Diego, CA. April 12-13, 2019.

15. Tomlinson, S.B., Gramer, R., Graffeo, C.S., Johnson, J.N., **Agarwal, N.** Assessing the Mentorship Needs of Medical Students Without a Home Residency Program. Council of State Neurosurgical Societies Biannual Meeting. San Diego, CA. April 12-13, 2019.

16. Agarwal, P., **Agarwal, N.**, Malhotra, N., Ali, Z.S. Increase Adoption of Enhanced Recovery After Surgery (ERAS) Protocols in Neurosurgery. Council of State Neurosurgical Societies Biannual Meeting. San Diego, CA. April 12-13, 2019.

17. Gupta, R., **Agarwal, N.**, Majmundar, N., Heary, R.F. Assessment of Neurosurgical Ergonomics. Council of State Neurosurgical Societies Biannual Meeting. San Diego, CA. April 12-13, 2019.

18. Majmundar, N., Adogwa, O., Gupta, R., **Agarwal, N.**, Mazzola, C., Heary, R.F., Swartz, K. Evaluating Neurosurgical Residency Training and Preparedness for Practice. Council of State Neurosurgical Societies Biannual Meeting. San Diego, CA. April 12-13, 2019.

19. **Agarwal N.**, Agarwal, P., Rohatgi, P., Heary, R.F., Wakefield, A.E., Schirmer, C.M. Implications of Prescription Drug Monitoring Programs for Neurological Surgery. Council of State Neurosurgical Societies Biannual Meeting. Los Angeles, CA. April 22-23, 2017.

20. **Agarwal N.**, Mullin, J., Veeravagu, A., Singer, J., Chambless, L., Schirmer, C.M. Staggering Fellowship Cycle to Improve Integration and Continuity. Council of State Neurosurgical Societies Biannual Meeting. San Diego, CA. September 23-24, 2016.

21. Heary, R.F., Tomei, K.L., **Agarwal, N.**, Hansberry, D.R., Goldstein, I.M. Patient Comprehension of Online Education Materials on Spinal Cord Injury. Council of State Neurosurgical Societies Biannual Meeting. Miami, FL. April 13-14, 2012.

ABSTRACTS AND PRESENTATIONS

Video Abstracts

1. **Agarwal, N.**, Rahman, A., Jacobs, R., Taylor, T., Muthiah, N., Alan, N., Ozpinar, A., Fields, D., Hamilton, D.K. Patient Perception of Scoliosis Correction Surgery on Instagram. *Neurosurgical Focus Videos*. October 5, 2021; https://vimeo.com/623493470.

Invited Lectures

1. **Agarwal, N.** Neurosurgery Political Action Committee Update. Business and Political Action Session, 112th Annual Scientific Meeting of the Pennsylvania Neurosurgical Society. The Hotel Hershey, Hershey, PA. July 17, 2026.

2. **Agarwal, N.** Bonfire Chat/Tech Showcase, DePuy Synthes National Sales Meeting, Surgeon Faculty and Leadership Meeting, March 20th, 2026

3. **Agarwal, N.** *Emergencies Course Session IV: The Basics of Spine / Spinal Cord injury*, Congress of Neurological Surgery, April 8, 2026.

4. **Agarwal, N.** *Advances in Brain Injury Research: Transforming Lives Through Better Science Conference.* Pittsburgh, PA, March 20, 2026 (Plenary Speaker)

5. **Agarwal, N.** *AO Spine North America. Case Resolution: Cervical Trauma*. Palm Beach, FL, September 18, 2025.

6. **Agarwal, N.** *Grand Rounds: Surviving Neurosurgery*. University of Texas, Houston, Department of Neurological Surgery. August 21, 2025. (Visiting Professor)

7. **Agarwal, N.** *AO Spine North America Webinar—Biomechanics in Spine*. March 19, 2025.

8. **Agarwal, N.** *Grand Rounds: Surviving Neurosurgery*. Oklahoma University, Department of Neurological Surgery. April 18, 2025. (Virtual Visiting Professor)

9. **Agarwal, N.**, Hamilton, D.K. *Early Career Webinar: Building a Referral Network.* North American Spine Society. December 5, 2024.

10. **Agarwal, N.** *Spine Conference: Practice Building for the Spine Surgeon*. University of South Florida, Department of Neurosurgery. September 4, 2024. (Visiting Professor)

11. **Agarwal, N.** *Grand Rounds*: *Surviving Neurosurgery.* University of Alabama at Birmingham, Department of Neurological Surgery. April 22, 2024. (Visiting Professor)

12. **Agarwal, N.** Spinal Disorders. Neurosurgical Society of Pittsburgh 2nd Annual Meeting. Pittsburgh, PA. April 19, 2024.

13. **Agarwal, N.** Intraoperative Neuromonitoring for Adult Spinal Deformity Procedures. American Society of Electroneurodiagnostic Technologists Spring Seminar. Pittsburgh, PA. March 9, 2024.

14. **Agarwal, N.** Intraoperative Neuromonitoring for Anterolateral Approaches in Spinal Deformity Correction. Principles and Practice of Intraoperative Neuromonitoring. Pittsburgh, PA. November 3-4, 2023.

15. **Agarwal, N.** Pioneering Precision: Reshaping Spinal Surgery via Technological Advancements. European Association of Neurosurgical Societies Congress. Barcelona, Spain. September 24-28, 2023.

16. **Agarwal, N**. Challenges of Writing an Educational Neurosurgery Textbook. Congress of Neurological Surgeons Annual Meeting 2023. Washington, D.C. September 9-13, 2023.

17. **Agarwal, N**. My Worst Spinal Complication – Neurodeficit with Lateral. Congress of Neurological Surgeons Annual Meeting 2023. Washington, D.C. September 9-13, 2023.

18. **Agarwal, N**. Use of Anterior, Lateral and Oblique Approaches to Correct Spinal Deformity: It Does Work and This Is How I Do It. 58th Annual Meeting of the Scoliosis Research Society. Seattle, WA. September 6-9, 2023.

19. **Agarwal, N.** What is the Learning Curve Related to Endoscopic Spine Surgery? International Society for the Advancement of Spine Surgery 23rd Annual Conference. San Francisco, CA. June 1-3, 2023.

20. **Agarwal, N.** How to Find Research Mentorship as a Medical Student or Resident. 91st American Association of Neurological Surgeons. Los Angeles, CA. April 21-24, 2023.

21. **Agarwal, N.**, Controversial Utilization of LLIF: LLIF & ACR for Flatback. Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. September 29-October 1, 2022.

22. Mummaneni, P.V., DiGiorgio, A., **Agarwal, N.**, Shabani, S., Huang, J., Rachev Ben-Natan, A., Le, V. Central Cord Syndrome. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

23. Mummaneni, P.V., Chan, A.K., **Agarwal, N.**, Huang, J., Rachev Ben-Natan, A. Open, MIS and Hybrid: Lessons Learned. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022

24. Mummaneni, P.V., **Agarwal, N.**, Shabani, S., Huang, J., Rechav Ben-Natan, A. Masterclass in Spine: Complication Avoidance with Spinal Robotics. Sociedade Brasileria De Neurocirugia. Virtual Meeting. April 12, 2022.

25. Mummaneni, P.V., Shabani, S., **Agarwal, N.**, Huang, J. Sacropelvic Considerations in Deformity Surgery. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. February 23-26, 2022.

26. Mummaneni, P.V., Shabani, S., **Agarwal, N.**, Huang, J. MIS TLIF Nuances and Experience. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. February 23-26, 2022.

27. Mummaneni, P.V., Shabani, S., **Agarwal, N.**, Huang, J. Where will Technology take Us in 10 Years MIS? 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. February 23-26, 2022.

28. Mummaneni, P.V., **Agarwal, N.**, Aabedi, A.A., Rivera, J., Huang, J., Rechav Ben-Natan, A., Navigation and Robotic Complication Avoidance in Spine Surgery. Duke Spine Symposium. Virtual Meeting. January 29, 2022.

29. Mummaneni, P.V., **Agarwal, N.**, Chan, A.K. The Modern Era: The Awake TLIF. Orthopaedic Summit. Las Vegas. NV. December 11-14, 2021.

30. Mummaneni, P.V., **Agarwal, N.**, Shabani, S., Huang, J. My Perspective on MIS Deformity Surgery. Orthopaedic Summit. Las Vegas. NV. December 11-14, 2021.

31. **Agarwal, N.**, Huang, J., Chan, A.K. Mummaneni, P.V. Minimally Invasive Surgery in Spinal Oncology. Orthopaedic Summit. Las Vegas. NV. December 11-14, 2021.

32. Mummaneni, P.V., **Agarwal, N.** Spine Research Update 2021. Henry G. Schwartz Grand Rounds, Washington University School of Medicine, Department of Neurological Surgery. St. Louis, MO. November 3, 2021.

33. Mummaneni, P.V., Huang, J., Rivera, J., Aabedi, A.A., **Agarwal, N.**, Rechav Ben-Natan, A., Use of New Technology and Navigation in Spine Surgery. 67th Annual Western Neurosurgical Society Meeting. Albuquerque, NM. September 10-13, 2021.

34. Mummaneni, P.V., **Agarwal, N.**, Shabani, S., Letchuman, V., Huang, J. Algorithmic Approaches to MIS Surgery. Neurosurgery Update. Napa, CA. July 29-31, 2021

35. Mummaneni, P.V., **Agarwal, N.**, Shabani, S., Huang, J. Minimally Invasive Approach Selection in Adult Deformity (Anterior, Lateral, and Posterior). 37th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Special Course 2. San Diego, CA. July 28-31, 2021.

36. Mummaneni, P.V., **Agarwal, N.**, Shabani, S., Huang, J. Interbody Surface Technology Materials. 37th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Crossfire: Finesse or Brute Force. San Diego, CA. July 28-31, 2021.

37. Mummaneni, P.V., Shabani, S., **Agarwal, N.**, Huang, J. The Impact of COVID-19 on Spine Surgery: Our Patients and Our Trainees. 37th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Scientific Session 1. San Diego, CA. July 28-31, 2021.

38. **Agarwal, N.**, Kanter, A.S. Standalone Lateral Lumbar Interbody Fusion. 21st International Society for the Advancement of Spine Surgery Annual Conference. Miami, FL. May 13-15, 2021.

39. **Agarwal, N.**, Agarwal, P., Querry, A., Mazurkiewicz, A., Whiteside. B., Marroquin, O.C., Koscumb, S.F., Wecht, D.A., Friedlander, R.M. Neurosurgery Socioeconomic Paper of the Year: Reducing Surgical Infections and Implant Costs via a Novel Paradigm of Enhanced Physician Awareness. Congress of Neurological Surgeons Annual Meeting, General Scientific Session IV: Neurosurgery Future State. Houston, TX. October 6-10, 2018.

40. **Agarwal, N.,** White, M.D., Pannullo, S.C., Chambless, L.B. Trends in Neurosurgical Resident Attrition. Council of State Neurosurgical Societies. New Orleans, LA. April 27-28, 2018.

41. **Agarwal, N.** Impact Factor of Medical Student Research. American Medical Association Medical Student Section. Washington, D.C. March 7-8, 2014.

Oral Presentations

International Conferences

1. Don, N., Rabon, W., Waheed, A.A., Lopez, A., Fernández-de Thomas, R.J., Mooney, J.H., MacLean, M.A., Mastrolonardo, A., Aljan, B., Ragulojan, M., Hart S., Alwadei, A., Rizzuto, M., Hamilton, D.K., **Agarwal, N.** Current Practices in Return to Play Recommendations for Recreational Athletes following Cervical Spine Surgeries: An Interim Analysis of a Global Survey. 26th Annual Scientific Conference for the Canadian Spine Society. Banff, Canada. March 2-6, 2026

2. Aizooky, T., Carnovale, B., Manov, A., Zeeshan, Q., Haeri, N.S., Hamilton, D.K., **Agarwal, N.** Region-Specific Effects of Osteoporosis Treatments and Implications for Patient Optimization for Spine Surgery. Global Spine Congress. Istanbul, Turkey. May 27-30, 2026.

3. Hudson, J. S., Kundu, S., Adida, S., **Agarwal, N.**, Maroon, J. C., Hussey, G. S., Liu, H. A Signal Transducing Covalently Bound Peptide Coating for Titanium Spine Implants. Global Spine Congress. Istanbul, Turkey. May 27-30, 2026.

4. Wakelin S.H., Manov, A., Carnovale, B., Hudson, J.S., Hamilton, D.K., **Agarwal, N.** Risk of Asymmetric Cage Overhang in Standalone LLIF: A Patient-Specific Finite Element Analysis. Global Spine Congress. Istanbul, Turkey. May 27-30, 2026.

5. Carnovale, B., Wakelin, S.H., Don, N., Waheed, A.A., Deng, H., Hamilton, D.K., **Agarwal, N**. Surgical Site Infection from Posterior Cervical Fusion: A 10 Year Institutional Experience. Global Spine Congress. Istanbul, Turkey. May 27-30, 2026.

6. Tirmizi, Z., Carnovale, B., Wakelin, S.H., Qazi, Z., Hamilton, D.K., **Agarwal, N.** Prognostic Nutritional Index (PNI) as a Predictor for Survival in Trauma Patients following Posterior Cervical Fusion (PCF). Global Spine Congress. Istanbul, Turkey. May 27-30, 2026.

7. Hamilton, D.K., Kumar, R.P., **Agarwal, N.**, Lenke, L.G., Passias, P., Klineberg, E.O., Lafage, V., Bess, S., Smith, J.S., Gum, J.L., Lafage, R., Mullin, J., Kelly, M.P., Diebo, B., Line, B., Kim, H.J., Kebaish, K., Eastlack, R., Daniels, A., Soroceanu, A., Mitha, R., Mundis, G., Hostin, R., Protopsaltis, T.S., Hart, R.A., Gupta, M., Schwab, F.J., Shaffrey, C.I., Ames, C.P., International Spine Study Group. Examining the Burden of Complications on Long-term Satisfaction in Adult Spinal Deformity (ASD). Scoliosis Research Society 60th Annual Meeting. Charlotte, NC. September 16-20, 2025. (Hibbs Nomination)

8. Hamilton, D.K., Kumar, R.P., **Agarwal, N.**, Lenke, L.G., Passias, P., Klineberg, E.O., Lafage, V., Bess, S., Smith, J.S., Gum, J.L., Lafage, R., Mullin, J., Kelly, M.P., Diebo, B., Buell, T.J., Scheer, J.K., Line, B., Kim, H.J., Kebaish, K., Lavadi, R.S., Eastlack, R., Daniels, A., Soroceanu, A., Mundis, G., Hostin, R., Protopsaltis, T.S., Hart, R.A., Gupta, M., Schwab, F.J., Shaffrey, C.I., Ames, C.P., Burton, D., International Spine Study Group. Which Complications Impact Satisfaction among Patients with Adult Spinal Deformity (ASD)? Scoliosis Research Society 59th Annual Meeting. Barcelona, Spain. September 10-14, 2024.

9. Lavadi, R.S., Fernandes Cabral, D.T., Moon, C.H., Yeh, F., Buell, T.J., **Agarwal, N.**, Hamilton, D.K., Okonkwo, D.O., Alan, N. Investigation of Cervical Spinal Cord Structure Using Quantitative Anisotropy Based on Deterministic Fiber Tractography. Global Spine Congress. Bangkok, Thailand. May 15-18, 2024.

10. Mitha, R., Mahan, M.A., Patel, R.P., Colan, J.A., Leyendecker, J., Zaki, M.M., Harake, E.S., Kathawate, V., Kashlan, O., Konakondla, S., Huang, M., Elsayed, G.A., Hafez, D.M., Pennicooke, B., **Agarwal, N.**, Hofstetter, C.P., Ogunlade, J.O. Endoscopic Unilateral Laminectomy for Bilateral Decompression in Degenerative Spondylolisthesis. Global Spine Congress. Bangkok, Thailand. May 15-18, 2024.

11. Legarreta, A.D., Hudson, J.S., Kumar, R.P., Lavadi, R.S., Adams, G.M., **Agarwal, N.**, Hamilton, D.K., Okonkwo, D.O., Kanter, A., Alan, N. Correlation of Clinical Outcomes to Intraoperative Transcranial Motor Evoked

Potential during L4-L5 Lateral Lumbar Interbody Fusion. Global Spine Congress. Bangkok, Thailand. May 15-18, 2024.

12. Ali, A., Kumar, R.P., Lavadi, R.S., Mahavadi, A.K., Legarreta, A.D., Hudson, J.S., Shah, M., Paul, D.A., Mooney, J., Dietz, N., Polavarapu, H., Cloney, M., Fields, D.P., Hamilton, D.K., **Agarwal, N.** Optimizing Neurosurgery Operative Note-Writing Using Artificial Intelligence. Global Spine Congress. Bangkok, Thailand. May 15-18, 2024.

13. Mitha, R., Colan, J.A., Hernandez-Rovira, M.A., Jawad-Makki, M.A., Patel, R.P., Elsayed, G.A., Shaw, J.D., Okonkwo, D.O., Buell, T.J., Hamilton, D.K., **Agarwal, N**. Topical Tranexamic Acid (TXA) is Non-Inferior to Intravenous TXA in Adult Spine Surgery - A Systematic Review. Global Spine Congress. Bangkok, Thailand. May 15-18, 2024

14. Chan, A.K., Shaffrey, C.I., Park, C., Gottfried, O., Bisson, E.F., Bydon, M., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K.G., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C.D., Shaffrey, M.E., Tumialan, L.M., Turner, J.D., Michalopoulos, G., Sherrod, B., **Agarwal, N.**, Chou, D., Haid, R.W., Mummaneni, P.V. Cervical Laminoplasty Versus Laminectomy and Posterior Spinal Fusion for Cervical Myelopathy: Propensity Matched Analysis of 24-Month Outcomes from the Quality Outcomes Database. 30th International Meeting on Advanced Spine Techniques. Dublin, Ireland. March 22-24, 2023.

15. Ali, A., Kumar, R.P., Polavarapu, H., Lavadi, R.S., Mahavadi, A.K., Legarreta, A.D., Hudson, J.S., Shah, M., Paul, D.A., Mooney, J., Dietz, N., Fields, D.P., Hamilton, D.K., **Agarwal, N.** Bridging the Gap: Can Large Language Models Match Human Expertise in Writing Neurosurgical Operative Notes? Neurology and Neurosurgery Interest Group Conference. London, England. February 3-4, 2024.

16. **Agarwal, N.**, Patel, M.R, Roy, S., Ozpinar, A., Alan, N., Hamilton, D.K. The 'Candy Cane' Technique for Construct Augmentation and Correction of Severe Angular Chin-On-Chest Kyphoscoliosis. Scoliosis Research Society 57th Annual Meeting. Stockholm, Sweden. September 14-17, 2022.

17. Shabani, S., Vargas, E., Rechev Ben-Natan, A., Aabedi, A.A., **Agarwal, N.**, Mummaneni, P.V., Chou, D. Does Functional Outcome Improve after Surgery for Metastatic Spine Tumors in Patients with SINS 7-12 and SINS >12? Scoliosis Research Society 57th Annual Meeting. Stockholm, Sweden. September 14-17, 2022.

18. Passias, P.G., Tretiakov, P., Joujon-Roche, R., Williamson, T.K., Krol, O., Imbo, B., Alan, N., Nunley, P.D., Wang, M.Y., Park, P., Kanter, A.S., Okonkwo, D.O., Eastlack, R.K., Mundis, G.M., Chou, D., **Agarwal, N.**, Chan, A.K., Fessler, R.G., Uribe, J.S., Anand, N., Than, K.D., Brusko, D., Shabani, S., Shah, S., Fu, K.G., Line, B.G., Ames, C.P., Smith, J.S., Shaffrey, C.I., Hart, R.A., Burton, D.C., Lafage, R., Lafage, V., Schwab, F.J., Bess, S., Mummaneni, P.V., International Spine Study Group. Circumferential Minimally Invasive Adult Spinal Deformity Surgery Provides Incremental Benefit for Increasingly Frail Patients. Scoliosis Research Society 57th Annual Meeting. Stockholm, Sweden. September 14-17, 2022.

19. Chryssikos, T., Shabani, S., **Agarwal, N.**, Huang, J., Rechav Ben-Natan, A., Aabedi, A.A., Le, V., Tan, L., Chou, D., Mummaneni, P.V., Propensity Matched Cohort Study Comparing Accuracy of Robotic Assisted Spinal Surgery versus Navigation Alone: Early Experience of 260 Pedicle Screws. 16th Asian Australasian Congress of Neurological Surgeons**.** Jerusalem, Israel. September 6-8, 2022

National Conferences

1. Aydin, S., Carnovale, B., Wakelin, S.H., Manov, A., Waheed, A.A., Legarreta, A., Qazi, Z., Hamilton, D.K., **Agarwal, N.** Cervical Paraspinal Muscle Morphometry and Mechanical Failure: A Propensity-Matched Analysis. North American Spine Society 41st Annual Meeting. San Antonio, TX. October 14-17, 2026.

2. Patil, S., Daulat, S., Dholaria, N., Waheed, A., Mooney, J., Zeeshan, Q., Hamilton, D.K., **Agarwal N**. A Dynamic Systems Model Of Intervertebral Disc Degeneration Integrating Mechanical Loading, Enzyme Inhibition, And

Age-Related Matrix Remodeling. American Association of Neurological Surgeons Annual Scientific Meeting. San Antonio, TX. May 1-3, 2026

3. Aizooky, T., Carnovale, B., Manov, A., Zeeshan, Q., Haeri, N.S., Hamilton, D.K., **Agarwal, N**. Regional Variability in the Effects of Osteoporosis Medications: Considerations for Spine Surgery Outcomes. 94th AANS Annual Scientific Meeting. San Antonio, TX. May 1-4, 2026.

4. Daulat, S., Dholaria, N., Waheed, A.A., Sahni, V., Zeeshan, Q., Elsayed, G., Maroon, J., Hamilton, D.K., **Agarwal, N.** Trends in Spine Surgery Reimbursement: A National Analysis of Medicare Claims from 2010 to 2023. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Phoenix, AZ. February 26 – March 1, 2026.

5. Hudson, J. S., Kundu, S., Adida, S., **Agarwal, N.**, Maroon, J. C., Hussey, G. S., Liu, H. A Signal Transducing Covalently Bound Peptide Coating for Titanium Spine Implants. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Phoenix, AZ. February 26 – March 1, 2026.

6. Daulat, S., Manne, B., Waheed, A.A., Dholaria, N., Zeeshan, Q., Shah, R., Elsayed, G., Hamilton, D.K., **Agarwal, N.** Evaluating Biomechanical Stress in Internal Spinal Fixators and Vertebral Body Replacements. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Phoenix, AZ. February 26 – March 1, 2026.

7. Patil, S., Daulat, S., Waheed, A.A., Dholaria, N., Mooney, J., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.** Dual Inhibition of ADAMTS5 and MMP3 Preserves Disc Integrity in Intervertebral Discs. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Phoenix, February 26 - March 1.

8. Waheed, A.A., Patil, S., Daulat, S., Dholaria, N., Mooney, J., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.** Acidic Microenvironments Nullify Lysyl Oxidase-Mediated Collagen Preservation in Intervertebral Disc Degeneration. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Phoenix, February 26 - March 1.

9. Sankar, A., Kann, M.R., Shanahan, R.M., Adida, S., Stepniak, A., Bhatia, S., Hurt, G., McCarthy, D.J., Hudson, J.S., Hamilton, D.K., **Agarwal, N.**, Biehl, J.T., Andrews, E.G., Legarreta, A.D. An Automated Machine Learning Approach to Measure Spinal Osteosarcopenia. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Phoenix, AZ. February 26 – March 1, 2026.

10. Patil, S., Waheed, A.A., Daulat, S., Dholaria, N., Mooney, J., Zeeshan, Q., Hamilton, D.K., Agarwal, N. Restoring Matrix Homeostasis in Diabetic Discs: Quantitative Modeling of Glucose Supplementation. Cervical Spine Research Society (CSRS) Annual Meeting. Washington, D.C., December 3–6, 2025.

11. Waheed, A.A., Patil, S., Daulat, S., Dholaria, N., Mooney, J., Zeeshan, Q., Hamilton, D.K., Agarwal, N. TGF-β Priming Synergistically Enhances LOX-Mediated Matrix Preservation in Aged and Acidic Intervertebral Discs. Cervical Spine Research Society (CSRS) Annual Meeting. Washington D.C. December 3–6, 2025.

12. Clark, C., Shanahan, R.M., Nouduri, S., Bhatia, S., Stepniak, A., Tetreault, H., Gopakumar, A., Gaba, F., Fernandes-Cabral, D.T., Hoes, K., Hamilton, D.K., **Agarwal, N**. Bridging the Gap: A Structured Administrative Framework to Improve Neurosurgery Department Engagement with Medical Students. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025

13. Mohamed, A.A., Raghu, A., Meybodi, A.T., Youngerman, B.E., **Agarwal, N.**, Mazzola, C. Geographic Maldistribution or Provider Scarcity? Mapping Disparities in Neurosurgical Access. Congress of Neurological Surgeons Annual Meeting, Los Angeles, CA. October 11-15, 2025

14. Waheed A.A., Patel, J., Gopakumar, A., Herath, I., Polavarapu, H., Hamilton, D.K., Nowicki, K., **Agarwal, N.** Toward Non-Invasive Diagnosis Of CSM: Patterns in Preoperative Blood Parameters and Predictive Modeling. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

15. Waheed, A.A., Manov, A., Polarvarapu, H., Mittal, A., Agnihotri, S., Hamilton, D.K., Nowicki, K., **Agarwal, N.** Blood Biomarker Screening for Cervical Spondylotic Myelopathy: Markov-Based Cost-Effectiveness Analysis. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

16. Choudhary, A., Eckmann, M., Anderson, A., Khan, R., Kumar, R.P., Waheed, A.A., Fernández-de Thomas, R.J., Hamilton, D.K., **Agarwal, N.** Fact or Fiction: Exploring Hallucinated Sources and Outcomes in AI-Generated Research. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11-15, 2025

17. Maroon J.C., Wakelin S.H., **Agarwal, N**., Smith, M.A. Occult Neurotrauma in Naval Special Warfare Combat Crewmen and Fast Boat Operators. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

18. Parchuri, E., Rao, S., Hudson, J.S., Shanahan, R.M., Adida, S., Jawad-Makki, M.H., Bhatia, S., Crane, A., Lindsey, C., Slingerland, A., Legarreta, A.D., Sefcik, R.K., Fields, D.P., Gerszten, P.C., **Agarwal, N.**, Okonkwo, D.O., Hamilton, D.K. Perioperative Serum Prealbumin as a Predictor Of Mortality In Trauma Patients Undergoing Posterior Cervical Decompression and Fusion. 93rd American Association of Neurological Surgeons Annual Scientific Meeting. April 25-28, 2025.

19. Rabon, W., Tirmizi, Z., Kumar, R.P., Mooney, J.H., Fernández de-Thomas, R.J., Hadjipanayis, C.G., **Agarwal, N**. Enhancing Precision: The Application of Exoscope Technology in Spine Surgery. National Conference on Undergraduate Research. Pittsburgh, PA. April 7-9, 2025.

20. Rabon, W., Sen, B., Deng, H., Mitha, R., **Agarwal, N.**, Okonkwo, D.O., Mooney, J.H. C7-T1 Anterior Cervical Discectomy and Fusion for Cerebrospinal Fluid Leak Repair. National Conference on Undergraduate Research. Pittsburgh, PA. April 7-9, 2025.

21. Choudhary, A., Don, N., Carnovale, B., Rabon, W., Lavadi, R.S., Mitha, R., Kumar, R.P., Thomas, R.F., Mooney, J., Hamilton, D.K., **Agarwal, N**. Microsoft Copilot Accurately Extrapolates SRS-22r Pain and Management Satisfaction Outcomes based on Clinical History. National Conference on Undergraduate Research. Pittsburgh, PA. April 7-9, 2025.

22. Rabon, W., Tirmizi, Z., Carnovale, B., Lavadi, R.S., Mooney, J., Hamilton, D.K., Maroon, J.C., Miele, V.J., **Agarwal, N**. Stratification of Martial Arts-Related Brain and Spine Injuries Presenting to the Emergency Room throughout the U.S. National Conference on Undergraduate Research. Pittsburgh, PA. April 7-9, 2025.

23. Crum, A.G., Kumar, R.P., Lavadi, R.S., Mitha, R., Rabon, W., Shah, M., Hamilton, D.K., **Agarwal, N**. Establishing a Spine-Focused Patient Support Group: A Practical Guide. 49th Annual Meeting of the Association of VA Surgeons. Atlanta, GA. April 6-8, 2025.

24. Rao, S., Parchuri, E., Fernández-de Thomas, R.J., Colan, J.A., Gerszten, P.C., Okonkwo, D.O., Buell, T.J., Hamilton, D.K., **Agarwal, N**. Low preoperative serum prealbumin levels correlate with increased length of stay in patients undergoing lumbar and thoracic spine procedures. 41st Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Specialty Abstract Breakout Session 4 – Minimally Invasive/Motion Preservation/General Spine. Tampa, FL. February 20-23, 2025.

25. Hamilton, D.K., Kumar, R.P., Lavadi, R.S., Mitha, R., **Agarwal, N.,** International Spine Study Group. Which Complications Impact Satisfaction among Patients with Adult Spinal Deformity (ASD)? 2024 American Academy of Neurological Surgeons Annual Meeting. Half Moon Bay, CA. October 16-19, 2024.

26. Lavadi, R.S., Kumar, R.P., Kann, M., Shah, M., Hamilton, D.K., Maroon, J., Miele, V., **Agarwal, N.** A Video Analysis of Concussion and Return to Play among Athletes Following 333 Slaps. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

27. Hudson, J.S., McCarthy, D.J., Kumar, R.P., Wei, Z., Legaretta, A.D., Fernández-de Thomas, R.J., Raymond, O., Mitha, R., Buell, T.J., Hamilton, D.K., **Agarwal, N.,** Okonkwo, D.O., Kanter, A.S., Miele, V. Impact of Lateral Plate and Screw Fixation on Long Term Radiographic Subsidence in Lateral Lumbar Interbody Fusion. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

28. Hudson, J.S., Legaretta, A.D., McCarthy, D.J., Deng, H., Kumar, R.P., Wei, Z., Mitha, R., Raymond, O., Hamilton, D.K., Miele, V., **Agarwal, N.** Number of Fused Levels is Inversely Associated with Long Term Radiographic Subsidence in Stand-Alone Lateral Lumbar Interbody Fusion. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

29. Patel, J., Carnovale, B., Kumar, R.P., Lavadi, R.S., Shah, M., Mooney, J., Hamilton, D.K., **Agarwal, N.** Characterization of Neurological Injuries from Roller Coaster Rides among Minors. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

30. Hamilton, D.K., Kumar, R.P., **Agarwal, N.,** Lenke, L.G., Passias, P., Klineberg, E.O., Lafage, V., Bess, S., Smith, J.S., Gum, J.L., Lafage, R., Mullin, J., Kelly, M.P., Diebo, B., Buell, T.J., Scheer, J.K., Line, B., Kim, H.J., Kebaish, K., Mitha, R., Eastlack, R., Daniels, A., Soroceanu, A., Mundis, G., Hostin, R., Protopsaltis, T.S., Hart, R.A., Gupta, M., Schwab, F.J., Shaffrey, C.I., Ames, C.P., Burton, D., International Spine Study Group. Factors Associated with Timing for Revision Surgery for Proximal Junctional Kyphosis (PJK). North American Spine Society 39th Annual Meeting. Chicago, IL. September 25-28, 2024.

31. Das, A., Onafowokan, O., Pour, P.T., Mir, J., Lorentz, N., Lebovic, J., Galetta, M.S., **Agarwal, N.,** Alan, N., Anand, N., Eastlack, R.K., Buell, T.J., Lafage, R., De la Garza Ramos, R., Daniels, A.H., Shaffrey, C.I., Passias, P.G. The more the merrier? Integration of vertebral pelvic angles PJK thresholds to existing alignment schemas for prevention of mechanical complications after adult spinal deformity surgery. North American Spine Society 39th Annual Meeting. Chicago, IL. September 25-28, 2024.

32. Patel, R.P., Sane, E., Miao, H., Rosario, M., Budd, L., Mehendale, A., Lavadi, R.S., Cardozo, M.R., Mitha, R., **Agarwal, N.**, Molina, C., Ray, W.Z., Pennicooke, B. Is Digital PROMs Collection More Efficient than Paper Forms for Spine Surgery Patients? 24th International Society for the Advancement of Spine Surgery. Miami Beach, FL. April 26-28, 2024.

33. **Agarwal, N.**, Bisson, E.F., Bydon, M., Asher, A.L., Chan, A.K., Wang, M.Y., Haid, R.W., Knightly, J.J., Gottfried, O.N., Shaffrey, C.I., Virk, M.S., Shaffrey, M.E, Park, P., Foley, K.T., Coric, D., Upadhyaya, C., Potts, E.A., Uribe, J.S., Turner, J.D., Tumialán, L.M., Fu, K.G., Lavadi, R.S., Johnson, S.E., Chou, D., Mummaneni, P.V. Gain of Living Independence following Surgical Intervention for Cervical Spondylotic Myelopathy: A Quality Outcomes Database (QOD) Study. 40th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Specialty Breakout 4: Peripheral Nerve/Basic Science/General Spine Abstracts. Las Vegas, NV. February 21-24, 2024.

34. Lavadi, R.S., Zenkin, S., Legarreta, A.D., Hudson, J.S., Fields, D.P., **Agarwal, N.**, Mamindla, P., Ak, M., Peddagangireddy, V., Puccio, L., Buell, T.J., Hamilton, D.K., Kanter, A.S., Okonkwo, D.O., Zinn, P.O., Colen, R.R., Alan, N. Associating T1-weighted and T2-weighted MRI Radiomic Signatures with Preoperative Symptom Severity in Patients with Cervical Spondylotic Myelopathy. 40th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Specialty Breakout 2: Trauma/General Spine/Spinal Cord Injury Abstracts. Las Vegas, NV. February 21-24, 2024.

35. Lavadi, R.S., **Agarwal, N.**, Bisson, E.F., Bydon, M., Asher, A.L., Chan, A.K., Wang, M.Y., Haid, R.W., Knightly, J.J., Sherrod, B.A., Gottfried, O.N., Shaffrey, C., Virk, M.S., Shaffrey, M.E., Park, P., Foley, K.T., Coric, D., Upadhyaya, C., Potts, E.A., Tumialán, L.M., Fu, K.G., Johnson, S.E., Chou, D., Mummaneni, P.V. Impact of Cervical Spondylotic Myelopathy on Preoperative and Postoperative Care Dependency: A Quality Outcomes Database (QOD) Study. 51st Annual Meeting of the Cervical Spine Research Society. Las Vegas, NV. November 29-December 2, 2023.

36. Park, C., Shaffrey, C., Than, K., Bisson, E., Sherrod, B., Asher, A., Coric, D., Potts, E., Foley, K., Wang, M., Fu, K., Virk, M., Knightly, J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M., Buchholz, A., Tumialan, L., Turner, J., **Agarwal, N.**, Chan, A., Chou, D., Chaudhry, N., Haid, R., Mummaneni, P., Michalopoulos, G., Bydon, M., Gottfried, O. Does the Number of Social Risk Factors Affect Long-Term Patient-Reported Outcomes and Satisfaction in Those with Cervical Myelopathy? A QOD Study. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

37. Park, C., Shaffrey, C., Johnson, S., Bisson, E., Sherrod, B., Asher, A., Coric, D., Potts, E., Foley, K., Wang, M., Fu, K., Virk, M., Knightly, J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M., Buchholz, A., Tumialan, L., Turner, J., **Agarwal, N.**, Chan, A., Chou, D., Haid, R., Mummaneni, P., Michalopoulos, G., Bydon, M., Gottfried, O. Does the Choice of C2 vs Subaxial Upper Instrumented Vertebrae Impact 24-Month Outcome and Satisfaction in Patients with Cervical Myelopathy? A QOD Study. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

38. Fernandez-de Thomas, R., Colan, J.A., Sharma, N., Fields, D., Nturibi, E., Buell, T.J, Gerszten, P.C, Hamilton, D.K., Okonkwo, D.O., **Agarwal, N.** Preoperative Prealbumin Level as a Risk Factor for Pseudoarthrosis Following Lumbar Spine Surgery. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

39. Lakomkin, N., Michalopoulos, G., Chan, A., Potts, E., Park, P., Foley, K., Wang, M., Knightly, J., Sherrod, B., Gottfried, O., Shaffrey, C., **Agarwal, N.**, Goldberg, J., Virk, M., Hussain, I., Fu, K., Glassman, S., Tumialan, L., Turner, J., Meyer, S., Lu, D., Upadhyaya, C., Shaffrey, M., Coric, D., Slotkin, J., Chou, D., Haid, R., Asher, A., Bisson, E., Mummaneni, P, Bydon, M. Using the QOD to Identify Minimum Clinically Important Differences for Patients with Cervical Spondylotic Myelopathy. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

40. Park, C., Shaffrey, C., Johnson, S., Bisson, E., Sherrod, B., Asher, A., Coric, D., Potts, E., Foley, K., Wang, M., Fu, K., Virk, M., Knightly, J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M., Buchholz, A., Tumialan, L., Turner, J., **Agarwal, N.**, Chan, A., Chou, D., Haid, R., Mummaneni, P., Michalopoulos, G., Bydon, M., Gottfried, O. Does Smoking Status Affect Achievement of Satisfaction and Minimum Clinically Important Difference in Outcomes in Patients with Cervical Myelopathy at 24 months? A QOD Study. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

41. Buell, T.J., Legarreta, A., Smith, J.S., Diebo, B.G., Passias, P.G., Gum, J.L., Shaffrey, C.I., Bess, S., Klineberg, E.O., Lenke, L.G., Lafage, V., Lafage, R., **Agarwal, N.**, Kim, H.J., Protopsaltis, T.S., Mundis, G.M., Eastlack, R.K., Kelly, M.P., Daniels, A.H., Scheer, J.K., Soroceanu, A., Hostin, R., Kebaish, K.M., Hart, R.A., Lewis, S.J., Schwab, F.J., Ames, C.P., Gupta, M.C., Okonkwo, D.O., Hamilton, D.K., Burton, D.C. Long-Term (>2yr) Complications after Adult Spinal Deformity Surgery: Survivor Analysis Focused on Patients without Early- or Mid-Term Complications. 58th Annual Meeting of the Scoliosis Research Society. Seattle, WA. September 6-9, 2023.

42. **Agarwal, N.**, Bisson, E.F., Bydon, M., Asher, A.L., Chan, A.K., Wang, M.Y., Haid, R.W., Knightly, J.J., Sherrod, B., Gottfried, O.N., Shaffrey, C.I., Virk, M.S., Shaffrey, M.E, Park, P., Foley, K.T., Coric, D., Upadhyaya, C., Potts, E.A., Tumialán, L.M., Fu, K., Lavadi, R.S., Johnson, S.E., Chou, D., Mummaneni, P.V. Impact of Cervical Spondylotic Myelopathy on Preoperative and Postoperative Care Dependency: A Quality Outcomes Database (QOD) Study. International Society for the Advancement of Spine Surgery 23rd Annual Conference. San Francisco, CA. June 1-3, 2023.

43. **Agarwal, N.**, Letchuman, V., Lavadi, R.S., Le, V.P., Aabedi, A., Shabani, S., Chan, A.K., Park, P., Uribe, J.S., Turner, J.D., Eastlack, R.K., Fessler, R.G., Fu, K., Wang, M.Y., Kanter, A.S., Okonkwo, D.O., Nunley, P., Anand, N., Mundis, G.M., Passias, P.G., Bess, S., Shaffrey, C.I., Chou, D., Mummaneni, P.V. What is the Effect of Preoperative Depression on Outcomes after Minimally Invasive Surgery for Adult Spinal Deformity? A Prospective Cohort Analysis using a Multicenter Registry. International Society for the Advancement of Spine Surgery 23rd Annual Conference. San Francisco, CA. June 1-3, 2023.

44. **Agarwal, N.**, Michalopoulos, G.D., Bydon, M., Bisson, E.F., Chan, A.K., Shabani, S., Letchuman, V., Sammak, S., Lu, D., Wang, M.Y., Lavadi, R.S., Haid, R.W., Knightly, J.J., Sherrod, B., Gottfried, O.N., Shaffrey, C.I., Goldberg, J., Virk, M.S., Hussain, I., Glassman, S.D., Shaffrey, M., Park, P., Foley, K., Pennicooke, B., Coric, D., Slotkin, J.R., Upadhyaya, C., Potts, E., Tumialán, L., Chou, D., Fu, K., Asher, A.L., Mummaneni, P.V. Cervical Spondylotic Myelopathy and Driving Abilities: Prevalence and Long-Term Postoperative Outcomes: A QOD Study. International Society for the Advancement of Spine Surgery 23rd Annual Conference. San Francisco, CA. June 1-3, 2023.

45. **Agarwal, N.**, Chan, A.K., Bydon, M., Bisson, E.F., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Gottfried, O.N., Tumialán, L.M., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Michalopoulos, G.D., Lavadi, R.S., Park, P., Wang, M.Y., Fu, K., Slotkin, J.R., Asher, A.L., Virk, M.S., Guan, J., Haid, R.W., Chou, D., Mummaneni, P.V. Impact of Educational Background on Preoperative Disease Severity and Postoperative Outcomes among Patients with Lumbar Spondylolisthesis: A Quality Outcomes Database (QOD) Study. International Society for the Advancement of Spine Surgery 23rd Annual Conference. San Francisco, CA. June 1-3, 2023.

46. Chan, K.A., Shaffrey, C.I., Park, C., Gottfried, O.N., Bisson, E.F., Bydon, M., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K., Virk, M.S., Knightly, J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buccholz, A.L., Tumialán, L.M., Turner, J.D., Michalopoulos, G.D., Sherrod, B., **Agarwal, N.**, Chou, D., Haid, R.W., Mummaneni, P.V. What Factors Predict the Best Outcomes for Disability, Quality of Life, and Functional Status Following Surgery for Cervical Spondylotic Myelopathy? International Society for the Advancement of Spine Surgery 23rd Annual Conference. San Francisco, CA. June 1-3, 2023.

47. Yang, E., Mummaneni, P.V., Chou, D., Bydon, M., Bisson, E.F., Shaffrey, C.I., Glassman, S.D., Foley, K.T., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Park, P., Wang, M.Y., Fu, K., Slotkin, J.R., Asher, A.L., Virk, M.S., Michalopoulos, G.D., Guan, J., **Agarwal, N.**, Haid, R.W., Chan, A.K. What Factors Predict the Best Outcomes for Elderly Patients Operated for Grade 1 Degenerative Lumbar Spondylolisthesis? A Machine Learning Analysis from the Quality Outcomes Database. International Society for the Advancement of Spine Surgery 23rd Annual Conference. San Francisco, CA. June 1-3, 2023.

48. Hussain, I., Chan, A., **Agarwal, N.**, Shaffrey, C., Park, P., Uribe, J., Fessler, R., Kanter, A., Okonkwo, D., Mundis, G., Eastlack, R., Virk, M., Goldberg, J., Anand, N., Nunley, P., Le, V., Bess, S., Wang, M., Chou, D., Mummaneni, P., Fu, K. Validation of the MISDEF2 Algorithm for Adult Spinal Deformity: Analysis of 2-Year Clinical and Patient Reported Outcomes. Lumbar Spine Research Society 16th Annual Meeting. Chicago, IL. May 10-12, 2023.

49. Chan, A., Bydon, M., Bisson, E., Glassman, S., Foley, K., Shaffrey, C., Potts, E., Shaffrey, M., Coric, D., Knightly, J., Wang, M., Park, P., Fu, K., Slotkin, J., Asher, A., Virk, M., Michalopoulos, G., **Agarwal, N.**, Park, C., Chou, D., Mummaneni, P. Minimally Invasive Versus Open Transforaminal Lumbar Interbody Fusion for Grade 1 Lumbar Spondylolisthesis: 60-Month Follow-Up from the QOD Multi-Center Prospective Registry. Lumbar Spine Research Society 16th Annual Meeting. Chicago, IL. May 10-12, 2023.

50. Ambati, V., Shabani, S., Chryssikos, T., Ben-Natan, A. R., Huang, J., Jamieson, A., Macki, M., **Agarwal, N.**, Tawil, M., Guinn, J., Wu, H., Wang, M., Duan, P., Xi, Z., Rivera, J., Srivastava, P., Burch, S., Berven, S., Mummaneni, P., Chou, D., Tan, L. Differences in the Rate of Distal Junctional Pathology Between L3 and L4 PSO: Minimum One Year Follow-up for 117 Patients. Lumbar Spine Research Society 16th Annual Meeting. Chicago, IL. May 10-12, 2023.

51. **Agarwal, N.**, Chan, A.K., Bydon, M., Bisson, E.F., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Gottfried, O.N., Tumialán, L.M., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Michalopoulos, G.D., Lavadi, R.S., Park, P., Wang, M.Y., Fu, K., Slotkin, J.R., Asher, A.K., Virk, M.S., Guan, J., Haid, R.W., Chou, D., Mummaneni, P.V. Impact of Educational Background on Preoperative Disease Severity and Postoperative Outcomes among Patients with Lumbar Spondylolisthesis: A Quality Outcomes Database (QOD) Study. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

52. Blanks, W., **Agarwal, N.**, Menger, R., Orrico, K., Mortimer, A., McGuire, L.S., Vessell, M., Miller, B., DiGiorgio, A. NeurosurgeryPAC: An Analysis of Political Contribution Data. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

53. Buell, T.J., Legaretta, A., Smith, J., Shaffrey, C., Bess, S., Klineberg, E.O., Lafage, V., Lafage, R., **Agarwal, N.**, Scheer, J., Ames, C., Okonkwo, D., Hamilton, D., Burton, D., International Spine Study Group. Long-Term (>2year) Complication Rates for Adult Spinal Deformity Surgery: An Analysis Focused on Patients without Early- or Mid-Term Complications. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

54. **Agarwal, N.**, Michalopoulos, G.D., Bydon, M., Bisson, E.F., Chan, A.K., Shabani, S., Letchuman, V., Sammak, S.E., Lu, D.C., Wang, M.Y., Lavadi, R.S., Haid, R.W., Knightly, J.J., Sherrod, B.A., Gottfried, O.N., Shaffrey, C.I., Goldberg, J.L., Virk, M.S., Hussain, I., Glassman, S.D., Shaffrey, M.E., Park, P., Foley, K.T., Pennicooke, B., Coric, D., Slotkin, J.R., Upadhyaya, C., Potts, E.A., Tumialan, L.M., Chou, D., Fu, K.G., Asher, A.L., Mummaneni, P.V. Cervical Spondylotic Myelopathy and Driving Abilities: Prevalence and Long-Term Postoperative Outcomes: A QOD Study. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Specialty Breakout 4: Peripheral Nerve/Basic Science/General Spine Abstracts. Miami, FL. March 16-19, 2023.

55. Park, C., Shaffrey, C.I., Than, K.D., Michalopoulos, G., Sammak, S.E., Chan, A.K., Chaudhry, N.S., Bisson, E.F., Asher, A.K., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buccholz, A.L., Tumialan, L.M., Turner, J., Sherrod, B.A., **Agarwal, N.**, Chou, D., Haid, R.W., Mummaneni, P.V., Bydon, M., Gottfried, O.N. Are There Differences in Outcome Between Anterior and Posterior Cervical Surgery for Myelopathy? A QOD Analysis. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Specialty Breakout 4: Peripheral Nerve/Basic Science/General Spine Abstracts. Miami, Fl. March 16-19, 2023.

56. Chan, A.K., Greenwald, P., Shaffrey, C.I., Park, C., Gottfried, O.N., Than, K.D., Bisson, E.F., Bydon, M., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buccholz, A.L., Tumialan, L.M., Turner, J., Alvi, M.A., Sherrod, B.A**., Agarwal, N.**, Chou, D., Glassman, S.D., Haid, R.W., Mummaneni, P.V. Prevalence and Prognosis of Gait Dysfunction in Patients Operated for Cervical Spondylotic Myelopathy. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Specialty Breakout 4: Peripheral Nerve/Basic Science/General Spine Abstracts. Miami, FL. March 16-19, 2023.

57. Mooney, J.H., Michalopoulos, G., Zeytouni, D., Nathani, K.R., Wang, M.Y., Coric, D., Chan, A.K., Lu, D.C., Sherrod, B., Gottfried, O.N., Than, K.D., Shaffrey, C.I., Goldberg, J., Hussain, I., Virk, M.S., **Agarwal, N.**, Glassman, S.D., Shaffrey, M.E., Park, P., Foley, K.T., Pennicooke, B.H., Chou, D., Slotkin, J., Tumialan, L.M., Upadhyaya, C., Potts, E.A., Fu, K., Mummaneni, P.V., Bisson, E.F., Haid, R.W., Knightly, J.J., Asher, A.L., Bydon, M. Diabetes Adversely Affects Surgical Outcomes after Spine Surgery for Lumbar Spondylosis: A Matched Analysis of the QOD Dataset. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Award Winning Abstract Presentations: Session 1. Miami, FL. March 16-19, 2023. (Charles Kuntz Scholar Award)

58. Muzyka, L., Lavadi, R.S., Pugazenthi, S., Shah, D., Patel, A., Rangwalla, T., Elsayed, G., **Agarwal N.** Geographic Distribution in Training and Practice of Academic Neurologic and Orthopedic Spine Surgeons in The United States. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Award Winning Abstract Presentations: Session 1. Miami, FL. March 16-19, 2023. (Sanford Larson Clinical Research Award)

59. Gohel, P., Lavadi, R., Elkaim, L., Jaikumar, V., Alan, N., Hamilton, D.K., **Agarwal, N.** Recommendation for Prehabilitation in Elective Spine Surgery: A Systematic Review. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Specialty Breakout 3: Tumor/General Spine Abstracts. Miami, FL. March 16-19, 2023.

60. Letchuman, V., **Agarwal, N.**, Ambati, V.S., Langnas, E., Shabani, S., Chan, A.K., Schumacher, M., Abrecht, C.R., Miller, C., Sankaran, S., Berven, S.H., Chou, D., Guan, Z., Mummaneni, P.V. Reducing Opioid Prescriptions for 707 Patients following Cervical Spine Surgery Using a Novel, Patient-Centric, Individualized Calculation Tool. 50th Annual Meeting of the Cervical Spine Research Society. November 16-19, 2022.

61. Javeed, S., Greenberg, J., Zhang, J., Dibble, C., Khalifeh, J., **Agarwal, N.**, Ray, W. The Impact of Frailty on Patient Reported Outcomes after Cervical Spine Surgery. 50th Annual Meeting of the Cervical Spine Research Society. November 16-19, 2022.

62. Bisson, E., Mummaneni, P., Asher, A., **Agarwal, N.**, Potts, E., Foley, K., Chan, A., Wang, M., Haid, R., Knightly, J., Upadhyaya, C., Coric, D., Fu, K., Sherrod, B., Michalopoulos, G., Bydon, M. Sleep Impairment in CSM: Prevalence and Postoperative Outcomes - An Analysis from the QOD. 50th Annual Meeting of the Cervical Spine Research Society. November 16-19, 2022.

63. **Agarwal, N.**, He, L., Letchuman, V., Langnas, E., Vargas, E., Croci, R., Shabani, S., Abrecht, C.R., Berven, S.H., Chou, D., Guan, Z., Mummaneni, P.V. What are the Risk Factors for Continued Opioid Use in Patients following Spine Surgery? North American Spine Society 37th Annual Meeting. Chicago, IL. October 12-15, 2022.

64. **Agarwal, N.,** White, M.D, Roy, S., Ozpinar, A., Alan, N., Okonkwo, D.O., Hamilton, D.K., Kanter, A.S. Long-term Durability of Stand-alone Lateral Lumbar Interbody Fusion. Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. September 29-October 1, 2022.

65. Shabani, S., Chan, A.K., **Agarwal, N.**, Le, V., Aabedi, A.A., Park, P., Uribe, J., Turner, J., Eastlack, R.K., Fessler, R., Than, K.D., Fu, K., Wang, M.Y., Kanter, A.S., Okonkwo, D.O., Nunley, P.D., Anand, N., Mundis, G.M., Passias, P., Bess, S., Shaffrey, C.I., Chou, D., Mummaneni. P.V. Are 2-year Reoperation Rates Different for Circumferential Minimally Invasive Surgery (cMIS) vs. Open ASD Surgery? A Propensity Matched Cohort Study Using a Prospective ASD Database. Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. September 29-October 1, 2022.

66. Passias, P.G., Tretiakov, P., Joujon-Roche, R., Williamson, T., Krol, O., Imbo, B., Alan, N., Nunley, P.D., Park, P., Eastlack, R.K., Mundis, G., Chou, D., Uribe, J., Anand, N., Than, K.D., Shabani, S., Line, B., Ames, C.P., Smith, J.S., Shaffrey, C.I., Hart, R., Burton, D., Lafage, R., Schwab, F., Bess, S., Mummaneni, P.V., Wang, M.Y., Kanter, A.S., Okonkwo, D.O., **Agarwal, N.**, Chan, A.K., Fessler, R., Brusko, G., Shah, S., Fu, K. Circumferential Minimally-Invasive Adult Spinal Deformity Surgery Provides Incremental Benefit for Increasingly Frail Patients. Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. September 29-October 1, 2022.

67. Chan, A.K., Bisson, E.F., Bydon, M., Glassman, S., Foley, K.T., Shaffrey, C.I., Potts, E., Shaffrey, M., Coric, D., Knightly, J.J., Park, P., Wang, M.Y., Fu, K., Slotkin, J., Asher, A., Virk, M., Michalopoulos, G., Guan, J., **Agarwal, N.**, Chou, D., Haid, R.W., Mummaneni, P.V. Do the 5-Year Outcomes for Minimally Invasive and Open Transforaminal Lumbar Interbody Fusion for Grade 1 Degenerative Lumbar Spondylolisthesis Differ? Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. September 29-October 1, 2022.

68. **Agarwal, N.**, Langnas, E., Letchuman, V., Shabani, S., Schumacher, M., Chan, A., Abrecht, C.R., Miller, C., Sankaran, S., Chou, D., Guan, Z., Mummaneni, P.V. How a Personalized Opioid Protocol Can Mitigate Opioid Overprescription for Postoperative Patients. Neurosurgical Society of America Annual Meeting. Maui, HI. June 12-15, 2022.

69. Shabani, S., Vargas, E., Rechav Ben-Natan, A, Aabedi, A.A., **Agarwal, N.**, Mummaneni, P.V., Chou, D. Does Functional Outcome Improve after Surgery for Metastatic Spine Tumors in Patients with SINS 7-12 and SINS >12? Neurosurgical Society of America Annual Meeting. Maui, HI. June 12-15, 2022.

70. Letchuman, V., **Agarwal, N.**, Langnas, E., Shabani, S., Chan, A.K., Schumacher, M., Abrecht, C.R., Miller, C., Sankaran, S., Berven, S.H., Chou, D., Guan, Z., Mummaneni, P.V. An Individualized Opioid Prescription Protocol to Combat the Opioid Pandemic in 612 Patients Undergoing Lumbar Spine Surgery. Global Spine Congress. Las Vegas, NV. June 1-4, 2022.

71. Shabani, S., Vargas, E., Aabedi, A.A., Rachev Ben-Natan, A., **Agarwal, N.**, Mummaneni, P.V., Chou, D. Does Karnofsky Performance Score Improve after Surgery for Metastatic Spine Tumors in Patients with SINS 7-12? Global Spine Congress. Las Vegas, NV. June 1-4, 2022.

72. Shabani, S., **Agarwal, N.**, Huang, J., Rachev Ben-Natan, A, Aabedi, A.A., Le, V., Tan, L., Chou, D., Mummaneni, P.V. Propensity Matched Cohort Study Comparing Accuracy of Robotic Assisted Spinal Surgery versus Navigation Alone: Early Experience of 260 Pedicle Screws. Global Spine Congress. Las Vegas, NV. June 1-4, 2022.

73. **Agarwal, N.**, Blitstein, J., Mummaneni, P.V., Dhall, S.S., Weinstein, P.R., Duong-Fernandez, X., Chou, A., Pan, J., Singh, V., Ferguson, A.R., Hemmerle, D.D., Kyritsis, N., Talbott, J.F., Whetstone, W.D., Bresnahan, J.C., Torres-Espin, A., Manley, G., Beattie, M.S., DiGiorgio, A. Prospective Evaluation of Complications in the Elderly Following Traumatic Spinal Cord Injury: A 40 Patient Multi-Institutional Registry. 90th American Association of Neurological Surgeons Annual Scientific Meeting, Trauma Abstract Session. Philadelphia, PA. April 29-May 2, 2022.

74. Letchuman, V., **Agarwal, N.**, Langnas, E., Shabani, S., Schumacher, M., Abrecht, C., Sankaran, S., Reisner, L., Chou, D., Guan, Z., Mummaneni, P. Hounsfield Unit as a Predictor of Adjacent Level Disease in Interbody Fusion Surgery. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

75. Bydon, M., Mummaneni, P., Bisson, E., Michalopoulos, G., Mualem, W., Sammak, S.E., Wang, M., Chan, A., Alvi, M.A., Haid, R., Knightly, J., Devin, C., Sherrod, B., Gottfried, O., Than, K., Goldberg, J., Virk, M., **Agarwal, N.**, Glassman, S., Park, P., Fu, K., Pennicooke, B., Asher, A. Comparing Posterior Cervical Foraminotomy with Anterior Cervical Discectomy and Fusion in Radiculopathic Patients: An Analysis from the QOD. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022. (Stewart Dunsker Award for Best Clinical Spine Abstract)

76. Young, J.S., Wang, K., Nyugen, M., Patel, A., **Agarwal, N.**, Le, V., DiGiorgio, A., Chou, D., Mummaneni, P., Gandhi, S. A Lack of Cost Awareness Amongst Neurosurgeon Faculty and Residents: A Need for Health Care Sustainability Education to Improve Surgical Stewardship of Operating Room Costs. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

77. Gupta, A., Reddy, V., Barpujari, A., Agarwal, P., Chang, Y.F., Alan, N., and **Agarwal, N.** Current Trends in Subspecialty Fellowship Training for 1687 Academic Neurological Surgeons. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

78. Pugazenthi, S., Reddy, V., Pat, F., Hernandez Rovira, M.A., Dhanerawala, Z., Hanafy, A., Fabiano, A.S., Shlobin, N.A., **Agarwal, N.** Mapping Migratory Workforce Trends in the United States: An Analysis of 4,075 Neurosurgeons. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

79. Aabedi, A.A., **Agarwal, N.**, Torres-Espin, A., Chou, A., Mummaneni, P.V., Dhall, S.S., Weinstein, P.R., Duong-Fernandez, X., Pan, J., Singh, V., Ferguson, A., Hemmerle, D.D., Kyritsis, N., Talbott, J.F., Whetstone, W.D., Bresnahan, J.C., Manley, G., Beattie, M.S., DiGiorgio, A. Leveraging Machine Learning to Identify an Intraoperative Mean Arterial Pressure Threshold in Acute Spinal Cord Injury. 90th American Association of Neurological Surgeons Annual Scientific Meeting, Trauma Abstract Session. Philadelphia, PA. April 29-May 2, 2022.

80. Shabani, S., Rivera, J., Mummaneni, P.V., **Agarwal, N.**, Huang, J., Burch, S., Berven, S., Chou, D. Comparison of Proximal Junctional Kyphosis after Lumbar 4 versus Lumbar 3 Pedicle Subtraction Osteotomies. 90th American Association of Neurological Surgeons Annual Scientific Meeting, Trauma Abstract Session. Philadelphia, PA. April 29-May 2., 2022.

81. Letchuman, V., **Agarwal, N.**, Langnas, E., Shabani, S., Schumacher, M., Abrecht, C.R., Sankaran, S., Reisner, L., Chou, D., Guan, Z., Mummaneni, P.V. Does the Use of Preoperative Gabapentinoids or Benzodiazepines

Decrease Postoperative Use of Narcotics in Neurosurgery Patients? 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

82. Shabani, S., **Agarwal, N.**, Huang, J., Rechav Ben-Natan, A., Aabedi, A.A., Le, V., Tan, L., Chou, D., Mummaneni, P.V. Propensity Matched Cohort Study Comparing Accuracy of Robotic Assisted Spinal Surgery versus Navigation Alone: Early Experience of 260 Pedicle Screws. 29th International Meeting on Advanced Spine Techniques. Miami, Florida. April 6-9, 2022.

83. Shabani, S., Vargas, E., Aabedi, A.A., Rechav Ben-Natan, A., **Agarwal, N.**, Mummaneni, P.V., Chou, D. Does Karnofsky Performance Score Improve after Surgery for Metastatic Spine Tumors in Patients with SINS 7-12? 29th International Meeting on Advanced Spine Techniques. Miami, Florida. April 6-9, 2022.

84. Chan, A.K., Shaffrey, C.I., Gottfried, O., Park, C., Than, K.D., Bisson, E.F., Bydon, M., Asher, A.L., Coric, D., Potts, E., Foley, K.T., Wang, M.Y., Fu, K.G., Virk, M.S., Park, P., Upadhyaya, C.D., Shaffrey, M.E., Buchholz, A.L., Agarwal, N., Chou, D., Glassman, S.D., Mummaneni, P.V. Cervical Myelopathy With Severe Neck Pain: Is Anterior or Posterior Approach Better? 29th International Meeting on Advanced Spine Techniques. Miami, Florida. April 6-9, 2022.

85. **Agarwal, N.**, Langnas, E., Letchuman, V., Shabani, S., Chan, A.K., Schumacher, M., Abrecht, C., Miller, C., Sankaran, S., Berven, S., Chou, D., Guan, Z., Mummaneni, P.V. Personalized Opioid Prescription Protocol to Combat the Opioid Pandemic in 612 Patients Undergoing Lumbar Spine Surgery. Lumbar Spine Research Society 15th Annual Meeting. Chicago, IL. April 7-8, 2022. (Thomas A. Zdeblick Best Paper Award)

86. Shabani, S., **Agarwal, N.**, Huang, J., Rechav Ben-Natan, A., Aabedi, A.A., Le, V., Tan, L., Chou, D., Mummaneni, P.V. Propensity Matched Cohort Study Comparing Accuracy of Robotic Assisted Spinal Surgery versus Navigation Alone: Early Experience of 260 Pedicle Screws. Lumbar Spine Research Society 15th Annual Meeting. Chicago, IL. April 7-8, 2022.

87. Muthiah, N., Vodovotz, L., Deng, H., Dembinski, R., Ozpinar, A., **Agarwal, N.**, Hamilton, D.K., Kanter, A.S., Okonkwo, D.O., Alan, N. Propensity-Score Matched Analysis of Subsidence and Reoperation after LLIF Using 3D Porous Titanium vs. Polyetheretherketone. Lumbar Spine Research Society 15th Annual Meeting. Chicago, IL. April 7-8, 2022.

88. Shabani, S., Chan, A.K., **Agarwal, N.**, Le, V., Aabedi, A.A., Park, P., Uribe, J.S., Turner, J.D., Eastlack, R.K., Fessler, R.G., Than, K.D., Fu, K., Wang, Y.M., Kanter, A.S., Okonkwo, D.O., Nunley, P.D., Anand, N., Mundis, G.M., Passias, P.G., Bess, S., Shaffrey, C.I., Chou, D., Mummaneni, P.V. International Spine Study Group. Are 2-year Reoperation Rates Different for Circumferential Minimally Invasive Surgery (cMIS) vs. Open ASD Surgery? A Propensity Matched Cohort Study Using a Prospective ASD Database. 20th Annual AO Spine North American Fellows Forum. Banff Springs, Alberta, Canada. March 24-26, 2022. (Top 10 Abstract Award)

89. **Agarwal, N.**, Aabedi, A.A., Chan, A.K., Letchuman, V., Shabani, S., Bisson, E.F., Bydon, M., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Park, P., Wang, M.Y., Fu, K., Slotkin, J.R., Asher, A.L., Virk, M.S., Haid, R.W., Kerezoudis, P., Alvi, M.A., Guan, J., Chou, D., Mummaneni, P.V. Leveraging Machine Learning to Assess the Impact of BMI with Lumbar Spondylolisthesis: A Quality Outcomes Database Study. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Specialty Breakout 3: General Spine Surgery 2/Tumor/Opioids Abstract Breakout Session. Las Vegas, NV. February 23-26, 2022.

90. **Agarwal, N.**, Gupta, A., Gupta, R., White, M., Reddy, V., Chang, Y., Agarwal, P., Alan, N. Patient Satisfaction Reviews for 967 Spine Neurosurgeons. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, General Spine Surgery 1/Trauma/Spinal Cord Injury Abstract Breakout Session. Las Vegas, NV. February 23-26, 2022.

91. Chan, A.K., Shaffrey, C.I., Gottfried, O.N., Park, C., Than, K.D., Bisson, E.F., Bydon, M., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K.M., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buchholz, A.L., Tumialán, L.M., Turner, J., Alvi, M.A., Sherrod, B.A., **Agarwal, N.**, Chou,

D., Glassman, S.D., Haid, R.W., Mummaneni, P.V. Is Anterior or Posterior Approach Better for Neck Pain? A QOD Study of Cervical Myelopathy with Severe Neck Pain. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, General Spine Surgery 1/Trauma/Spinal Cord Injury Abstract Breakout Session Las Vegas, NV. February 23-26, 2022.

92. Chan, A.K., Shaffrey, C.I., Gottfried, O.N., Park, C., Than, K.D., Bisson, E.F., Bydon, M., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K.M., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buchholz, A.L., Tumialán, L.M., Turner, J., Alvi, M.A., Sherrod, B.A., **Agarwal, N.**, Chou, D., Glassman, S.D., Haid, R.W., Mummaneni, P.V. Do Comorbid Self-Reported Depression and Anxiety Influence Outcomes Following Surgery for Cervical Spondylotic Myelopathy? 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, General Spine Surgery 1/Trauma/Spinal Cord Injury Abstract Breakout Session Las Vegas, NV. February 23-26, 2022.

93. Ozpinar, A., Muthiah, N., Alan, N., **Agarwal, N.**, Hamilton, D.K., Kanter, A.S., Okonkwo, D.O. ASD Patient Outcomes Planned for a Two-Staged Scoliosis Correction: A Case for Standalone Anterolateral MIS Fusion. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Kuntz Scholar Oral Abstract Presentations Concurrent Session 1. Las Vegas, NV. February 23-26, 2022. (Charles Kuntz Scholar Award)

94. Ozpinar, A., Muthiah, N., Alan, N., **Agarwal, N.**, Hamilton, D.K., Kanter, A.S., Okonkwo, D.O. Focal Laminectomy with Foraminotomy Provides Durable Improvement in Scoliosis Patients with Radicular Pain Syndromes. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Spinal Deformity Abstract Breakout Session. Las Vegas, NV. February 23-26, 2022.

95. Ozpinar, A., Muthiah, N., Alan, N., **Agarwal, N.**, Hamilton, D.K., Kanter, A.S., Okonkwo, D.O. Single Level Lateral Lumbar Interbody Fusion using 3D Porous Titanium Cages for Rod Fractures in Select ASD Patients. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Spinal Deformity Abstract Breakout Session. Las Vegas, NV. February 23-26, 2022.

96. Ozpinar, A., Muthiah, N., Alan, N., **Agarwal, N.**, Hafez, D.M., Hamilton, D.K., Kanter, A.S., Okonkwo, D.O. ASD Patient Outcomes Planned for a Two-Staged Scoliosis Correction: A Case for Standalone Anterolateral MIS Fusion. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Specialty Breakout 5: Spinal Deformity Abstract Breakout Session. Las Vegas, NV. February 23-26, 2022.

97. Alan, N., Deng, H., Dembinski, R., Vodovotz, L., **Agarwal, N.**, Ozpinar, A., Hamilton, D.K., Kanter, A.S., Okonkwo, D.O. Cost-effectiveness of Porous Ti Interbody Cage vs PEEK after Lateral Lumbar Interbody Fusion. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, General Spine Surgery 3/Peripheral Nerve/Basic Science Abstract Breakout Session. Las Vegas, Nevada. February 23-26, 2022.

98. Shabani, S., Rivera, J., Mummaneni, P.V., **Agarwal, N.**, Huang, J., Burch, S., Berven, S., Chou, D. The Rates of Proximal Junctional Kyphosis after Lumbar 4 versus Lumbar 3 Pedicle Subtraction Osteotomies. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Top Abstracts Concurrent Session 3: Kuntz Scholar Oral Abstract Presentations. Las Vegas, Nevada. February 23-26, 2022. (Charles Kuntz Scholar Award)

99. Shabani, S., Vargas, E., Aabedi, A.A., Rechav Ben-Natan, A., **Agarwal, N.**, Mummaneni, P.V., Chou, D. Does Carnovsky Performance Score Improve after Surgery for Metastatic Spine Tumors in Patients with SINS 7-12? 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Las Vegas, Nevada. February 23-26, 2022.

100. Aabedi, A.A., **Agarwal, N.**, Torres-Espin, A., Chou, A., Mummaneni, P.V., Dhall, S., Weinstein, P., Fernandez, X.D., Pan, J., Singh, V., Ferguson, A., Hemmerle, D., Kyritsis, N., Talbott, J., Whetstone, W., Bresnahan, J., Manley, G., Beattie, M., DiGiorgio, A. Leveraging Machine Learning to Identify an Intraoperative Mean Arterial Pressure Threshold in Acute Spinal Cord Injury. 38th Annual Meeting of the AANS/CNS Section on Disorders of

the Spine and Peripheral Nerves, Spine Summit, General Spine Surgery 1/Trauma/Spinal Cord Injury Abstract Breakout Session. Las Vegas, NV. February 23-26, 2022.

101. Bisson, E.F., Mummaneni, P.V., Michalopoulos, G., Mualem, W., El Sammak, S., Wang, M.Y., Chan, A., Alvi, M.A., Haid, R.W., Knightly, J.J., Devin, C., Sherrod, B., Gottfried, O.N., Than, K.D., Goldberg, J., Virk, M.S., **Agarwal, N.**, Glassman, S.D., Park, P., Fu, K.G., Pennicooke, B., Asher, A.L., Bydon, M. Comparing Posterior Cervical Foraminotomy with ACDF in Radiculopathic Patients: An Analysis from the QOD. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Top Abstracts Concurrent Session 3: Kuntz Scholar Oral Abstract Presentations. Las Vegas, Nevada. February 23-26, 2022. (Charles Kuntz Scholar Award)

102. Bisson, E.F., Mummaneni, P.V., Michalopoulos, G., Durrani, S., El Sammak, S., Wang, M.Y., Chan, A., Alvi, M.A., Haid, R.W., Knightly, J.J., Devin, C., Sherrod, B., Gottfried, O.N., Than, K.D., Goldberg, J., Virk, M.S., **Agarwal, N.**, Glassman, S.D., Park, P., Fu, K.G., Pennicooke, B., Asher, A.L., Bydon, M. Cervical Disc Arthroplasty vs. ACDF In Patients With Spondylotic Myelopathy: A QOD Study. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Minimally Invasive/Motion Preservation Abstract Breakout Session. Las Vegas, Nevada. February 23-26, 2022.

103. Goldberg, J., Hussain, I., Michalopoulos, G., Wang, M.Y., Chan, A., Alvi, M.A., Haid, R.W., Knightly, J.J., Devin, C., Sherrod, B., Gottfried, O.N., Than, K.D., **Agarwal, N.**, Glassman, S.D., Park, P., Pennicooke, B., Asher, A.L., Bydon, M., Fu, K.G., Bisson, E.F., Mummaneni, P.V., Virk, M.S. Risk Factors for Persistent Pain after Surgery for Cervical Spondylotic Myelopathy: A Quality Outcomes Database Study. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, General Spine Surgery 1/Trauma/Spinal Cord Injury Abstract Breakout Session. Las Vegas, Nevada. February 23-26, 2022.

104. Park, C., Cook, C., Mummaneni, P.V., Chan, A., Bisson, E.F., Bydon, M., Yolcu, Y., Glassman, S.D., Foley, K., Shaffrey, M.E., Buchholz, A., Tumialan, L.M., Turner, J.D., Potts, E.A., Shaffrey, C.I., Coric, D., Asher, A.L., Wang, M.Y., Park, P., Upadhyaya, C.D., Chou, D., **Agarwal, N.**, Haid, R.W., Virk, M.S., Goldberg, J., Fu, K.G., Gottfried, O.N. Influence of Pre-Surgical High Impact Chronic Pain Designation in Recipients of Spine Surgery for Spondylolisthesis. 38th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, General Spine Surgery 3/Peripheral Nerve/Basic Science Abstract Breakout Session. Las Vegas, Nevada. February 23-26, 2022

105. **Agarwal, N.,** Gupta, A., Gupta, R., White, M., Reddy, V., Chang, Y., Agarwal, P., Alan, N. Patient Satisfaction Reviews for 967 Spine Neurosurgeons. Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. October 28-30, 2021.

106. **Agarwal, N.**, Baraldi, J., Reddy, V., Zelina, A., Reddy, A., White, M. Comparative Analysis of Academic Productivity among Neurological and Orthopedic Spine Surgeons. Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. October 28-30, 2021.

107. Deng, H., Vodovotz, L., Alan, N., **Agarwal, N.**, Ozpinar, A., Kanter, A.S, Hamilton, D.K., Okonkwo, D.O. A Matched Cohort Study of Cage Subsidence of Porous Titanium vs. Polyetheretherketone (PEEK) for Lateral Lumbar Interbody Fusion. Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. October 28-30, 2021.

108. **Agarwal, N.**, Gupta, A., Gupta, R., White, M., Reddy, V., Chang, Y., Agarwal, P., Alan, N. Patient Satisfaction Reviews for 967 Spine Neurosurgeons. Congress of Neurological Surgeons Annual Meeting, Council of State Neurosurgical Societies Section Session 1: The Medical Legal Environment in 2021. Austin, TX. October 16-20, 2021.

109. Alan, N., Adams, G., **Agarwal, N.**, Hamilton, D.K., Miele, V., Okonkwo, D.O., Kanter, A.S. Utility of Intraoperative Motor-Evoked Potential in L4-5 Lateral Lumbar Interbody Fusion: 3-year Prospective Study. Congress of Neurological Surgeons Annual Meeting. Austin, TX. October 16-20, 2021.

110. **Agarwal, N.**, Rode, M., Taylor, T., Roy, S., Muluk, P., Krishnamoorthy, A. Easow, H., Stout, G., Chang, Y., Hamilton, D.K., Thirumala, P.D. Establishing Fluid Biomarker Gradients based on Severity of Spinal Cord Injury. 37th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, General Spine Surgery 1 / Trauma / Spinal Cord Injury Abstract Breakout Session. San Diego, CA. July 28-31, 2021.

111. Grogan, D., Reddy, V., Gupta, A., Chang, Y.F., Fields, D. **Agarwal, N.** Use of the Relative Citation Ratio as a Measure of Academic Neurological Spine Surgeon Productivity. 37th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Kuntz Scholar Oral Abstract Presentations Concurrent Session 2. San Diego, CA. July 28-31, 2021. (Charles Kuntz Scholar Award)

112. Fields, D., Casillo, S., Zhang, X., Alan, N., **Agarwal, N.**, Gerszten, P.C., Kanter, A.S., Hamilton, D.K., Okonkwo, D.O. Surgical Timing of TLICS 4 Fractures Impacts Long-term Pain Outcomes. 37th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Kuntz Scholar Oral Abstract Presentations Concurrent Session 2. San Diego, CA. July 28-31, 2021. (Charles Kuntz Scholar Award)

113. Chan, A.K., Wozny, T.A., Bisson, E.F., Pennicooke, B.H., Bydon, M., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Park, P., Wang, M.Y., Fu, K.G., Slotkin, J., Asher, A.L., Vik, M.S., Panagiotis, K., Alvi, M.A., Gun, J., Haid, R.W., **Agarwal, N.**, Le, V., Mummaneni, P.V. Classifying Patients Operated for Spondylolisthesis: A Machine-Learning Analysis of Clinical Presentation Phenotypes. 37th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, General Spine Surgery 2 / Tumor / Opioids Abstract Breakout Session. San Diego, CA. July 28-31, 2021.

114. Gohel, P., White, M., Fields, D., **Agarwal, N.**, Alan, N. Longitudinal Analysis of Peripheral Nerve Surgery Training: Comparing Neurosurgery to Plastic and Orthopedic Surgery. 37th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Abstract Breakout Session: General Surgery 3: Peripheral Nerve/Basic Science. San Diego, CA. July 28-31, 2021.

115. Guha, D., Mushlin, H., Muthiah, N., Vodovotz, L., **Agarwal, N.**, Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. CT Hounsfield Units as a Predictor of Reoperation and Graft Subsidence Following Lateral Lumbar Interbody Fusion. Abstract Breakout Session: General Surgery 3: Peripheral Nerve/Basic Science. San Diego, CA. July 28-31, 2021.

116. Fields, D.P., McDowell, M.M., Schulien, A., Algattas, H., Abou-Al-Shaar, H., **Agarwal, N.**, Alan, N., Wang, E.W., Snyderman, C.H., Gardner, P.A., Zenonos, G.A. Low Preoperative Prealbumin is a Strong Independent Predictor of Postoperative Cerebral Spinal Fluid Leak following Endoscopic Endonasal Skull Base Surgery. 30th Annual North American Skull Base Society Symposium, Topic 8: Reconstruction. Virtual Symposium. February 13, 2021.

117. **Agarwal, N.**, Goldschmidt, E., Taylor, T., Roy, S., Altieri Dunn, S.C., Bilderback, A., Friedlander, R.M., Kanter, A.S., Okonkwo, D.O., Gerszten, P.C., Hamilton, D.K., Hall, D.E. Impact of Frailty on Outcomes following Elective Spine Surgery: A Prospective Cohort Analysis of 668 Patients. 36th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, General Spine Surgery 2 Abstract Breakout Session. Las Vegas, NV. March 5-8, 2020.

118. Alan, N., Donohue, J., Ozpinar, A., **Agarwal, N.**, Kanter, A.S., Okonkwo, D.O., Hamilton, D.K. Load Sharing Classification Score in Patients with TLICS 4 is Predictive of Surgical Intervention. 36th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Scientific Session 5: A Focus on Innovation to Improve Spine Care. Las Vegas, NV. March 5-8, 2020. (Mayfield Clinical Science Award)

119. Goldschmidt, E., **Agarwal, N.**, Taylor, T., Altieri Dunn, S.C., Bilderback, A., Snyderman, C.H., Friedlander, R, Gardner, P., Hall, D. Impact of Frailty on Outcomes following Endoscopic Endonasal Skull Base Surgery: A Prospective Cohort Analysis of 152 Patients. North American Skull Base Society 30th Annual Meeting. San Antonio, TX. February 7-9, 2020.

120. **Agarwal, N.**, Jorge, A., Andrews, E., Ozpinar, A., Alan, N., David Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Predictive Machine Learning Algorithm to Calculate Probability of Developing Subsidence After Lateral Lumbar Interbody Fusion. Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. October 31-November 2, 2019.

121. Ozpinar, A., Alan, N., **Agarwal, N.**, Okonkwo, D.O., Hamilton, D.K., Kanter, A.S. Preoperative Opioid use and Postoperative Pain in Patients Undergoing Minimally Invasive Stand-alone Lateral Lumbar Interbody Fusion. Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. October 31-November 2, 2019.

122. Alan, N., Adams, G., **Agarwal, N.**, Ozpinar, A., Balzer, J., Miele, V., Kanter, A.S. Utility of Intraoperative Motor Evoked Potential to Detect and Prevent Nerve Injury During L4-5 Lateral Lumbar Interbody Fusion. Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. October 31-November 2, 2019.

123. **Agarwal, N.**, Zhang, X., D'Angelo, M., Algattas, H., Alan, N., Salvetti, D.J., Tempel, Z.J., Okonkwo, D.O., Hamilton, D.K., Kanter, A.S. Does Implant Endplate Area Mismatch Predict Subsidence Following Stand-alone Lateral Lumbar Interbody Fusion: An Analysis of 623 Levels. 12th Annual Society of Lateral Access Surgery Meeting, Miami, FL. May 16-18, 2019.

124. **Agarwal, N.**, White, M.D., Zollman, J., McDowell, M., Abel, T., Hamilton, D.K. Neurosurgery Resident Surgical Experience in Pediatric Cases. 87th American Association of Neurological Surgeons Annual Scientific Meeting, Rapid Fire Abstracts: Neurotrauma; Pediatrics; Stereotactic and Functional. San Diego, CA. April 13-17, 2019.

125. **Agarwal, N.**, Kashkoush, A., Mehta, A., Nwachuku, E.L., Fields, D.P., Alan, N., Kanter, A.S., Okonkwo, D.O., Hamilton, D.K., Thirumala, P.D. Perioperative Neurological Complications Following Anterior Cervical Discectomy and Fusion: Clinical Impact on 317,789 Patients from the National Inpatient Sample. 35th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, General Spine Surgery 3 Breakout. Miami, FL. March 14-17, 2019.

126. **Agarwal, N.**, Angriman, F., Goldschmidt, E., Zhou, J., Kanter, A.S., Okonkwo, D.O., Passias, P., Protopsaltis, T., Lafage, V., Lafage, R., Schwab, F., Bess, S., Ames, C., Smith, J.S., Shaffrey, C.I., Burton, D., Hamilton, D.K., International Spine Study Group. Association of Body Mass Index, Sagittal Vertical Axis Change, and Health-Related Quality of Life Outcomes following Adult Deformity Surgery. 35th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Spinal Deformity Breakout. Miami, FL. March 14-17, 2019.

127. Salvetti, D.J., Nowicki, K., **Agarwal, N.**, Alan, N., Ghandoke, G., Hamilton, D.K., Kanter, A.S., Okonkwo, D.O. Preoperative Chronic Opiate Use Associated with Lower Post-Surgical Clinical Outcomes After Complex Spinal Deformity Surgery. 35th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 14-17, 2019.

128. Alan, N., Kim, S., Salvetti, D., **Agarwal, N.**, Ozpinar, A., Hamilton, D.K., Okonkwo D.O., Kanter, A.S. Hardware Complications in Adult Spine Deformity Correction with Computer-Assisted Rod Bending Technology: A Single Institution's Experience. 35th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 14-17, 2019.

129. Ozpinar, A., Alan, N., **Agarwal, N.**, Gerszten, P. Balloon Kyphoplasty for Vertebral Fractures with Posterior Wall Disruption. 35th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 14-17, 2019.

130. McDowell, M., **Agarwal, N.**, Mao, G., Johnson, S., Jankowitz, B., Kano, H., Lunsford, L.D., Greene, S. Long Term Outcomes of Pediatric Arteriovenous Malformations: The 30-Year Pittsburgh Experience. 47th Annual AANS/CNS Section on Pediatric Neurological Surgery. Nashville, TN. December 6-9, 2018.

131. **Agarwal, N.**, White, M.D., Pannullo, S.C., Chambless, L.B. Neurosurgical Resident Attrition. Congress of Neurological Surgeons Annual Meeting, Council of State Neurosurgical Societies Session 1. Houston, TX. October 6-10, 2018.

132. Alan, N., Faramand, A.M., **Agarwal, N.**, Salvetti, D., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Cost of Lateral Lumbar Interbody Fusion in the Elderly. Society for Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. September 6-8, 2018.

133. **Agarwal, N.**, Faramand, A.M., Alan, N., Tempel, Z.J., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Lateral Lumbar Interbody Fusion in the Elderly: A 10 Year Experience. 34th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Scientific Session 1. Orlando, FL. March 14-17, 2018. (J.A.N.E. Award)

134. **Agarwal, N.**, White, M.D. Hamilton, D.K. A Longitudinal Survey of Adult Spine Case Entries during Neurosurgery Residency Training. 34th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Making a Difference: Spine Surgeons Improving Healthcare and Patient Outcomes Breakout. Orlando, FL. March 14-17, 2018.

135. **Agarwal, N.**, Dayananda, S., Mehta, A., Nwachuku, E.L. Hamilton, D.K., Thirumala, P.D. Impact of Perioperative Neurological Deficits on Clinical Outcomes Following Posterior Cervical Fusion. 34th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, General Spine Breakout 3. Orlando, FL. March 14-17, 2018.

136. **Agarwal, N.**, Faramand, A.M., Alan, N., Salvetti, D., Ismail, N., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Cost Comparison of Standalone Lateral Lumbar Interbody Fusion. 34th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Minimally Invasive/Motion Preservation Breakout. Orlando, FL. March 14-17, 2018.

137. Gandhi, S.V., Januszewski, J., Bach, K., Vivas, A.C., Paluzzi, J.M., Kanter, A.S., Okonkwo, D.O., Tempel, Z.J., **Agarwal, N.**, Uribe, J.S. Development of Proximal Junctional Kyphosis after Minimally Invasive Lateral Anterior Column Realignment for Adult Spinal Deformity. 34th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Top Abstract Concurrent Session 2. Orlando, FL. March 14-17, 2018. (Charles Kuntz Scholar Award)

138. Alan, N., **Agarwal, N.**, Tavanaeipour, K., Tempel, Z., Kanter, A.S. Incidence of Femoral Nerve Palsy Following L4-5 Lateral Lumbar Interbody Fusion. 34th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Orlando, FL. March 14-17, 2018.

139. Faramand, A.**, Agarwal, N.**, Alan, N., Salvetti, D.J., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Cost Comparison of Standalone Lateral Lumbar Interbody Fusion. 34th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Orlando, FL. March 14-17, 2018.

140. Alan, N., Faramand, A.**, Agarwal, N.**, Okonkwo, D.O., Kanter, A.S. Cost of Lateral Lumbar Interbody Fusion in the Elderly. Society of Minimally Invasive Spine Surgery Annual Forum. Las Vegas, NV. September 6-8, 2018.

141. Alan, N., **Agarwal, N.**, Tavanaeipour, K., Tempel, Z., Kanter, A.S. Incidence of Femoral Nerve Palsy Following L4-5 Lateral Lumbar Interbody Fusion. Society of Lateral Access Surgeons. San Diego, CA. May 17-19, 2018.

142. Hansberry, D.R., Cox, M., Prabhu, P.V., **Agarwal, N.**, Deshmukh, S.P. The Emergency Department and Abdominal Imaging – Quantitative Analysis of the Level of Readability of Online Patient Education Resources. Radiologic Society of North America Annual Meeting. Chicago, IL. November 26-December 1, 2017.

143. **Agarwal, N.**, Faramand, A., Tempel, Z.J., Kanter, A.S. Efficacy of Mobile Based Technology to Assess Spinopelvic Parameters. 10th Annual Society of Lateral Access Surgery Meeting. San Diego, CA. May 18-20, 2017.

144. **Agarwal, N.**, Faramand, A., Tempel, Z.J., Okonkwo, D.O., Kanter, A.S. Complications and Outcomes Following Lateral Lumbar Interbody Fusion in an Elderly Cohort: A 10 Year Experience. Society of Lateral Access Surgery. 10th Annual Society of Lateral Access Surgery Meeting. San Diego, CA. May 18-20, 2017.

145. Tempel, Z.J., Andrews, E.G., **Agarwal, N.**, Okonkwo, D.O., Kanter, A.S. Correlation of Sacral Slope with Subsidence Following Lateral Lumbar Interbody Fusion. 10th Annual Society of Lateral Access Surgery Meeting. San Diego, CA. May 18-20, 2017.

146. Prabhu, A.V., Crihalmeanu, T., Hansberry, D.R., **Agarwal, N.**, Kale, K., Heller, M.T. Twenty Major University Hospitals Provide Radiology Online Patient Education Materials Not Conforming to NIH and AMA Guidelines. Association of University Radiologists Annual Meeting. Hollywood, FL. May 8-11, 2017.

147. Prabhu, A.V., Crihalmeanu, T., Hansberry, D.R., **Agarwal, N.**, Clump, D.A., Heron, D.E., Beriwal, S. Online Palliative Care Patient Education Resources: Do They Meet National Health Literacy Recommendations? 99th Annual American Radium Society Meeting. Colorado Springs, CO. May 6-9, 2017.

148. Jorge, A., **Agarwal, N.** Current Therapeutic Targets for Inflammation Following Acute Spinal Cord Injury. 85th American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, LA. April 22-26, 2017.

149. Ares, W.J., Panczykowski, D.M., Weiner, G.M., **Agarwal, N.**, Nguyen F., Gross, B., Jankowitz, B.T. A Comparison of Digital Subtraction Angiography and CT Angiography for the Diagnosis of Penetrating Cerebrovascular Injury. 85th American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, LA. April 22-26, 2017.

150. Goldschmidt, E., Angriman, F., **Agarwal, N.**, Tempel, Z.J., Gerszten, P.C., Kanter, A.S., Okonkwo, D.O., Lafage, V., Bess, S., Ames, C., Hamilton, D.K. A Novel Tool for Deformity Surgery Planning: Determining the Magnitude of Lordotic Correction Required to Achieve a Desired Sagittal Vertical Axis. 85th American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, LA. April 22-26, 2017.

151. Hansberry D.R., Cox, M., Prabhu, A.V., **Agarwal, N.**, Deshmukh, S Abdominal Radiology in the Emergency Department - Quantitative Analysis of the Level of Readability of Online Patient Education Resources. Society of Abdominal Radiology Annual Meeting. Hollywood, FL, March 26-29, 2017.

152. **Agarwal, N.**, Agarwal, P., Querry, A., Tempel, Z.J., Friedlander, R.M., Gerszten, P.C., Hamilton, D.K., Okonkwo, D.O., Kanter. A.S. Implementation of an Infection Prevention Bundle and Increased Physician Awareness Improve Surgical Outcomes and Reduce Costs Associated with Spine Surgery: A 10-Year Experience. 33rd Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. March 8-11, 2017.

153. **Agarwal, N.**, Gupta, R., Agarwal, P., Matthew, P., Wolferz, R., Kim, C., Prabhu, A.V., Kanter, A.S., Okonkwo, D.O, Hamilton. D.K. Characterizing Factors Leading to Malpractice Litigation: An Opportunity for Spine Surgeons to Reduce Legal Liability. 33rd Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. March 8-11, 2017.

154. **Agarwal, N.**, Zhou, J., Gandhoke, G.S., Koltz, M., Kanter, A.S., Okonkwo, D.O, Hamilton. D.K. Long-term Clinical Outcomes Following Surgical Management of Cervical Spine Fractures in Elderly Patients. 33rd Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. March 8-11, 2017.

155. Goldschmidt, E., Angriman, F., Trevisan, M., Zhou, Z., **Agarwal, N.**, Chen, K., Kanter, A.S., Okonkwo, D.O., Passias, P.G., Scheer, J.K., Protopsaltis, T., Lafage, V., Lafage, R., Schwab, F., Bess, S., Ames, C.P., Smith, J.S., Burton, D.C., Hamilton, D.K., International Spine Study Group. Towards a Better Understanding of Cervical Sagittal Alignment: Utilizing a Novel Angle δ to Describe the Relationship between T1 Vertebral Body Slope, Cervical Lordosis, and Cervical Sagittal Alignment. 33rd Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. March 8-11, 2017.

156. Algattas, H., Cohen, J., **Agarwal, N.**, Hamilton, D.K. Trends in the Use of Patient-Reported Outcome Instruments in Neurosurgical Adult Thoracolumbar Deformity and Degenerative Disease Literature. 33rd Annual Meeting of

the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. March 8-11, 2017.

157. Goldschmidt, E., Angriman, F., Ferreyro, B., **Agarwal, N.**, Tempel, Z.J., Gerszten, P.C., Kanter, A.S., Okonkwo, D.O., Passias, P., Scheer, J., Protopsaltis, T.S., Lafage, V., Schwab, F.J., Bess, S., Ames, C.P., Shaffrey, C.I., Hamilton, D.K., International Spine Study Group. A Novel Score Predicting Spine Sagittal Imbalance based on a Lateral Cervical Plain Radiograph. 44th Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.

158. **Agarwal, N.**, Agarwal, P., Mazurkiewicz, A., Wecht, D.A., Friedlander, R.M. Neurosurgical Cost Containment via Improved Physician Awareness. Congress of Neurological Surgeons Annual Meeting. San Diego, CA. September 24-28, 2016.

159. Hansberry D.R., Cox, M., Prabhu, A.V., **Agarwal, N.**, Deshmukh, S. Quantitative Analysis of the Level of Readability of Online Emergency Radiology-Based Patient Education Resources. American Society of Emergency Radiology Annual Meeting. San Francisco, CA. September 14-17, 2016.

160. **Agarwal, N.**, Prabhu, A.V., Lieber, B.A., Henry, J.K., Tabosha, M., Okonkwo, D.O. Early Post-Operative Outcomes for Elderly Patients Undergoing Single Level Decompression for Lumbar Disk Herniation. 32nd Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Charles Kuntz Scholar Platform Presentations III. Orlando, FL. March 16-19, 2016. (Charles Kuntz Scholar Award)

161. Heary, R.F., Parvathreddy, N., Sampath, S., **Agarwal, N.** Elastic Modulus: A Clinical Perspective. 32nd Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit, Peripheral Nerve & Laboratory Investigations: Oral Platform Presentations. Orlando, FL. March 16-19, 2016.

162. Hansberry, D.R., **Agarwal, N.**, Deshmukh, S. Readability of Patient Education Materials in Abdominal Radiology: Can We Enhance the Radiologist – Patient Relationship Through Improved Communication? Society of Abdominal Radiology Annual Scientific Meeting. Waikoloa, HI. March 13-18, 2016.

163. Hansberry, D.R., **Agarwal, N.**, Cox, M., Flanders, A. Enhancing the Radiologist-Patient Relationship Through Improved Communication: A Quantitative Readability Analysis of Patient Education Materials in Spine Radiology. American Society of Spine Radiology Annual Symposium. Bonita Springs, FL, February 18-21, 2016.

164. Hansberry, D.R., Cox, M., **Agarwal, N.**, Flanders, A. Spinal Osteochondroma: A Rare Presentation of Spinal Cord Compression. American Society of Spine Radiology Annual Symposium. Bonita Springs, FL, February 18-21, 2016.

165. **Agarwal, N.**, Pedro, H.F., Valdez-Gonzalez, K., Hegde, M., Baisre, A. A Novel MTM1 Mutation in a Case of X-linked Myotubular/Centronuclear Myopathy. Annual Meeting of the American Association of Neuropathologists. Portland, OR. June 12-15, 2014.

166. **Agarwal, N.**, Grover, K., Grover, Tabakin, M.D., Swan, K.G. A Paradigm for Increasing Medical Student Matriculation into Surgical Specialties. 9th Annual Academic Surgical Congress. San Diego, CA. February 4-6, 2014.

167. **Agarwal, N.**, Shhadeh, A., Duffis, E.J., Hoover, S., Prestigiacomo, C.J., He, W., Gandhi, C.D. Predictors for the Durability of Endovascular Treatment for Intracranial Aneurysms. Section on Cerebrovascular Neurosurgical Forum, 2013 Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.

168. Gandhi, C.D., **Agarwal, N.**, Duffis, E.J., Prestigiacomo, C.J. Aneurysm Configuration Predicts the Probability of Recanalization after Coil Embolization. Annual Meeting of the Neurosurgical Society of America. Sea Island, GA. April 7-10, 2013.

169. Tomei, K.L., **Agarwal, N.**, Gandhi, C.D., Prestigiacomo, C.J. Increasing Medical Student Awareness and Education in Neurosurgery through Interest Group Participation. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.

170. Gandhi, C.D., Tomei, K.L., **Agarwal, N.**, Prestigiacomo, C.J. Improving Medical Student Recruitment into Neurosurgery: A Single Institution's Experience. Annual Meeting of the Neurosurgical Society of America. Park City, UT. June 10-13, 2012.

Regional Conferences

1. Hudson, J.S., Adida, S., Legarreta, A., Taori, S., Shanahan, R.M., Jawad-Makki, M.H., Colan, J.A., Mitha, R., **Agarwal, N.**, Okonkwo, D.O., Hamilton, D.K., Buell, T.J. Revision Surgery for Proximal Junctional Failure: A Single-center Analysis of 1180 Adult Spinal Deformity Patients with Long-Term Follow-Up. 110th Pennsylvania Neurosurgical Society Annual Scientific Meeting. Hershey, PA. July 19-20, 2024.

2. Lui, A., Mendoza, E., Torres-Espin, A., Kanter, J., Hemmerle, D.D., Ismail, A., Mummaneni, N, **Agarwal, N.**, Chryssikos, T., Blitstein, J., Shabani, S., Dhall, S.S., Weinstein, P.R., Duong-Fernandez, X., Lai, N., Chou, A., Pan, J., Singh, V., Ferguson, A.R., Kyritsis, N., Huie, J.R., Talbott, J.F., Whetstone, W.D., Saigal, R., Pascual, L., Mummaneni, P., Bresnahan, J.C., Beattie, M.S., Manley, G.T., DiGiorgio, A. Differences in Demographics, Clinical, and Functional Outcomes Between Medicaid Versus Private Insurance Patients with Traumatic Spinal Cord Injury: A Prospective Multi-center TRACK-SCI Study. San Francisco Neurological Society Annual Meeting. Napa, CA. March 22-24, 2024.

3. Lavadi, R.S., Alan, N., Zenkin, S., Legarreta, A.D., Hudson, J.S., Fields, D.P., Mamindla, P., Ak, M., Peddagangireddy, V., Puccio, L., Buell, T.J., Hamilton, D.K., Kanter, A.S., Okonkwo, D.O., Zinn, P.O., Colen, R.R., **Agarwal, N**. Associating T2-weighted MRI Radiomic Signatures with Preoperative Symptom Severity in Patients with Cervical Spondylotic Myelopathy. 109th Annual Scientific Meeting of the Pennsylvania Neurosurgical Society. Hershey, PA. July 14-15, 2023.

4. **Agarwal, N.**, Langnas, E., Letchuman, V., Shabani, S., Schumacher, M., Chan, A., Abrecht, C.R., Miller, C., Sankaran, S., Chou, D., Guan, Z., Mummaneni, P.V. How a Personalized Opioid Protocol Can Mitigate Opioid Overprescription for Postoperative Patients. San Francisco Neurological Society Annual Meeting. Monterey, CA. March 18-20, 2022. (Harold Rosegay Award)

5. Chan, A.K., Burke, J.F., **Agarwal, N.**, Patel, A., Huang, J., Bisson, E.F., Bydon, M., Foley, K.T., Shaffrey, C.I., Glassman, S.D., Wang, M.Y., Park, P., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Fu, K.M., Slotkin, J.R., Asher, A.L., Virk, M.S., Kerezoudis, P., Alvi, M.A., Guan, J., Haid, R.W., Mummaneni P.V. Inferior Clinical Outcomes for Patients with Medicaid Insurance following Surgery for degenerative Lumbar Spondylolisthesis: A Prospective Registry Analysis of 608 Patients. California Association of Neurological Surgeons Annual Meeting. San Diego, CA. January 14-16, 2022.

6. Shabani, S., **Agarwal, N.**, Huang, J., Rechav Ben-Natan, A., Rivera, J., Aabedi, A.A., Le, V., Tan, L., Chou, D., Mummaneni, P.V. Propensity Matched Cohort Study Comparing Accuracy of Robotic Assisted Spinal Surgery versus Navigation Alone: Early Experience of 260 Pedicle Screws. California Association of Neurological Surgeons Annual Meeting. San Diego, CA. January 14-16, 2022.

7. **Agarwal, N.**, Jorge A., Andrews, E.G., Ozpinar, A., Alan, N., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Predictive Machine Learning Algorithm to Calculate Probability of Developing Subsidence after Lateral Lumbar Interbody Fusion. Midwest Spine Symposium. Pittsburgh, PA. September 6-7, 2019.

8. Alan, N., Adams, G., Ozpinar, A., **Agarwal, N.**, Miele, V.J., Balzer, J., Kanter, A. Utility of Intraoperative Motor Evoked Potential to Detect and Prevent Neural Element Injury During L4-5 Lateral Lumbar Interbody Fusion. Midwest Spine Symposium. Midwest Spine Symposium. Pittsburgh, PA. September 6-7, 2019.

9. Ozpinar, A., Hacker, E., Perez, J.L., **Agarwal, N.**, Alan, N., Kanter, A.S., Okonkwo, D.O., Hamilton D.K. Morbidity and Mortality in Elderly Patients with Operative Diffuse Idiopathic Skeletal Hyperostosis Fractures. Midwest Spine Symposium. Pittsburgh, PA. September 6-7, 2019.

10. **Agarwal, N.**, Alan, N., Faramand, A., Tempel, Z.J., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Lumbar Lateral Interbody Fusion in the Elderly. Midwest Spine Symposium. Columbus, OH. September 22-23, 2017.

11. Alan, N., **Agarwal, N.**, Tavanaeipour, K., Tempel, Z.J., Kanter, A.S. Incidence of Femoral Nerve Palsy following L4-5 Lateral Lumbar Interbody Fusion. Midwest Spine Symposium. Columbus, OH. September 22-23, 2017.

Local Conferences

1. **Agarwal, N.** Failure to Satisfy. Stuart Rowe Society Lectureship, University of Pittsburgh Medical Center. Pittsburgh, PA. September 12. 2018

2. **Agarwal, N.**, Utility of Silver-Impregnated dressing to Reduce Surgical Site Infections. University of Pittsburgh Medical Center. Pittsburgh, PA. October 21, 2015.

3. **Agarwal, N.** Failing to Communicate. University of Minnesota Medical Center, Fairview. Minneapolis, MN. September 13, 2013.

4. **Agarwal, N.** Infection Rates with External Ventricular Drainage Catheters: Evidence-Based Medicine. Penn State Milton S. Hershey Medical Center. Hersey, PA. August 23, 2013.

5. **Agarwal, N.** Sphenoid Wing Meningioma. New York Medical College at Westchester Medical Center. Valhalla, NY. July 19, 2013.

6. **Agarwal, N.** Foramen Magnum Meningioma. University of Medicine and Dentistry of New Jersey - New Jersey Medical School. Newark, NJ. June 26, 2013.

7. **Agarwal, N.** Dural Venous Thrombosis in Pregnancy. Newark Beth Israel Medical Center. Newark, NJ. June 22, 2012.

8. **Agarwal, N.**, Acocella, S., Sarter, B, Fuhrman, J. Changes in the Experiences of Hunger on a High Nutrient Density Diet. The College of New Jersey. Ewing, NJ. September 14, 2010.

9. **Agarwal, N.**, Soryal, M., Arias, J., Elder, B. Genetic Influences on Cerebral Structure. The College of New Jersey. Ewing, NJ. April 24, 2009.

Poster Presentations

International Conferences

1. Waheed, A. A., Patel, J., Gopakumar, A., Herath, I., Polavarapu, H., Agnihotri, S., Hamilton, D. K., Nowicki, K., **Agarwal, N.** "Toward Non-Invasive Diagnosis Of CSM: Patterns in Preoperative Blood Parameters And Predictive Modeling." Global Spine Congress. Istanbul, Turkey. May 27-30, 2026.

2. Patel, J., Waheed, A.A., Quddous, D., Patil, S., Spears, Z., Zeeshan, Q., Hudson, J., Hamilton, D.K., **Agarwal, N.** "Current Applications of Radiomics in Neurotrauma-A Systematic Review." Global Spine Congress. Istanbul, Turkey. May 27-30, 2026.

3. Daulat, S.R., Dholaria, N., Sahni, V., Waheed, A.A., Elsayed, G., Maroon, J.C., Hamilton, D.K., **Agarwal, N.** Trends in Spine Surgery Reimbursement: A National Analysis of Medicare Claims from 2010 to 2023. Global Spine Congress (GSC) Annual Meeting. Istanbul, Turkey. May 27-30, 2026.

4. Daulat, S.R., Manne, B., Dholaria, N., Waheed, A.A., Mitha, R., Alavi, A., Elsayed, G., Hamilton, D.K., **Agarwal, N.** Evaluating Biomechanical Stress in Internal Spinal Fixators and Vertebral Body Replacements. Global Spine Congress (GSC) Annual Meeting. Istanbul, Turkey. May 27-30, 2026.

5. Daulat, S.R., Diaz, A., Dara, F., Cabral, D., **Agarwal, N.,** Hamilton, D.K. Stress Profiles Predict ICU Stay in Primary Spinal Tumor Patients. Global Spine Congress (GSC) Annual Meeting. Istanbul, Turkey. May 27-30, 2026.

6. Spears, Z., Waheed, A.A., Aydin, S., Fernández-de Thomas, R., Reitz, K., Hamilton, D.K., **Agarwal, N.** Use of Anterior Cervical Discectomy and Fusion Cage During L5-S1 Anterior Lumbar Interbody Fusion in the Setting of Retroperitoneal Fibrosis. Global Spine Congress. Istanbul, Turkey. May 27-30, 2026.

7. Waheed, A.A., Spears, Z., Aydin, S., Mooney, J., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.** Use of Intraoperative Fibrin-Coated Collagen Patch and Bilateral Paraspinal Muscle Flap for Durable Spinal Cerebrospinal Fluid Leak Repair. Global Spine Congress. Istanbul, Turkey. May 27-30, 2026.

8. Waheed, A.A., Manov, A., Polarvarapu, H., Mittal, A., Agnihotri, S., Hamilton, D.K., Nowicki, K., **Agarwal, N.** Blood Biomarker Screening for Cervical Spondylotic Myelopathy: Markov-based Cost-effectiveness Analysis. Global Spine Congress; May 27–30, 2026; Istanbul, Turkey.

9. Hamilton, D.K., Kumar, R.P., **Agarwal, N.,** Lenke, L.G., Passias, P., Klineberg, E.O., Lafage, V., Bess, S., Smith, J.S., Gum, J.L., Lafage, R., Mullin, J., Kelly, M.P., Diebo, B., Buell, T.J., Scheer, J.K., Line, B., Kim, H.J., Kebaish, K., Mitha, R., Eastlack, R., Daniels, A., Soroceanu, A., Mundis, G., Hostin, R., Protopsaltis, T.S., Hart, R.A., Gupta, M., Schwab, F.J., Shaffrey, C.I., Ames, C.P., Burton, D., International Spine Study Group. Factors Associated with Timing for Revision Surgery for Proximal Junctional Kyphosis (PJK). Scoliosis Research Society 59th Annual Meeting. Barcelona, Spain. September 10-14, 2024.

10. Lavadi, R.S., Anand, S.K., Culver, L.G., Deng, H., Ozpinar, A., Puccio, L.M., **Agarwal, N.**, Alan, N. Surgical Management of Hip-Spine Syndrome: A Systematic Review of the Literature. Global Spine Congress. Bangkok, Thailand. May 15-18, 2024.

11. **Agarwal, N.**, Bisson, E.F., Bydon, M., Asher, A.L., Chan, A.K., Wang, M.Y., Haid, R.W., Knightly, J.J., Gottfried, O.N., Shaffrey, C.I., Virk, M.S., Shaffrey, M.E., Park, P., Foley, K.T., Coric, D., Upadhyaya, C., Potts, E.A., Tumialán, L.M., Fu, K.G., Lavadi, R.S., Johnson, S.E., Chou, D., Mummaneni, P.V. Gain of Living Independence following Surgical Intervention for Cervical Spondylotic Myelopathy: A Quality Outcomes Database (QOD) Study. Global Spine Congress. Bangkok, Thailand. May 15-18, 2024.

12. **Agarwal, N.**, Chan, A.K., Bisson, E.F., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Gottfried, O.N., Tumialán, L.M., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Mitha, R., Dominari, A., Park, P., Wang, M.Y., Fu, K., Slotkin, J.R., Asher, A.L., Virk, M.S., Guan, J., Haid, R.W., Chou, D., Bydon, M., Mummaneni, P.V. Prevalence of Impaired Traveling Ability and Postoperative Outcomes in Patients with Grade I Lumbar Spondylolisthesis: A Quality Outcomes Database Study. Global Spine Congress. Bangkok, Thailand. May 15-18, 2024

13. **Agarwal, N.**, DiGiorgio, A.M., Bydon, M., Bisson, E.F., Michalopoulos, G., Letchuman, V., Chan, A.K., Shabani, S., Lavadi, R.S., Lu, D.C., Wang, M.Y., Haid, R.W., Knightly, J.J., Sherrod, B.A., Gottfried, O.N., Shaffrey, C.I., Goldberg, J.L., Virk, M.S., Hussain, I., Glassman, S.D., Shaffrey, M.E., Park, P., Foley, K.T., Pennicooke, B., Coric, D., Slotkin, J.R., Upadhyaya, C., Potts, E.A., Tumialan, L.M., Fu, K.G., Asher, A.L., Chou, D., Mummaneni, P.V. Impact of Educational Background on Preoperative Disease Severity and Postoperative Outcomes among Patients with Cervical Spondylotic Myelopathy: A Quality Outcomes Database (QOD) Study. 30th International Meeting on Advanced Spine Techniques. Dublin, Ireland. March 22-24, 2023.

14. Chan, A.K., Park, C., Shaffrey, C.I., Gottfried, O., Bisson, E.F., Bydon, M., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K.G., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C.D., Shaffrey, M.E., Tumialan, L.M., Turner, J.D., Michalopoulos, G., Sherrod, B., **Agarwal, N.**, Haid, R.W., Chou, D.,

Mummaneni, P.V. Predicting Achievement of a Minimum Clinically Important Difference in Neck Pain after Surgery for Cervical Spondylotic Myelopathy: A Comparison of Supervised Learning Algorithms. 30th International Meeting on Advanced Spine Techniques. Dublin, Ireland. March 22-24, 2023.

15. Ambati, V., Shabani, S., Chryssikos, T., Rechav Ben-Natan, A., Huang, J., Jamieson, A., Macki, M., **Agarwal, N.**, Tawil, M., Gunn, J., Wu, J., Wang, M., Duan, P., Rivera, J., Srivastava, P., Burch, S., Berven, S.H., Mummaneni, P.V., Chou, D., Tan, L.A. Differences in the Rate of Distal Junctional Pathology Between L3 and L4 PSO: Minimum One Year Follow-Up for 117 Patients. 30th International Meeting on Advanced Spine Techniques. Dublin, Ireland. March 22-24, 2023.

16. Chan, A.K., Bydon, M., Bisson, E.F., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Park, P., Wang, M.Y., Fu, K.G., Slotkin, J.R., Asher, A.L., Virk, M.S., Michalopoulos, G., Haid, R.W., **Agarwal, N.**, Park, C., Chou, D., Mummaneni, P.V. Minimally Invasive versus Open Transforaminal Lumbar Interbody Fusion for Grade 1 Lumbar Spondylolisthesis: 60-Month Follow-Up from the QOD Multi-Center Prospective Registry. 30th International Meeting on Advanced Spine Techniques. Dublin, Ireland. March 22-24, 2023.

National Conferences

1. Shanahan, R.M., Stepniak, A., Bhatia, S., Hoes, K.S., Bailey, R.L., **Agarwal, N.** Launching the Longitudinal Attending-Resident-Student Mentorship Initiative (LAMI) to Improve Medical Student Mentorship in Neurosurgery. Harvard Macy Institute Program for Educators Poster Symposium. Harvard Medical School. Boston, Massachusetts. May 8, 2026

2. Wakelin, S.H., Waheed, A.A., Carnovale, B., Shanahan, R.M., Adida, S., Legarreta, A.D., Hudson, J.S., Deng, H., **Agarwal, N.**, Hamilton, D.K. Risk factors for hardware failure involving the cervicothoracic junction following posterior cervical instrumentation. American Association of Neurological Surgeons Annual Scientific Meeting. San Antonio, TX. May 1-4, 2026

3. Tang, O., Waheed, A.A., Patel, J., Hamilton, D.K., **Agarwal, N.** Are Matched Neurosurgery Resident Demographics Representative of the Applicant Pool? An Analysis of 1,361 Applicants from 2022-2025. American Association of Neurological Surgeons Annual Scientific Meeting. San Antonio, TX. May 1-4, 2026

4. Tirmizi, Z., Carnovale, B., Patel, J.B., Waheed, A.A., Mooney, J., Hamilton, D.K., **Agarwal, N.** Mechanisms of Soccer-Related Neurological Injuries in Teenagers, Spine Summit, Phoenix, AZ. February 26 – March 1, 2026.

5. Tirmizi, Z., Carnovale, B., Wakelin, S.H., Zeeshan, Q., **Agarwal, N.,** Hamilton, D.K. Prognostic Nutritional Index (PNI) as a Predictor for Survival in Trauma Patients Following Posterior Cervical Fusion (PCF), Spine Summit, Phoenix, AZ. February 26 – March 1, 2026.

6. Daulat, S., Diaz, A., Farhadi, D., Waheed, A.A., Zeeshan, Q., Cabral, D., **Agarwal, N.**, Hamilton, D.K. Stress Profiles Predict ICU Stay in Primary Spinal Tumor Patients. Spine Summit, Phoenix, AZ. February 26 – March 1, 2026.

7. Ryvlin, J., Waheed, A.A., Patel, J., Ali, D., Abdallah, H., Khan, A., Hamilton, D.K., **Agarwal, N.**, Mapping the Mismatch: Neurotrauma Mortality, Social Vulnerability, And Trauma Care Access in the United States. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11-15, 2025.

8. Hamilton, D.K., Carnovale, B., **Agarwal, N**., Lenke, L.G., Passias, P., Klineberg, E.O., Lafage, V., Bess, S., Smith, J.S., Gum, J.L., Lafage, R., Mullin, J., Kelly, M.P., Diebo, B., Line, B., Kim, H.J., Kebaish, K., Eastlack, R., Daniels, A., Soroceanu, A., Lavadi, R.S., Mundis, G., Hostin, R., Protopsaltis, T.S., Hart, R.A., Gupta, M., Schwab, F.J., Ames, C.P., Shaffrey, C.I. Predicting Baseline PROM Scores from Radiographic, Demographic, and Clinical Data Using Machine Learning. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11-15, 2025.

9. Deng, H., Patil, S., Daulat, S., Dholaria, N., Waheed, A.A., Mooney, J.H., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.** Modeling the Impact of LOX Concentration on Collagen and Aggrecan Loss in Age-Related Intervertebral Disc Degeneration. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

10. Khan, R., Chomelawala T., Waheed, A.A., Mooney, J.H., Maclean, M. A., Fernandez-de Thomas, R., Zeeshan, Q., Deng, H., Hamilton, D.K., **Agarwal, N**. Artificial Intelligence for Spine Surgery Education: A Comparative Analysis of ChatGPT and DeepSeek Performance. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11-15, 2025.

11. Daulat, S.R., Dholaria, N., Sahni, V., Waheed, A.A., Mitha, R., Elsayed, G., Maroon, J.C., Hamilton D.K., **Agarwal, N**. Trends in Spine Surgery Reimbursement: A National Analysis of Medicare Claims From 2010 To 2023. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

12. Nayak, K.P., Carnovale, B**.**, Mitha, R., Hamilton, D.K., Kohanbash, G., **Agarwal N**., Fernandes Cabral, D.T. Socioeconomic Factors Implicated in the Refusal of Surgery for Malignant CNS Tumors. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11-15, 2025.

13. Daulat, S., Dholaria, N., Burnet, G., Patil, S., Mitha, R., Manne, B., Choudhary, A., Hamilton, D.K., **Agarwal, N**. Comparative Analysis of Readability of Language Learning Models Answers for Spine Surgery Frequently Asked Questions. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

14. Daulat, S.R., Manne, B., Dholaria. N., Waheed, A.A., Mitha, R., Alavi, A., Elsayed, G., Hamilton, D.K., **Agarwal, N**. Cumulative Load And Stress Risk In Spinal Implants. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

15. Don, N., Rabon, W., Waheed, A.A., Lopez, A., Fernández-de Thomas, R.J., Mooney, J.H., MacLean, M.A., Mastrolonardo, A., Aljan, B., Ragulojan, M., Hart S., Alwadei, A., Rizzuto, M., Hamilton, D.K., **Agarwal, N.** Current Practices In Return To Play Recommendations For Recreational Athletes Following Cervical Spine Surgeries: An Interim Analysis Of A Global Survey. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

16. Daulat, S., Koster, J., Shaunak, P., Dholaria, N., Waheed, A.A., Hamilton, D.K., **Agarwal, N.** Urban-Rural and Gender Disparities in Neurosurgery: A Nationwide Analysis of Workforce Trends, 2013–2022. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

17. Patil. S., Daulat, S., Dholaria, N., Waheed, A.A., Mooney, J.H., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.** Restoring Matrix Homeostasis in Diabetic Discs: Quantitative Modeling of Glucose Supplementation. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

18. Tang O.Y., Waheed A.A., Hamilton D.K., **Agarwal N.** Are Matched Neurosurgery Resident Demographics Representative of the Applicant Pool? An Analysis Of 974 Applicants From 2022-2024. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

19. Patel. J., Waheed A.A., Ali, D., Ryvlin, J., Khan, A.J., Hamilton D.K., **Agarwal, N.** Place of Death as a Window into Healthcare Disparities in Neurological Disorders: A CDC Wonder Analysis. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

20. Waheed, A.A., Ali, D., Patel. J, Patil, S., Khan, A. J., Hamilton, D.K., **Agarwal, N.** Central Nervous System Tumors: Epidemiologic Trends and Access Inequities in the U.S. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

21. Dholaria, N., Daulat, S., Sen, B., Mitha, R., Fernandez-de Thomas, R., Hamilton, D.K., **Agarwal N.** Evaluating the Accuracy and Variability of AI-Generated Spine Angle Predictions. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

22. Stepniak, A., Diamandi, J., Tetreault, H., Shanahan, R.M., Garcia, J., Zeeshan, Q., Fernandes Cabral, D.T., **Agarwal, N.,** Hamilton, D.K. Bibliometric Analysis of the 50 Most-Cited Articles on Pediatric Craniopharyngioma. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

23. Tirmizi, Z., Courtney, C., Rabon, W., Daulat, S., Choudhary, A., Burnet, G., Patil, S., Mitha, R., Mooney, J.H., Hamilton, D.K., **Agarwal, N.** Evaluating Learning Language Models (LLMs) Accuracy of Spine Surgery Complications Students. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

24. Patil, S., Daulat, S., Dholaria, N., Waheed, A.A., Mooney, J.H., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.** A Dynamic Systems Model of Intervertebral Disc Degeneration Integrating Mechanical Loading, Enzyme Inhibition, And Age-Related Matrix Remodeling. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

25. Patil, S., Daulat, S., Dholaria, N., Waheed, A.A., Mooney, J.H., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.** Age-Stratified LOX-Mediated Efficacy of ADAMTS5/MMP3 Inhibition In A Disc Degeneration Model. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

26. Albin, J., Patil, S., Daulat, S., Dholaria, N., Waheed, A.A., Mooney, J.H., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.** Acidic Microenvironments Nullify Lysyl Oxidase-Mediated Collagen Preservation In Intervertebral Disc Degeneration: A Computational Study. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

27. Adida, S., Taori, S., Rabon, W., Bayley, J.C., Zinn, P., **Agarwal, N.,** Choi S., Burton S., Flickinger J., Gerszten P., Sefcik, R. Frailty Predicts Local Control and Overall Survival Following Stereotactic Body Radiation Therapy For Spinal Metastases. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

28. Patil, S., Daulat, S., Dholaria, N., Waheed, A.A., Mooney, J.H., Zeeshan, Q., Hamilton, D.K., **Agarwal, N.** TGF-β Priming Synergistically Enhances LOX-Mediated Matrix Preservation in Aged and Acidic Intervertebral Discs. Congress of Neurological Surgeons (CNS) Annual Meeting. Los Angeles, CA. October 11–15, 2025.

29. Waheed A.A., Ryvlin, J., Mooney, J.H., Zeeshan, Q., Hamilton, D.K., **Agarwal, N**. Use of Intraoperative Fibrin-Coated Collagen Patch and Bilateral Paraspinal Muscle Flap for Durable Spinal Cerebrospinal Fluid Leak Repair. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

30. Tirmizi, Z., Rabon, W., Daulat, S., Nayar, G., Waheed, A.A., Mitha, R., Fernandez-de Thomas, R., Hamilton, D.K., **Agarwal, N**. GPT-4 Management of Postoperative Spine Patient Limitation Queries. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

31. Balasubramanian, K., Kharbat, A.F., Denizhan, M., Andrade de Almeida, R.A., Call-Orellana, F., Sankarappan, K., Downes, A., Passias, P., Hwang, S., **Agarwal, N.,** Shakir, H.J., Burke, J.F., Jea, A., Graffeo, C.S., Janjua, M.B. Spinal Oligodendroglioma: A 70-year review of current literature. Congress of Neurological Surgeons Annual Meeting. Los Angeles, California. Oct 11th-15th.

32. Diamandi, J., Stepniak, A., Tetreault, H., Garcia, J., Shanahan, R.M., Zeeshan, Q., **Agarwal, N**., Hamilton, D.K. Bibliometric Analysis of the Top 50 Most-Cited Articles on Cervical Deformities. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

33. Patel, J., Waheed, A.A., Quddous, D., Patil, S., Spears, Z., Zeeshan, Q., Hudson, J., Hamilton, D.K., **Agarwal, N**. Current Applications of Radiomics in Neurotrauma. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11–15, 2025.

34. Carnovale, B., Patel, J., Wakelin, S.H., Zeeshan, Q., Hamilton, D.K., **Agarwal, N**. Risks and Benefits of Preoperative GLP-1RA Use in Spine Surgery: A Narrative Review. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11-15, 2025.

35. Nayak, K.P., Carnovale, B., Mitha, R., Hamilton, D.K., Kohanbash, G., **Agarwal, N.**, Fernandes Cabral, D.T. Differing Rates of Surgery Refusal Among Demographic Groups for Spinal vs. Cranial Cancers. Congress of Neurological Surgeons Annual Meeting. Los Angeles, CA. October 11-15, 2025.

36. Khan, R., Chomelawala, T., Waheed, A.A., Mooney, J.H., Maclean, M.A., Fernandez-de Thomas, R., Zeeshan, Q., Deng, H., Hamilton, D.K., **Agarwal, N**. Artificial Intelligence For Spine Surgery Education: A Comparative Analysis of ChatGPT and DeepSeek Performance. Society for Minimally Invasive Spine Surgery Annual Meeting. Las Vegas, NV. October 2-4, 2025.

37. Rao, S., Parchuri, E., Fernández-de Thomas, R.J., Colan, J.A., Gerszten, P.C., Okonkwo, D.O., Buell, T.J., Hamilton, D.K., **Agarwal, N**. Low preoperative serum prealbumin levels correlate with longer length of stay in patients undergoing lumbar and thoracic spine procedures. 93rd American Association of Neurological Surgeons Annual Scientific Meeting. Boston, MA. April 25-28, 2025.

38. Rao, S., Parchuri, E., Hudson, J.S., Shanahan, R.M., Adida, S., Jawad-Makki, M.H., Bhatia, S., Crane, A., Lindsey, C., Slingerland, A., Legarreta, A., Sefcik, R., Fields, D.P., Gerszten, P.C., **Agarwal, N.**, Okonkwo, D.O., Hamilton, D.K. Perioperative Serum Prealbumin as a Predictor of Mortality and Length of Stay in Patients Treated with Posterior Cervical Decompression and Fusion. 93rd American Association of Neurological Surgeons Annual Scientific Meeting. Boston, MA. April 25-28, 2025.

39. Parchuri, E., Rao, S., Mooney, J., **Agarwal, N.**, Hamilton, D.K. Current Evidence on Spinal Fusion in Patients with Sickle Cell Disease. 93rd American Association of Neurological Surgeons Annual Scientific Meeting. Boston, MA. April 25-28, 2025.

40. Rabon, W., Tirmizi, Z., Carnovale, B., Lavadi, R.S., Mooney, J.H., Hamilton, D.K., Maroon, J.C., Miele, V.J., **Agarwal, N**. Stratification of Martial Arts-Related Brain and Spine Injuries Presenting to the Emergency Room throughout the U.S. 93rd American Association of Neurological Surgeons Annual Scientific Meeting. Boston, MA. April 25-28, 2025.

41. Choudhary, A., Don, N., Carnovale, B., Rabon, W., Lavadi, R.S., Mitha, R., Kumar, R.P., Fernandez de Thomas, R., Mooney, J., Hamilton, D.K., **Agarwal, N**. Microsoft Copilot Accurately Extrapolates SRS-22r Pain and Management Satisfaction Outcomes based on Clinical History. 93rd American Association of Neurological Surgeons Annual Scientific Meeting. Boston, MA. April 25-28, 2025.

42. Rabon, W., Sen, B., Deng, H., Mitha, R., **Agarwal, N.**, Okonkwo, D.O., Mooney, J.H. C7-T1 Anterior Cervical Discectomy and Fusion for Cerebrospinal Fluid Leak Repair. 93rd American Association of Neurological Surgeons Annual Scientific Meeting. Boston, MA. April 25-28, 2025.

43. Rabon, W., Mooney, J.H., Fernández de-Thomas, R.J., Nayar, G., Ghodadra, A., Agarwal, V., Hamilton, D.K., **Agarwal, N**. Patient and Operating Room Staff Perspectives and Satisfaction with 3D-Printed Preoperative Spine Models. 93rd American Association of Neurological Surgeons Annual Scientific Meeting. Boston, MA. April 25-28, 2025.

44. Rabon, W., Tirmizi, Z., Kumar, R.P., Mooney, J.H., Fernández de-Thomas, R.J., Hadjipanayis, C.G., **Agarwal, N**. Enhancing Precision: The Application of Exoscope Technology in Spine Surgery. 93rd American Association of Neurological Surgeons Annual Scientific Meeting. Boston, MA. April 25-28, 2025.

45. Fernández-de Thomas, R.J., Manov, A., Agarwal, P., Lavadi, R.S., Gross, B.A., Lang, M.J., Sasso, R., Harrop, J., Hamilton, D.K., **Agarwal, N**. Development of a Standardized Algorithm for Iatrogenic Vertebral Artery Injury in Cervical Spine Surgery. 41st Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Tampa, FL. February 20-23, 2025.

46. Fernández-de Thomas, R.J., Adida, S., Cloney, M.B., Mitha, R., Lavadi, R.S., Deng, H., Lopez-Gross, A.S., Sen, A., Fernandes-Cabral, D.T., Abou-Al-Shaar, H., Gerszten, P.C., Okonkwo, D.O., Buell, T.J., Hamilton, D.K., **Agarwal, N**. Current Trends in the Use of Cervical Collar Immobilization after Cervical Spine Surgery: A Global Survey Analysis. 41st Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Tampa, FL. February 20-23, 2025.

47. Choudhary, A., Don, N., Carnovale, B., Rabon, W., Lavadi, R.S., Mitha, R., Kumar, R.P., Fernández-de Thomas, R.J., Mooney, J., Hamilton, D.K., **Agarwal, N**. Microsoft Copilot Accurately Extrapolates SRS-22r Pain and Management Satisfaction Outcomes based on Clinical History. 41st Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Tampa, FL. February 20-23, 2025.

48. Rabon, W., Tirmizi, Z., Kumar, R.P., Mooney, J.H., Fernández de-Thomas, R.J., Hadjipanayis, C.G., **Agarwal, N**. Enhancing Precision: The Application of Exoscope Technology in Spine Surgery. 41st Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Tampa, FL. February 20-23, 2025.

49. Eckmann, M.A., Carnovale, B., Lavadi, R.S., Agarwal, P., Hamilton, D.K., Maroon, J.C., Miele, V.J., **Agarwal, N**. Determining the Effect of Rugby on the Spine. 41st Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Tampa, FL. February 20-23, 2025.

50. Carnovale, B., Lavadi, R.S., Choudhary, A., Gajjar, A., Kumar, R.P., Hudson, J., Legarreta, A., Shah, M., Hamilton, D.K., **Agarwal, N**. Accounts of Spine and Paraspinal Disease while Playing Golf. 41st Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Tampa, FL. February 20-23, 2025.

51. Crum, A.G., Kumar, R.P., Lavadi, R.S., Mitha, R., Rabon, W., Shah, M., Hamilton, D.K., **Agarwal, N**. Establishing a Spine-Focused Patient Support Group: A Practical Guide. 41st Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Tampa, FL. February 20-23, 2025.

52. Adida, S., Fernández-de Thomas, R.J., Cloney, M.B., Mitha, R., Lavadi, R.S., Deng, H., López-Gross, A.S., Sen, A., Fernandes-Cabral, D.T., Abou-Al-Shaar, H., Gerszten, P.C., Okonkwo, D.O., Buell, T.J., Hamilton, D.K., **Agarwal, N**. Current Trends in the Use of Cervical Collar Immobilization After Spine Surgery: A Global Survey. AMA Research Challenge. Lake Buena Vista, FL. November 7-9, 2024.

53. Lavadi, R.S., Carnovale, B., Gajjar, A., Tirmizi, Z., Premkumar R., Jawad-Makki, M.A., Legarreta, A., Hudson, J., Shah, M., Hamilton, D.K., **Agarwal, N**. Examining the Readability of AtlasGPT, The Premiere Resource for Neurosurgical Education. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

54. Carnovale, B., Patel, J., Lavadi, R.S., Kumar, R.P., Shah, M., Hamilton, D.K., **Agarwal, N**. Spinal and Paraspinal Injuries from Weightlifting in Minors. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

55. Mitha, R., Kumar, R.P., Shah, M., Hamilton, D.K., **Agarwal, N**. Reduced Readmission with Neurosurgical Outpatient Follow-up Within 30 Days of Discharge after Emergency Neurosurgery. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

56. Hamilton, D.K., Kumar, R.P., **Agarwal, N.**, Lenke, L.G., Passias, P., Klineberg, E.O., Lafage, V., Bess, S., Smith, J.S., Gum, J.L., Lafage, R., Mullin, J., Kelly, M.P., Diebo, B., Buell, T.J., Scheer, J.K., Line, B., Kim, H.J., Kebaish, K., Mitha, R., Eastlack, R., Daniels, A., Soroceanu, A., Mundis, G., Hostin, R., Protopsaltis, T.S., Hart, R.A., Gupta, M., Schwab, F.J., Shaffrey, C.I., Ames, C.P., Burton, D., International Spine Study Group. Factors Associated with Timing for Revision Surgery for Proximal Junctional Kyphosis (PJK). Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

57. Rovira, M.H., Lavadi, R.S., George, B., Cloney, M., **Agarwal, N.**, Vates, G.E., Paul, D. Multi-State Analysis of Neurosurgical Workforce Diversity on Elective Spine Surgery Utilization. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

58. Kumar, R.P., Jawad-Makki, M.A., Monek, A., Lavadi, R.S., Mitha, R., Shah, M., Hamilton, D.K., **Agarwal, N**. Interpedicular Distance as a Predictor for Failure of Conservative Management After Thoracolumbar Burst Fractures. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

59. Patel, R., Rosario, M., Heo, R., Sane, E., Mehendale, A., Budd, L., Miao, H., Lavadi, R.S., Ruiz-Cardozo, M., Mitha, R., **Agarwal, N.**, Molina, C., Ray, W., Santiago, P., Pennicooke, B. Comparison of Outcomes of Lumbar Endoscopic Vs Tubular Spine Surgeries: A Propensity Matched Analysis. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

60. Aizooky, T., Kumar, R.P., Lavadi, R.S., Choudhary, A., Gajjar, A., Mitha, R., Crum, A., Legarreta, A., Hudson, J., Shah, M., Shuman, W., Agarwal, V., Hamilton, D.K., **Agarwal, N**. Evaluating the Efficacy of Artificial Intelligence in Summarizing Radiology Reports: A Pilot Study in a Neurosurgical Clinic. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

61. Miao, H., Budd, L., Patel, R., Sane, E., Rosario, M., Mehendale, A., Lavadi, R.S., Ruiz-Cardozo, M., Mitha, R., Heo, R., **Agarwal, N.**, Molina, C., Ray, W., Santiago, P., Ogunlade, J., Pennicooke, B. Comparative Analysis of Patient-Reported Outcome Measures Collection: Digital Vs. Paper Methods. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

62. Budd, L., Miao, H., Patel, R., Sane, E., Rosario, M., Mehendale, A., Lavadi, R.S., Ruiz-Cardozo, M., Mitha, R., Heo, R., **Agarwal, N.**, Molina, C., Ray, W., Santiago, P., Ogunlade, J., Pennicooke, B. Comparative Analysis of Digital Vs. Paper-Based PROMs Adherence Across Demographic Groups in Spine Surgery. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

63. Patel, R., Sane, E., Budd, L., Miao, H., Rosario, M., Mehendale, A., Heo, R., Ruiz-Cardozo, M., Lavadi, R.S., Mitha, R., **Agarwal, N.**, Molina, C., Ray, W., Santiago, P., Ogunlade, J., Pennicooke, B. Are digital PROM collection methods more efficient than paper forms for spine surgery patients? Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

64. Sen, A., Kumar, R.P., Slingerland, A., Lavadi, R.S., Shah, M., Watters, D., Hamilton, D.K., **Agarwal, N**. ASPiRE: Accelerating Simplified Practice Management and Review Evaluation in Neurosurgery. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

65. Kann, M., Lavadi, R.S., Crane, A., Aizooky, T., Hardi, A., Polavarapu, H., Premkumar, R., Mitha, R., Shah, M., Hamilton, D.K., **Agarwal, N**. Fluid Biomarkers for Cervical Spondylotic Myelopathy. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

66. Mitha, R., Colan, J.A., Lavadi, R.S., **Agarwal, N.**, Nwachuku, E., Elmer, J., Okonkwo, D., Pease, M. Withdrawal of Life Sustaining Treatment in Patients with Traumatic Brain Injury. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

67. Crum, A., Kumar, R.P., Lavadi, R.S., Mitha, R., Shah, M., Hamilton, D.K., **Agarwal, N**. Establishing a Spine-Focused Patient Support Group: A Practical Guide. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

68. Muzyka, L., Ranganathan, S., Lavadi, R.S., Paliwoda, E., Hamilton, D.K., Ogunlade, J., **Agarwal, N**. The Learning Curve of Endoscopic Spine Surgery: A Systematic Review of Training, Techniques, and Performance. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

69. Gajjar, A.A., Covell, M.M., Kumar, R.P., Tang, O.Y., Ranganathan, S., Muzyka, L., Mualem, W., Rehman, I., Patel, S.V., Lavadi, R.S., Mitha, R., Hamilton, D.K., **Agarwal, N**. Analysis of 3.16M Patients from 2000 to 2019

Reveals No Evidence of July Effect for Neurotrauma Patients. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

70. Hamilton, D.K., Kumar, R.P., **Agarwal, N**., Lenke, L., Passias, P., Klineberg, E., Lafage, V., Bess, S., Smith, J., Gum, J., Renaud, L., Mullin, J., Kelly, M., Diebo, B., Line, B., Kim, H.J., Kebaish, K., Lavadi, R.S., Eastlack, R., Daniels, A., Mundis, G., Hostin, R., Protopsaltis, T., Hart, R., Gupta, M., Schwab, F., Shaffrey, C., Ames, C., Burton, D. Which Complications Impact Satisfaction among Patients with Adult Spinal Deformity (ASD)? Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

71. Carnovale, B., Lavadi, R.S., Choudhary, A., Gajjar, A., Kumar, R.P., Hudson, J., Legarreta, A., Shah, M., Hamilton, D.K., **Agarwal, N**. Accounts of Spine and Paraspinal Disease while Playing Golf. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

72. Lavadi, R.S., Utt, K., Housley, N., Lin, T.H., Blum, J., Pennicooke, B., **Agarwal, N.**, Song, S.K. Diffusion Basis Spectrum Imaging Detects Axonal Injury in the Optic Nerve following Traumatic Brain Injury. Congress of Neurological Surgeons Annual Meeting. Houston, TX. September 28-October 2, 2024.

73. Onafowokan, O., Mir, J., Das, A., Lorentz, N., Galetta, M.S., Jankowski, P.P., Diebo, B.G., Daniels, A.H., Eastlack, R.K., Kim, H.J., Hockley, A., Chen, A., Buell, T.J., Owusu-Sarpong, S., Hamilton, D.K., **Agarwal, N**., Gerling, M.C., Buser, Z., Shaffrey, C.I., Lafage, R., Lafage, V., Passias, P.G. Contemporary treatment of complex adult spinal deformity using bone morphogenic protein: a comparative analysis of outcome and complication profiles. North American Spine Society 39th Annual Meeting. Chicago, IL. September 25-28, 2024.

74. Agarwal, P., Gaba, F., Crall, V., **Agarwal, N**., Friedlander, R.M. Physician Awareness Combined with Perioperative Infection Prevention Bundles Results in Durable Neurosurgical Infection Control and Cost Savings. 92nd American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. May 3-6, 2024.

75. Shanahan, R.M., Slingerland, A.L., Alattar, A., Adida, S., Colan, J., Monek, A., Das, A., Hudson, J.S., Hamilton, D.K., Fields, D.P., **Agarwal, N**. Provider Bias Trumps Healthcare Access for Socioeconomic Disparities in Pain Management for Traumatic Spine Fractures. 92nd American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. May 3-6, 2024.

76. Gajjar, A.A., Kumar, R.P., Paliwoda, E.D., Kuo, C.C., Adida, S., Legarreta, A.D., Deng, H., Anand, S.K., Hamilton, D.K., Buell, T.J., **Agarwal, N.**, Gerszten, P.C., Hudson, J.S. Usefulness and Accuracy of Artificial Intelligence Chatbot Responses to Patient Questions for Neurosurgical Procedures. 92nd American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. May 3-6, 2024.

77. Ali, A., Kumar, R.P., Lavadi, R.S., Mahavadi, A.K., Legarreta, A.D., Hudson, J.S., Shah, M., Paul, D.A., Mooney, J., Dietz, N., Polavarapu, H., Cloney, M., Fields, D.P., Hamilton, D.K., **Agarwal, N.** Optimizing Neurosurgery Operative Note-Writing Using Artificial Intelligence. 92nd American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. May 3-6, 2024.

78. Mitha, R., Kumar, R.P., Berke, C., Fields, D.P., Standaert, C.J., Agarwal, V., Hamilton, D.K., **Agarwal, N**. Lower Socioeconomic Status Associated with Higher Hospital Visits for Low Back Pain – Effect of Demographics on the Way Patients Seek Treatment. 92nd American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. May 3-6, 2024.

79. Mitha, R., Kumar, R.P., **Agarwal, N.**, Gerszten, P.C., Hamilton, D.K., Sefcik, R. Neurosurgery Inhibits Post-Partum Lactation Experiences. 92nd American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. May 3-6, 2024.

80. Das, A.A., Jawad-Makki, M.H., Shanahan, R.M., Mitha, R., Lavadi, R.S., Algattas, H., Hamilton, D.K., **Agarwal, N.**, Fields, D.P., Okonkwo, D.O. Not All Frailty is Equivalent: Comparing Frailty Index Scales in Their Capacity to Predict Mortality in Older Adults with Traumatic Brain Injuries. 92nd American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. May 3-6, 2024.

81. Cloney, M., Gajjar, A.A., Paul, D., Nail, T.J., **Agarwal, N.**, Buell, T., Okonkwo, D.O. Hospital Volume Affects Rates of Complications and Failure to Rescue After Burr Hole Evacuation of Subdural Hematoma. 92nd American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. May 3-6, 2024.

82. Hernandez-Rovira, M.A., Ranganathan, S., Hassan, T., Pugazenthi, S., **Agarwal, N.**, George, B.P., Paul, D.A. Variable Representation of Ethnic and Minority Academic Neurosurgeons Stratified by Hospital Catchment Area. 92nd American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. May 3-6, 2024.

83. Mitha, R., Mahan, M.A., Patel, R.P., Colan, J.A., Leyendecker, J., Zaki, M.M., Harake, E.S., Kathawate, V., Kashlan, O., Konakondla, S., Huang, M., Elsayed, G.A., Hafez, D.M., Pennicooke, B., **Agarwal, N.**, Hofstetter, C.P., Ogunlade, J.O. Endoscopic Unilateral Laminectomy for Bilateral Decompression in Degenerative Spondylolisthesis. 40th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. February 21-24, 2024.

84. Monek, A.C., Mitha, R., Andrews, E., Sarkaria, I.S., **Agarwal, N.**, Hamilton, D.K. Multidisciplinary Surgical Approach Utilizing Augmented Reality Pre-Planning for Resection of Giant Thoracic Schwannoma with Robotic Assisted Thoracoscopic Mobilization. 40th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. February 21-24, 2024.

85. Adida, S., Hudson, J.S., Legarreta, A.D., Taori, S., Shanahan, R., Jawad-Makki, M.A., Colan, J.A., Mitha, R., **Agarwal, N.**, Okonkwo, D.O., Hamilton, D.K., Buell, T.J. Revision Surgery for Proximal Junctional Failure: A Single-center Analysis of 1180 Adult Spinal Deformity Patients with Long-term Follow-up. 40th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. February 21-24, 2024

86. **Agarwal, N.**, Chan, A.K., Bisson, E.F., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Gottfried, O.N., Tumialán, L.M., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Mitha, R., Dominari, A., Park, P., Wang, M.Y., Fu, K., Slotkin, J.R., Asher, A.L., Virk, M.S., Guan, J., Haid, R.W., Chou, D., Bydon, M., Mummaneni, P.V. Prevalence of Impaired Traveling Ability and Postoperative Outcomes in Patients with Grade I Lumbar Spondylolisthesis: A Quality Outcomes Database Study. 40th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. February 21-24, 2024

87. Legarreta, A.D., Hudson, J.S., Kumar, R.P., Lavadi, R.S., Adams, G.M., **Agarwal, N.**, Hamilton, D.K., Okonkwo, D.O., Kanter, A., Alan, N. Correlation of Clinical Outcomes to Intraoperative Transcranial Motor Evoked Potential during L4-L5 Lateral Lumbar Interbody Fusion. 40th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. February 21-24, 2024.

88. Colan, J.A., Adida, S., Hudson, J.S., McCarthy, D.J., Fernandez-de Thomas, R.J., Shanahan, R.M., Jawad-Makki, M.H., **Agarwal, N.**, Okonkwo, D.O., Hamilton, D.K., Buell, T.J. Coronal Imbalance in Adult Spinal Deformity Patients That Develop Proximal Junctional Failure. 40th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. February 21-24, 2024.

89. Shabani, S., Lavadi, R.S., **Agarwal, N.**, Le, V., Chan, A.K., Wang, M.Y., Haid, R.W., Knightly, J.J., Gottfried, O.N., Shaffrey, C.I., Shaffrey, M.E., Park, P., Foley, K.T, Coric, D., Upadhyaya, C., Potts, E.A., Uribe, J.S., Turner, J.D., Tumialán, M., Chou, D., Fu, K.G., Asher, A.L., Bisson, E.F., Bydon, M., Mummaneni, P.V. Urinary Control in Cervical Myelopathy: Does It Improve Post-Surgery? A Quality Outcomes Database (QOD) Study. 40th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Las Vegas, NV. February 21-24, 2024.

90. **Agarwal, N.**, DiGiorgio, A., Bydon, M., Bisson, E.F., Michalopoulos, G.D., Letchuman, V., Chan, A.K., Shabani, S., Lavadi, R.S., Wang, M.Y., Haid, R.W., Knightly, J.J., Sherrod, B., Gottfried, O.N., Shaffrey, C.I., Goldberg, J.L., Virk, M.S., Hussain, I., Glassman, S.D., Shaffrey, M.E., Park, P., Foley, K.T., Pennicooke, B.H., Coric, D., Upadhyaya, C., Potts, E.A., Tumialán, L.M., Fu, K.G., Asher, A.L., Chou, D., Mummaneni, P.V. Impact of Educational Background on Preoperative Disease Severity and Postoperative Outcomes among Patients with Cervical Spondylotic Myelopathy. 51st Annual Meeting of the Cervical Spine Research Society. Las Vegas, NV. November 29-December 2, 2023.

91. Adida, S., Sefcik, R.K., Fernández de-Thomas, R., Andrews, E.G., **Agarwal, N.**, Gardner, P.A., Hamilton, D.K. 2023. Occipitocervical Surgery Rescue: The "Catcher's Mitt" Technique. 9th Annual International Spinal Deformity Symposium. New York, NY. December 1-2, 2023.

92. Paliwoda, E.D., Gajjar, A.A., Patel, S., Barpujari, A., Bhupatiraju, S., Lavadi, R.S., Mitha, R., **Agarwal, N.** Ranking U.S. Medical Residency Programs with Doximity: A Literature Review and Critical Analysis. American Medical Association Research Symposium. Virtual Meeting. October 18-20, 2023.

93. **Agarwal, N.**, Bisson, E., Bydon, M., Asher, A., Chan, A., Wang, M., Haid, R., Knightly, J., Sherrod, B., Gottfried, O., Shaffrey, C., Virk, M., Shaffrey, M., Park, P., Foley, K., Coric, D., Upadhyaya C., Potts, E., Tumialán, L., Fu, K., Lavadi, R., Johnson, S., Chou, D., Mummaneni, P. Do Patients with CSM Rely on Others to Take Care of Them, Preoperatively versus Postoperatively? A Quality Outcomes Database (QOD) Study. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

94. Lavadi, R., Legarreta, A., Hudson, J., Fields, D., Anand, S., Agarwal, N., Zenkin, S., Mamindla, P., Ak, M., Puccio, L., Buell, T., Hamilton, D.K., Kanter, A., Okonkwo, D., Zinn, P., Colen, R., Alan, N. Associating T2-weighted MRI Radiomic Signatures with Preoperative Symptom Severity in Patients with Cervical Spondylotic Myelopathy. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

95. Fields, D., Lavadi, R., Casillo, S., Buell, T., **Agarwal, N.**, Hamilton, D.K., Okonkwo, D. Early Surgery is Associated with Reduced Opioid Prescription Use in Patients with TLICS 4 Spine Fractures. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

96. Yang, E., Mummaneni, P., Chou, D., Bydon, M., Bisson, E., Shaffrey, C., Gottfried, O., Asher, A., Coric, D., Potts, E., Foley, K., Wang, M., Fu, K., Virk, M., Knightly, J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M., Buccholz, A., Tumialan, L., Turner, J., Michalopoulos, G., Sherrod, B., **Agarwal, N.**, Haid, R., Chan, A. Is Upper Extremity or Lower Extremity Function More Important for Patient Satisfaction? An Analysis of 24-Month Outcomes from the QOD Cervical Myelopathy Cohort. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

97. Yang, E., Mummaneni, P., Chou, D., Bydon, M., Bisson, E., Shaffrey, C., Glassman, S., Foley, K., Potts, E., Shaffrey, M., Coric, D., Knightly, J., Park, P., Wang, M., Fu, K., Slotkin, J., Asher, A., Virk, M., Michalopoulos, G., Guan, J., **Agarwal, N.**, Haid, R., Chan, A. Decision Tree-based Prediction of Decompression versus Decompression and Fusion Selection in QOD Lumbar Spondylolisthesis Patients. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

98. Javeed, S., Zhang, J., Xu, Z., Frumkin, M., Zhang, J., Benedict, B., Botterbush, K., Cao, Z., Molina, C., Pennicooke, B., **Agarwal, N.**, Hafez, D., Santiago, P., Goodwin, M., Pallotta, N., Gupta, M., Buchowski, J., Neuman, B., Steinmetz, M., Ghogawala, Z., Kelly M., Hall, B., Piccirillo, J., Rodebaugh, T., Lu, C., Ray, W., Greenberg, J. Association of Daily Biometric Data with Frailty in Degenerative Thoracolumbar Spine Disease. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

99. Shahrestani, S., Chan, A., Bisson, E., Bydon, M., Glassman, S., Foley, K., Shaffrey, C., Potts, E., Shaffrey, M., Coric, D., Knightly, J., Park, P., Wang, M., Fu, K., Slotkin, J., Asher, A., Virk, M., Michalopoulos, G., Guan, J., Haid, R., **Agarwal, N.**, Chou, D., Mummaneni, P. Developing Non-Linear k-Nearest Neighbors Classification Algorithms to Identify Patients at High Risk of Increased Length of Hospital Stay Following Spine Surgery. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

100. Javeed, S., Benedict, B., Greenberg, J., Zhang, J., Saleem, S., Botterbush, K., Hafez, D., Pennicooke, B., **Agarwal, N.**, Park, Y., Hall, B., Ray, W. Comparison of Electronic Frailty Metrics for Prediction of Functional Outcomes after Spine Surgery. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

101. Park, C., Shaffrey, C., Than, K., Michalopoulos, G., Sammak, S.E., Chan, A., Bisson, E., Sherrod, B., Asher, A., Coric, D., Potts, E., Foley, K., Wang, M., Fu, K., Virk, M., Knightly, J., Meyer, S., Park, P., Upadhyaya, C.,

Shaffrey, M., Buchholz, A., Tumialan, L., Turner, J., **Agarwal, N.**, Chou, D., Chaudhry, N., Haid, R., Mummaneni, P., Bydon, M., Gottfried, O. What Factors Influence Surgeon Decision in Anterior versus Posterior Surgery for Cervical Myelopathy? A QOD Analysis. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

102. McCarthy, D.J., Jawad-Makki, M.A., Lavadi, R., Hudson, J., Legarreta, A., **Agarwal, N.**, Mitha, R., Okonkwo, D.O, Hamilton, D.K., Buell, T. Systematic Review of Management of Bilateral Traumatic Subaxial Cervical Facet Dislocation. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

103. Patel, S., Gajjar, A., Lavadi, R., Taylor, T., Mitha, R., Elsayed, G., **Agarwal, N.** Art and Neurosurgery: The Importance and History of Medical Illustration. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

104. Mitha, R., Colan, J.A., Hernandez-Rovira, M.A., Jawad-Makki, M.A., Patel, R.P., Lavadi, R.S., Shaw, J.D., Okonkwo, D.O., Buell, T.J., Hamilton, D.K., **Agarwal, N.** Topical Tranexamic Acid (TXA) Dosing Protocols in Spine Surgery – A Systematic Review. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023

105. Javeed, S., Frumkin, M., Zhang, J., Xu, Z., Zhang, J., Benedict, B., Botterbush, K., Cao, Z., Molina, C., Pennicooke, B., **Agarwal, N.**, Hafez, D., Goodwin, M., Pallotta, N., Gupta, M., Buchowski, J., Neuman, B., Steinmetz, M., Ghogawala, Z., Kelly, M., Hall, B., Piccirillo, J., Lu, C., Rodebaugh, T., Ray, W., Greenberg, J. Reliability and Validity of Momentary Pain and Disability Assessments for Spine Surgery Patients. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

106. Hussain, I., Chan, A., **Agarwal, N.**, Virk, M., Potts, E., Foley, K., Glassman, S., Asher, A., Coric, D., Park, P., Shaffrey, C., Upadhyaya, C., Michalopoulos, G., Le, V., Chou, D., Wang, M., Bydon, M., Bisson, E., Mummaneni, P., Fu, K. Instrumented Fusion Results in Significant Improvement in Patient Reported Outcome Measures for Patients with High-Grade Lumbar Spondylolisthesis – An Analysis from the Quality Outcomes Database (QOD). Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

107. Raman, A., Parikh, N., Gupta, R., Lavadi, R., Gupta, R., Heary, R.F., Kimmell, K., Singer, J., **Agarwal, N.** Augmenting Career Longevity: An Analysis of Ergonomics Training among 134 Neurological Surgeons. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

108. Park, C., Mummaneni, P., Gottfried, O., Shaffrey, C., Tang, A., Bisson, E., Asher, A., Coric, D., Potts, E., Foley, K., Wang, M., Fu, K., Virk, M., Knightly, J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M., Buchholz, A., Tumialan, L., Turner, J., Sherrod, B., **Agarwal, N.**, Chou, D., Haid, R., Bydon, M., Chan, A. Which Supervised Machine Learning Algorithm Can Best Predict Achievement of Minimum Clinically Important Difference in Neck Pain After Surgery in Patients with Cervical Myelopathy? A QOD Study. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

109. Fields, D.P., Lavadi, R., Shanahan, R., Hamilton, D.K., Buell T., **Agarwal, N.**, Puccio, A., Okonkwo, D.O. Comparing Continuous versus Threshold Drainage Strategies for Spinal Perfusion Pressure Optimization in Patients with Acute Traumatic Spinal Cord Injuries. Congress of Neurological Surgeons Annual Meeting. Washington, D.C. September 9-13, 2023.

110. Ibrahim, S., Michalopoulos, G.D., Mitha, R., **Agarwal, N.**, Chan, A.K., Bisson, E.F., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Gottfried, O.N., Tumialan, L.M., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Park, P., Wang, M.Y., Fu, K.M., Slotkin, J.R., Asher, A.L., Virk, M.S., Guan, J., Haid, R.W., Chou, D., Mummaneni, P.V., Bydon, M. Impact of Educational Background on Preoperative Disease Severity and Postoperative Outcomes among Patients with Lumbar Spondylolisthesis: A Quality Outcomes Database (QOD) Study. RISE for Equity: Reflect, Inspire, Strengthen and Empower 2023. Minneapolis, MN. August 10-12, 2023.

111. Fields, D.P., Varga, G., Lavadi, R.S., Alattar, A., Eubanks, J., **Agarwal, N.**, Hamilton, D.K., Okonkwo, D.O., Kanter, A.S., Forsythe, R.M., Weiner, D.K. Pre-injury Frailty Best Predicts One Year Mortality in Older Adults

with Traumatic Spinal Column Fractures. 40th Annual Symposium of the AANS/CNS Joint Section on Neurotrauma and Critical Care. Austin, TX. June 25-28, 2023.

112. Fields, D.P., Lavadi, R.S., Puccio, A.M., Hamilton, D.K., **Agarwal, N.**, Okonkwo, D.O. Comparing Continuous versus Threshold Drainage Strategies for Spinal Perfusion Pressure Optimization in Patients with Acute Traumatic Spinal Cord Injuries. 40th Annual Symposium of the AANS/CNS Joint Section on Neurotrauma and Critical Care. Austin, TX. June 25-28, 2023.

113. Elsayed, G.E., Lavadi, R.S., Pugazenthi, S., Jaikumar, V., Mitha, R., Hafez, D., Ogunlade, J.O., **Agarwal, N.** Virtual Reality for Perioperative Assessment during Lateral Lumbar Interbody Fusion and Spinal Revision Surgery. 23rd International Society for the Advancement of Spine Surgery. San Francisco, CA. June 1-3, 2023.

114. **Agarwal, N.**, Michalopoulos, G.D., Letchuman, V., Chan, A.K., Shabani, S., Lavadi, R.S., Lu, D.C., Wang, M.Y., Haid, R.W., Knightly, J.J., Sherrod, B.A., Gottfried, O.N., Shaffrey, C.I., Goldberg, J.L., Virk, M.S., Hussain, I., Glassman, S.D., Shaffrey, M.E., Park, P., Foley, K.T., Pennicooke, B., Coric, D., Slotkin, J.R., Upadhyaya, C., Potts, E.A., Tumialan, L.M., Fu, K.G., Asher, A.L., Bisson, E.F., Chou, D., Bydon, M., Mummaneni, P.V. Impact of Educational Background on Preoperative Disease Severity and Postoperative Outcomes among Patients with Cervical Spondylotic Myelopathy: A Quality Outcomes Database (QOD) Study. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

115. **Agarwal, N.**, Anand, S.K., Nwachuku, E.I., Wilkins, T.E., Algattas, H., Lavadi, R.S., Chang, Y.F., Puccio, A., Okonkwo, D.O. Neuroimaging with Rotterdam Scoring System and Long-term Outcomes in Severe Traumatic Brian Injury Patients. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

116. **Agarwal, N.**, Letchuman, V., Lavadi, R.S., Le, V.P., Aabedi, A., Shabani, S., Chan, A.K., Park, P., Uribe, J.S., Tuner, J.D., Eastlack, R.K., Fessler, R.G., Fu, K.M., Wang, M.Y., Kanter, A.S., Okonkwo, D.O., Nunley, P.D., Anand, N., Mundis, G.M., Passias, P.G., Bess, S., Shaffrey, C.I., Chou, D., Mummaneni, P.V. What is the Effect of Preoperative Depression on Outcomes after Minimally Invasive Surgery for Adult Spinal Deformity? A Prospective Cohort Analysis using a Multicenter Registry. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

117. Muzyka, L., Lavadi, R.S., Pugazenthi, S., Shah, D., Patel, A., Rangwalla, T., Elsayed, G., **Agarwal, N.** Geographic Distribution in Training and Practice of Academic Neurologic and Orthopedic Spine Surgeons in The United States. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

118. Lui, A., Mummaneni, N., Torres-Espin, A., **Agarwal, N.**, Chryssikos, T., Blitstein, J., Shabani, S., Dhall, S., Weinstein, P.R., Duong-Fernandez, X., Chou, A., Pan, J., Singh, V., Ferguson, A.R., Hemmerle, D.D., Kyritsis, N., Talbott, J.F., Whetstone, W.D., Saigal, R., Bresnahan, J.C., Beattie, M.S., Manley, G.T., DiGiorgio, A. Effects of Socioeconomic Status on Outcomes After Spinal Cord Injury: A Prospective TRACK-SCI Study. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

119. Pugazenthi, S, Rogers, J.L., Ruiz Cardoza, M., Lavadi, R.S., Pat, F., Bhalla, S., Boddeti, U., Barot, K., Hardi, A., Elsayed, G., Joseph, J., Houseley, S.N., **Agarwal, N.** Evaluating the State of Non-invasive Imaging Biomarkers for Traumatic Brain Injury. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

120. Lui, A., Mummaneni, N., Torres-Espin, A., **Agarwal, N.**, Chryssikos, T., Blitstein, J., Shabani, S., Dhall, S.S., Weinstein, P.R., Duong-Fernandez, X., Chou, A., Pan, J., Singh, V., Ferguson, A.R., Hemmerle, D.D., Kyritsis, N., Talbott, J.F., Whetstone, W.D., Saigal, R., Bresnahan, J.C., Beattie, M.D., Manley, G.T., DiGiorgio, A. Effects of Socioeconomic Status on Outcomes After Spinal Cord Injury: A Prospective TRACK-SCI Study. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

121. Barpujari, A., Gajjar, A.A., Lavadi, R.S., **Agarwal, N.**, Chan, A., Mummaneni, P.V. Neurosurgery Residency Rankings: An Assessment of Doximity's Survey-Based Data and Objective Program Characteristic. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

122. Deng, H., **Agarwal, N.**, Wilkins, T.E., Nwachuku, E.L., Algattas, H., Lavadi, R.S., Chang, Y., Puccio, A., Okonkwo, D.O. Long-term Benefits for Younger Patients with Aggressive Immediate Intervention following Severe Traumatic Brain Injury: A Longitudinal Cohort Analysis of 175 Patients from a Prospective Registry. 91st American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, CA. April 21-24, 2023.

123. **Agarwal, N.**, DiGiorgio, A., Bydon, M., Bisson, E.F., Michalopoulos, G.D., Letchuman, V., Chan, A.K., Shabani, S., Lavadi, R.S., Lu, D.C., Wang, M.Y., Haid, R.W., Knightly, J.J., Sherrod, B.A., Gottfried, O.N., Shaffrey, C.I., Goldberg, J.L., Virk, M.S., Hussain, I., Glassman, S.D., Shaffrey, M.E., Park, P., Foley, K.T., Pennicooke, B., Coric, D., Slotkin, J.R., Upadhyaya, C., Potts, E.A., Tumialan, L.M., Fu, K.G., Asher, A.L., Chou, D., Mummaneni, P.V. Impact of Educational Background on Preoperative Disease Severity and Postoperative Outcomes among Patients with Cervical Spondylotic Myelopathy: A Quality Outcomes Database (QOD) Study. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 16-19, 2023.

124. Lavadi, R.S., Elsayed, G.A., Desai, R., Gajjar, A., Puram, S.V., **Agarwal, N.** Removal of a Migrated Screw in a Patient with a Failed Anterior Cervical Fusion. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 16-19, 2023.

125. Dietz, N., Alkin, V., Ugiliwenza, B., Wang, D., **Agarwal, N.**, Bjustrom, M.F., Drazin, D., Boaakye, M. Polypharmacy in Spinal Cord Injury: Matched Cohort Analysis Comparing Drug Classes, Medical Complications, and Healthcare Utilization Metrics with 24 Month Follow-up. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 16-19, 2023.

126. Nathani, K.R., **Agarwal, N.**, Asher, A, Bisson, E., Chan, A., Chou, D., Coric, D., Foley, K., Fu, K., Glassman, S., Goldberg, J., Gottfried, O., Haid, R., Hussain, I., Knightly, J., Lu, D., Michalopoulos, G., Mummaneni, P., Park, P., Potts, E., Shaffrey, C., Shaffrey, M., Sherrod, B., Slotkin, J., Tumialan, L., Upadhyaya, C., Virk, M., Wang, M., Bydon, M. Does Incidental Durotomy Affect Surgical Outcomes after Lumbar Spine Surgery? A Matched Analysis of the Quality Outcomes Database. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 16-19, 2023.

127. Park, C., Shaffrey, C., Than, K., Bisson, E., Asher, A., Buchholz, A., Coric, D., Foley, K., Fu, K., Chan, A., Chou, D., **Agarwal, N.**, Haid, R., Knightly, J., Chaudhry, N., Meyer, S., Park, P., Potts, E., Shaffrey, M., Sherrod, B., Tumialan, L., Turner, J., Upadhyaya, C., Virk, M., Wang, M., Mummaneni, P., Bydon, M., Gottfried, O. Does the Number of Social Risk Factors Affect Achieving Both Minimally Clinically Important Difference in Patient-Reported Outcomes and Satisfaction? A QOD Study. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 16-19, 2023.

128. Goldberg. J.L., Michalopoulos, G., Hussain, I., Chan, A., **Agarwal, N.**, Asher, A., Chou, D., Coric, D., Foley, K., Fu, K., Glassman, S., Sherrod, B., Gottfried, O., Haid, R., Knightly, J., Park, P., Pennicooke, B., Potts, E., Shaffrey C., Shaffrey, M., Slotkin, J., Upadhyaya, C., Tumialan, L., Wang, M., Than, K., Bydon, M., Bisson, E., Mummaneni, P., Virk, M. Factors Associated with Long-Term Persistent Pain and Predictors of Eventual Improvement after Surgery for Cervical Spondylotic Myelopathy – A Quality Outcomes Database Study. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 16-19, 2023.

129. Mooney, J.H., Nathani, K., Zeitouni, D., Michalopoulos, G., **Agarwal, N.**, Bisson, E., Chan, A., Chou, D., Coric, D., Foley, K., Asher, A., Fu, K., Glassman, S., Goldberg, J., Gottfried, O., Haid, R., Hussain, I., Knightly, J., Lu, D., Park, P., Mummaneni, P., Potts, E., Shaffrey, C., Shaffrey, M., Sherrod, B., Slotkin, J., Tumialan, L., Upadhyaya, C., Virk, M., Wang, M., Bydon, M. Outpatient versus Inpatient Lumbar Fusion Surgery: A Matched Noninferiority Study of the Quality Outcomes Database. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 16-19, 2023.

130. Michalopoulos, G.D., Bisson, E., Mummaneni, P., Johnson, S., Chan, A., **Agarwal, N.**, Wang, M., Knightly, J., Sherrod, B., Gottfried, O., Shaffrey, C., Goldberg, J., Virk, M., Hussain, I., Shabani, S., Glassman, S., Tumialan, L., Turner, J., Meyer, S., Lu, D., Buccholz, A., Upadhyaya, C., Shaffrey, M., Park, P., Foley, K., Coric, D., Slotkin, J., Potts, E., Stroink, A., Chou, D., Fu, K., Haid, R., Asher, A., Bydon, M. Sleep Disturbances in CSM: Prevalence and Postoperative Outcomes – An Analysis from the QOD. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 16-19, 2023.

131. Sorour, O., Haddad, A., Perera, S., **Agarwal, N.**, Shabani, S., Gandhi, S., Chou, D., Dhall, S., Orrico, K., Mummaneni, P., DiGiorgio, A. Telemedicine in Neurosurgery: The Impact on Carbon Savings during the COVID-19 Pandemic. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 16-19, 2023.

132. Elsayed, G.A., Lavadi, R.S., Pugazenthi, S., Ogunlade, J.O., **Agarwal, N.** Single Prone Position, Dual Surgeon Simultaneous Navigated Prone Lateral Interbody Placement with Endoscopic Laminectomy for Symptomatic Immobile Spondylolisthesis: A Novel Approach. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 16-19, 2023.

133. Roy, S., Lavadi, R.S., **Agarwal, N.**, Alan, N., Ozpinar, A., Kuris, E., Daniels, A.H., Buell, T., Hamilton, D.K. Emergent Spinal Pathology in Pregnancy. 39th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves, Spine Summit. Miami, FL. March 16-19, 2023

134. Jamieson, A., Shabani, S., Srivastava, P., Niknam, K., Zheng, J., Rivera, J., Le, V., **Agarwal, N.**, Chou, D., Mummaneni, P.V., Tan, L.A. Comparison of Intraoperative Positioning with Mayfield Skull Clamp vs. Dual-Vector Cervical Traction with Gardener-Wells Tongs in Long-segment Posterior Cervical Fusion. 50th Annual Meeting of the Cervical Spine Research Society. November 16-19, 2022.

135. Sherrod, B., Michalopoulos, G., Mulvaney, G., **Agarwal, N.**, Asher, A, Coric, D., Fu, K., Foley, K., Park, P., Upadhyaya, C., Knightly, J., Shaffrey, M., Potts, E., Shaffrey, C., Wang, M., Tumialan, L., Mummaneni, P., Than, K., Bydon, M., Bisson, E. Development of New Postoperative Neck Pain at 12 and 24 Months after Surgery for Cervical Spondylotic Myelopathy: A Quality Outcomes Database Study. 50th Annual Meeting of the Cervical Spine Research Society. November 16-19, 2022.

136. Shabani, S., Chan, A., **Agarwal, N.**, Le, V., Aabedi, A.A., Park, P., Uribe, J.S., Turner, J.D., Eastlack, R.K., Fessler, R.G., Than, K.D., Fu, K.M., Wang, Y.M., Kanter, A.S., Okonkwo, D.O., Nunley, P.D., Anand, N., Mundis, G.M., Passias, P.G., Bess, S., Shaffrey, C.I., Chou, D., Mummaneni, P.V., International Spine Study Group. Are 2-Year Reoperation Rates Different for Circumferential Minimally Invasive Surgery (cMIS) vs. Open ASD Surgery? A Propensity Matched Cohort Study Using a Prospective ASD Database. North American Spine Society 37th Annual Meeting. Chicago, IL. October 12-15, 2022.

137. Shabani, S., Vargas, E., Aabedi, A.A., Rachev Ben-Natan A., **Agarwal, N.**, Mummaneni, P.V., Chou, D. Does Karnofsky Performance Score Improve after Surgery for Metastatic Spine Tumors in Patients with SINS 7-12? North American Spine Society 37th Annual Meeting. Chicago, IL. October 12-15, 2022.

138. Lui, A., Mummaneni, N., Torres-Espin, A., **Agarwal, N.**, Blitstein, J., Shabani, S., Vasnarungruengkul, C., Mummaneni, P.V., Dhall, S.S., Weinstein, P.R., Duong-Fernandez, X., Chou, A., Pan, J., Singh, V., Ferguson, A.R., Hemmerle, D.D., Kyritsis, N., Talbott, J.F., Whetstone, W.D., Saigal, R., Bresnahan, J.C., Beattie, M.S., El Naga, A., Gendelberg, D., Manley, G.T., DiGiorgio. How Does Socioeconomic Status Affect Outcomes after Spinal Cord Injury? A TRACK-SCI Study. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 8-12, 2022.

139. Chan, A.K., Letchuman, V., Mummaneni, P.V., Burke, J.F., **Agarwal, N.**, Bisson, E.F., Bydon, M., Foley, K.T., Shaffrey, C.I., Glassman, S.D., Wang, M.Y., Park, P., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Fu, K., Slotkin, J., Asher, A.L., Virk, M.S., Kerezoudis, P., Alvi, M., Guan, J., Haid, R.W., DiGiorgio, A.M. Inferior Clinical Outcomes for Patients with Medicaid Insurance following Surgery for Degenerative Spondylolisthesis:

A Prospective Registry Analysis of 608 Patients. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 8-12, 2022.

140. Sherrod, B., Michalopoulos, G., Mulvaney, G., **Agarwal, N.**, Asher, A.L., Coric, D., Fu, K., Foley, K.T., Park, P., Upadhyaya, C., Knightly, J.J., Shaffrey, M.E., Potts, E.A., Shaffrey, C.I., Wang, M.Y., Tumialan, L.M., Mummaneni, P.V., Than, K.D., Bydon, M., Bisson, E.F. Development of New Postoperative Neck Pain at 12 and 24 Months after Surgery for Cervical Spondylotic Myelopathy: A Quality Outcomes Database Study. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 8-12, 2022.

141. Aabedi, A.A., Letchuman, V., **Agarwal, N.**, Chan, A.K., Shabani, S., Bisson, E.F., Bydon, M., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Park, P., Wang, M.Y., Fu, K., Slotkin, J., Asher, A.L., Virk, M.S., Haid, R.W., Chou, D., Mummaneni, P.V. Utilizing Unsupervised Machine Learning to Identify Latent Dimensions across Standardized Clinical Outcomes after Surgery for Degenerative Spondylolisthesis: A Quality Outcomes Database Study. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 8-12, 2022.

142. Mooney, J.H., Michalopoulos, G., Zeytouni, D., Nathani, K.R., Wang, M.Y., Corcic, D., Chan, A.K., Lu, D.C., Sherrod, B., Gottfried, O.N., Than, K.D., Shaffrey, C.I., Goldberg, J., Virk, M.S., Hussain, I., **Agarwal, N.**, Glassman, S.D., Shaffrey, M.E., Park, P., Foley, K.T., Chou, D., Slotkin, J., Tumialan, L.M., Upadhyaya, C., Potts, E.A., Fu, K., Mummaneni, P.V., Bisson, E.F., Haid, R.W., Knightly, J.J., Pennicooke, B.H., Asher, A.L., Bydon, M. Does Diabetes Affect Outcome or Reoperation Rate after Lumbar Decompression or Arthrodesis? Analysis of the QOD Dataset. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 8-12, 2022.

143. Elsayed, G., Szerlip, P., **Agarwal, N.**, Chagoya, G., Bernstock, J., Lavadi, R.S., Okor, M.O. 1 Year Postoperative Patient Reported Outcomes Measure within Symptomatic Lumbar Disc Herniation versus Symptomatic Lumbar Stenosis. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 8-12, 2022.

144. Ambati, V., Shabani, S., Rechav Ben-Natan, A., Rivera, J., Huang, J., Jamieson, A., Guinn, J., **Agarwal, N.**, Wu, H., Wang, M., Xi, Z., Srivastava, P., Burch, S., Berven, S., Mummaneni, P.V., Chou, D. Are There Any Differences in the Rate of Distal Junctional Pathology between L3 vs. L4 PSO. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 8-12, 2022.

145. Jamieson, A., Shabani, S., Srivastava, P., Niknam, K., Rivera, J., **Agarwal, N.**, Le, V., Chou, D., Mummaneni, P.V., Tan, L.A. Comparison of Intraoperative Positioning with Mayfield Skull Clamp vs. Dual-Vector Cervical Traction with Gardener-Wells Tongs in Long-segment Posterior Cervical Fusion. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 8-12, 2022.

146. Shabani, S., Rivera, J., Mummaneni, P.V., **Agarwal, N.**, Huang, J., Burch, S., Berven, S., Chou, D. The Rates of Proximal Junctional Kyphosis after Lumbar 4 versus Lumbar 3 Pedicle Subtraction Osteotomies. 22nd International Society for the Advancement of Spine Surgery Annual Conference. Nassau, Bahamas. June 1-4, 2022.

147. Passias, P.G., Tretiakov, P., Smith, J.S., Lafage, R., Line, B., Williamson, T., Joujon-Roche, R., Krol, O., Imbo, B., Vira, S., Diebo, B.G., Daniels, A., Gum, J.L., Protopsaltis, T.S., Hamilton, D.K., Soroceanu, A., Scheer, J.K., Eastlack, R., Mundis, G., Kelly, M.P., **Agarwal, N.**, Nunley, P., Than, K., Fessler, R., Traynelis, V., Klineberg, E.O., Khabeish, K., Lewis, M., Lenke, L., Hostin, R.A., Gupta, M.C., Kim, H.J., Hart, R.A., Burton, D.C., Shaffrey, C.I., Schwab, F.J., Bess, S., Lafage, V., Ames, C.P., International Spine Study Group. Are We Optimizing Surgery for High Risk Adult Cervical Deformity Patients Over Time? 22nd International Society for the Advancement of Spine Surgery Annual Conference. Nassau, Bahamas. June 1-4, 2022.

148. Passias, P.G., Tretiakov, P., Joujon-Roche, R., Williamson, T., Krol, O., Imbo, B., Alan, N., Nunley, P., Wang, M., Park, P., Kanter. A.S., Okonkwo, D.O., Eastlack, R., Mundis, G., Chou, D., **Agarwal, N.**, Chan, A., Fessler, R., Uribe, J., Anand, N., Than, K., Brusko, G., Shabani, S., Shah, S., Fu, K., Line, B., Ames, C., Smith, J.S., Shaffrey, C.I., Hart, R., Burton., D., Lafage, R., Lafage, V., Schwab, F., Bess, S., Mummaneni, P.V., International Spine Study Group. Circumferential Minimally-Invasive Adult Spinal Deformity Surgery Provides Incremental

Benefit for Increasingly Frail Patients. 22nd International Society for the Advancement of Spine Surgery Annual Conference. Nassau, Bahamas. June 1-4, 2022.

149. **Agarwal, N.**, Langnas, E., Letchuman, V., Shabani, S., Schumacher, M., Chan, A., Abrecht, C.R., Miller, C., Sankaran, S., Chou, D., Guan, Z., Mummaneni, P.V. How a Personalized Opioid Protocol Can Mitigate Opioid Overprescription for Postoperative Patients. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

150. Reddy V., Siddiqui N., Rogers J., Barpujari A., Detchou D., Casubhoy I., Gopali R., Bhalla S., Janbahan M., Morris E., Peesapati M., **Agarwal N.** Academic versus Private Practice Neurosurgical Career: Demographic Trends and Potential Predictive Factors. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

151. Haddad, A.F., Vargas, E., Zhang, A. **Agarwal, N.**, Chou, D., Mummaneni, P.V., Berven, S.H. Outcomes of Surgical Intervention for Neuromuscular Deformity: A Single Institution Experience. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

152. Shabani, S., **Agarwal, N.**, Huang, J., Rechav Ben-Natan, A., Aabedi, A.A., Le, V., Tan, L., Chou, D., Mummaneni, P.V. Propensity Matched Cohort Study Comparing Accuracy of Robotic Assisted Spinal Surgery versus Navigation Alone: Early Experience of 260 Pedicle Screws. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

153. Shabani, S., Vargas, E., Aabedi, A.A., Rachev Ben-Natan, A., **Agarwal, N.**, Mummaneni, P.V., Chou, D. Does Karnofsky Performance Score Improve after Surgery for Metastatic Spine Tumors in Patients with SINS 7-12? 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

154. Letchuman, V., **Agarwal, N.**, Langnas, E., Shabani, S., Schumacher, M., Abrecht, C.R., Sankaran, S., Reisner, L., Chou, D., Guan, Z., Mummaneni, P.V. Correlation between Increased Inpatient Postoperative Opioid Consumption and Discharge to Hospice and Long-term Facilities in Neurosurgical Patients. 90th American Association of Neurological Surgeons Annual Scientific Meeting. Philadelphia, PA. April 29-May 2, 2022.

155. Deng, H., Vodovotz, L., Ozpinar, A., **Agarwal, N.**, Muthiah, N, Hamilton, D.K., Kanter, A.S., Okonkwo, D.O., Alan, N. Propensity-Score Match Analysis of Subsidence and Reoperation after Lateral Lumbar Interbody Fusion Using 3D Porous Titanium vs PEEK. 29th International Meeting on Advanced Spine Techniques. Miami, Florida. April 6-9, 2022.

156. Shabani, S., Vargas, E., Aabedi, A.A., Rechav Ben-Natan, A., **Agarwal, N.**, Mummaneni, P.V., Chou, D. Does Karnofsky Performance Score Improve after Surgery for Metastatic Spine Tumors in Patients with SINS 7-12 with Bilsky Grade 2 and 3 Cord Compression. Lumbar Spine Research Society 15th Annual Meeting. Chicago, IL. April 7-8, 2022.

157. **Agarwal, N.**, Aabedi, A.A., Chan, A.K., Letchuman, V., Shabani, S., Bisson, E.F., Bydon, M., Glassman, S.D., Foley, K.T., Shaffrey, C.I., Potts, E.A., Shaffrey, M.E., Coric, D., Knightly, J.J., Park, P., Wang, M.Y., Fu, K., Slotkin, J.R., Asher, A.L., Virk, M.S., Haid, R.W., Kerezoudis, P., Alvi, M.A., Guan, J., Chou, D., Mummaneni, P.V. Leveraging Machine Learning to Assess the Impact of BMI with Lumbar Spondylolisthesis: A Quality Outcomes Database Study. 20th Annual AO Spine North American Fellows Forum. Banff Springs, Alberta, Canada. March 24-26, 2022.

158. Langnas, E., **Agarwal, N.**, Letchuman, V., Mummaneni, P.V., Guan, Z. The Effects of an Opioid Calculation Tool on Opioid Discharge Prescriptions for Opioid Naive Neurosurgical Patients. International Anesthesia Research Society Annual Meeting. Virtual Meeting. March 17-20, 2022.

159. Chan, A.K., Shaffrey, C.I., Gottfried, O.N., Park, C., Than, K.D., Bisson, E.F., Bydon, M., Asher, A.L., Coric, D., Potts, E.A., Foley, K.T., Wang, M.Y., Fu, K.M., Virk, M.S., Knightly, J.J., Meyer, S., Park, P., Upadhyaya, C., Shaffrey, M.E., Buchholz, A.L., Tumialán, L.M., Turner, J., Alvi, M.A., Sherrod, B.A., **Agarwal, N.**, Chou,

D., Glassman, S.D., Haid, R.W., Mummaneni, P.V. Is Anterior or Posterior Approach Better for Neck Pain? A QOD Study of Cervical Myelopathy with Severe Neck Pain. 49th Annual Meeting of the Cervical Spine Research Society. Atlanta, GA. December 2-4, 2021.

160. **Agarwal, N.**, Baraldi, J., Reddy, V., Zelina, A. Reddy, A., White, M. Comparative Analysis of Academic Productivity Among Neurological and Orthopedic Spine Surgeons. Congress of Neurological Surgeons Annual Meeting. Austin, TX. October 16-20, 2021.

161. Siddiqui, N., Reddy, V., Seas, A., Teton, Z., **Agarwal, N.** Demographic Predictors of Practice Type of Neurosurgeons (Academic vs Private). Congress of Neurological Surgeons Annual Meeting. Austin, TX. October 16-20, 2021.

162. Deng, H., Ozpinar, A., Perez, J., Hacker, E., Alan, N., **Agarwal, N.**, Okonkwo, D.O., Kanter, A.S., Hamilton, D.K. Operative Outcomes after Cervical Diffuse Idiopathic Skeletal Hyperostosis Fractures in the Elderly. Congress of Neurological Surgeons Annual Meeting. Austin, TX. October 16-20, 2021.

163. Casillo, S., Venkatesh, A., Muthiah, N., McDowell, M., **Agarwal, N.** First Female Neurosurgeon in the United States: Dorothy Klenke Nash, M.D. Congress of Neurological Surgeons Annual Meeting. Austin, TX. October 16-20, 2021.

164. Gajjar, A.A., Le, A.H.D., Elsayed, G., Jacobs, R.C., **Agarwal, N.** Patient Perception of Paralysis-Inducing Spinal Cord Injury Through Twitter and Instagram. Congress of Neurological Surgeons Annual Meeting. Austin, TX. October 16-20, 2021.

165. Letchuman, V., **Agarwal, N.**, Rivera, J., Haddad, A., Le, V., Chang, J., Chou, D., Gandhi, S., Mummaneni, P.V. An Algorithm for Patient Selection for Awake Lumbar Spinal Fusion and Decompression. Congress of Neurological Surgeons Annual Meeting. Austin, TX. October 16-20, 2021.

166. Luy, D.D., **Agarwal, N.**, McDowell, M.M., Tonetti, D.A., Goldschmidt, E., Friedlander, R.M. Acquired Chiari I Malformation Associated with Type IV Dural Arteriovenous Fistula. Congress of Neurological Surgeons Annual Meeting. Austin, TX. October 16-20, 2021.

167. **Agarwal, N.**, Donohue, J., Kashkoush, A., Alan, N. Bibliometric Profiles of Contemporary Leaders in Neurosurgery. 89th American Association of Neurological Surgeons Annual Scientific Meeting. Virtual Meeting. August 21-25, 2021.

168. Algattas, H., Roy, S., **Agarwal, N.**, Maroon, J.C. COVID-19 Impact in Residency: Grit in the Face of Pandemic. 89th American Association of Neurological Surgeons Annual Scientific Meeting. Virtual Meeting. August 21-25, 2021.

169. **Agarwal, N.**, Reddy, V., Gupta, A., White, M.D., Gupta, R., Agarwal, P., Prabhu, A.V., Chang, Y. Assessment of the NIH-Supported Relative Citation Ratio as a Measure of Research Productivity among 1687 Academic Neurological Surgeons. 88th American Association of Neurological Surgeons Annual Scientific Meeting. E-poster Hall. April 25-29, 2020.

170. **Agarwal, N.**, Agarwal, P., Taylor, T.M., Mortimer, A.R., Stacy, J.D., Spatola, M., Mazzola, C.A., Orrico, K.O., Heary, R.F. Contributions to the Neurosurgery Political Action Committee (NeurosurgeryPAC): A Historical Perspective. 88th American Association of Neurological Surgeons Annual Scientific Meeting. E-poster Hall. April 25-29, 2020.

171. **Agarwal, N.**, Funahashi, R., Taylor, T., Jorge, A., Feroze, R., Zhou, J., Hansberry, D.R., Gross, B., Jankowitz, B., Friedlander, R.M. Patient Education and Engagement Through Multimedia: Randomized Prospective Pilot Study on Health Literacy in Patients with Cerebral Aneurysms. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2019.

172. Yakar, F., Jacobs, R., **Agarwal, N.** Prevalence of Neurosurgery on Social Media. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2019.

173. Nayar, G., Lutfi, W., **Agarwal, N.**, Alan, N., Ozpinar, A., Hamilton, D.K., Okonkwo, D.O., Kanter, A.S. Incidence of Adjacent Segment Surgery Following Stand-alone Lateral Lumbar Fusion: A Four Year Retrospective Analysis. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2019.

174. Commiskey, P., Bascal, E., Kashkoush, J., Kashkoush, A., Prabhu, A.V., **Agarwal, N.**, Nguyen, J. Medical Malpractice Claims Related to Ophthalmology: A WestLawNext Database Analysis. American Academy of Ophthalmology Annual Meeting. San Francisco, CA. October 12-15, 2019.

175. Alan, N., Kokkinos, V., Faraji, A., **Agarwal, N.**, Jankowitz, B. Efficacy and Safety of Robotic Stereotactic Assistance (ROSA) Device for Minimally Invasive Placement of Intraparenchymal Hematoma and Intraventricular Catheters: Case Series. Society of NeuroInterventional Surgery 16th Annual Meeting. Miami, FL. July 22-25, 2019.

176. **Agarwal, N.**, Lariviere, W.R., Henry, L.C., Faramand, A., Koschnitzky, J.E., Friedlander, R.M. Utilizing Social Media to Characterize the Symptomology of Treated Adult Hydrocephalus Patients. 87th American Association of Neurological Surgeons Annual Scientific Meeting. San Diego, CA. April 13-17, 2019.

177. **Agarwal, N.**, Reseland, E., McDowell, M.M., Stone, J.G., Tonetti, D.A., Awad, I.A., Hodge, C.J., Friedman, A.H., Koenig, K.S., Friedlander, R.M. Research Update in Neuroscience for Neurosurgeons: A Historical Perspective. 87th American Association of Neurological Surgeons Annual Scientific Meeting. San Diego, CA. April 13-17, 2019.

178. Kashkoush, A., **Agarwal, N.**, Friedlander, R.M. Scrubbing Technique and Surgical Site Infections: An Analysis of 14,200 Neurosurgical Cases. 87th American Association of Neurological Surgeons Annual Scientific Meeting. San Diego, CA. April 13-17, 2019.

179. Jani, R.H., Prabhu, A.V., Zhou, J.J., Alan, N., **Agarwal, N.** Citation Analysis of the Most Influential Articles on Traumatic Spinal Cord Injury. American Association of Neurological Surgeons Annual Scientific Meeting, San Diego, CA. April 13-17, 2019.

180. Alan, N., Faramand, A., **Agarwal, N.**, Monaco, E.M., Lunsford, L.D. Does the Presence of AVM Varix Affect Obliteration and Hemorrhage Rates after Stereotactic Radiosurgery? American Association of Neurological Surgeons Annual Scientific Meeting, San Diego, CA. April 13-17, 2019.

181. Para, A., Rynecki, N.D., Thelmo, F., Zelman, B., Gupta, R., Ayyaswami, V., Prabhu, A.V., Ippolito, J.A., **Agarwal, N.**, Moore, J.M., Beebe, K.S. Evaluating the Readability of Online Patient Education Materials Related to Orthopaedic Oncology. American Academy of Orthopaedic Surgeons Annual Meeting. Las Vegas, NV. March 12-16, 2019.

182. Ayyaswami, V., Padmanabhan, D., Patel, M., Prabhu, AV., Hansberry, D.R., **Agarwal, N.**, Magnani, J.W. A Readability Analysis of Internet Health Education Resources for Cardiac Patients Available through Google. 10th Annual Health Literacy Research Conference. Bethesda, MD. October 22-23, 2018.

183. McDowell, M.M., Alhourani, A., **Agarwal, N.**, Friedlander, R.M., Wecht, D.A. Exclusive Use of Fixed Pressure Valves for Cerebrospinal Fluid Diversion in a Modern Adult Cohort. Congress of Neurological Surgeons Annual Meeting. Houston, TX. October 6-10, 2018.

184. Prabhu, A.V., Kim, C., Hansberry, D.R., **Agarwal, N.**, Heron, D.E., Beriwal, S. The Digital Era of Mobile Communications and Smartphones: A Novel Analysis of Patient Comprehension of Cancer-Related Information Available through Mobile Applications on the Apple and Google Play Stores. 60th American Society for Radiation Oncology Annual Meeting. San Antonio, TX. October 21-24, 2018.

185. **Agarwal, N.**, White, M.D., Cohen, J., Lunsford, L.D., Hamilton, D.K. Longitudinal Survey of Cranial Case Log Entries during Neurological Surgery Residency Training. 86th American Association of Neurological Surgeons Annual Scientific Meeting. New Orleans, LA. April 28-May 2, 2018.

186. **Agarwal, N**., Kashkoush, A., Baucom, E.T., Ratliff, J.K, Stroink, A.R. Quality Reporting in Neurosurgery. 86th American Association of Neurological Surgeons Annual Scientific Meeting. New Orleans, LA. April 28-May 2, 2018.

187. **Agarwal, N**., Kashkoush, A., McDowell, M., Lariviere, W.R., Ismail, N., Friedlander, R.M. Comparative Durability and Costs Analysis of Ventricular Shunts. 86th American Association of Neurological Surgeons Annual Scientific Meeting. New Orleans, LA. April 28-May 2, 2018.

188. Jorge, A., **Agarwal, N.** Outcomes in Socioeconomically Disadvantaged Patients with Spinal Cord Injury: A Systematic Review. 86th American Association of Neurological Surgeons Annual Scientific Meeting. New Orleans, LA. April 28-May 2, 2018.

189. Hansberry, D.R., Cox, M., **Agarwal, N.**, Kraus, C., Weinstein, J., Hansberry, T.E., Rao, V.M. A Retrospective Medicolegal Analysis of Jury Verdicts and Settlements Involving Endovascular Coiling and Embolization from 2000 to 2014. Society of Interventional Radiology Annual Scientific Meeting. Los Angeles, CA. March 17-22, 2018.

190. Prabhu, A.V., Hansberry, D.R., **Agarwal, N.**, Beriwal, S. A Quality Assurance Analysis of Reference Citations for Inaccuracy from the Brachytherapy Journal. The American College of Radiation Oncology Annual Meeting. Fort Lauderdale, FL. February 1-3, 2018.

191. Prabhu, A.V., Kim, C., De Guzman, E., Zhao, E., Madill, E., Cohen, J., Hansberry, D.R., **Agarwal, N.**, Heron, D.E., Beriwal, S. Reputation Management and Content Control: An Analysis of Radiation Oncologists' Digital Identities. The American College of Radiation Oncology Annual Meeting. Fort Lauderdale, FL. February 1-3, 2018.

192. Prabhu A.V., Crihalmeanu, T., Hansberry, D.R., **Agarwal, N.**, DeFrances, M.C., Trejo Bittar, H.E. Exploring Health Literacy in Pathology: A Readability Analysis of Online Pathology-Related Education Articles. College of American Pathologists Annual Meeting. National Harbor, MD. October 8-11, 2017.

193. Kashkoush, A., Prabhu, A.V., Tonetti, D., **Agarwal, N.** Quantifying the Research Productivity of Medical Students Matching into Neurosurgery. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 7-11, 2017.

194. Jacobs, R., **Agarwal, N.** Prabhu, A.V., Tonetti, D., Monaco, E.A. Effect of Social Media on Patient Perception of Gamma Knife Stereotactic Radiosurgery. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 7-11, 2017.

195. Gupta, R., Asri, R., Badeti, S., Madill, E., Cohen, J., Prabhu, A.V., **Agarwal, N.** An Assessment of Neurosurgeons' Online Identities: A Database Analysis. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 7-11, 2017.

196. Kashkoush, A., **Agarwal, N.** Student Involvement Promotes Increased Neurosurgical Research Productivity. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 7-11, 2017.

197. Tonetti, D., White, M.D., **Agarwal, N.**, Engh, J.A. The Utility of Whole-Body CT Screening for Solitary Brain Lesions. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 7-11, 2017.

198. Alan, N., **Agarwal, N.**, Tavanaeipour, K., Tempel, Z., Kanter, A.S. Clinical Outcomes of L4-5 Minimally Invasive Lateral Interbody Fusion. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 7-11, 2017.

199. Alan, N., Cohen, J.A., Ozpinar, A., **Agarwal, N.**, Kanter, A.S., Okonkwo, D.O., Hamilton, D.K. Top 50 Most Cited Articles on Primary Tumors of the Spine. CNS Annual Meeting. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 7-11, 2017.

200. Prabhu, A.V., Funahashi, R., Gupta, R., Badeti, S., Adeeb, N., Moore, J.M., **Agarwal, N.**, Heron, D.E., Quang, T.S., Beriwal, S. A National WestLawNext Database Analysis of Malpractice Litigation in Radiation Oncology. 59th American Society for Radiation Oncology Annual Meeting. San Diego, CA. September 24-27, 2017.

201. Prabhu, A.V., Glaser, S.M., Horne, Z.D., **Agarwal, N.**, Heron, D.E., Beriwal, S. Red Journal versus Green Journal: A Comparison of the Top 100 Most Influential Articles Published from 2006-2015. 59th American Society for Radiation Oncology Annual Meeting. San Diego, CA. September 24-27, 2017.

202. Hansberry D.R., Tilwa, S., Guez, D., **Agarwal, N.**, Kandula, V. A Review of Grisel Syndrome: Torticollis with Altantoaxial Subluxation Secondary to a Retropharyngeal Abscess. American Society of Head and Neck Radiology Annual Meeting. Las Vegas, NV, September 16-20, 2017.

203. Hansberry D.R., Tilwa, S., Guez, D., **Agarwal, N.**, Kandula, V. Lemierre's Syndrome: Acute Oropharyngeal Infection leading to Septic Thrombophlebitis of the Internal Jugular Vein with Pulmonary Septic Emboli. American Society of Head and Neck Radiology Annual Meeting. Las Vegas, NV, September 16-20, 2017.

204. **Agarwal, N.**, Agarwal, P., Querry, A., Mazurkiewicz, A., Whiteside. B., Marroquin, O.C., Koscumb, S.F., Wecht, D.A., Friedlander, R.M. Reducing Surgical Infections and Implant Costs via a Novel Paradigm of Enhanced Physician Awareness. 85th American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, LA. April 22-26, 2017.

205. Gupta, R.., Thomas, R., Griessenauer, C.J., Moore, J.M., Adeeb, N., Motiei-Langroudi, R., Guidal, B., **Agarwal, N.**, Friedlander, R.M., Ogilvy, C.S., Thomas, A.J. An Assessment of Medical Malpractice Litigation in Neurosurgery. 85th American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, LA. April 22-26, 2017.

206. Zhou, J., **Agarwal, N.**, Hamilton, D.K., Koltz. M.T. The 100 Most Influential Publications Pertaining to Intracranial Aneurysms and Aneurysmal Subarachnoid Hemorrhage. 85th American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, LA. April 22-26, 2017.

207. Kashkoush, A., Ma, H., **Agarwal, N.**, Jankowitz, B.T., Jadhav, A., Jovin, T., Gross, B.A. Cerebral Venous Sinus Thrombosis in Pregnancy and Puerperium: A Pooled, Systematic Review. 85th American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, LA. April 22-26, 2017.

208. Weiner, G.M., Feroze, R., Panczykowski, D.M., Aghaebrahim, A., Ares, W., **Agarwal, N.**, Enis, J., Zhu, X., Ducruet, A.F. Endovascular Treatment of Tandem Common Carotid Artery Origin and Distal Intracranial Occlusion in Acute Ischemic Stroke. 85th American Association of Neurological Surgeons Annual Scientific Meeting. Los Angeles, LA. April 22-26, 2017.

209. Prabhu, A.V., Crihalmeanu, T., Hansberry, D.R., **Agarwal, N.**, Fine, M.J. A Health Literacy Readability Analysis of Online Allergy and Immunology-Based Patient Education Resources. American Academy of Allergy, Asthma, & Immunology Annual Meeting. Atlanta, GA. March 3-6, 2017.

210. Hansberry D.R., Tilwa, S., Li, Z., Cox, M., **Agarwal, N.**, Kandula, V. Grisel Syndrome: A Rare Cause of Torticollis with Subluxation of the Altantoaxial Joint Secondary to a Retropharyngeal Abscess. American Society of Spine Radiology Annual Symposium. San Diego, CA, February 23-26, 2017.

211. Hansberry D.R., Tilwa, S., Li, Z., Cox, M., **Agarwal, N.**, Kandula, V. Diastematomyelia: Prenatal, Perinatal, and Postnatal Imaging. American Society of Spine Radiology Annual Symposium. San Diego, CA, February 23-26, 2017.

212. Hansberry D.R., Tilwa, S., Li, Z., Cox, M., **Agarwal, N.**, Kandula, V. Subacute Combined Degeneration Secondary to Vitamin B12 Deficiency in a Premature Infant with History of Necrotizing Enterocolitis and Short Bowel Syndrome. American Society of Spine Radiology Annual Symposium. San Diego, CA, February 23-26, 2017.

213. Weiner, G.M., Grandhi, R., **Agarwal, N.**, Panczykowski, D.M., Ares, W.J., Rodriguez, J.S., Myers, J.G., Alarcon, L.H., Okonkwo, D.O., Jankowitz, B.T. Limitations of Multidetector Computed Tomography Angiography for Diagnosis of Blunt Cerebrovascular Injury following Trauma. AANS/CNS Cerebrovascular Section Annual Meeting. Houston, TX. February 20-21, 2017.

214. **Agarwal, N.**, Ding, C., Goldstein, M., Heary, R.F. Treatment of Vertebral Osteomyelitis of the Thoracic Spine with Pedicle Screw Fixation. Congress of Neurological Surgeons Annual Meeting. San Diego, CA. September 24-28, 2016.

215. **Agarwal, N.**, Prabhu, A.V., Kashkoush, A.I., Myal, S., Sekula, R.F. Impact of a Neurosurgery Student Interest Group on Department Productivity. Congress of Neurological Surgeons Annual Meeting. San Diego, CA. September 24-28, 2016.

216. **Agarwal, N.**, Lieber, B., Chiang, V., Prabhu, A.V., Henry, J.K., Lin, D., Kazemi, N., Tabosha, M. Postoperative Outcomes for Elderly Patients After Single-Level Lumbar Fusions for Spondylolisthesis. Congress of Neurological Surgeons Annual Meeting. San Diego, CA. September 24-28, 2016.

217. **Agarwal, N.**, Zhou, J., Koltz, M., Tempel, Z.J., Kanter, A.S., Okonkwo, D.O., Hamilton, D.K. The 100 Most Influential Publications in Scoliosis Surgery. Congress of Neurological Surgeons Annual Meeting. San Diego, CA. September 24-28, 2016.

218. Heary, R.F., Parvathreddy, N.K., **Agarwal, N.** Biomechanical Analysis of Range of Motion and Failure Characteristics of Osteoporotic Human Cadaver Spinal Compression Fractures. Congress of Neurological Surgeons Annual Meeting. San Diego, CA. September 24-28, 2016.

219. **Agarwal, N.**, Ozpinar, A., Choi, P., Ochs, B., Hart, R., Hamilton, D.K., Yaylali, I. Intraoperative Neuromonitoring During Posterior Spinal Fusion. Congress of Neurological Surgeons Annual Meeting. San Diego, CA. September 24-28, 2016.

220. Prabhu, A.V., Hansberry, D.R., **Agarwal, N.**, Clump, D., Heron, D. Health Literacy and Radiation Oncology: A Review of Internet-Based Patient Education Materials. 58th American Society for Radiation Oncology Annual Meeting. Boston, MA. September 25-28, 2016.

221. Prabhu, A.V., Kashkoush, A.I., Myal, S., **Agarwal, N.**, Sekula R.F. Implications of a Medical Student Interest Group on a Department's Productivity: The University of Pittsburgh School of Medicine's Neurosurgery Interest Group Experience. 2016 Group on Student Affairs, Careers in Medicine, and Organization of Student Representatives Professional Development Conference. St. Louis, MO. June 24, 2016

222. John, E.S., Hansberry, D.R., **Agarwal, N.**, John A.M., Baker, S.R., Reynolds, J.C. Evaluation of Internet-Based Patient Education Materials from Internal Medicine Subspecialty Organizations – Will Patients Understand Them? Society of General Internal Medicine Annual Meeting. Hollywood, FL. May 11-14, 2016.

223. Gerszten, P.C., **Agarwal, N.**, Paschel, E., Goldschmidt, E., Kashkoush, A.I. Clinical Evaluation of a Hybrid Dynamic Stabilization and Fusion System in the Lumbar Spine. 84th American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. April 30-May 4, 2016.

224. McDowell, M.M., Zhu, X., **Agarwal, N.**, Nikiforova, M.N., Lieberman, F.S., Drappatz, J. Response of Multiple-Recurrence Central Nervous System Hairy Cell Leukemia to Vemurafenib. 84th American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. April 30-May 4, 2016.

225. Kashkoush, A.I., Weisgerber, A., Dharaneeswaran, K., **Agarwal, N.**, Shutter, L. Medical Training and the Brain Death Exam: A Single Institution's Experience. 84th American Association of Neurological Surgeons Annual Scientific Meeting. Chicago, IL. April 30-May 4, 2016.

226. Patel, S., Hansberry, D.R., **Agarwal, N.**, John E.S., John A.M., Baker, S.R., Reynolds, J.C. How Well do Patients Understand Online Patient Education Resources from Gastroenterology Society Websites? A Quantitative Analysis of Readability Level. American College of Gastroenterology Annual Scientific Meeting. Honolulu, HI. October 16-21, 2015.

227. **Agarwal, N.**, Choi, P.A., Okonkwo, D.O., Barrow, D.L., Friedlander, R.M. Applicant Cost for Residency Match in Neurological Surgery. Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. September 26-30, 2015.

228. **Agarwal, N.**, Choi, P.A., Hansberry, D.R. Legal Liability Associated with Elective Spine Surgery. Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. September 26-30, 2015.

229. Shin, S.S., Gardner, P.A., Ng, J., Faraji, A.H., **Agarwal, N.**, Chivukula, S., Fernandez-Miranda, J.C., Snyderman, C.H., Challinor, S.M. Endoscopic Endonasal Approach for ACTH Secreting Pituitary Adenomas: Outcomes and Analysis of Long and Short Term Remission Rates and Tumor Biochemical Activity with Respect to Tumor Invasiveness. 83rd American Association of Neurological Surgeons Annual Scientific Meeting. Washington, D.C. May 2-6, 2015.

230. Goldstein, I.M., **Agarwal, N.**, Hansberry, D.R., Kavi, A., Baisre, A. Prognostic Differences: EBV Associated Primary Leiomyosarcoma of the Spine versus Spinal Leiomyosarcoma Metastases. 83rd American Association of Neurological Surgeons Annual Scientific Meeting. Washington, D.C. May 2-6, 2015.

231. Goldstein, I.M., **Agarwal, N.**, Hansberry, D.R., Patel, D., Tomei, K.L. Optimal Timing of Whole Brain Radiation Therapy following Craniotomy for Cerebral Malignancies. AANS/CNS Section on Tumors 11th Biennial Satellite Symposium. Washington, D.C. May 1-2, 2015.

232. Herschman, Y., **Agarwal, N.**, Mammis, A. Neuromodulation for Schizophrenia: New Technology for a New Era. North American Neuromodulation Society. Las Vegas, NV. December 11-14, 2014.

233. Herschman, Y., **Agarwal, N.**, Mammis, A. Brocha Stimulator: Possible Target for Dysarthria in Post Left Middle Cerebral Artery Stroke. North American Neuromodulation Society. Las Vegas, NV. December 11-14, 2014.

234. **Agarwal, N.**, Hansberry, D.R., Goldstein, I.M. Tethered Cord as a Complication of Chronic Cerebral Spinal Fluid Diversion. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 18-22, 2014.

235. Hansberry, D.R., **Agarwal, N.**, Goldstein, I.M. Minimally Manipulative Extraction of Polycystic Cervical Neurocysticercosis. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 18-22, 2014.

236. Heary, R.F., Parvathreddy, N.K., **Agarwal, N.**, Ferrara, L.A. Kinematics of the Index and Adjacent Levels in the Lumbar and Lumbosacral Spines Following Interbody Spacer Placement. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 18-22, 2014.

237. Lieber, B.A., Wilson, T.A., Bell, R.S., **Agarwal, N.**, Wolfe, S.Q. Cost Control: The Use of Social Media and Medical Student Interest Group Chapters to Reduce Interview Costs. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 18-22, 2014.

238. **Agarwal, N.**, Singh, P.L., Eloy, J.A., Liu, J.K., Baisre, A. Stellate Amyloid Deposition in a Densely Granulated-Somatotroph Type Pituitary Adenoma. Annual Meeting of the American Association of Neuropathologists. Portland, OR. June 12-15, 2014.

239. **Agarwal, N.**, Baisre, A. Aprosencephaly-Atelencephaly in a Neonate with Severe Facial features of Holoprosencephaly. Annual Meeting of the American Association of Neuropathologists. Portland, OR. June 12-15, 2014.

240. Baisre, A., **Agarwal, N.**, Seth, A., Liu, J.K., Anaplastic Pilocytic Astrocytoma of the Cerebellum with a BRAF V600E Mutation. Annual Meeting of the American Association of Neuropathologists. Portland, OR. June 12-15, 2014.

241. Hansberry, D.R., **Agarwal, N.**, Gonzales, S.F., Baker, S.R. Online Patient Resources – The Readability of Neuroradiology-Based Education Materials. American Society of Neuroradiology 52nd Annual Meeting, Montreal, Canada. May 17-22, 2014.

242. Dagar, A., Punia, V., **Agarwal, N.**, He, W., Hillen, M. Comparison of American Academy of Neurology's Online Patient Education Materials to Other Common Internet Sources. American Academy of Neurology 66th Annual Meeting. Philadelphia, PA. April 26-May 3, 2014.

243. Hansberry, D.R., Ramchand, T., Patel, S., Kraus, C., Jung J., **Agarwal N.**, Gonzales, S.F., Baker, S.R. Radiation Safety and the Online Health Consumer: Are Internet Resources Appropriate for the General Public? European Congress of Radiology Annual Meeting. Vienna, Austria. March 6-10, 2014.

244. Hansberry, D.R., **Agarwal, N.**, Gonzales, S.F., Baker, S.R. Are Our Internet-Based Patient Education Materials Pitched at Too High a Level? European Congress of Radiology Annual Meeting. Vienna, Austria. March 6-10, 2014.

245. Eloy, J.A., Carniol, E.T., Kommana, S.S., **Agarwal, N.**, Hansberry, D.R., Patel, P., Setzen, M. A Quality Assessment of Online Patient Education Resources from the American Rhinologic Society. American College of Surgeons Brooklyn and Long Island Chapter and Nassau Surgical Society Inc., Uniondale, NY. December 4, 2013.

246. Hansberry, D.R., John, A., John, E., **Agarwal, N.**, Gonzales, S.F., Baker, S.R. A Critical Review of the Level of Readability of Online Patient Education Materials from RadiologyInfo.org. Radiological Society of North American Annual Meeting. Chicago, Illinois. December 1-6, 2013.

247. **Agarwal, N.**, Feghhi, D.P., Gupta, R., Hansberry, D.R., Heary, R.F., Goldstein, I.M. Competency of Minimally Invasive and Open Spine Surgery Patient Education Resources. Section on Spine and Peripheral Nerves, Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.

248. **Agarwal, N.**, Hansberry, D.R., Singh, P.L., Heary, R.F., Goldstein, I.M. Competency of Online Patient Education Materials for Spinal Cord Injury. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.

249. El-Ghanem, M.H., Dagar, A., **Agarwal, N.**, Punia, V., Hillen, M.E. Comparison of Various Online Patient Education Materials (PEMs) for Neurological Diseases. American Neurological Association Annual Meeting. New Orleans, LA. October 13-15, 2013.

250. Eloy, J.A., Carniol, E., Kommana, S.S., **Agarwal, N.**, Hansberry, D.R., Patel, P., Setzen, M. A Quality Assessment of Online Patient Education Resources from the American Rhinologic Society. 59th Annual Meeting of the ARS. Vancouver, Canada. September 28, 2013.

251. Hansberry, D.R., Kraus, C., **Agarwal, N.**, Gonzales, S.F. The Readability of Online Education Resources in Vascular and Interventional Radiology. Cardiovascular and Interventional Radiological Society of Europe Annual Meeting. Barcelona, Spain. September 14-18, 2013.

252. **Agarwal, N.**, Hansberry, D.R., Husain, Q., Sanghvi, S., Khan, M.N., Eloy, J.A. A Comparative Assessment of the Patient Education Resources from the American Academy of Otolaryngology-Head and Neck Surgery

Foundation (AAO-HNSF) and American Rhinologic Society Patient Education Materials. 58th Annual Meeting of the ARS. Washington, D.C. September 8, 2012.

253. **Agarwal, N.**, Hansberry, D.R., Venier, E. Readability of Online Patient Education Materials for Peripheral Neuropathy. 64th American Academy of Neurology Meeting. New Orleans, LA. April 21-28, 2012.

254. **Agarwal, N.**, Hansberry, D.R., Barrese, J.C., Prestigiacomo, C.J. Readability of Patient Education Materials for Rehabilitation Following Neurological Surgery. 80th American Association of Neurological Surgeons Annual Scientific Meeting. Miami, FL. April 14-18, 2012.

255. Heary, R.F., **Agarwal, N.,** Mohanty, S., Choudhry, O.J., Mammis, A. The Incidence of Adjacent Segment Disease Following Thoracic Pedicle Screw Fixation. 28th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 7-10, 2012.

256. **Agarwal, N.**, Hansberry, D.R., Heary, R.F. Readability of Patient Education Materials for Secondary Damage Following Traumatic Spinal Cord Injury. 28th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 7-10, 2012.

257. Goldstein, I.M., **Agarwal, N.**, Mammis, A., Barrese, J.C., Christiano, L.D. Rates of Infection with Dynamic Stabilization Compared to Posterior Instrumented Fusion. 28th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 7-10, 2012.

258. Heary, R.F., Choudhry, O.J., Jalan, D., **Agarwal, N.** Cervical Sagittal Alignment after Lateral Mass Screw-Rod Fixation. 28th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 7-10, 2012.

259. Hansberry, D.R., **Agarwal, N.**, Heary, R.F. Readability of Patient Education Materials for Peripheral Neuropathy. 28th Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 7-10, 2012.

260. Choudhry, O.J., Gala, N., Assina, R., **Agarwal, N.**, Gandhi, C.D., Prestigiacomo, C.J. Prevalence and Management of Asymptomatic Incidental Aneurysms Discovered by CT Angiography: A Single Institution's 10 Year Experience. AANS/CNS Cerebrovascular Section. New Orleans, LA. January 30-31, 2012.

261. Choudhry, O.J., **Agarwal, N.**, Jalan, D., Heary, R.F. Cervical Sagittal Alignment after Lateral Mass Screw-Rod Fixation. Joint Research Symposium, American Medical Association Medical Student Section. New Orleans, LA. November 10-13, 2011.

Regional Conferences

1. Hamilton, D.K., Carnovale, B.J., **Agarwal, N.**, Lenke, L.G., Passias, P., Klineberg, E.O., Lafage, V., Bess, S., Smith, J.S., Gum, J.L., Lafage, R., Mullin, J., Kelly, M.P., Diebo, B., Line, B., Kim, H.J., Kebaish, K., Eastlack, R., Daniels, A., Soroceanu, A., Lavadi, R.S., Mundis, G., Hostin, R., Protopsaltis, T.S., Hart, R.A., Gupta, M., Schwab, F.J., Ames, C.P., Shaffrey, C.I. Predicting Baseline PROM Scores from Radiographic, Demographic, and Clinical Data Using Machine Learning. 111th Annual Scientific Meeting, Pennsylvania Neurosurgical Society. Hershey, PA. July 18-19, 2025

2. Ranganathan, S., Kumar, R.P., Tirmizi, Z., Polavarapu, H., Berke, C., Gajjar, A.A., Mitha, R., Shah, M., Hamilton, D.K., **Agarwal, N**. 110th Annual Scientific Meeting of the Pennsylvania Neurosurgical Society. Hershey, PA. July 19-20, 2024.

3. Lavadi, R.S., Song, S.K., **Agarwal, N**. Diffusion Basis Spectrum Imaging Detects Axonal Injury in the Optic Nerve following Traumatic Brain Injury. 110th Annual Scientific Meeting of the Pennsylvania Neurosurgical Society. Hershey, PA. July 19-20, 2024.

4. Lavadi, R.S., Carnovale, B., Choudhary, A., Gajjar, A.A., Kumar, R.P., Hudson, J.S., Shah, M., Hamilton, D.K., **Agarwal, N.** Accounts of Spine and Paraspinal Disease while Playing Golf. 110th Annual Scientific Meeting of the Pennsylvania Neurosurgical Society. Hershey, PA. July 19-20, 2024.

5. Lavadi, R.S., Kumar, R.P., Kann, M., Shah, M, Hamilton, D.K., Maroon, J., **Agarwal, N**. A Video Analysis of Concussion and Return to Play among Athletes following 333 Slaps. 110th Annual Scientific Meeting of the Pennsylvania Neurosurgical Society. Hershey, PA. July 19-20, 2024.

6. Lavadi, R.S., Carnovale, B., Tirmizi, Z., Gajjar, A.A., Kumar, R.P., Shah, M., Hamilton, D.K., **Agarwal, N**. Examining the Readability of AtlasGPT, the Premiere Resource for Neurosurgical Education. 110th Annual Scientific Meeting of the Pennsylvania Neurosurgical Society. Hershey, PA. July 19-20, 2024.

7. **Agarwal, N.**, Funahashi, R., Taylor, T., Jorge, A., Feroze, R., Zhou, J., Hansberry, D.R., Gross, B., Jankowitz, B., Friedlander, R.M. Patient Education and Engagement Through Multimedia: Randomized Prospective Pilot Study on Health Literacy in Patients with Cerebral Aneurysms. 106th Annual Scientific Meeting, Pennsylvania Neurosurgical Society. Hersey, PA. July 12-13, 2019.

8. **Agarwal, N.,** Mohanty, S., Choudhry, O.J., Mammis, A., Heary, R.F. Adjacent Segment Disease Following Thoracic Pedicle Screw Fixation. Regional Scientific Meeting, American College of Physicians – New Jersey Chapter. Iselin, NJ. March 7-8, 2013.

9. **Agarwal, N.**, Barrese, J.C., Barry, M.T., Sharer, L.R, Baisre, A., Heary, R.F. Radiographically Occult Primary Renal Cell Carcinoma Presenting within the Operative Site of a Thoracic Spine Meningioma. Regional Scientific Meeting, American College of Physicians – New Jersey Chapter. Iselin, NJ. March 7-8, 2013.

10. **Agarwal, N.**, Hansberry, D.R., Sabourin, V., Tomei, K.L., Gandhi, C.D., Prestigiacomo, C.J. Quality of Patient Education Materials from Medical Specialties. Regional Scientific Meeting, American College of Physicians – New Jersey Chapter. Iselin, NJ. March 7-8, 2013.

Local Conferences

1. Patel, J., Waheed, A.A., Quddous, D., Patil, S., Spears, Z., Zeeshan, Q., Hudson, J., Hamilton, D.K., **Agarwal, N**. Current Applications of Radiomics in Neurotrauma. Digital Health Summit. Pittsburgh, PA. Jan 29–30, 2026.

2. Ashtari, M., Spears, Z., Don, N., Waheed, A.A., Carnovale, B., Alavi, A., Hamilton, D.K., **Agarwal, N.** Artificial Intelligence Generated Metamaterial Dynamic Spine Rods for the Prevention of Adjacent Segment Degeneration. Digital Health Summit. Pittsburgh, PA. Jan 29–30, 2026.

3. Manne, B., Daulat, S., Waheed, A.A., Dholaria, N., Zeeshan, Q., Agarwal, V., Hamilton, D.K., **Agarwal, N.** Quantifying the Limits of Spinal Cord fMRI Segmentation Generalizability Across Centers. The National Conference on Undergraduate Research. Richmond, VA. April 13-15, 2026.

4. Das, A., Jawad-Makki, M.H., Shanahan, R., Mitha, R., Lavadi, R.S., Dale, B., Malueg, M., Algattas, H., Hamilton, D.K., **Agarwal, N.**, Fields, D.P., Okonkwo, D.O. Existing Prognostic Tools Fail to Predict Mortality Risk in Older Adults with Traumatic Brain Injuries. Medical Student Research Forum. Buffalo, NY. February 10, 2025.

5. Shanahan, R.M., Scanlon, S.E., Mitha, R., Lavadi, R., Kumar, R., **Agarwal, N.**, Hamilton, D.K. Relieving the Pressure: Introducing the Longitudinal Attending-Resident-Student Mentorship Initiative (LAMI) to improve medical student mentorship in neurosurgery. 2024 Rita M. Patel Leadership Conference. Pittsburgh, PA. February 21, 2024.

6. Adida, S., Pandya, S., Calcaterra, M., Taori, S., Lavadi, R.S., Sefcik, R.K., Hudson, J.S., Hamilton, D.K., Gerszten, P.C., **Agarwal, N.** Bilateral Paraspinal Muscle Flap Closure Technique for Reduction of Wound-related Complications After Cervical Spinal Surgery in a Series of 229 Patients. University of Pittsburgh Medical Center

10th Annual Comprehensive Wound Care Symposium: Multidisciplinary Perspectives and New Innovations. Pittsburgh, PA. October 13-14, 2023. (Best Research Award and People's Choice Award)

7. Fields, D.P., Varga, G., Alattar, A., **Agarwal, N.**, Hamilton, D.K., Okonkwo, D.O., Kanter, A.S., Forsythe, R.M., Weiner, D.K. Machine Learning Algorithm Incorporating Pre-Injury Frailty Indicators Best Predicts One Year Mortality in Older Adults with Traumatic Spinal Column Fractures. 5th Annual Quality and Improvement Symposium, University of Pittsburgh Medical Center. Pittsburgh, PA. May 30, 2023.

8. Norrmén-Smith, I.O., **Agarwal, N.**, Tomei, K.L., Prestigiacomo, C.J., Gandhi, C.D. Recruiting Medical Students to Neurological Surgery. Student Summer Research Program Poster Symposium, University of Medicine and Dentistry of New Jersey – New Jersey Medical School. Newark, NJ. July 25, 2012.

9. Shah, M., **Agarwal, N.**, Schalet, G., Gandhi, C.D., Prestigiacomo, C.J. Multimodal Therapy for Cerebral Arteriovenous Malformations in Pregnancy. Student Summer Research Program Poster Symposium, University of Medicine and Dentistry of New Jersey – New Jersey Medical School. Newark, NJ. July 25, 2012.

10. **Agarwal, N.**, Hansberry, D.R., Barrese, J.C., Prestigiacomo, C.J. Readability of Patient Education Materials for Rehabilitation Following Neurological Surgery. Inaugural Humanism Day Conference. Newark, NJ. March 14, 2012.

11. **Agarwal, N.** Kicks for Kids: Educating Disadvantaged Children in Martial Arts to Promote Healthy Lifestyles. Pozen Scholarship, University of Medicine and Dentistry of New Jersey – New Jersey Medical School. Newark, NJ. February 17, 2012.

12. **Agarwal, N.**, David, B.T., Singh, P.L., Heary, R.F., Elkabes, S. Effects of a Toll-Like Receptor 9 Agonist on Lesion Volume in Spinal Cord Injury. Student Summer Research Program Poster Symposium, University of Medicine and Dentistry of New Jersey – New Jersey Medical School. Newark, NJ. August 5, 2011.

13. **Agarwal, N.**, Gala, N., Agarwal, P., Zouzias, A., Gandhi, C.D., Prestigiacomo, C.J. Current Endovascular Treatment Options of Cerebral Arteriovenous Malformations in Pregnancy. Student Summer Research Program Poster Symposium, University of Medicine and Dentistry of New Jersey – New Jersey Medical School. Newark, NJ. August 5, 2011.

14. Choudhry, O.J., **Agarwal, N.**, Jalan, D., Heary, R.F. Cervical Sagittal Alignment after Lateral Mass Screw-Rod Fixation. Student Summer Research Program Poster Symposium, University of Medicine and Dentistry of New Jersey – New Jersey Medical School. Newark, NJ. August 5, 2011.

15. Gala, N., **Agarwal, N.**, Barrese, J.C., Gandhi, C.D., Prestigiacomo, C.J. Current Endovascular Treatment Options of Dural Venous Sinus Thrombosis. Student Summer Research Program Poster Symposium, University of Medicine and Dentistry of New Jersey – New Jersey Medical School. Newark, NJ. August 5, 2011.

16. Gala, N., **Agarwal, N.**, Karimi, R.J., Gandhi, C.D., Prestigiacomo, C.J. Current Endovascular Treatment Options of Central Retinal Arterial Occlusion. Student Summer Research Program Poster Symposium, University of Medicine and Dentistry of New Jersey – New Jersey Medical School. Newark, NJ. August 5, 2011.

PATENTS

1. **Agarwal, N.**, Joseph, J., Housley, S.N., Wu, D. A Portable Powered Surgical Bone Mill and Bone Graft Delivery System and Methods for Using Same. U.S. Provisional Patent 62989371. June 1, 2020.

2. **Agarwal, N.**, Joseph, J., Housley, S.N., Wu, D. Sacral-Alar-Iliac Fusion Device. U.S. Provisional Patent 62986451. March 10, 2020.

HOBBIES AND INTERESTS

Athletics
- Martial Arts

Language
- Hindi, Latin, Spanish

Music
- Violin, Piano, Guitar