
SANDRA NARAYANAN (neé Nathan), MD, FAHA

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EDUCATION

MD 1997 - 2001
University of Miami, School of Medicine, Miami, Florida

BS, Biology, *cum laude* 1995 - 1997
Six-Year Honors Program in Medicine
University of Miami, Coral Gables, Florida

Valedictorian 1995
Hernando High School, Brooksville, Florida

POSTGRADUATE TRAINING

Fellow, Interventional Neuroradiology 2007 - 2009
Emory University Hospital, Atlanta, Georgia

Fellow, Diagnostic Neuroradiology 2006 - 2007
Emory University Hospital, Atlanta, Georgia

Fellow, Vascular Neurology 2005 - 2006
Massachusetts General Hospital, Boston, Massachusetts

Resident, Neurology 2002 - 2005
University of Miami / Jackson Memorial Hospital, Miami, Florida

Intern, Internal Medicine 2001 - 2002
University of Miami / Jackson Memorial Hospital, Miami, Florida

FACULTY APPOINTMENTS

Associate Professor, Neurosurgery, Neurology 2015 - Present
Wayne State University, Detroit, Michigan

Neuroendovascular Program Director, Neurosurgery 2012 - Present
Wayne State University, Detroit, Michigan

Assistant Professor, Neurosurgery, Neurology 2009 - 2015
Wayne State University, Detroit, Michigan

Senior Associate, Radiology 2007 - 2009
Emory University Hospital, Atlanta, Georgia

HOSPITAL APPOINTMENTS

Active Staff Beaumont Hospital-Wayne, Wayne, Michigan	2014 - Present
Active Staff McLaren Macomb Hospital, Mt. Clemens, Michigan	2013 - Present
Active Staff Beaumont Hospital-Taylor, Taylor, Michigan	2013 - Present
Active Staff Beaumont Hospital-Southshore, Trenton, Michigan	2013 - Present
Director, Neurointerventional Program Beaumont Hospitals-Dearborn/Taylor/Wayne/Trenton	2013 - Present
Active Staff Children's Hospital of Michigan, Detroit, Michigan	2012 - Present
Director, Neuroendovascular Program Detroit Medical Center, Detroit, Michigan	2012 - Present
Active Staff Beaumont Hospital-Dearborn, Dearborn, Michigan	2012 - Present
Provisional Active Staff St. John Providence Health System, Southfield, Michigan	2010 - Present
Active Staff St. John Macomb Hospital, Macomb Township, Michigan	2010 - Present
Staff Privileges, Neurology Karmanos Cancer Institute, Detroit, Michigan	2009 - Present
Active Staff St. Joseph Mercy Oakland Hospital, Pontiac, Michigan	2009 - Present
Staff Privileges, Neurology Detroit Medical Center, Detroit, Michigan	2009 - Present

MAJOR PROFESSIONAL SOCIETIES

Michigan Association of Physicians of Indian origin	2012 - Present
<i>Lifetime Member</i>	2012 - Present
Michigan State Medical Society	2012 - Present
<i>Wayne County Medical Society</i>	2012 - Present
<i>Oakland County Medical Society</i>	2012 - Present
American Medical Association	2009 - Present
Michigan Neurological Association	2009 - Present

MAJOR PROFESSIONAL SOCIETIES (Continued)

Society of NeuroInterventional Surgery	2009 - Present
<i>Senior Member</i>	2011 - Present
Society of Vascular and Interventional Neurology	2008 - Present
<i>Active Member</i>	2011 - Present
Association of Indian Neurologists in America	2006 - Present
<i>Lifetime Member</i>	2012 - Present
American Society of Neuroradiology	2006 - Present
American Heart Association/American Stroke Association	2005 - Present
<i>Professional Member</i>	2009 - Present
<i>Member, Stroke Council</i>	2006 - Present
American Society of Neuroimaging	2004 - Present
American Academy of Neurology (AAN)	2000 - Present
<i>Neuroimaging section, AAN</i>	2006 - Present
<i>Stroke section, AAN</i>	2005 - Present
<i>Endovascular and Interventional Neurology section, AAN</i>	2005 - Present
American Association of Physicians from India	1997 - Present
<i>Patron/Lifetime member</i>	2011 - Present
Association of Kerala Medical Graduates	1997 - Present
<i>Lifetime member</i>	2011 - Present

MEDICAL LICENSURE

Full Medical License, California	2012 - Present
Full Medical License, Illinois	2012 - Present
Full Medical License, Michigan	2009 - Present
Full Medical License, Georgia	2006 - Present
Full Medical License, Massachusetts	2005 - 2007

CERTIFICATION

Certification, Supervisor and Operator Fluoroscopy, California	2013
Diplomate, Neuroimaging, United Council of Neurologic Subspecialties	2013
Diplomate, Certificate # 566 American Board of Psychiatry & Neurology, Vascular Neurology	2008
Diplomate, Certificate # 53695 American Board of Psychiatry & Neurology, Neurology	2006
Pediatric Advanced Life Support (PALS) certification	Current
Advanced Cardiovascular Life Support (ACLS) certification	Current
Basic Life Support (BLS) certification	Current

HONORS AND AWARDS

Nominee, Gold Humanism Honor Society Wayne State University School of Medicine	2015
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HONORS AND AWARDS (Continued)

Fellow of American Heart Association (FAHA) 2014

CEO Team BRAVO! Award 2013
Primary Stroke Center and Door-to-Needle Teams, *member*
Beaumont Hospital-Dearborn

Leading Physicians of the World
International Association of Healthcare Professionals 2012

Powerful Women of Purpose in Technology Award 2011
Rhonda Walker Foundation

“Most Outstanding Research” Award 2005
University of Miami / Jackson Memorial Hospital

Nominated for Florida “Resident of the Year” 2005
University of Miami / Jackson Memorial Hospital

SERVICE

Wayne State University

Judge, 2016 Medical Student Research Symposium 2016
Wayne State University, Detroit, Michigan

Member, Department of Neurosurgery Compensation Committee 2012 - 2013
Wayne State University, Detroit, Michigan

Member, Department of Neurosurgery Resident Selection Committee 2009 - Present
Wayne State University, Detroit, Michigan

Affiliate Medical Organizations

Member, COO search committee 2015
Harper-Hutzel Hospital

Member, Endovascular Board 2013 - Present
Beaumont Hospital, Dearborn, Michigan

Co-Chair, Physician Leadership Council 2012 - Present
Harper University Hospital, Detroit, Michigan

Member, Stroke and Neurointerventional Operational Teams 2012 - Present
Beaumont Hospital-Dearborn, Dearborn, Michigan

Member, Stroke Team One Steering Committee 2009 - Present
Detroit Medical Center, Detroit, Michigan

SERVICE (Continued)

Professional

Member, Board of Directors Society of NeuroInterventional Surgery Foundation	2014 - Present
Member, Statement Oversight Committee, Stroke Council American Stroke Association	2013 - 2017
Member, Executive Committee Association of Indian Neurologists in America	2013 - Present
Councilor, Endovascular and Interventional Neurology Section American Academy of Neurology	2012 - 2013
Member, Board of Directors Oakland County Medical Society	2012 - Present
Member, Board of Governors Association of Kerala Medical Graduates	2012 - 2015
Member, Qureshi Award Committee American Society of Neuroimaging	2012 - 2013
Member, Michigan Endovascular Research Group	2012 - Present
Member, Stroke Early Career – Cerebrovascular Development Committee American Stroke Association	2012 - Present
Ad hoc member, Pharmacy & Therapeutics Committee St. Joseph Mercy Oakland Hospital, Pontiac, Michigan	2010 - 2015
Member, Standards and Guidelines Committee Society of Neurointerventional Surgery	2009 - 2015

Community Service

Established Detroit Brain Aneurysm Support Group with The Joe Niekro Foundation	3/16/2015
Radio interview re: Stroke, Oakwood's <i>Champions of Care</i> News/Talk 760 WJR, Detroit, Michigan	12/21/2014
Video interview re: Neurointerventional Program Beaumont Hospital-Dearborn	6/27/2014
Twitter chat, National Stroke Association's Stroke Month Wayne State University Physician Group	5/28/2014
Radio interview re: TIA, Oakwood's <i>Champions of Care</i> News/Talk 760 WJR, Detroit, Michigan	5/25/2014

SERVICE (Continued)

Community Service (Continued)

TV interview: Women and Stroke Detroit Wants to Know: Women's Health	4/2/2014
Radio interview re: TIA, Oakwood's <i>Champions of Care</i> News/Talk 760 WJR, Detroit, Michigan	2/2/2014
Michigan Prime interview re: Brain fitness Newspaper article	12/13/2013
Radio interview re: TIA, Oakwood's <i>Champions of Care</i> News/Talk 760 WJR, Detroit, Michigan	12/8/2013
Featured in "DMC Institutes New Protocol to Reduce Door-to-Needle Time For Stroke Treatment" DMC Advantage newsletter	Fall 2015
Radio interview re: Stroke, Oakwood's <i>Champions of Care</i> News/Talk 760 WJR, Detroit, Michigan	9/10/2013
Radio interview re: Neurointerventional Program, Oakwood's <i>Champions of Care</i> News/Talk 760 WJR, Detroit, Michigan	3/31/2013
Coalition of Labor Union Women (CLUW) monthly meeting: Stroke Awareness	6/11/2012
Featured in "Defusing Brain Aneurysms: Interventional Neurologists Offer Solutions" DMC Receiving Advantage newsletter	Spring 2012
TV interview, Peter's Principles Channel 7 WXYZ, Detroit, Michigan	7/16/2010
DMC Patient Seminar, Are You Stroke Smart? Southfield Public Library, Southfield, Michigan	5/1/2010

Journal/Editorial Activity

Ad hoc reviewer, <i>Interventional Neurology</i>	2015
International Advisory Board, <i>Journal of Cerebrovascular Sciences</i>	2015
Ad hoc reviewer, <i>BMJ Open</i>	2014
Ad hoc reviewer, <i>Clinical Schizophrenia & Related Psychoses</i>	2012
Ad hoc reviewer, <i>Journal of Neurointerventional Surgery</i>	2011 - 2014
Ad hoc reviewer, <i>Journal of the Neurological Sciences</i>	2011
Ad hoc reviewer, <i>Journal of Neuroimaging</i>	2011 - 2014
Ad hoc reviewer, <i>The Neurologist</i>	2010
Editorial Board, <i>Frontiers in Endovascular and Interventional Neurology</i>	2010 - Present
Review Editor, <i>Frontiers in Endovascular and Interventional Neurology</i>	2010 - Present

SERVICE (Continued)

Journal/Editorial Activity (Continued)

Editorial Board, <i>Journal of Stroke and Cerebrovascular Diseases</i>	2010 - Present
Ad hoc reviewer, <i>The Neurologist</i>	2010
Ad hoc reviewer, <i>Journal of Stroke and Cerebrovascular Diseases</i>	2008 - 2015
Ad hoc reviewer, <i>Neurosurgery</i>	2008 - 2013
Ad hoc reviewer, <i>Stroke</i>	2008 - 2011

National / International Meeting Participation

<u>Society of Vascular and Interventional Neurology (SVIN)</u> Grant Reviewer <i>7th Annual SVIN Meeting</i>	2014
Abstract Grader Moderator, Session 4 (ICAD Abstracts) and Session 7 (Ischemia Lectures) <i>5th Annual SVIN Meeting</i>	2012
Member, Planning Committee <i>4th Annual SVIN Meeting</i>	2011
<u>Society of NeuroInterventional Surgery</u> Member, Planning Committee <i>13th Annual Meeting</i>	2015 - 2016
Grant reviewer, Joe Niekro Foundation Fellow Grant <i>SNIS Foundation</i>	2015
Member, Planning Committee <i>12th Annual Meeting</i>	2014 - 2015
Presenter, Controversies in Management of Neurovascular Disease Illustrated through Case Examples: Stroke <i>SNIS/Joint Cerebrovascular Section Fellows' Course</i>	2014
Moderator, FDA Perspectives on the Neurointerventional Space <i>11th Annual Meeting</i>	2014
Presenter, IA Stroke Debates, <i>4th Annual International Endovascular Stroke Conference (IESC)</i>	2014
Member, Planning Committee <i>11th Annual Meeting</i>	2013 - 2014
Panelist and Presenter, Aneurysm Case Presentations <i>9th Annual Meeting</i>	2012

SERVICE (Continued)

International / International Meeting Participation (Continued)

<u>International Stroke Conference</u> Moderator, Acute Endovascular Treatment Invited Symposium: Ultrafast door to recanalization time using endovascular therapy: how do we change practice?	2014
Abstract Grader	2011 - 2013
<u>American Academy of Neurology</u> Moderator, Interventional Neurology Oral Abstracts 63 rd Annual Meeting	2011
<u>Association of Kerala Medical Graduates</u> Member, Continuing Medical Education and Fundraising Committees 33 rd Annual Convention	2011 - 2012

TEACHING

Students Mentored

Neo Poyiadji, MS II Wayne State University School of Medicine	2016
James Stevenson, MS II Wayne State University School of Medicine	2015 - Present
Kaiyin Liu, MS II Wayne State University School of Medicine	2015 - Present
Dennis Churchill, MS IV Wayne State University School of Medicine	2014
Raviteja Suryadevara, Student Wayne State University	2014 - 2015
Aniruddha Madurkar, Student Wayne State University	2014
Alex Petroj, Student, Macomb Community College	2014
Jannel Lee-Allen, MS I Wayne State University School of Medicine	2012 - 2015
Armaity Minwalla, Student, University of Michigan	2012
Christopher Sy, MS II/IV Wayne State University School of Medicine	2012, 2014

TEACHING (Continued)

Students Mentored (Continued)

Pavan Parasu, MS IV 2012
Wayne State University School of Medicine

Fellows Mentored

Sushrut Dharmadhikari, MD 2015
Interventional Neurology Fellow, St. Joseph Mercy Oakland Hospital,
Pontiac, Michigan

Vikram Jadhav, MD, PhD 2015
Interventional Neurology Fellow, St. Joseph Mercy Oakland Hospital,
Pontiac, Michigan

Shamaelah Javed, MD 2015
Neurocritical Care Fellow, Detroit Medical Center, Detroit, MI

Brijesh Mehta, MD 2012 - 2014
Vascular & Interventional Neurologist & Neurocritical Care Attending,
Memorial Health System, Ft. Lauderdale, Florida

Neelesh Nundkumar, MD 2011 - 2013
Endovascular Neurosurgeon, Carolina Neurosurgery & Spine Associates,
Greensboro, North Carolina

Aniel Q. Majjhoo, MD 2010 - 2012
Vascular and Interventional Neurologist, McLaren Health Care, Flint, Michigan

Meziane Guerch, MD 2010 - 2011
Vascular Neurologist

Abhishek, MD 2010 - Present
Vascular and Interventional Neurologist, Wayne State University Physician
Group, Detroit, Michigan

Bharath Naravetla, MD 2009 - 2012
Vascular and Interventional Neurologist/Neurointensivist
McLaren Health Care, Flint, Michigan

Mahmoud Rayes, MD 2009 - 2015
Vascular and Interventional Neurologist/Neurointensivist, UMG Neuroscience
Associates, Greenville, South Carolina

Ambooj Tiwari, MD 2009 - 2014
Vascular & Interventional Neurologist, Interventional Neuro Associates,
Brooklyn, New York

Paritosh Pandey, MD 2009
Consultant Neurosurgeon, Manipal Hospital, Bangalore, Karnataka, India

TEACHING (Continued)

Fellows Mentored (Continued)

Samuel Tsappidi, MD 2008 - 2013
Vascular & Interventional Neurologist & Neurocritical Care Attending
Clinical Assistant Professor, Dept. of Neurosurgery
University of Florida at Orlando Health, Orlando, Florida

Sung Bae Lee, MD 2008 - 2009
Vascular & Interventional Neurologist & Neurocritical Care Attending
The Queen's Medical Center, Honolulu, Hawaii

Residents/Mid-Level Providers Mentored

Seong-Jin Moon, MD, PGY-1 2015 - Present
Dept. of Neurosurgery, Detroit Medical Center

Erick Garcia Gorbea, MD 2015 - Present
Dept. of Neurosurgery, Detroit Medical Center

Arianne Boylan, MD, PGY-6 2014 - Present
Dept. of Neurosurgery, Detroit Medical Center

Mohamed Khaled, MD 2014 - 2015
Neurosurgeon, Springfield, Massachusetts

Parthasarathi Chamiraju, MD, PGY-4 2014 - Present
Dept. of Neurosurgery, Detroit Medical Center

Richard Garling, MD, PGY-3 2014 - Present
Dept. of Neurosurgery, Detroit Medical Center

Blake Walker, MD, PGY-2 2014 - Present
Dept. of Neurosurgery, Detroit Medical Center

Varun Chauhan, MD, PGY-2 2014 - 2015
Dept. of Neurology, Detroit Medical Center

Shilpa Jain, MD, PGY-6 2014
Dept. of Radiology, Detroit Medical Center

Farzana Tariq, MD, PGY-2 2013 - Present
Dept. of Neurosurgery, Detroit Medical Center

Carol Wynn, NP, Neuroendovascular Nurse Practitioner, 2012 - 2016
Dept. of Neurosurgery, Providence Park Hospital, Novi, Michigan

Gary Rajah, Jr., MD, PGY – 4 2012 - Present
Dept. of Neurosurgery, Detroit Medical Center

TEACHING (Continued)

Residents Mentored (Continued)

Wazim Mohamed, MD Assistant Professor, Vascular Neurology & Neurocritical Care Dept. of Neurology, Wayne State University School of Medicine	2012 - 2013
Narendra Panapitiya, MD, PGY-4 Dept. of Radiology, Detroit Medical Center	2012
Elizabeth Klein, MD, PGY-5 Dept. of Neurosurgery, Detroit Medical Center	2011 - Present
Mohammed Hussain, MD, PGY-4, Neurology JFK Medical Center, Edison, New Jersey	2011 - 2012
Matthew Schreckinger, MD, PGY-6 Dept. of Neurosurgery, Detroit Medical Center	2010 - Present
Pratik Bhattacharya, MD, MPH Vascular Neurologist, St. Joseph Mercy Oakland Hospital, Pontiac, Michigan	2010 - 2011
Matthew Chan, MD Neuroradiologist, Sutter Health, Sacramento, California	2010
Neena Marupudi, MD, PGY-7 Dept. of Neurosurgery, Detroit Medical Center	2009 - Present
Verrad Nyame, MD San Juan Regional Medical Center, Farmington, New Mexico	2009 - 2015
David Hong, MD Pediatric Neurosurgeon, Stanford Children's Health, Walnut Creek, California	2009 - 2014
Mark Hoeprich, MD, MPP Neurosurgeon Center for Neuro and Spine, Canton, Ohio	2009 - 2012
Todd Francis, MD, PhD Neurosurgeon Cleveland Clinic, Cleveland, Ohio	2009 - 2011
Amit Kansara, MD Vascular Neurologist, Providence Brain & Spine Institute, Portland, Oregon Affiliate Assistant Professor, Oregon Health and Sciences University, Portland, Oregon	2009 - 2012

CLINICAL TRIALS, GRANTS, AND OTHER FUNDING

Funded Clinical Trials and Grants

ACE: An Aneurysm Coiling Efficiency Study of the Penumbra Coil 400 System Principal Investigator, Detroit Medical Center, Detroit, Michigan Funding source: Penumbra, Inc., Amount: \$1500/patient	2012 - 2014
Vitesse Intracranial Stent Study for Ischemic Therapy (VISSIT) Trial Co-Investigator; Principal Investigator: Andrew Xavier, MD St. Joseph Mercy Oakland Hospital, Pontiac, Michigan Funding source: Codman & Shurtleff, Amount: \$9,610.66	2011 - 2012
Stroke Treatment and Revascularization Trial (START) Sub-Investigator; Principal Investigator: Richard Fessler, MD St. John's Providence Health System, Southfield, Michigan Funding source: Penumbra, Inc., Amount: \$0	2011
Thrombectomy Revascularization of Large-Vessel Occlusions (TREVO2) Trial Co-Investigator; Principal Investigator: Andrew Xavier, MD St. Joseph Mercy Oakland Hospital, Pontiac, Michigan Funding source: Concentric Medical, Inc/ Stryker Neurovascular. Amount: \$56,000	2011
Desmoteplase in Acute Ischemic Stroke (DIAS-2) Trial Co-Investigator; Principal Investigator: Lee Schwamm, MD Massachusetts General Hospital, Boston, Massachusetts Funded by Paion GmbH, Forest Laboratories, Amount: Not disclosed	2005 - 2006
Randomized, Double-Blind, Placebo Controlled, Multi-Centre, Parallel Groups Confirmatory Efficacy and Safety Trial of Activated Recombinant Factor VII (NovoSeven®) in Acute Intracerebral Haemorrhage Co-Investigator; Principal Investigator: Jonathan Rosand, MD, MSc Massachusetts General Hospital, Boston, Massachusetts Funded by Novo Nordisk, Amount: Not disclosed	2005 - 2006
Antihypertensive Treatment of Acute Cerebral Hemorrhage (ATACH) Study Co-Investigator; Principal Investigator: Joshua Goldstein, MD Massachusetts General Hospital, Boston, Massachusetts Funded by National Institutes of Health (R01 NS044976), Amount: \$37,935	2005 - 2006

Nonfunded Grants and Contracts

R01 submission: Relation of haptoglobin isoforms as risk factors for vasospasm after subarachnoid hemorrhage Submitted with Lake Biosciences LLC (Orinda, CA)	2012
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Institutional Review Board protocols

MicroVention Low-profile Visualized Intraluminal Support (LVIS) or LVIS Jr. Humanitarian Use Device ("LVIS HUD") Principal Investigator, Beaumont Hospital-Dearborn, Dearborn, Michigan	2016
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CLINICAL TRIALS, GRANTS, AND OTHER FUNDING (Continued)

Institutional Review Board protocols (Continued)

MicroVention Low-profile Visualized Intraluminal Support (LVIS) or LVIS Jr. Humanitarian Use Device (“LVIS HUD”) Principal Investigator, Wayne State University/Detroit Medical Center Detroit, Michigan	2015 - Present
Codman Enterprise Vascular Reconstructive Device and Delivery System - Humanitarian Use Device (HUD) Principal Investigator, McLaren Macomb Hospital, Mt. Clemens, Michigan	2013 – Present
Wingspan HUD – Humanitarian Device – Wingspan Stent System with Gateway PTA Balloon Catheter Principal Investigator, McLaren Macomb Hospital, Mt. Clemens, Michigan	2013 – Present
Neuroform EZ – Humanitarian Device – Neuroform EZ Stent System Principal Investigator McLaren Macomb Hospital, Mt. Clemens, Michigan	2013 – Present
The Outcome after Endovascular Therapy of Intracranial Aneurysms using Cordis ENTERPRISE Neurovascular Stent Co-Investigator; Principal Investigator: Andrew Xavier, MD Wayne State University, Detroit, Michigan	2009 - Present
The Neuroform Microdelivery Stent System, a Humanitarian Use Device Co-Investigator; Principal Investigator: Andrew Xavier, MD Wayne State University, Detroit, Michigan	2009 - 2015

PUBLICATIONS

Reports of Original Work

**current/former trainee*

1. Nagaraja N*, Bhattacharya P*, Norris G, Coplin W, **Narayanan S**, Xavier A, Rajamani K, Chaturvedi S: Arrival by ambulance is associated with acute stroke intervention in young adults. *Journal of Neurological Sciences* 316(1-2): 168-196, 2012
Collaborator. One of two interventional neurologists contributing data to this series. Reviewed data and contributed to discussion.
2. Kansara A*, Pandey P*, Tiwari A*, Rayes M*, **Narayanan S**, Xavier AR: Stenting of acute and subacute intracranial vertebrobasilar arterial occlusive lesions. *Journal of Neurointerventional Surgery* 4(4): 274-280, 2012
Senior co-author with Xavier. One of many authors providing input regarding data collection and review.
3. Xavier AR, Tiwari A*, Purai N*, Rayes M*, Pandey P*, Kansara A*, **Narayanan S**, Chaturvedi C: Safety and efficacy of intracranial stenting for acute ischemic stroke beyond 8 h of symptom onset. *Journal of Neurointerventional Surgery* 4(2):94-100, 2012
Collaborator. One of many authors providing input regarding data collection and review.

PUBLICATIONS (Continued)

Reports of Original Work (Continued)

4. Xavier A, Abdelbaky A*, Rayes M*, Tiwari A*, **Narayanan S**. Clinical and angiographic outcome in patients with completely occluded intracranial aneurysms by endovascular coiling: our experience. *JNIS* 2011; 3(4):335-9.
Senior co-author with Xavier. One of two interventional neurologists contributing data to this series. Reviewed data and contributed to discussion.
5. Compton MT, Goulding SM, Whicker NE, Mullins M, **Nathan S**, Ressler K: An Exploratory Study of the Potential Prognostic Usefulness of the Routinely Conducted Computed Tomography Scan in Patients Hospitalized for a First Episode of Psychosis. *Clinical Schizophrenia & Related Psychoses*. 3(1):23-30, 2009
I was the primary data collector and reviewed several stages of the manuscript.
6. **Narayanan S**, Murchinson AP, Wojno TH, Dion JE: Percutaneous trans-superior orbital fissure embolization of carotid-cavernous fistulas: technique and preliminary results. *Ophthalmic Plastic and Reconstructive Surgery*, 25(4): 309-313, 2009
I reviewed all the cases, did background research, selected and captioned the images, and wrote the entire paper.
7. Romano JG, Rabinstein AA, Arheart KL, **Nathan S**, Campo-Bustillo I, Koch S, Forteza AM. Microemboli in Aneurysmal Subarachnoid Hemorrhage. *Journal of Neuroimaging*, 18(4): 396-401, 2008
I collected the blood samples, was responsible for patient care, and participated in data analysis and manuscript revision.

Case Reports

1. Mittal S, Monsell EM, **Narayanan S**, Kupsky WJ, Guthikonda M, Mittal S: Synchronous occurrence of paraganglioma of the glomus jugulare and olfactory groove meningioma. *Clin Neuropath* 32(4): 328-331, 2013
Collaborator. Performed procedures on patients and reviewed final draft of manuscript.
2. Hui FK, **Narayanan S**, Cawley CM: Posterior-to-anterior circulation access using the Penumbra stroke system for mechanical thrombectomy of a right middle cerebral artery thrombus. *World Neurosurgery*; 73(1): 17-21, 2010
Participated in the case and patient care, selected images, and wrote portions of the manuscript.

PUBLICATIONS (Continued)

Reviews of the Literature (Continued)

1. Heit JJ, Do HM, Prestigiacomo CJ, Delgado-Almandoz JA, English J, Gandhi CD, Albuquerque FC, **Narayanan S**, Blackham KA, Abruzzo T, Albani B, Fraser JF, Heck DV, Hussain MS, Lee S, Ansari SA, Hetts SW, Bulsara KR, Kelly M, Arthur AS, Patsalides A, Pride GL, Powers CJ, Alexander MJ, Meyers PM, Jayaraman MJ. Guidelines and parameters: percutaneous sclerotherapy for the treatment of head and neck venous and lymphatic malformations. *Journal of Neurointerventional Surgery* 2016 Jan 22 [Epub ahead of print]
Collaborator on a writing committee. One of many authors with specialized expertise. I reviewed multiple drafts of the manuscript and participated in developing practice guidelines for the Society of NeuroInterventional Surgery (SNIS), the largest neurointerventional society in the US. JNIS is the premier journal in my field (neurointerventional surgery).
2. Powers CJ, Hirsch JA, Hussain MS, Patsalides AT, Blackham KA, **Narayanan S**, Lee SK, Fraser JF, Bulsara KR, Prestigiacomo CJ, Gandhi CD, Abruzzo T, Do HM, Meyers PM, Albuquerque FC, Frei D, Kelly ME, Pride GL, Jayaraman MV; Standards and Guidelines committee of the Society of NeuroInterventional Surgery. Standards of practice and reporting standards for carotid artery angioplasty and stenting. *Journal of Neurointerventional Surgery* 6(2):87-90, 2014
Collaborator on a writing committee. One of many authors with specialized expertise. I reviewed multiple drafts of the manuscript and participated in writing the discussion and developing practice guidelines for SNIS. JNIS is the premier journal in my field.
3. Chandra RV, Meyers PM, Hirsch JA, Abruzzo T, Eskey CJ, Hussain MS, Lee SK, **Narayanan S**, Bulsara KR, Gandhi CD, Do HM, Prestigiacomo CJ, Albuquerque FC, Frei D, Kelly ME, Mack WJ, Pride GL, Jayaraman MV. Vertebral augmentation: report of the Standards and Guidelines committee of the Society of Neurointerventional Surgery. *Journal of Neurointerventional Surgery* 6(1):7-15, 2014
Collaborator on a writing committee. One of many authors with specialized expertise. I reviewed multiple drafts of the manuscript and participated in writing the discussion and developing practice guidelines for SNIS. JNIS is the premier journal in my field.
4. **Narayanan S**, Singer R, Abruzzo TA, Hussain MS, Powers CJ, Prestigiacomo CJ, Heck DV, Sunshine JL, Kelly M, Jayaraman MV, Meyers PM; on behalf of the Standards and Guidelines Committee of the Society of NeuroInterventional Surgery. Reporting standards for balloon test occlusion. *Journal of Neurointerventional Surgery* 5(6):503-5, 2013
I did major revisions of a previous draft and re-wrote the entire paper. Incorporated comments from other authors into the final draft. Collaborator on a writing committee to develop practice guidelines for SNIS. JNIS is the premier journal in my field.
5. Patsalides A, Bulsara KR, Hsu DP, Abruzzo T, **Narayanan S**, Jayaraman MV, Duckwiler G, Klucznik RP, Kelly M, Hirsch JA, Heck D, Sunshine J, Frei D, Alexander MJ, Do HM, Meyers PM: Standards of practice: embolization of ruptured and unruptured intracranial aneurysms. *Journal of Neurointerventional Surgery* 5(4): 283-288, 2013.
Collaborator on a writing committee. One of many authors with specialized expertise. I reviewed multiple drafts of the manuscript and participated in writing the discussion and developing practice guidelines for SNIS, the largest neurointerventional society in the US. JNIS is the premier journal in my field.

PUBLICATIONS (Continued)

Reviews of the Literature (Continued)

6. **Narayanan S**, Hurst RW, Abruzzo TA, Albuquerque FC, Blackham KA, Bulsara KR, Derdeyn CP, Gandhi CD, Hirsch JA, Hsu DP, Hussain MS, Jayaraman MV, Meyers PM, Patsalides A, Prestigiacomo CJ: Standard of practice: embolization of spinal arteriovenous fistulae, spinal arteriovenous malformations, and tumors of the spinal axis. *Journal of Neurointerventional Surgery* 5(1): 3-5, 2013
I did major revisions of a previous draft and re-wrote the entire paper. Incorporated comments from other authors into the final draft. Collaborator on a writing committee to develop practice guidelines for SNIS. JNIS is the premier journal in my field.
7. Hussain MS, Fraser JF, Abruzzo T, Blackham KA, Bulsara KR, Derdeyn CP, Gandhi CD, Hirsch JA, Hsu DP, Jayaraman MV, Meyers PM, **Narayanan S**, Prestigiacomo CJ, Rasmussen PA, Society for Neurointerventional Surgery: Standard of practice: endovascular treatment of intracranial atherosclerosis. *Journal of Neurointerventional Surgery* 4(6): 397-406, 2012
Collaborator on a writing committee. One of many authors reviewing multiple drafts of manuscript and developing practice guidelines for SNIS. JNIS is the premier journal in my field.
8. Duffis EJ, Gandhi CD, Prestigiacomo CJ, Abruzzo T, Albuquerque F, Bulsara KR, Derdeyn CP, Fraser JF, Hirsch JA, Hussain MS, Do HM, Jayaraman MV, Meyers PM, **Narayanan S**, Society for Neurointerventional Surgery: Head, neck, and brain tumor embolization guidelines. *Journal of Neurointerventional Surgery* 4(4): 251-255, 2012
Collaborator on a writing committee. One of many authors reviewing multiple drafts of manuscript and developing practice guidelines for SNIS. JNIS is the premier journal in my field.
9. Meyers PM, Blackham KA, Abruzzo TA, Gandhi CD, Higashida RT, Hirsch JA, Moran CJ, **Narayanan S**, Prestigiacomo CJ, Tarr R: Society of NeuroInterventional Surgery Standards of Practice: general considerations. *Journal of Neurointerventional Surgery* 4: 11-15, 2012
Collaborator on a writing committee. One of many authors reviewing multiple drafts of manuscript and developing practice guidelines for SNIS. JNIS is the premier journal in my field.
10. Abruzzo T, Lev R, Moran CJ, Eskey CJ, Blackham KA, Meyers PM, **Narayanan S**, Prestigiacomo CJ: Society of NeuroInterventional Surgery Standards of Practice: invasive interventional management of post-hemorrhagic cerebral vasospasm in patients with aneurysmal subarachnoid hemorrhage. *Journal of Neurointerventional Surgery* 4(3):169-177, 2012
Collaborator on a writing committee. One of many authors reviewing multiple drafts of manuscript and developing practice guidelines for SNIS. Contributed to discussion. JNIS is the premier journal in my field.

PUBLICATIONS (Continued)

Reviews of the Literature (Continued)

11. Blackham KA, Meyers PM, Abruzzo T, Albuquerque FC, Fiorella D, Fraser J, Frei D, Gandhi CD, Heck DV, Hirsch JA, Hsu DP, Jayaraman M, **Narayanan S**, Prestigiacomo C, Sunshine JL, Society of NeuroInterventional Surgery: Endovascular therapy of acute ischemic stroke: report of the Society of NeuroInterventional Surgery Standards of Practice committee. *Journal of Neurointerventional Surgery* 4(2):87-93, 2012
Collaborator on a writing committee. One of many authors reviewing multiple drafts of manuscript and developing practice guidelines for SNIS. JNIS is the premier journal in my field.
12. Novakovic RL, Toth G, **Narayanan S**, Zaidat OO: Retrievable stents, “stentriever,” for endovascular acute ischemic stroke therapy. *Neurology* 79 (13 Suppl 1): S148-157, 2012
Collaborator. My role was limited to working on preliminary versions of the manuscript.
13. **Nathan S**, Greer DM. Brain Death. *Seminars in Anesthesia, Perioperative Medicine and Pain*, 25(4):225-231, 2006
Performed literature search and wrote most of the paper.

Editorials

1. **Narayanan S**, Chaturvedi S: Cerebrovascular disease: Carotid endarterectomy versus stenting-long live the king? *Nature Reviews. Cardiology*. 7(6):304-305, 2010
Performed literature search and wrote most of the paper.

Letters to the Editor

**current/former trainee*

1. Chaturvedi S, Majjhoo A*, **Narayanan S**, Hohler AD, Lee JD: Improving safety for the neurologic patient: Evaluating medications, literacy, and abuse. *Neurology* 76(21): 1848-1849, 2011
Contributed cases, edited clinical information, and revised manuscript.

Book Authorship, Editorship, and Chapters

1. Ortega Gutierrez S, Kaminsky I, Marupudi N*, **Narayanan S**: Chapter 39: Spinal Vascular Lesions, in: *Neurocritical Care Management of the Neurosurgical Patient*. Kumar, Kofke, Levine & Schuster, editor, 2014 (in press)
Organized and coordinated content between sections, edited images/captions, and edited background and discussion.
2. Chaturvedi S, **Narayanan S**: Chapter 49: Carotid Occlusion Syndromes, in: *Stroke Syndromes, Third Edition*. Louis Caplan, editor, 2012
Performed literature search, organized paper, and wrote most of the first draft.
3. **Narayanan S**, Cawley CM. Chapter 391: Treatment of Other Intracranial Dural Arteriovenous Fistulas, in: *Youman’s Textbook of Neurological Surgery, Sixth Edition*. H. Richard Winn, 2011
Organized chapter with the senior author, performed literature search, and wrote the entire chapter.

PUBLICATIONS (Continued)

Book Authorship, Editorship, and Chapters (Continued)

4. **Narayanan S**: Endovascular management of intracranial dural arteriovenous fistulas. *Neurology Clinics* 28(4): 899-911, 2010.
Sole author. This chapter was commissioned as part of an issue featuring updated treatment for selected neurological disorders.
5. **Narayanan S**, Tong FC: Percutaneous Vertebroplasty and Balloon Kyphoplasty for the Treatment of Acute Painful Pathologic and Non-Pathologic Fractures, in: *Myeloma Therapy: Pursuing the Plasma Cell*. Sagar Lonial (Editor), Humana Press, 2008
Organized chapter with the senior author, performed literature search, edited images/captions, and wrote the entire chapter.

Published Abstracts

**current/former trainee*

1. Tsappidi S, Mullins M, **Narayanan S**, Sribnick E*, Cawley CM, Dion JE. A hardware store for the brain – an introduction to advanced intracranial monitoring and therapeutic devices on current neuroimaging. Electronic exhibit at American Roentgen Ray Society 109th annual meeting, April 2009. *American Journal of Roentgenology* 2009:192(5).
Contributed to project design and reviewed final draft.

Non-Peer-Reviewed Publications

1. **Narayanan S**. Atlas of Interventional Neurology. Adnan Qureshi (Editor), Demos Publishing, 2009. Book review, *J Neuro Sci* 2012. Epub 2012 Jun 6.
Sole author
2. **Narayanan S**. When prevention fails: treatment for acute large-vessel occlusion. American Academy of Neurology 63rd Annual Meeting Syllabus, 2011
Sole author
3. **Narayanan S**, Dafer R: Stroke in Young Adults. In: Gilman S, editor. *Medlink Neurology*. San Diego: Medlink Corporation. Available at www.medlink.com, 2010
Performed literature search, wrote most of the article, and selected and annotated images.
4. Talebi T, Herdman AV, **Narayanan S**, Montero A, Kauh J: Worsening neurological symptoms in an older man with history of rectal cancer, in: *Consultant*. Volume 50, Number 7, 2010
Contributed neuroimaging findings and discussion.

PRESENTATIONS

Podium Presentations

**current/former trainee*

1. Stevenson S, Shen J, Geng X, Li F, Wang S, **Narayanan S**, Ding Y: Omega-3 fatty acid supplement prevents progression of intracranial atherosclerosis. *International Stroke Conference*, 2016
2. Stevenson S, Shen J, Geng X, Li F, Wang S, **Narayanan S**, Ding Y: Omega-3 fatty acid supplement prevents progression of intracranial atherosclerosis. *Wayne State University School of Medicine Medical Student Research Symposium*, 2016

PRESENTATIONS (Continued)

Podium Presentations (Continued)

3. Asmaro K*, Kochanski R, Peng C, Lee I, **Narayanan S**, Huttemann M, Ding Y: Ethanol administration reduces brain injury by preserving and regulating oxidative metabolism. Wayne State University School of Medicine Medical Student Research Symposium, 2012
4. **Narayanan S**: Ophthalmic artery origin occlusion by microcatheter during stent-coiling of anterior communicating artery aneurysm. 5th Annual Society of Vascular and Interventional Neurology (SVIN) meeting, 2012
5. **Narayanan S**: In-situ thrombolysis and thromboaspiration of cerebral venous thrombosis. 5th Annual SVIN meeting, 2012
6. Romano JG, Arheart K, Rabinstein AA, **Nathan S**, Campo-Bustillo I, Koch S, Forteza AM: Microemboli Contribute to Subarachnoid Hemorrhage-Associated Cerebral Ischemia. International Stroke Conference, 2005

Poster Presentations

*current/former trainee

1. Nanjireddy R*, **Narayanan S**, Mittal S, Loeb J, Basha M: Intracranial vasospasm following temporal lobe epilepsy surgery demonstrated on conventional angiography. American Academy of Neurology (AAN) 65th Annual Meeting, 2013
2. Dhakar M*, Chaturvedi S, Madhavan R, Rajamani M, Norris G, Xavier A, **Narayanan S**, Tsappidi S, Bhattacharya P*: Race influences the recovery from acute stroke interventions. AAN 65th Annual Meeting, 2013
3. Thomas A*, **Narayanan S**: Cervical puncture: an important tool for the interventional neurologist. AAN 65th Annual Meeting, 2013
4. **Narayanan S**: Seizures after cisternography: case report and review of the literature. 5th Annual SVIN Meeting, 2012
5. Majjhoo AQ*, Naravetla B*, Muthusamy A, Bhattacharya P*, **Narayanan S**, Xavier AR: Combining intravenous and endovascular approaches to treat severe strokes in the real world: a safety analysis. AAN 64th Annual Meeting, 2012
6. Kansara A*, Damani R*, Tiwari A*, **Narayanan S**, Chaturvedi S, Xavier A. Endovascular intervention for post cardiac catheterization ischemic strokes. AAN 64th Annual Meeting, 2012
7. Madhavan R, Bhattacharya P*, Xavier A, **Narayanan S**, Rajamani K, Santhakumar S, Norris G, Coplin W, Parliament C, Chaturvedi S. Hospital features affect resource utilization: The Michigan Stroke Network Experience. AAN 64th Annual Meeting, 2012
8. Rayes M*, **Narayanan S**: Hemodynamic effects and safety of intra-arterial milrinone in vasospasm patients. American Society of Neuroradiology 50th Annual Meeting, 2012
9. **Narayanan S**, Madhavan R, Parliament C, Bhattacharya P*, Xavier A, Chaturvedi S: Utilization of a statewide telestroke network and sustainability over time. International Stroke Conference (ISC), 2012
10. Abdelbaky A*, Rayes M*, **Narayanan S**, Xavier A: Clinical and Angiographic Outcome in Completely Occluded Intracranial Aneurysms by Endovascular Coiling. Congress of Neurological Surgeons meeting, 2011
11. **Narayanan S**, Wall E, White S, Xavier A, Chaturvedi S: A Systemwide Approach to Decreasing Door-to-Needle Times in Acute Stroke. ISC, 2011
12. Nagaraja N*, Bhattacharya P*, Norris G, Coplin W, **Narayanan S**, Xavier A, Rajamani K, Chaturvedi S: Does Arrival by Ambulance Predict Acute Stroke Intervention in Young Adults? ISC, 2011

PRESENTATIONS (Continued)

Poster Presentations (Continued)

13. Tiwari A*, Pandey P*, Kansara A*, Rayes M*, **Narayanan S**, Xavier A: Safety of Stent-Supported Revascularization in the Setting of Acutely Symptomatic/Unstable Intracranial Atherosclerotic Disease. ISC, 2010
14. Tiwari A*, Pandey P*, Kansara A*, Rayes M*, **Narayanan S**, Xavier A: Safety of Stent-Supported Intracranial Recanalization in the Setting of Acute Cerebrovascular Occlusions. ISC, 2010
15. **Narayanan S**, Tiwari A*, Rayes M*, Majihoo A*, Xavier A: Endovascular Revascularization of Severe Brachiocephalic Stenosis Presenting with an Acute Central Retinal Artery Occlusion. 3rd Annual SVIN Meeting, 2010
16. **Narayanan S**, Tiwari A*, Pandey P*, Chaturvedi S: Endovascular Recanalization for Acute Occlusion Post-Carotid Endarterectomy. 3rd Annual SVIN Meeting, 2010
17. Kansara A*, Tiwari A*, **Narayanan S**, Pandey P*, Xavier A: Exploratory Analysis of Time Delays in Administering Endovascular Therapy for Acute Ischemic Stroke. 3rd Annual SVIN Meeting, 2010
18. Kalia JS, Natarajan S, Batista L, Rayes M*, Etezadi V, Schuette AJ*, Chowdry S, Majid A, **Narayanan S**, Levy E, Pryor J, Nogueira R, Xavier A, Linfante I, Gupta R, Mueller-Kronast N, Norbash A, Nguyen T, Edgell R, Zaidat OO: Safety and Feasibility of Elective Endovascular Coiling of Very Small (2-7 mm) Unruptured Cerebral Aneurysms (ECOSA study): A Multicenter Experience Analysis. 3rd Annual SVIN Meeting, 2010
19. **Narayanan S**, Tong FC, Cawley CM, Dion JE: Onyx®-34 embolization of left parieto-occipital artery mycotic aneurysm: technical case report. 2nd Annual SVIN Meeting, 2008
20. Concha M, Symes S, Goodkin K, **Nathan S**, Zortea P, Romano JG, Forteza AM, Kolber M: Cerebrovascular Risk in HIV-1-infected Subjects with Lipodystrophy Syndrome and Long-term Protease Inhibitor Exposure. ISC, 2003

INVITED LECTURES

International/National

1. **Narayanan S**: Controversies in Management of Neurovascular Disease Illustrated through Case Examples: Stroke. In: SNIS/Joint Cerebrovascular Section Fellows' Course. August 1, 2014
2. **Narayanan S**: Stroke care should be centralized. In: IA Stroke Debates, 4th annual SNIS International Endovascular Stroke Conference: February 10, 2014
3. **Narayanan S**: Intracranial aneurysms. 33rd Annual Association of Kerala Medical Graduates (AKMG) meeting: July 13, 2012
4. **Narayanan S**: Interventional Neurology: Building and keeping a practice. 4th Annual Society of Vascular and Interventional Neurology (SVIN) Meeting: October 21, 2011
5. **Narayanan S**: When Prevention Fails: Treatment of Acute Large-Vessel Occlusion. 63rd Annual American Academy of Neurology (AAN) Meeting: April 11, 2011
6. **Narayanan S**: Interventional Management of Acute Stroke. 30th Annual AKMG meeting, July 4, 2009

Local/Regional

1. **Narayanan S**: Vascular Conference. Neurosurgery Grand Rounds, WSU: February 3, 2016
2. **Narayanan S**: Practical considerations during neuroendovascular procedures. Neurosurgery Student Interest Group Meeting, Wayne State University (WSU): January 27, 2016
3. **Narayanan S**: Vascular Conference. Neurosurgery Grand Rounds, WSU: January 6, 2016

INVITED LECTURES (Continued)

Local/Regional (Continued)

4. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: November 11, 2015
5. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: September 1, 2015
6. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: August 5, 2015
7. **Narayanan S:** Acute Ischemic Stroke In-Service for ICU nurses, Beaumont Hospital-Taylor: May 21, 2015
8. **Narayanan S:** Acute Ischemic Stroke In-Service for ED nurses, Beaumont Hospital-Taylor: May 21, 2015
9. **Narayanan S:** Acute Ischemic Stroke Intervention, ED department meeting, Beaumont Hospital-Wayne: May 20, 2015
10. **Narayanan S:** Endovascular Treatment of Acute Ischemic Stroke. In-service, Interventional Radiology/Electrophysiology staff, Beaumont Hospital-Dearborn (BH-D): May 19, 2015
11. **Narayanan S:** Acute Ischemic Stroke Intervention, ED department meeting, Beaumont Hospital-Trenton: May 13, 2015
12. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: May 6, 2015
13. **Narayanan S:** Neurointerventional Program, Cardiovascular Section meeting, BH-D: May 6, 2015.
14. **Narayanan S:** Embolization of Intracranial Aneurysms. In-service, Interventional Radiology/Electrophysiology staff, BH-D: May 5, 2015
15. **Narayanan S:** Acute Ischemic Stroke Intervention, ED department meeting, BH-D: April 29, 2015
16. **Narayanan S:** Acute Ischemic Stroke in-Service for ED/ICU nurses, Beaumont Hospital-Taylor: April 28, 2015
17. **Narayanan S:** Acute Ischemic Stroke Intervention, ED department meeting, Beaumont Hospital-Taylor: April 22, 2015
18. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: April 1, 2015
19. **Narayanan S:** Neurointerventional procedures, aneurysm coiling, and acute stroke intervention. In-service, Post-Anesthesia Care Unit (PACU) nurses, BH-D: March 25, 2015
20. **Narayanan S:** Introduction to neuroangiography and neurovascular anatomy. In-service, Interventional Radiology/Electrophysiology staff, BH-D: March 25, 2015
21. **Narayanan S:** 2014 Neurointerventional Program Quality Metrics. Patient Experience Council, BH-D: March 24, 2015
22. **Narayanan S:** Neurointerventional procedures, aneurysm coiling, and acute stroke intervention. In-service, PACU nurses, BH-D: March 11, 2015
23. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: March 4, 2015
24. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: February 4, 2015
25. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: January 7, 2015
26. **Narayanan S:** Acute Ischemic Stroke Treatment Pathways. Emergency Department meeting, BH-D: December 3, 2014
27. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: November 5, 2014
28. **Narayanan S:** Acute Ischemic Stroke Intervention. Radiology Residents' Conference, BH-D. October 30, 2014
29. **Narayanan S:** Intracranial aneurysms: diagnosis and treatment. Radiology Residents' Conference, BH-D. August 14, 2014

INVITED LECTURES (Continued)

Local/Regional (Continued)

30. **Narayanan S:** Coiling of ruptured intracranial aneurysm: case presentation. Endovascular Physician Practice Evaluation Committee meeting, BH-D: July 25, 2014.
31. **Narayanan S:** Intracranial atherosclerosis. Neurosurgery Grand Rounds, WSU: July 16, 2014
32. **Narayanan S, Marupudi N:** Vascular Conference. Neurosurgery Grand Rounds, WSU: July 16, 2014
33. **Narayanan S:** Acute stroke interventions: nursing responsibilities. Neuroscience series, BH-D: July 15, 2014
34. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: June 4, 2014
35. **Narayanan S:** Internal carotid artery aneurysms. Neurosurgery Grand Rounds, WSU: April 16, 2014
36. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: April 9, 2014
37. **Narayanan S:** Overview of cerebral angiography: vascular anatomy. Neurology Residents' Conference, WSU: March 12, 2014
38. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: March 12, 2014
39. **Narayanan S:** Neurointerventional Program Quality Metrics. Patient Experience Council, BH-D: February 25, 2014
40. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: January 8, 2014
41. **Narayanan S:** MR imaging of stroke. Vascular Neurology conference, WSU: December 18, 2013
42. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: December 18, 2013
43. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: November 13, 2013
44. **Narayanan S:** Acute stroke intervention: ED. Emergency Department meeting, BH-D: October 30, 2013
45. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: October 2, 2013
46. **Narayanan S:** Triage and management of acute ischemic stroke. Internal medicine Department meeting, Beaumont Hospital-Taylor: September 4, 2013
47. **Narayanan S:** Neurointerventional procedures. Certified registered nurse anesthetist meeting, BH-D: June 12, 2013
48. **Narayanan S:** Neurointerventional procedures. Internal Medicine Department meeting, Beaumont Hospital-Trenton: May 28, 2013
49. **Narayanan S:** Patterns of collateral circulation. Vascular Neurology Conference, WSU: May 22, 2013
50. **Narayanan S:** Indications for cerebral/spinal angiography. Internal Medicine Department meeting, BH-D: May 3, 2013
51. **Narayanan S:** Nursing/anesthesia considerations in interventional neuroradiology. Neuroscience series, BH-D: May 2, 2013
52. **Narayanan S:** Indications for cerebral/spinal angiography. Neurology Residents web module recording, WSU, April 18, 2013
53. **Narayanan S:** Neurointerventional procedures. In-service, BH-D coronary care unit staff meeting: April 4, 2013
54. **Narayanan S:** Neurointerventional procedures. In-service, BH-D coronary care unit staff meeting: April 4, 2013
55. **Narayanan S:** Overview of Ischemic Stroke Transfers. Emergency Department Managers' meeting, Beaumont Hospital-Taylor: March 27, 2013

INVITED LECTURES (Continued)

Local/Regional (Continued)

56. **Narayanan S:** Neurointerventional procedures. In-service, Sinai-Grace Hospital cath lab staff meeting: March 21, 2013
57. **Narayanan S:** Indications for cerebral/spinal angiography. In-service, BH-D ICU staff meeting: March 8, 2013
58. **Narayanan S:** Intracranial aneurysms: diagnosis and treatment. Neurology section meeting, St. John Macomb-Oakland Hospital: February 26, 2013
59. **Narayanan S:** Acute stroke management. Emergency Department dinner meeting, Beaumont Hospitals-Dearborn/Wayne/Taylor/Trenton: February 13, 2013
60. **Narayanan S:** Anesthetic considerations in the neuroangiography suite: Part I. Anesthesia Department meeting, BH-D: February 12, 2013
61. **Narayanan S:** Vasospasm and mycotic aneurysms due to bacterial meningitis. Infectious Diseases conference, WSU: February 12, 2013
62. **Narayanan S:** Introduction to neuroangiography. Neurology Residents' conference, WSU: February 6, 2013
63. **Narayanan S:** Indications for Cerebral/Spinal Angiography. Rehabilitation Services Lecture Series, BH-D: November 14, 2012
64. **Narayanan S:** Acute ischemic stroke. Radiology Residents' conference, Detroit Medical Center (DMC): October 24, 2012
65. **Narayanan S:** Intracranial aneurysms: diagnosis and treatment. Radiology Residents' conference, DMC: October 10, 2012
66. **Narayanan S:** Endovascular treatment of intracranial aneurysms. Neurosurgery Student Interest Group Meeting, WSU: October 5, 2012
67. **Narayanan S:** Dural arteriovenous fistulas. Radiology Residents' Conference, DMC: September 5, 2012
68. **Narayanan S:** Introduction to Neuroangiography. Radiology Residents' Conference, DMC: July 11, 2012
69. **Narayanan S:** Transfemoral arterial access and management of complications. 3North Neuroscience series, BH-D, April 10, 2012
70. **Narayanan S:** Indications for Cerebral Angiography. Neuroscience series, BH-D: March 6, 2012
71. **Narayanan S:** Moderator, Michigan State Medical Society (MSMS) Symposium: Updates in Ischemic and Hemorrhagic Cerebrovascular Disease; Speaker: Endovascular treatment of intracranial aneurysms; Speaker: Endovascular Management of Acute Ischemic Stroke. October 28, 2011
72. **Narayanan S:** Management of Epilepsy: Newly Diagnosed and When Treatments Fail: Wada Testing. Speaker, MSMS symposium: October 27, 2011
73. **Narayanan S:** Endovascular Neurosurgery. Neurosurgery Student Interest Group meeting, WSU: September 16, 2011
74. **Narayanan S:** Stroke for the General Internist. Internal Medicine Summer Lecture series, WSU: August 2, 2011
75. **Narayanan S:** Patterns of Collateral Circulation. Vascular Neurology Conference, WSU: March 30, 2011
76. **Narayanan S:** Board Review. Radiology Residents' Conference, DMC: March 16, 2011
77. **Narayanan S:** ER Triage and Management of Acute Ischemic Stroke. Emergency Medicine meeting, St. Joseph Mercy Oakland Hospital: March 8, 2011
78. **Narayanan S:** Magnetic Resonance Imaging for Stroke. Neurology Residents' Conference, WSU: January 26, 2011

INVITED LECTURES (Continued)

Local/Regional (Continued)

79. **Narayanan S:** Approach to interpretation of cerebral angiograms. Neurology Residents' Conference, WSU: January 5, 2011
80. **Narayanan S:** Moderator, MSMS: Updates in Ischemic and Hemorrhagic Cerebrovascular Disease; Speaker: Stroke in Young Adults; Speaker: Endovascular Management of Acute Ischemic Stroke. October 22, 2010
81. **Narayanan S:** Aneurysmal Subarachnoid Hemorrhage. Internal Medicine Conference, St. Joseph Mercy Oakland Hospital: September 9, 2010
82. **Narayanan S:** Stroke for the General Internist. Internal Medicine Summer Lecture Series, DMC: August 24, 2010
83. **Narayanan S:** Posterior Circulation Strokes. Emergency Medicine Meeting, St. Joseph Mercy Oakland Hospital: June 15, 2010
84. **Narayanan S:** Cellular and Vascular Pathophysiology of Stroke. Vascular Neurology conference, WSU: May 5, 2010
85. **Narayanan S:** Moyamoya Disease. Harper University Hospital Physical/Occupational Therapy Conference: April 23, 2010
86. **Narayanan S:** Board Review. Radiology Noon Conference, WSU: March 31, 2010
87. **Narayanan S:** Introduction to Neuroangiography. Radiology Noon Conference, WSU: March 31, 2010
88. **Narayanan S:** Ischemic Stroke. DMC CME: Dearborn Health and Wellness Program: March 27, 2010
89. **Narayanan S:** Arterial Anatomy, AVMs & dAVFs. Neurology Residents' Conference, WSU: August 26, 2009
90. **Narayanan S:** Stroke conference, Emory University Hospital (EUH). April 29, 2009
91. **Narayanan S:** Indications for Cerebral Angiography. Neurology Residents' Conference, EUH: April 3, 2009
92. **Narayanan S:** Introduction to Neuroangiography. Neurology Residents' Conference, EUH: April 3, 2009
93. **Narayanan S:** Stroke Conference, EUH. February 25, 2009
94. **Narayanan S:** Stroke Conference, EUH. January 28, 2009
95. **Narayanan S:** Introduction to Neuroangiography: Anatomy, Aneurysms, AVMs, and DAVFs. Radiology Residents' Noon Conference, EUH: October 17, 2008
96. **Narayanan S:** Stroke Conference, EUH. March 28, 2008
97. **Narayanan S:** Neurology Jeopardy! Neurology Noon Conference, Grady Memorial Hospital: December 18, 2006
98. **Narayanan S:** Neurological Localization: Application to Diagnostic Neuroradiology. Neuroradiology Fellows' Conference, EUH: June 12, 2006
99. **Narayanan S:** Woman with Post-operative Lower Extremity Weakness. Anesthesia Case Conference, Massachusetts General Hospital: April 6, 2006
100. **Narayanan S:** Morbidity & Mortality Conference, Neurointensive Care, Massachusetts General Hospital. November 24, 2005
101. **Narayanan S:** Morbidity & Mortality Conference, Neurointensive Care, Massachusetts General Hospital. August 25, 2005
102. **Narayanan S:** Midline Cleavage Defects & Neuronal Migrational Abnormalities. Pediatric Neurology Conference, Jackson Memorial Hospital (JMH): June 13, 2005
103. **Narayanan S:** Vertebrobasilar Dolichoectasia. Stroke Conference, JMH: February 28, 2005
104. **Narayanan S:** Neurology Jeopardy! Neurology Conference, JMH: February 7, 2005

INVITED LECTURES (Continued)

Local/Regional (Continued)

105. **Narayanan S:** Anti-Epileptic Side Effects in Children. Pediatric Neurology Conference, JMH: December 13, 2004
106. **Narayanan S:** Detect, Localize & Intervene: 21st-Century Neurology. Student Interest Group in Neurology Meeting: April 5, 2004
107. **Narayanan S:** Pediatric Neurology Jeopardy! Neurology Noon Conference, JMH: March 4, 2004
108. **Narayanan S:** Neurology Jeopardy! Neurology Noon Conference, JMH: March 1, 2004
109. **Narayanan S:** Thrombolytics in Cerebrovascular & Cardiovascular Disease. Stroke Conference, JMH: September 9, 2003
110. **Narayanan S:** Metastatic Brain Tumors. Neurology Conference, JMH: September 20, 2002

Invited Seminars and Grand Rounds

1. **Narayanan S:** Acute ischemic stroke treatment paradigms in 2015. Internal Medicine Grand Rounds, Oak Hill Hospital, Brooksville, Florida: December 9, 2015
2. **Narayanan S:** Treatment of acute ischemic stroke. Neurosurgery Grand Rounds, WSU: October 7, 2015
3. **Narayanan S:** Acute ischemic stroke treatment paradigms in 2015. Neurology Grand Rounds, WSU: September 11, 2015
4. **Narayanan S:** Acute Stroke Treatment Paradigms in 2015. Grand Rounds, Beaumont Hospital-Dearborn: April 29, 2015
5. **Narayanan S:** Embolization of head and neck tumors. Otolaryngology Grand Rounds, WSU: April 1, 2015
6. **Narayanan S:** Neurointerventional procedures in trauma patients. Surgery Grand Rounds, Sinai-Grace Hospital: May 2, 2013
7. **Narayanan S:** Embolization of head and neck tumors. Otolaryngology Grand Rounds, WSU: April 17, 2013
8. **Narayanan S:** Spinal vascular malformations: diagnosis and treatment. Neurology Grand Rounds, WSU: April 5, 2013
9. **Narayanan S:** Endovascular treatment of spinal vascular malformations. Neurosurgery Grand Rounds, WSU: April 3, 2013
10. **Narayanan S:** Intracranial Aneurysms: diagnosis and treatment. Spring CME meeting, Michigan Association of Physicians from India: March 17, 2013
11. **Narayanan S:** Stroke Overview. Plenary session, 2013 Take Heart Nursing Symposium: March 4, 2013
12. **Narayanan S:** Neuroendovascular Jeopardy! Neurosurgery Grand Rounds, WSU, Vascular Conference: February 13, 2013
13. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: January 9, 2013
14. **Narayanan S:** Anesthetic considerations in interventional neuroradiology. Anesthesiology Grand Rounds, WSU: January 9, 2013
15. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: November 14, 2012
16. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: September 9, 2012
17. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: May 23, 2012
18. **Narayanan S:** Vascular Conference. Neurosurgery Grand Rounds, WSU: April 18, 2012
19. **Narayanan S:** Neuroendovascular Jeopardy! Neurosurgery Grand Rounds, WSU: September 21, 2011

INVITED LECTURES (Continued)

Invited Seminars and Grand Rounds (Continued)

20. **Narayanan S:** Cerebral Venous Thrombosis. Neurology Grand Rounds, WSU: June 3, 2011
21. **Narayanan S:** Improving patient education for acute ischemic stroke. AKMG Michigan Regional CME meeting, Birmingham, MI: May 21, 2011
22. **Narayanan S:** Endovascular management of the SAH patient. Neurosurgery Grand Rounds, WSU: October 6, 2010
23. **Narayanan S:** Endovascular Management of dAVFs. Neurology Grand Rounds, WSU: April 2, 2010
24. **Narayanan S:** Endovascular Therapy for Stroke Prevention and Treatment. Michigan Neurological Association Winter Conference: March 6, 2010
25. **Narayanan S:** Neuroendovascular Jeopardy! Neurosurgery Grand Rounds, WSU: February 24, 2010
26. **Narayanan S:** Neuroendovascular Jeopardy! Neurosurgery Grand Rounds, WSU: February 17, 2010
27. **Narayanan S:** Mock Boards/dAVF cases. Neurosurgery Grand Rounds, WSU: February 3, 2010
28. **Narayanan S:** Endovascular Management of dAVFs. Neurosurgery Grand Rounds, WSU: February 3, 2010
29. **Narayanan S:** Inferior Petrosal Sinus Sampling. Endocrinology Grand Rounds, WSU: November 11, 2009
30. **Narayanan S:** Endovascular treatment of dural arteriovenous fistulas. Neurosurgery Grand Rounds, Loyola University Medical Center: November 12, 2008
31. **Narayanan S:** Platelet Function and Testing: Application to Neuroendovascular Procedures. Neurosurgery Grand Rounds, Emory University Hospital: January 10, 2008
32. **Narayanan S:** Contribution of Microemboli to Cerebral Ischemia in Aneurysmal Subarachnoid Hemorrhage. Neurology Grand Rounds, JMH: February 11, 2005
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34. **Narayanan S:** Morvan's Fibrillary Chorea. Neurology Grand Rounds, JMH: April 25, 2003
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