

UNIVERSITY OF PENNSYLVANIA - PERELMAN SCHOOL OF MEDICINE
Curriculum Vitae

Date: 06/27/2019

Harvey E. Smith, MD

Address: University of Pennsylvania School of Medicine
Department of Orthopaedic Surgery
3737 Market Street, 6th Floor
Philadelphia, PA 19104
Philadelphia, PA 19104 USA

If you are not a U.S. citizen or holder of a permanent visa, please indicate the type of visa you have:
none (U.S. citizen)

Education:

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| 1997 | A.B. | Harvard University (Chemistry & Physics) |
| 2002 | MD | Pennsylvania State University College of Medicine (Medicine) |

Postgraduate Training and Fellowship Appointments:

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| 1999-2000 | Research Training Fellowship for Medicinal Students, Howard Hughes Medical Institute |
| 2002-2003 | Internship, Orthopaedic Surgery, Thomas Jefferson University |
| 2003-2007 | Resident, Orthopaedic Surgery, Thomas Jefferson University |
| 2007-2009 | Spine Surgery Basic Science Research and Clinical, Thomas Jefferson University and The Rothman Institute |

Faculty Appointments:

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| 2009-2010 | Assistant Professor of Orthopaedic Surgery, Weill Cornell Medical College |
| 2010-2012 | Assistant Clinical Professor of Orthopaedic Surgery, Tufts School of Medicine |
| 2013-2018 | Assistant Professor of Orthopaedic Surgery at the Hospital of the University of Pennsylvania and the Veteran's Administration Medical Center, University of Pennsylvania School of Medicine |
| 2014-2018 | Assistant Professor of Neurosurgery, University of Pennsylvania School of Medicine (Secondary) |
| 2018-present | Associate Professor of Orthopaedic Surgery at the Hospital of the University of Pennsylvania and the Veteran's Administration Medical Center, University of Pennsylvania School of Medicine |
| 2018-present | Associate Professor of Neurosurgery, University of Pennsylvania School of Medicine (Secondary) |

Hospital and/or Administrative Appointments:

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| 2008-2009 | Attending Physician, Thomas Jefferson University Hospital |
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| 2009-2010 | Attending Physician, The Methodist Hospital |
| 2010-2012 | Attending Physician, New England Baptist Hospital |
| 2013-Present | Attending Orthopaedic Surgeon, Hospital of the University of Pennsylvania |
| 2013-Present | Attending Orthopaedic Surgeon, Penn Presbyterian Medical Center |
| 2013-Present | Attending Orthopaedic Surgeon, Pennsylvania Hospital |
| 2015-present | Fellowship Director, Orthopaedic Spine Surgery, University of Pennsylvania Department of Orthopaedic Surgery |
| 2019-present | Chief, Orthopaedic Spine Surgery, University of Pennsylvania Department of Orthopaedic Surgery |

Specialty Certification:

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| 2012 | Diplomate, The American Board of Orthopaedic Surgery |
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Licensure:

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| 2003-Present | Pennsylvania |
| 2009-2015 | Texas |
| 2010-2018 | Massachusetts |

Awards, Honors and Membership in Honorary Societies:

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| 1995 | Harvard College Scholarship for Academic Achievement of High Distinction |
| 2001 | Howard Hughes Medical Institute Continued Support Scholarship for The Completion of Medical Studies |
| 2001 | Alpha Omega Alpha |
| 2002 | Medical Student Research Symposium Award |
| 2002 | The Howard E. Morgan Award for Outstanding Achievement in Basic Research |
| 2002 | Dr. C. McCollister and Nancy L. Evarts Scholarship Award |
| 2002 | Dean's Award for Scholarly Achievement |
| 2007 | Resident Research Award, Thomas Jefferson University |
| 2008 | Cervical Spine Research Society Fellow Research Grant |
| 2008 | AOSpine North America Fellow's Forum Research Award |
| 2008 | Cervical Spine Research Society First Place Award, Basic Science Poster Presentation |
| 2010 | Dyer/Baucum Travel Fellowship Award |
| 2010 | AAOS Clinician Scientist Development Program |
| 2012 | Annual New England Baptist Hospital Research Symposium Award |
| 2013-2014 | United States Bone and Joint Initiative Young Investigators Initiative Grant Mentoring Program |
| 2016 | "25 JMRI Papers That Have Stood the Test of Time" JMRI 25th Anniversary Celebration, Singapore, 2016 |

Memberships in Professional and Scientific Societies and Other Professional Activities:

International:

- 2009-Present North American Spine Society (Member, Biologics and Research Committee)
- 2013-Present Philadelphia Spine Research Society
- 2014-Present Orthopaedic Research Society
- 2015-Present Lumbar Spine Research Society (Member, Conflict of Interest/Ethics Committee
2016-present)

National:

- 2002-Present Alpha Omega Alpha Honor Medical Society
- 2009-Present American Board of Orthopaedic Surgery (Diplomate)
- 2013-Present Association for Collaborative Spine Research (Member, Executive Committee
2015-Present
Chair, Biologics Subgroup 2015-Present)
- 2014-Present American Academy of Orthopaedic Surgeons
- 2014-Present Penn Center for Musculoskeletal Disorders
- 2016-Present Orthopedic and Rehabilitation Devices Panel Advisory Committee of the Food and
Drug Administration (Member, Advisory Committee)
- 2016-Present The American Orthopaedic Association
- 2018-Present American Board of Orthopaedic Surgery (ABOS) Web Based Longitudinal
Assessment Orthopaedic Spine Knowledge Source Group

Editorial Positions:

- 2006-Present Reviewer, The Journal of Magnetic Resonance Imaging
- 2006-2007 Associate Editor, Jefferson Orthopaedic Journal
- 2007-2008 Editor, Jefferson Orthopaedic Journal
- 2008 Reviewer, The Journal of Bone and Joint Surgery
- 2009 Reviewer, Spine Journal
- 2009-Present Reviewer, The Journal of Bone and Joint Surgery
- 2009-Present Reviewer, The Spine Journal
- 2010-Present Reviewer, Journal Spinal Disorders and Techniques
- 2012-Present Reviewer, European Spine Journal
- 2015-Present Assistant Editorial Board, European Spine Journal
- 2015-Present Reviewer, Journal of Orthopaedic Research

Academic and Institutional Committees:

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| 2013-Present | Member, Penn Center for Human Performance Development Committee |
| 2016-Present | Member, Hospital University of Pennsylvania Medical Legal Committee |

Major Academic and Clinical Teaching Responsibilities:

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| 2006 | "Total Knee Arthroplasty: Principles and Soft Tissue Balancing" Thomas Jefferson University Department of Orthopaedic Surgery |
| 2006 | "Aneurysmal and Unicameral Bone Cysts" Thomas Jefferson University Department of Orthopaedic Surgery |
| 2006 | "Distal Femur Fractures" Thomas Jefferson University Department of Orthopaedic Surgery |
| 2006 | "Spinal Cord Injury" Thomas Jefferson University Department of Orthopaedic Surgery |
| 2006 | "Cervical Spine Fractures" Thomas Jefferson University Department of Orthopaedic Surgery |
| 2007 | "The Economics of Orthopaedic Care" Grand Rounds Department of Orthopaedic Surgery, Thomas Jefferson University |
| 2007 | "Trends in Surgical Techniques for Type II Odontoid Fracture Management: twenty years of experience at a regional spinal cord injury center." Jefferson Orthopaedic Society |
| 2008 | "Does Smad3 Deficiency Model Disc Degeneration and Degenerative Scoliosis?" Research Colloquium Series, Department of Orthopaedic Surgery, Thomas Jefferson University |
| 2008 | "Degenerative Disc Disease: proposed etiology and investigative models" Department of Orthopaedic Surgery, Thomas Jefferson University |
| 2008 | "Physical Examination of the Spine" Department of Orthopaedic Surgery, Thomas Jefferson University |
| 2008 | "Upper Cervical Spine Injuries" Department of Orthopaedic Surgery, Thomas Jefferson University |
| 2008 | "Evidence Based Medicine: How To Do a Systematic Review Of The Literature" Department of Orthopaedic Surgery, Thomas Jefferson University |
| 2009 | "An Evidence Based Assessment of Surgical Outcomes in the Osteoporotic Spine" Department of Orthopaedic Surgery, Thomas Jefferson University |
| 2009 | "What is the Most User-Friendly Posterior Percutaneous Pedicular Fixation System For Multiple Level Surgery?" Department of Orthopaedic Surgery, Thomas Jefferson University |
| 2010 | "Degenerative Disease of the Spine: pathology or normal aging?" Orthopedic Grand Rounds, New England Baptist Hospital |
| 2011 | Operative vs. Nonoperative Management of Thoracolumbar Fractures: an evidence-based analysis. Tufts University School of Medicine |

- 2011 "Comparative Effectiveness Research" Department of Orthopaedic Surgery Grand Rounds, New England Baptist Hospital
- 2012 "Upper Cervical Spine Trauma" Department of Orthopaedic Surgery, Tufts University School of Medicine
- 2012 "Lower Cervical Spine Trauma" Department of Orthopaedic Surgery, Tufts University School of Medicine
- 2012 Thoracolumbar Spine Trauma" Department of Orthopaedic Surgery, Tufts University School of Medicine
- 2013 "Lumbar Stenosis and Spondylolisthesis" Department of Orthopaedic Surgery Grand Rounds, University of Pennsylvania, Philadelphia, PA
- 2013 "Spinal Stenosis" Department of Geriatrics Grand Rounds, University of Pennsylvania, Philadelphia, PA
- 2013 Thesis Committee Member for John Martin
- 2014 "Upper Cervical Spine Trauma" Department of Emergency Medicine Grand Rounds, University of Pennsylvania, Philadelphia, PA
- 2014 "Spinal Infections" Grand Rounds Department of Orthopaedic Surgery 6/18/14
- 2014 Spine Review for the Orthopaedics In-training Examination (OITE), Grand Rounds, Department of Orthopaedic Surgery, October 9, 2014
- 2015 "Lumbar Degenerative Disc Disease" Grand Rounds, Department of Orthopaedic Surgery, August 13, 2015
- 2016 "Spine- Nuances of the spine exam and history", Department of Orthopaedic Surgery, July 19, 2016
- 2016 "Spine - Cervical DDD and Cervical Myelopathy" Department of Orthopaedic Surgery, August 2, 2016
- 2016 "Spine- rheumatoid arthritis in the cervical spine", Department of Orthopaedic Surgery, August 16, 2016
- 2016 "Spine - ankylosing spondylitis and ossified posterior longitudinal ligament" Department of Orthopaedic Surgery, August 30, 2016
- 2016 "Spine- burners, stingers and sports related spine issues" Department of Orthopaedic Surgery, September 13, 2016
- 2016 "Spine - thoracic and lumbar disk disease" Department of Orthopaedic Surgery, September 27, 2016
- 2016 "Spine- spinal stenosis, foraminal stenosis and corresponding treatments" Department of Orthopaedic Surgery, October 11, 2016
- 2016 "Spine- spondylolysis and spondylolisthesis" Department of Orthopaedic Surgery, October 25, 2016
- 2016 "Spine - review of top 10 spine reviews" Department of Orthopaedic Surgery, November 8, 2016
- 2016 "Spine - cauda equina, epidural abscess, consult emergencies" Department of Orthopaedic Surgery, November 22, 2016
- 2016 "Spine - spinal tumors" Department of Orthopaedic Surgery, December 6, 2016

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| 2016 | "Spine - diffuse idiopathic skeletal hyperostosis, ankylosing spondylitis, and ossified posterior longitudinal ligament" Department of Orthopaedic Surgery, December 20, 2016 |
| 2017 | "Spine, spinal cord injury and cord injury patterns" Department of Orthopaedic Surgery, January 3, 2017 |
| 2017 | "Spine- upper cervical spine injuries" Department of Orthopaedic Surgery, January 17, 2017 |
| 2017 | "Spine- subaxial cervical spine injuries" Department of Orthopaedic Surgery, January 31, 2017 |
| 2017 | "Spine - thoracic spine injuries" Department of Orthopaedic Surgery, February 14, 2017 |
| 2017 | "Spine- lumbar spine injuries" Department of Orthopaedic Surgery, February 28, 2017 |
| 2017 | "Spine - classifications of spinal cord injury and review of traumatic injuries" Department of Orthopaedic Surgery, March 21, 2017 |
| 2017 | "Spine - the SPORT trial" Department of Orthopaedic Surgery, April 4, 2017 |
| 2017 | "Spine - ACDF & cervical myelopathy" Department of Orthopaedic Surgery, April 18, 2017 |
| 2018 | "Tissue Engineered Approaches to the Treatment of Degeneration of the Intervertebral Disc", Grand Rounds, Department of Orthopaedic Surgery, August, 2018 |
| 2018 | "Thoracolumbar Compression Fractures", Grand Rounds, Department of Endocrinology, University of Pennsylvania, June 13, 2018 |
| 2019-Present | "Tissue Engineered Approached to Degenerative Disc Disease", Grand Rounds, Department of Neurosurgery, 1/3/19 |

Lectures by Invitation:

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| Apr, 2008 | "Trends in Epidemiology and Management of Type II Odontoid Fractures: 20 Year Experience at a Model System Spinal Cord Injury Tertiary Referral Center" 6th Annual AO Spine North America Fellows Forum, Banff, Canada |
| May, 2008 | "Update on Basic Science Research Investigating Degenerative Disc Disease" Globus San Diego Complex Case Review Meeting, San Diego, California |
| Jul, 2008 | "Disc Degeneration and Regeneration Research Update" 8th Annual Thomas Jefferson Spine Fellows Symposium, Orlando, Florida |
| Mar, 2009 | "Science Research at Jefferson" MERC Complex Case Review: San Diego, CA |
| Jul, 2009 | "The Surgical Management of Whiplash" 9th Annual Thomas Jefferson Symposium, Orlando, FL |
| Oct, 2009 | "Comparative Effectiveness Research in Spinal Care: Identifying and Eliminating Wasteful Spending." Value Spine Council Meeting, Philadelphia, PA |

- Oct, 2009 "Management of Complex Spinal Infections" Orthopaedic Infections: Current Concepts. The Woodlands, TX
- Feb, 2010 Case Presentation Debate, Federation of Spine Associations, AAOS 2011, San Diego, CA
- Feb, 2010 "Nanoporous Silicon Particles (NSP) as a Delivery System for the Treatment of Musculoskeletal Disease." Unither Nanomedical and Telemedical Technology Conference. Quebec, Canada
- Jun, 2010 "Screening and Assessment of the Spine." 9th Annual Sports Medicine Update, Houston, TX
- Jul, 2010 "Evidence Based Medicine: how to do a systematic review of the literature with a critical overview" 10th Annual Thomas Jefferson Spine Fellows Alumni Symposium. Newport, Rhode Island
- Aug, 2010 "The Use of Cost/QALY to Determine Coverage: experience from the UK" Council for Value in Spinal Care Meeting, Chicago, IL
- Sep, 2010 "Degenerative Disease of the Spine: pathology or normal aging?" Orthopedic Grand Rounds, New England Baptist Hospital, Chestnut Hill, MA
- Oct, 2010 "Anterior vs. Posterior & Lami Fusion vs. Laminoplasty for Cervical Myelopathy. Is there a right procedure?" 7th Annual Augustus A. White Symposium, Beth Israel Deaconess Medical Center, Boston, MA
- Feb, 2011 Case Presentation Debate, Federation of Spine Associations, AAOS 2011, San Diego, CA
- Jun, 2011 Operative vs. Nonoperative Management of Thoracolumbar Fractures: an evidence-based analysis. Tufts University School of Medicine, Boston, MA
- Sep, 2011 "Comparative Effectiveness Research" Department of Orthopaedic Surgery Grand Rounds, New England Baptist Hospital, Boston, MA
- Apr, 2012 "Lower Cervical Spine Trauma" Department of Orthopaedic Surgery, Tufts University School of Medicine, Boston, MA
- Apr, 2012 "Thoracolumbar Spine Trauma" Department of Orthopaedic Surgery, Tufts University School of Medicine, Boston, MA
- Apr, 2012 "Upper Cervical Spine Trauma" Department of Orthopaedic Surgery, Tufts University School of Medicine, Boston, MA
- Apr, 2014 Lecture, "Spinal Stenosis", American College of Spine Surgery 2014 Annual Meeting
- Apr, 2014 "Spinal Stenosis", American College of Spine Surgery Annual Meeting, Las Vegas, Nevada
- May, 2014 "Upper Cervical Spine Injuries", Grand Rounds, Department of Orthopaedic Surgery, Philadelphia College of Osteopathic Medicine, Philadelphia, PA
- Jun, 2014 "Update on Spinal Infections Survey", Association for Collaborative Spine Research Summer Meeting Degenerative Subspecialty Group Meeting, Chicago, IL

- Jul, 2014 "Spinal Inflammatory Disease: Differential Diagnosis and Pearls in Management"
14th Annual Thomas Jefferson Spine Fellows Alumni Symposium, Newport, RI
- Sep, 2014 "Evaluation and Management of Degenerative Disease of the Spine", Delaware County Memorial Hospital, Drexel Hill, PA
- Oct, 2014 "Surgical Techniques for the Thoracic and Lumbar Spine", Spinal Deformity and Sagittal Balance for Residents and Fellows Cadaveric Training Program. The Musculoskeletal Education and Research Center, Audubon, PA
- Mar, 2015 "Avoidance and Treatment of Infection in Lumbar Spine Surgery -- Evidence based Recommendations." Instructional Course Lecture, 2015 Annual Meeting American Academy of Orthopaedic Surgeons, Las Vegas, NV
- Apr, 2015 "Odontoid Fractures", Department of Orthopaedic Surgery Harvard Combined Residency Program, Boston, MA
- Apr, 2015 "Tissue Engineered Constructs in the Treatment of Intervertebral Disc Degeneration", Grand Rounds Presentation at Harvard Combined Orthopaedic Residency Program, Brigham and Women's Hospital, Boston, MA
- May, 2015 "Stem Cell Products Have No Greater Efficacy Than The Current Gold Standard" Spine A-Z: Current Concepts and Controversies, Spine Study Group and Association for Collaborative Spine Research, Miami, Florida
- May, 2015 "Cervical Spine Fractures in the Elderly: is Surgery Effective?" Philadelphia Spine Summit: Inaugural Meeting. Sidney Kimmel Medical College, Thomas Jefferson University, Philadelphia, PA
- Aug, 2015 "Yale Open Data Access Bone Morphogenic Protein Overview". Innovative and Advanced Surgery of the Degenerative and Deformed Lumbar Spine, St. Louis University
- Aug, 2015 "MRI Anatomy: Review of All Structures; How to Critically Evaluate Pre-op Imaging". Innovative and Advanced Surgery of the Degenerative and Deformed Lumbar Spine, St. Louis University
- Oct, 2015 "Finding an Academic Job". Young Spine Surgeons Forum, North American Spine Society 30th Annual Meeting, Chicago, IL
- Mar, 2016 "Avoidance and Treatment of Infection in Lumbar Spine Surgery: Evidence-based Recommendations." Instructional Course Lecture, 2016 Annual Meeting American Academy of Orthopaedic Surgeons, Orlando, FL
- Apr, 2016 Debate : Lumbar Spinal Deformity (Mild) with mismatch of pelvic parameters, minimal back pain with significant radiculopathy - Decompression alone. 9th Annual Meeting of the Lumbar Spine Research Society, Chicago, IL
- Jul, 2016 "Fusion for Treatment of Spinal Stenosis", The Spine Technology & Educational Group Organization 13th Annual Symposium, Los Cabos, Mexico

- Jul, 2016 "What are the various robotic systems in existence and what published outcomes exist", 16th Annual Thomas Jefferson Spine Fellows Alumni Symposium, Newport Rhode Island
- Aug, 2016 "Tissue-Engineered Approaches to the Treatment of Degeneration of the Intervertebral Disc." Grand Rounds, Department of Orthopaedic Surgery, University of Chicago, Chicago, IL
- Sep, 2016 "Tissue-Engineered Approaches to the Treatment of Degeneration of the Intervertebral Disc", Fall Spine Seminar Series, Rush University, Chicago, IL
- Nov, 2016 "MRI Anatomy: Review of All Structures; How to Critically Evaluate Pre-op Imaging", Innovative and Advanced Surgery of the Degenerative and Deformed Lumbar Spine, St. Louis University, St. Louis, MO
- Mar, 2017 "Avoiding and Managing Complications in Routine Lumbar Spine Surgery : Avoidance and Treatment of Infection in Lumbar Spine Surgery Evidence-based Recommendations", American Academy of Orthopaedic Surgeons, San Diego, California
- Mar, 2017 "Platelet-Rich Plasma, Bone Morphogenetic Protein, and Stem Cells: What Surgeons Need to Know : Mesenchymal Stem Cells", American Academy of Orthopaedic Surgeons Annual Meeting, San Diego, California
- Apr, 2017 "Robotics - useful or too early", Lumbar Spine Research Society, Chicago, IL
- Jun, 2017 "Academic/Practice Challenges", Young Surgeon Forum, The 14th Annual Cabo Meeting: State of Spine Surgery Think Tank, Los Cabos, Mexico
- Jun, 2017 "Stem Cells in Spine Surgery: Role in treatment of DDD: Evidence or Marketing?", The 14th Annual Cabo Meeting: State of Spine Surgery Think Tank, Los Cabos, Mexico
- Jul, 2017 "Scaffolds for Fibrous Musculoskeletal Tissues", Biologic Interventions for Spinal Pathologies: Stem Cells, Growth Factors and Novel Therapeutics, North American Spine Society Summer Meeting, San Diego, CA
- Jul, 2017 "How are Cellular Based Matrices Different from Each Other?" Biologic Interventions for Spinal Pathologies: Stem Cells, Growth Factors and Novel Therapeutics, North American Spine Society Summer Meeting, San Diego, CA
- Oct, 2017 "Where Are Cell-Based Allografts Approved and Other Factors to Consider", North American Spine Society 2017 Annual Meeting, Orlando, Florida
- Feb, 2018 "Intervertebral Disc Regeneration Strategies - Clinical Evidence", 21st Annual Selby Spine Conference, Park City, Utah
- Mar, 2018 "Platelet-Rich Plasma, Bone Morphogenetic Protein, and Stem Cells: What Surgeons Need to Know", American Academy of Orthopaedic Surgeons Annual Meeting, New Orleans, LA

- Mar, 2018 "Avoiding and Managing Complications in Routine Lumbar Spine Surgery", American Academy of Orthopaedic Surgeons, New Orleans, LA
- Apr, 2018 "Orthobiologics and Stem Cell Update", Practical Sports Medicine 2018, Pennsylvania Orthopaedic Society, Charleston SC
- May, 2018 "Stem Cell Tissue Engineering for Disc Disease", 4th Annual Philadelphia Spine Summit, Philadelphia, PA
- Jul, 2018 "Complex Spine Surgery in the Elderly", 18th Annual Thomas Jefferson University Spine Fellows Alumni Symposium, Newport, RI
- Aug, 2018 "Tissue-Engineered Approaches to the Treatment of Degeneration of the Intervertebral Disc", Fifth Annual Musculoskeletal Education and Research Center Symposium, Audubon, PA
- Oct, 2018 "Case Debates : cellular based matrices in a TLIF", Biologic Interventions for Spinal Pathologies, North American Spine Society, Chicago, IL
- Oct, 2018 "Cellular-based Matrices : Where are cell-based allografts approved?", Biologic Interventions for Spinal Pathologies, North American Spine Society, Chicago, IL
- Oct, 2018 "Biologic Treatment Strategies for Degenerative Disk Disease", South Carolina Spine Society Annual Meeting, Charleston, SC
- Oct, 2018 "Scaffolds for Fibrous Musculoskeletal Tissues", Biologic Interventions for Spinal Pathologies, North American Spine Society, Chicago, IL
- Nov, 2018 "Novel Quantitative Assessment and Treatment Strategies for the Degenerated Intervertebral Disc", Penn Center for Musculoskeletal Disorders, Annual Scientific Symposium
- Jan, 2019 "Enhancement of Spine Fusion : Allograft, PEEK, and PEEK with surfacing", Lumbar Spine Research Society Webinar
- Jan, 2019 "Debate: Osteobiologics Add Cost Without Improving Outcomes in Spinal Fusions", 22nd Annual Selby Spine Conference, Park City, Utah
- Feb, 2019 "The Symptomatic Intervertebral Disc- Lumbar Arthroplasty, Fusion and Regenerative Approaches", 22nd Annual Selby Spine Conference, Park City, Utah
- Mar, 2019 "PRP, BMP, and Stem Cells: What Surgeons Need to Know", American Academy of Orthopaedic Surgeons Annual Meeting, Las Vegas, Nevada
- May, 2019 "Tissue Engineering Strategies to Treat Disc Disease", 5th Annual Philadelphia Spine Summit, Philadelphia, PA
- Jun, 2019 "Current Clinical Efforts to Regenerate Discs", The 16th Annual State of Spine Surgery Think Tank, Aruba

Organizing Roles in Scientific Meetings:

- May, 2015 Chair, Biologics Committee
Association for Collaborative Spine Research Subspecialty Group Meeting
Miami, Florida
- May, 2015 Course Co-Director, Philadelphia Spine Summit Inaugural Meeting
Philadelphia, PA
- Apr, 2017 Program Committee, International Society for the Advancement of Spine Surgery 2017 Meeting
Boca Raton, Florida
- Oct, 2017 Moderator, Symposium:
"Section on Biologics and Basic Research: Cellular Based Allografts: Now, Why, Where?", North American Spine Society Annual Meeting
Orlando, Florida
- Oct, 2017 Moderator, "Abstract Presentations: Operative Lumbar Spine Considerations", North American Spine Society 2017 Annual Meeting
Orlando, Florida
- Mar, 2018 Moderator, "Avoiding and Managing Complications in Routine Spine Surgery"
American Academy of Orthopaedic Surgeons Annual Meeting
New Orleans, Louisiana

Grants:Current:

Tissue Engineered Total Disc Replacement in a Large Animal Model, VA RR&D, VA RR&D I01 RX002274, 1/2017-12/2020 (Harvey E. Smith, PI; Robert L. Mauck, Co-Investigator), \$275,000/annual direct costs, 10% effort (Role in grant: PI)

Cell Therapy for the Degenerating Intervertebral Disc, VA RR&D, VA1I21RX001896-01, 11/2015-10/2018 (Yeja Zhang MD, PI), \$200,000/annual direct costs, 5% effort (Role in grant: Co-Investigator)

Career Development Award, Biomedical Laboratory Research & Development Service of the VA Office of Research and Development, I01BX007080, 10/2014-10/2019 (Harvey E. Smith, PI), \$336,466/annual direct costs, 30% effort (Role in grant: PI)

Past:

Penn Center for Musculoskeletal Disorders Pilot and Feasibility Grant Program: Impact of Pre-Culture and In Vivo Remobilization on Engineered Disc Replacement, Penn Center for Musculoskeletal Disorders, 7/2015-7/2016 (Harvey E. Smith, PI), \$40,000/annual direct costs, 20% effort (Role in grant: PI)

Regeneration of the Intervertebral Disc using Notochord-Derived Cells and Mesenchymal Stem Cells, Institute on Aging, University of Pennsylvania Medical Center, 7/2015-6/2016 (Lachlan J Smith, PI), \$50,000/annual direct costs, 5% effort (Role in grant: Significant Other Contributor)

Pilot Funding Seed Grant, Penn Center for Musculoskeletal Disorders, 3/2015-6/2015 (Harvey E. Smith, PI), \$6,000/annual direct costs, 5% effort (Role in grant: PI)

Tissue-Engineered Constructs For Treatment Of Intervertebral Disc Degeneration, Department Of Veterans Affairs, IPA - S. E. GUILBRAND, 12/2014-11/2015 (HARVEY SMITH, PI), \$0/annual direct costs, 3% effort (Role in grant: PI)

Tissue-Engineered Constructs For Treatment Of Intervertebral Disc Degeneration, Department Of Veterans Affairs, IPA - S. E. GUILBRAND, 12/2014-11/2015 (HARVEY SMITH, PI), \$0/annual direct costs, 3% effort (Role in grant: PI)

Bibliography:

Research Publications, peer reviewed (print or other media):

1. Lee, FJ, Schoemaker K, McQuillan PM, Kunselman AR, Smith MB, Yang QX, Smith HE, Gray K, Sinoway LI: The Effects of Forearm Bier Block with Bretylium on the Hemodynamic and Metabolic Responses to Handgrip. AJP:Heart and Circulatory Physiology 279: 586-593, 2000.
2. Smith HE, Mosher TJ, Dardzinski BJ, Collins BG, Collins CM, Yang QX, Schmithorst VJ, Smith MB: Spatial Variation in Cartilage T2 of the Knee. JMRI 14(1): 50-55, July 2001.
3. Mosher TJ, Smith HE, Dardzinski Bj, Schmithorst VJ, Smith MB: Effect of Orientation on cartilage T2: In Vivo Determination of the Magic Angle Effect Using T2-Mapping of Femoral Cartilage. AJR 17(7): 665-669, 2001.
4. Scappini F, Cecchi-Pestellini C, Smith HE, Klemperer W, Dalgarno A: Hydrated Sulfuric Acid in Dense Molecular Clouds. Mont. Not. R. Soc. 341(2): 657-661, May 2003.
5. Smith HE, Wimberley DW, Vaccaro AR: Cervical arthroplasty: material properties. Neurosurgical focus 17(3): E3, Sep 2004.
6. Lazovic-Stojkovic J, Mosher TJ, Smith HE, Yang QX, Dardzinski BJ, Smith MB: Interphalangeal Joint Cartilage: High-spatial-resolution in vivo MR T2 Mapping-a feasibility study. Radiology 233(1): 292-6, 2004.
7. Mosher TJ, Collins CM, Smith HE, Moser LE, Sivarajah RT, Dardzinski BJ, Smith MB: Effect of Gender on in vivo Cartilage Magnetic Resonance Imaging T2 Mapping. Journal of Magnetic Resonance Imaging 19(3): 323-8, 2004.

8. Mosher TJ, Smith HE, Collins CM, Liu Y, Hancy J, Dardzinski B, Smith MB.: Change in Knee Cartilage T2 at MR Imaging After Running: a feasibility study. Radiology 234(1): 245-9, 2005.
9. Vaccaro AR, Yuan PS, Smith HE, Hott J, Sasso R, Papadopoulos S: An evaluation of image-guided technologies in the placement of anterior thoracic vertebral body screws in spinal trauma: a cadaver study. The Journal of Spinal Cord Medicine 28(4): 308-13, 2005. PMID: PMC1864896
10. Smith HE, Yuan PS, Sasso R, Papadopoulos S, Vaccaro AR: An evaluation of image-guided technologies in the placement of percutaneous iliosacral screws. Spine 31(2): 234-8, Jan 2006.
11. Smith HE, Vaccaro AR, Yuan PS, Papadopoulos S, Sasso R: The use of computerized image guidance in lumbar disk arthroplasty. Journal of spinal disorders & techniques 19(1): 22-7, Feb 2006.
12. Smith HE, Rynning RE, Okafor C, Zaslavsky J, Tracy JI, Ratliff J, Harrop J, Albert TJ, Hilibrand AS, Anderson DG, Sharan A, Brown Z, Vaccaro AR: Evaluation of neurologic deficit without apparent cause: the importance of a multidisciplinary approach. The Journal of Spinal Cord Medicine 30(5): 509-17, 2007. PMID: PMC2141729
13. Smith HE, Vaccaro AR, Maltenfort M, Albert TJ, Hilibrand AS, Anderson DG, Harrop J, Fehlings MG, Kopjar B, Brodke DS, Arnold PM, Shaffrey CI: Trends in surgical management for type II odontoid fracture: 20 years of experience at a regional spinal cord injury center. Orthopedics 31(7): 650, Jul 2008.
14. Agrawal A, Gajghate S, Smith HE, Anderson DG, Albert TJ, Shapiro IM, Risbud MV.: Cited2 modulates hypoxia-inducible factor-dependent expression of vascular endothelial growth factor in nucleus pulposus cells of the rat intervertebral disc. Arthritis Rheum 58(12): 3798-3808, 2008.
15. Smith HE, Kerr SM, Maltenfort M, Chaudhry S, Norton R, Albert TJ, Harrop J, Hilibrand AS, Anderson DG, Kopjar B, Brodke DS, Wang JC, Fehlings MG, Chapman JR, Patel A, Arnold PM, Vaccaro AR: Early complications of surgical versus conservative treatment of isolated type II odontoid fractures in octogenarians: a retrospective cohort study. Journal of Spinal Disorders & Techniques 21(8): 535-9, Dec 2008.
16. Smith HE, Welsch MD, Sasso RC, Vaccaro AR: Comparison of radiation exposure in lumbar pedicle screw placement with fluoroscopy vs computer-assisted image guidance with intraoperative three-dimensional imaging. The Journal of Spinal Cord Medicine 31(5): 532-7, 2008. PMID: PMC2607125

17. Smith HE, Rihn JA, Brodke DS, Guyer R, Coric D, Lonner B, Shelokov AP, Currier BL, Riley L, Phillips FM, Albert TJ: Spine care: evaluation of the efficacy and cost of emerging technology. American Journal of Medical Quality : The Official Journal of the American College of Medical Quality 24(6 Suppl): 25S-31S, Nov-Dec 2009.
18. Harrop JS, Naroji S, Maltenfort M, Anderson DG, Albert TJ, Ratliff JK, Ponnappan RK, Rihn JA, Smith HE, Hilibrand AS, Sharan AD, Vaccaro AR: Cervical Myelopathy: A Clinical and Radiographic Evaluation and Correlation to Cervical Spondylotic Myelopathy. Spine 35(6): 620-4, March 2010.
19. Tran CM, Markova D, Smith HE, Susarla B, Ponnappan RK, Anderson DG, Symes A, Shapiro IM, Risbud MV: Regulation of CCN2/connective tissue growth factor expression in the nucleus pulposus of the intervertebral disc: role of Smad and activator protein 1 signaling. Arthritis and Rheumatism 62(7): 1983-92, Jul 2010. PMID: PMC3060556
20. Ding T, Maltenfort M, Yang H, Smith H, Ratliff J, Vaccaro AR, Anderson DG, Harrop J: Correlation of C2 fractures and vertebral artery injury. Spine 35(12): E520-4, 2010.
21. Rihn JA, Yang N, Fisher C, Saravanja D, Smith H, Morrison WB, Harrop JS, Vaccaro AR: Using magnetic resonance imaging to accurately assess the posterior ligamentous complex of the spine: a prospective comparison of the surgeon and radiologist. Journal of Neurosurgery Spine 12(4): 391-6, 2010.
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52. Edward D. Bonnevie, Sarah E. Gullbrand, Beth G. Ashinsky, Tonia K. Tsinman, Dawn M. Elliott, Harvey E. Smith, Robert L. Mauck: "Release of Residual Strain Activates Mechanosensing and Contractility-Dependent Apoptosis in AF Cells" Orthopaedic Research Society Annual Meeting, Austin, TX February 2019.
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Editorials, Reviews, Chapters, including participation in committee reports (print or other media):

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