

**Mark Robert Harrigan, M.D.**  
**Curriculum Vitae**

**MAILING ADDRESS AND PHONE**

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**ACADEMIC APPOINTMENTS - University of Alabama at Birmingham and Children's of AL**

07/2004 – 10/2011	Assistant Professor, Departments of Neurosurgery, Neurology and Radiology
10/2011 – 09/2016	Associate Professor, Departments of Neurosurgery, Neurology and Radiology
07/2013 – 09/2023	Member, Institutional Review Board
10/2013 – 09/2015	Interim Director of Stroke Services (Neurology)
10/2015 – Present	Medical Director of Heart and Vascular Center, Neuroendovascular
10/2016 – Present	Professor, Departments of Neurosurgery, Neurology and Radiology
10/2018 – 10/2023	Medical Director and Quality Officer for Surgical Services (Neurosurgery)
07/2019 – Present	CAST Fellowship Director, Society of Neurological Surgeons, CNS Endovascular
03/2020 – Present	Senior Scientist, UAB Comprehensive Neuroscience Center
05/2020 – Present	Non-member Limited Scope Member, Children's of AL Hospital
02/2023 – Present	Associate Chief Medical Officer
10/2023 – Present	Department Value Officer, Neurosurgery
10/2023 – 10/2024	Cohort Member, UAB Class of 2024 Leadership Academy

**HOSPITAL PRIVILEGES**

07/2004 – Present	Active Staff Member, University of Alabama at Birmingham Medical Center and The Kirklin Clinic of UAB Hospital
07/2004 – 05/2020	Active Staff Member, Children's Hospital of Alabama
07/2005 – 02/2021	Active Staff Member, Veteran's Hospital of Birmingham
03/2019 – Present	Active Staff Member, The University of Rochester
03/2018 – Present	Active Staff Member, Telehealth
05/2020 – Present	Admitting, Vascular Diagnosis and Intervention, Intracranial and Extracranial, Myelography, spine therapy, include Kyphoplasty, Vertebroplasty nerve block, and cerebral angiogram, Children's of Alabama Hospital
06/2021 – Present	Active Staff Member, Callahan Eye Hospital & Clinics

**CURRENT NEUROSURGERY LEADERSHIP – University of Alabama at Birmingham**

Medical Director, Heart and Vascular Center, Neurointernational  
Medical Director, Neurointensive Care Unit (NICU)  
Fellowship Director, Cerebroendovascular Fellowship Program

## **CURRENT NEUROSURGERY COMMITTEES – University of Alabama at Birmingham**

Resident Clinical Competence  
Resident Program Evaluation Committee  
Space Planning Committee  
Neurosurgical Site Infection Working Group  
CAST Fellowship Director, Society of Neurological Surgeons, CNS Endovascular

## **CURRENT UAB MEDICINE COMMITTEES**

OR Executive Committee  
HVC Executive Committee  
Physicians Operations Leadership Council  
Practice Leadership Council  
Quality and Patient Safety Committee  
Transfer Advisory Council  
Otolaryngology Department Chief Search Committee  
UAB Medicine Overlapping Procedures Oversight Committee  
Associate Medical Chief Officer (ACMO) Search Committee  
University Professor Committee  
Root Cause Analysis (RCA) Group  
Vice-Chair Neuroanesthesia Selection Committee  
SSI Workgroup

## **LICENSES AND CERTIFICATIONS**

07/2002 – 07/2020	License to Practice Medicine, State of New York #224989
07/2002 – Present	ACLS/BLS Certification
07/2004 – Present	License to Practice Medicine, State of Alabama #26016
05/2008 – Present	Diplomat, American Board of Neurological Surgery
12/2022 – Present	License to Practice Medicine, State of New York #224989

## **EDUCATION**

09/1984 - 06/1988	Bachelor of Science in Economics University of Minnesota, Minneapolis
07/1989 – 05/1995	Doctor of Medicine, June 1995 University of Washington School of Medicine, Seattle

## **POST-GRADUATE TRAINING**

06/1995 – 06/1996	Surgical Internship, University of Michigan, Ann Arbor
07/1996 – 06/2002	Neurosurgical Residency, University of Michigan, Ann Arbor
07/2002 – 06/2004	Fellowship in Neuroendovascular Surgery, SUNY Buffalo, Buffalo

## **UNDERGRADUATE RESEARCH EXPERIENCE**

07/1989 – 06/1991	Independent Research in the Laboratory of Dr. John Palka, Department of Zoology, University of Washington
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## **GRADUATE ACADEMIC AND RESEARCH EXPERIENCE**

- 1990 – 1995 Independent Research in the Laboratory of Dr. Alfred Malouf, Department of Neurological Surgery, University of Washington  
1992 Medical Student Research Training Program Grant  
1992 Teaching Assistant, Gross Anatomy and Embryology  
1992 – 1993 Medical Coordinator, Community Health Advancement Program

## **ACADEMIC HONORS**

Gross Anatomy and Embryology, Physiology, Pathology, Biochemistry, Neuroscience, Head and Neck Anatomy, Endocrinology, Anatomy Practicum, Ophthalmology, Pediatrics, Psychiatry, Surgery, Neurosurgery, Surgical Critical Care, Emergency Medicine

## **CLINICAL HONORS**

- 09/01/2023 Outstanding Provider, UAB

## **ACADEMIC AWARDS**

- 1993 American Federation for Clinical Research E.E. Osgood Medical Student Award  
1993 Roche Laboratories Award in Basic Science, Medical Student Division, First Award  
1993 American Medical Association Award for Outstanding Clinical Research  
1999 Pharmacia Upjohn Research Fellowship in Cerebrovascular Disease  
1999 Michigan Association of Neurological Surgeons Resident Award for Best Clinical Presentation  
1999 Fifth International Conference on Xenon CT-CBF Young Investigator Award  
2003 Sean Mullen Neuroendovascular Fellowship  
2007 Top Ten Award for Excellence in Resident Education, Department of Radiology, University of Alabama, Birmingham  
2015 W. Jerry Oakes, MD Teaching Award, 2015  
2018 Best Mentored Paper Award, "The Pipeline Embolization Device: Changes in Practice and Reduction of Complications in the Treatment of Anterior Circulation Aneurysms in a Multicenter Cohort" in *Neurosurgery* at the Eastern Neuroradiological Society meeting  
2021 Honorary Rosalind Member of London Journals Press, 2021

## **PROFESSIONAL SOCIETIES**

- Member, American Board of Neurological Surgeons (ABNS)  
Member, Congress of Neurological Surgeons, Oral Board Reviewer and Annual Meeting Presenter (CNS)  
Member, American Association of Neurological Surgeons (AANS)  
Member, Neurosurgical Society of Alabama, and Annual Meeting Presenter (NSA)  
Member, AANS/CNS Joint Section on Neurotrauma and Critical Care (JSNTCC)  
Member, AANS/CNS Joint Section on Cerebrovascular Surgery  
Member, American Heart Association Stroke Council, International Stroke Conference (AHA)  
Member, Southern Neurosurgical Society (SNS)  
Member, Society of NeuroInterventional Surgery (SNIS)

## **PROFESSIONAL JOURNAL REVIEWER**

Journal of Neurosurgery

Stroke  
Medical Sciences  
American Heart Association Journals  
Journal of Trauma and Care  
The Journal of the American Medical Association (JAMA)

**CLINICAL TRIALS / GRANTS (Completed)**

Stenting and Aggressive Medical Management for Preventing Recurrent Stroke in Intracranial Stenosis (SAMMPRIS)

Role: Co-Principal Investigator  
Sponsored by NIH  
2008 – 2013

Stroke Treatment And Revascularization Therapy (START)

Role: Principal Investigator  
Sponsored by Penumbra, Inc.  
2010 – 2013

Carotid Revascularization Endarterectomy versus Stenting Trial (CREST)

Role: Principal Investigator  
Sponsored by NIH  
2010 – 2016

A Randomized Trial of Unruptured Brain Arteriovenous Malformations (ARUBA)

Role: Principal Investigator  
Sponsored by NIH  
2010 – 2014

Minimally Invasive Surgery plus t-PA for Intracerebral Hemorrhage Evacuation (MISTIE)

Role: Principal Investigator  
Sponsored by NIH  
2010 – 2019

Clot Lysis: Evaluating Accelerated Resolution of Intraventricular Hemorrhage Phase III (CLEAR III)

Role: Principal Investigator  
2011 - 2012

Interventional Management of Stroke Trial Clinical Protocol (IMS III) - A Phase III, Randomized, Multi-Center, Open Label 900 Subject Clinical Trial that will Examine Whether a Combined Intravenous (IV) and Intra-Arterial (IA) Approach to Recanalization is Superior to Standard IV rt-PA (Activase®) Alone When Initiated Within Three Hours of Acute Ischemic Stroke Onset  
2011 – 2012

Renin-Angiotensin System Polymorphisms in Pathophysiology of Ruptured Cerebral Artery Aneurysms and Development of Vasospasm After SAH

Role: Co-investigator  
2012 - 2013

UAB Research and Education Program in Neurology, Neurosurgery, and Neuropathology

Role: Co-investigator  
2012 - 2017

LARGE Aneurysm Randomized Trial: Flow Diversion Versus Traditional Endovascular Coiling Therapy

Role: Principal Investigator  
2013 – 2015

MISTIE III: A Phase III, Randomized, Open-Label, 500-Subject Clinical Trial of Minimally Invasive Surgery Plus rt-PA in the Treatment of Intracerebral Hemorrhage (Ancillary Study: MTI-M3: Mechanisms of Tissue Injury in MISTIE III)

Role Principal Investigator  
2014 – 2019

Correlation of Cerebral Aneurysm Wall Structure on OCT Images with Flow Models of Wall Shear Stress: A Pilot Study

Role: PI  
2015-2016

DEFUSE 3: Endovascular Therapy following Imaging Evaluation for Ischemic Stroke 3

Role: Co-investigator  
2015-2016

Refinement of the Prehospital Stroke System

Role: Co-investigator  
2015 – 2017

Phase 3, Multicenter, Randomized, Double-Blind, Placebo-Controlled, Parallel-Group, Efficacy and Safety Study Comparing Eg-1962 to Standard of Care Oral Nimodipine in Adults with Aneurysmal Subarachnoid Hemorrhage (Sponsor's Protocol EG-101-1962-03)

Role: Principal Investigator  
2016 – 2018

WEAVE Trial: Wingspan Stent System Post Market Surveillance Study

Role: Co-Investigator  
2016 – 2020

A Double-Blind, Controlled Phase 2B Study of the Safety and Efficacy of Modified Stem Cells (SB623) in Patients with Chronic Motor Deficit from Ischemic Stroke

Role: Principal Investigator  
2016 – 2021

### **GRANTS (Active)**

Title: Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial (CREST-2)

Role: Co-PI  
Start Date: 03/01/2015  
End Date: 02/29/2016

Title: ENRICH (Early MiNimally-invasive Removal of ICH)

Role: PI  
Start Date: 05/15/2018  
End Date: 05/14/2021

Title: Anticoagulation in ICH Survivors for Prevention and Recovery (ASPIRE) "Study

Role: Co-PI  
Start Date: 07/01/2019  
End Date: 04/30/2024

Title: Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial - Hemodynamics (CREST-H)

Role: Co-PI  
Start Date: 08/01/2022  
End Date: 07/31/2027

Title: Biomarker and Edema Attenuation in IntraCerebral Hemorrhage (BEACH) Phase 2a Trial

Role: Co-PI  
Start Date: 12/01/2022  
End Date: 11/30/2023

Title: Repeated ASseSsmEnt of SurviorS in ICH (REASSESS ICH)

Role: PI  
Start Date: 01/01/2023  
End Date: 12/31/2026

Title: StrokeBelt StrokeNet

Role: Co-PI  
Start Date: 02/14/2023  
End Date: 11/30/2028

Title: Cerenovus Neurointerventional Fellowship Grant

Role: PI  
Start Date: 07/14/2023  
End Date: 07/13/2024

Long-term Observational Extension of Participants in the CREST-2 Randomized Clinical Trial (C2LOE)

Role: PI  
Date Submitted: 09/01/2023  
End Date: 08/31/2024

### **GRANTS (Pending funding)**

Title: Extracorporeal Fungal Filtration via Dual Lumen Catheter for Patients with Cryptococcal Meningitis (ALLIANCE-CM)

Role: Co-PI  
Start Date: 02/01/2020  
End Date: 01/31/2023

Title: Mechanisms of Early Recurrence in Intracranial Atherosclerotic Disease (MyRIAD-2)

Role: Co-PI  
Start Date: 07/01/2021  
End Date: 06/30/2027

Title: Carotid and Vertebral Injury Study (CAVIS)

Role: PI  
Start Date:  
End Date:

## **CLINICAL TRIALS (Active)**

Title: Embotrap eXtraction & Clot Evaluation & Lesion Evaluation for NeuroThrombectomy (EXCELLENT)

Role: Co-PI

Start Date: 05/01/2020

End Date: 04/30/2025

Title: Embotrap eXtraction & Clot Evaluation & Lesion Evaluation for NeuroThrombectomy

Role: Co-PI

Start Date: 10/16/2020

End Date: 12/31/2024

Title: Embolization of the Middle Meningeal Artery with ONYXTM Liquid Embolic System in the Treatment of Subacute and Chronic Subdural Hematoma (EMBOLISE) Study

Role: Co-PI

Start Date: 06/11/2021

End Date: 06/10/2025

Title: Middle Meningeal Artery Embolization for the Treatment of SuBduRal HemAtomAs with TRUFILL® n-BCA

Role: Co-PI

Start Date: 12/07/2021

End Date: 12/30/2024

Title: UAB Product Surveillance Registry-Neurovascular Appendix

Role: Co-PI

Start Date: 03/08/2022

End Date: 03/07/2027

## **CLINICAL TRIALS (Pending)**

## **PUBLICATIONS**

### *Journal Articles (Peer-reviewed)*

1. Kunkel DD, Nguyen LB, **Harrigan MR**, Schwartzkroin PA, and Malouf AT. Somatostatin containing neurons in rat organotypic hippocampal slice cultures: light and electron microscopic immunocytochemistry. *Hippocampus*. 1994 Apr; 4(2):157-66. doi: 10.1002/hipo.450040206. PMID: 7951690
2. **Harrigan MR**. Test Your Radiological Skill. A large thin-walled cavity with an air-fluid level on a chest x-ray. *Respiratory Care*, 39(10):994-998, October 1994
3. **Harrigan MR**, Kunkel DD, Nguyen LB, and Malouf AT. Beta amyloid is neurotoxic in hippocampal slice cultures. *Neurobiol Aging*, 1995 Sept-Oct;16(5):779-789. doi: 10.1016/0197-4580(95)00095-v. PMID: 8532111
4. **Harrigan MR**, Tuteja S, and Neurdeck BL. Indomethacin in the management of elevated intracranial pressure. *J Neurotrauma*. 1997 Sep;14(9):637-50. doi: 10.1089/neu.1997.14.637. PMID: 9337126

5. **Harrigan MR** and Chandler WF. Abducens nerve palsy following radiofrequency rhizolysis for trigeminal neuralgia: Case report. *Neurosurgery* 1998 Sep;43(3):623-5. doi: 10.1097/00006123-199809000-00134. PMID: 9733320
6. **Harrigan MR**, Gebarski SS, Messe SR, Blaivas M, and McGillicuddy JE. Metastatic adenocarcinoma to the brain mimicking hemorrhage: Case report. *Surg Neuro. Surg Neurol.* 1999 Jul;52(1):46-9. doi: 10.1016/s0090-3019(99)00048-8. PMID: 10390172
7. Kaur A, **Harrigan MR**, MeKeever PE, and Ross DA. Adenoid cystic carcinoma metastatic to the dura: Report of two cases. *J Neurooncol* 1999;44(3):267-73. doi: 10.1023/a:1006352307507. PMID: 10720206
8. **Harrigan MR**, Satti JA, Deveikis JP, and Thompson BG. Effect of hematocrit on calculation of cerebral blood flow and lambda in xenon CT. *Keio J Med*, 2000 Feb;49 Suppl 1:A36-7. PMID: 10750333
9. **Harrigan MR**. Cerebral salt wasting: a review. *Crit Care Clin.* 2001 Jan;17(1):125-38. doi: 10.1016/s0749-0704(05)70155-x. PMID: 11219225
10. **Harrigan MR**, Ennis SR, Masada T, and Keep RF. Intraventricular infusion of vascular endothelial growth factor promotes cerebral angiogenesis with minimal brain edema. *Neurosurgery*, 2002 Mar;50(3):589-98. doi: 10.1097/00006123-200203000-00030. PMID: 11841728
11. Levy EL, Rinaldi MJ, Howington JU, Bendok BR, Kim SH, Harrigan MR, Quereshi AI, Guterman LR, Hopkins N. Should interventional cardiologists treat ischemic strokes? A global perspective. *J Invasive Cardiol.* 2002 Nov;14(11):646-51. PMID: 12403890
12. Song DK, **Harrigan MR**, Deveikis JP, and McGillicuddy JE. Persistent autoregulatory disturbance after angioplasty for cerebral vasospasm: Case report. *Interv Neuroradiol.* 2002 Dec 22;8(4):409-15. doi: 10.1177/159101990200800410. Epub 2004 Oct 20. PMID: 20594502 PMCID: PMC3572497
13. **Harrigan MR**, Butch SH, Sonad SS, and Sagher O. Transfusions in Neurosurgery. *Surgical Forum*, 52:424, 2002
14. **Harrigan MR**, Ennis SR, Sullivan SE, and Keep RF. Effects of intraventricular infusion of vascular endothelial growth factor on cerebral blood flow, edema, and infarct volume. *Acta Neurochir (Wien).* 2003 Jan;145(1):49-53. doi: 10.1007/s00701-002-1035-1. PMID: 12545262
15. Kim SH, **Harrigan MR**, Levy EI, Howington JU, Hanel RA, Siddiqui AM, Qureshi AI. Endovascular management of acute ischemic stroke related to acute carotid artery dissection and occlusion. *Neurointerventionist* 4:7-1, 2003
16. Brooks WH, Mclure RR, Jones MR, Coleman TL, Breathitt L, Solomon RA, Fiorella D, Albuquerque FC, Rosenwasser RH, Cullen S, Higashida RT, **Harrigan MR**, Hopkins LN. Carotid Angioplasty and Stenting versus Carotid Endarterectomy for Treatment of Asymptomatic Carotid Stenosis: A Randomized Trial in a Community Hospital. *Neurosurgery* 54(2):318-325 01 Jan 2004. <https://doi.org/10.1227/01.NEU.0000103447.30087.D3>



17. Jain R, Hoeffner EG, Deveikis, JP, Thompson BG, **Harrigan MR**, and Mukherji SK. Carotid perfusion CT with balloon occlusion and acetazolamide challenge test: feasibility. *Radiology*, 2004; 231(3):906-13. doi: 10.1148/radiol.2313030093. Epub 2004 Apr 29. PMID: 15118119  
Clinical Trial
18. Abelson JL, Curtis GC, Sagher O, Albucher RC, **Harrigan M**, Taylor SF, Martis B, and Giordani B. Deep brain stimulation for refractory obsessive-compulsive disorder. *Biol Psychiatry*. 2005 Mar 1;57(5):510-6. doi: 10.1016/j.biopsych.2004.11.042. PMID: 15737666
19. Tubbs RS, Shaffer WA, Loukas M, Shoja MM, **Harrigan MR**, and Oakes WJ. Intraluminal septation of the basilar artery: Incidence and potential clinical significance. *Folia Morphol (Warsz)*. 2008 Aug;67(3):193-5. PMID: 18828101
20. Argo JL, Yellumahanthi DK, Ballem N, **Harrigan MR**, Fisher WS, Wesley MM, Taylor TH, Clements RH. Laparoscopic versus open approach for implantation of the peritoneal catheter during ventriculoperitoneal shunt placement. *Surg Endosc*. 2009 Jul;23(7):1449-55. doi: 10.1007/s00464-008-0245-x. Epub 2008 Dec 13. PMID: 19083058
21. D'Agostino SJ, **Harrigan MR**, Deveikis JR, Nicholas JS, Deveikis S, Jones T, Chalela JA. Initial clinical experience with Matrix2 360 detachable coils in the treatment of 100 saccular intracranial aneurysms. *Surg Neurol*. 2009 Jul;72(1):41-7. doi: 10.1016/j.surneu.2009.02.014. PMID: 19559926
22. Rubiera M, Cava L, Tsivgoulis G, Patterson DE, Zhao L, Zhang Y, Anderson AM, Robinson A, **Harrigan MR**, Horton J, Alexandrov AV. Diagnostic criteria and yield of real time transcranial Doppler (TCD) monitoring of intra-arterial (IA) reperfusion procedures. *Stroke*. 2010 Apr;41(4):695-9. doi: 10.1161/STROKEAHA.109.565762. Epub 2010 Feb 18. PMID: 20167923
23. Zhang Y, Cava L, Rubiera M, Alexandrov A, Patterson D, Balucani C, Tsivgoulis G, **Harrigan M**, Horton J, Alexandrov A. Discussions about life sustaining measures after intra-arterial procedures for acute ischemic stroke. *Cerebrovascular Diseases* (2010) 29 207-208 ST – Discussions about life sustaining me.
24. **Harrigan MR**, Rajneesh KF, Ardelt AA, Fisher WS. Short term antifibrinolytic therapy prior to early aneurysm treatment in subarachnoid hemorrhage: Effects on rehemorrhage, cerebral ischemia, and hydrocephalus. *Neurosurgery*. 2010 Oct;67(4):935-9; discussion 939-40. doi: 10.1227/NEU.0b013e3181ebaa36. PMID: 20881558
25. Tsivgoulis G, Zhang Y, Alexandrov AW, **Harrigan MR**, Sisson A, Zhao L, Brethour M, Cava L, Balucani C, Barlenn K, Patterson DE, DeWolfe J, Alexandrov AV. *Safety and tolerability of early non-invasive ventilatory correction (NIVC) in acute ischemic stroke*. *Stroke*, 2011 Apr;42(4):1030-4. doi: 10.1161/STROKEAHA.110.600221. Epub 2011 Mar 3. PMID: 21372308
26. Naftel NP, Argo JL, Shannon CN, Taylor HH, Tubbs RS, Clements RH, **Harrigan MR**. Laparoscopic versus open insertion of the peritoneal catheter: Review of 810 consecutive ventriculoperitoneal shunt cases. *J Neurosurg*. 2011 Jul;115(1):151-8. doi: 10.3171/2011.1.JNS101492. Epub 2011 Feb 11. PMID: 21314272
27. Mortazavi MM, Verma K, Tubbs RS, **Harrigan MR**. Pediatric traumatic carotid, vertebral and cerebral artery dissections: a review. *Childs Nerv Syst*. 2011 Dec;27(12):2045-56. doi: 10.1007/s00381-011-1409-x. Epub 2011 Feb 12. PMID: 21318614

28. Fleming JB, Shannon CN, Hoh B, Fargen KM, Mericle RA, Simon SD, Pride GL, Purdy PD, Welch BG, **Harrigan MR**, Rebleeding risk after treatment of ruptured intracranial aneurysms. *J Neurosurg*. 2011 Jun;114(6):1778-84. doi: 10.3171/2011.1.JNS101232. Epub 2011 Feb 18. PMID: 21332293
29. **Harrigan MR**, Weinberg JA, Peaks Y, Taylor SM, Cava LP, Richman J, Walters BC. Management of blunt extracranial traumatic cerebrovascular injury: A multidisciplinary survey of current practice. *World J Emerg Surg*. 2011 Apr 8;6:11. doi: 10.1186/1749-7922-6-11. PMID: 21477304. PMCID: PMC3097147
30. Zhao L, Barlinn K, Bag AK, Kesani M, Cava LF, Balucani C, Alexandrov AW, Horton JA, Patterson DE, **Harrigan MR**, Albright KC, Alexandrov AV. Computed tomography perfusion maps do not predict reversible and irreversible neurological dysfunction following reperfusion therapies. *Int J Stroke*. 2011 Dec;6(6):544-6. doi: 10.1111/j.1747-4949.2011.00681.x. PMID: 22111800
31. Wigton EH, Wells JR, **Harrigan MR**, Long JA, Vicinanza MG. Diagnosis and management of an intra-orbital vascular fistula. *Ophthalmic Plast Reconstr Surg*. 2012 Mar-Apr;28(2):e39-41. doi: 10.1097/IOP.0b013e31821971bf. PMID: 21629137
32. Richards BF, Fleming JB, Shannon CN, Walters BC, **Harrigan MR**. Safety and Cost Effectiveness of Step-down Unit Admission Following Elective Neurointerventional Procedures. *J Neurointerv Surg*. 2012 Sep;4(5):390-2. doi: 10.1136/neurintsurg-2011-010058. Epub 2011 Aug 5. PMID: 21990515
33. Griessenauer CJ, Fleming JB; Richards BF, Cava, LP Curé JK, Younan DS, Zhao L, Alexandrov AV, Barlinn K, Taylor R, **Harrigan MR**. Timing and mechanism of ischemic stroke due to extracranial blunt traumatic cerebrovascular injury. *J Neurosurg*. 2013 Feb;118(2):397-404. doi: 10.3171/2012.11.JNS121038. Epub 2012 Dec 7. PMID: 23216467
34. Walters BC, Hadley MN, Hurlbert RJ, Aarabi B, Dhall SS, Gelb DE, **Harrigan MR**, Rozelle CJ, Ryken TC, Theodore N. Guidelines for the management of acute cervical spine and spinal cord injuries: 2013 update. *Neurosurgery*. 2013 Aug;60(CN\_suppl\_1):82-91. doi: 10.1227/01.neu.0000430319.32247.7f. PMID: 23839357
35. Foreman PM, Griessenauer CJ, Falola M, **Harrigan MR**. Extracranial traumatic aneurysms due to blunt cerebrovascular injury. *J Neurosurg*. 2014 Jun;120(6):1437-45. doi: 10.3171/2014.3.JNS131959. Epub 2014 Apr 4. PMID: 24702325
36. **Harrigan MR**, Falola MI, Shannon CN, Westrick AC, and Walters BC. Incidence and trends in the diagnosis of traumatic extracranial cerebrovascular injury in the Nationwide Inpatient Sample database, 2003 to 2010. *J Neurotrauma*. 2014 Jun 1;31(11):1056-62. doi: 10.1089/neu.2013.3309. Epub 2014 Apr 11. PMID: 24494787
37. Foreman PM, Hendrix P, Griessenauer CJ, Schmalz PG, **Harrigan MR**. External ventricular drain placement in the intensive care unit versus operating room: evaluating of complications and accuracy. *J Neurosurg*. 2014 Jun;120(6):1437-45. doi: 10.3171/2014.3.JNS131959. Epub 2014 Apr 4. PMID: 24702325
38. Boehme AK, Rawal PV, Shahripour RB, Palazzo P, Albright KC, Kapoor N, Alvi M, Lysterly MJ, Houston JT, **Harrigan MR**, Cava L, Sisson A, Alexandrov AW, Alexandrov AV. Investigating the utility of previously developed prediction scores in AIS Patients in the stroke

belt. *J Stroke Cerebrovasc Dis*. 2014 Sep; 23(8): 2001–2006. Published online 2014 Aug 10. doi: 10.1016/j.jstrokecerebrovasdis.2014.02.003 PMID: PMC4780244. PMID: 25113079

39. Griessenauer CJ, Foreman P, Shoja MM, Kicielinski KP, Deveikis JP, **Harrigan MR**. Carotid and vertebral injury study (CAVIS) technique for characterization of blunt traumatic aneurysms with reliability assessment. *Interv Neuroradiol*. 2015 Apr;21(2):255-62. doi: 10.1177/1591019915582165. Epub 2015 May 5. PMID: 25943846 PMID: PMC4757231
40. Davis MC, Deveikis JP, **Harrigan MR**. Clinical Presentation, Imaging, and Management of Complications due to Neurointerventional Procedures. *Semin Intervent Radiol*. 2015 Jun;32(2):98-107. doi: 10.1055/s-0035-1549374. PMID: 26038618
41. Foreman PM, Griessenauer CJ, Chua M, Hadley MN, **Harrigan MR**. Corrective spinal surgery may be protective against stroke in patients with blunt traumatic vertebral artery occlusion. *J Neurosurg Spine*. 2015 Nov;23(5):665-670. doi: 10.3171/2015.1.SPINE141174. Epub 2015 Jul 17. PMID: 26186525
42. Foreman PM, **Harrigan MR**, Griessenauer CJ, Loukas M, Tubbs RS. Access to the carotid artery bifurcation: Cadaveric study with application to nasotracheal intubation as a technique to improve access to a high carotid artery bifurcation. *Br J Neurosurg*. 2015;29(6):865-7. doi: 10.3109/02688697.2015.1071331. Epub 2015 Aug 27. PMID: 26312946
43. Foreman PM, Chua M, **Harrigan MR**, Fisher WS 3<sup>rd</sup>, Tubbs RS, Shoja MM, Griessenauer CJ. Antifibrinolytic therapy in aneurysmal subarachnoid hemorrhage increases the risk for deep venous thrombosis: A case-control study. *Clin Neurol Neurosurg*. 2015 Dec;139:66-9. doi: 10.1016/j.clineuro.2015.09.005. Epub 2015 Sep 10. PMID: 26378393
44. Younan D, Lin E, Griffin R, Vanlandingham S, Waters A, **Harrigan M**, Pittet JF, Kerby JD. Early trauma-induced coagulopathy is associated with increased ventilator-associated pneumonia in spinal cord injury patients. *Shock*. 2016 May;45(5):502-5. doi: 10.1097/SHK.0000000000000531. PMID: 26863121
45. Boehme AK, Hays AN, Kicielinski KP, Arora K, Kapoor N, Lyerly MJ, Gadpaille A, Shiue H, Albright K, Miller D, Elkind MS, **Harrigan MR**. Systemic inflammatory response syndrome and outcomes in intracerebral hemorrhage. *Neurocrit Care*, 2016 Aug;25(1):133-40. doi: 10.1007/s12028-016-0255-9. PMID: PMC4955667. PMID: 26920909
46. Foreman PM, Chua M, **Harrigan MR**, Fisher WS 3<sup>rd</sup>, Vyas NA, Lipsky RH, Walters BC, Tubbs RS, Shoja MM, Griessenauer CJ. Association of nosocomial infections with delayed cerebral ischemia in aneurysmal subarachnoid hemorrhage. *J Neurosurg*, 2016 Dec;125(6):1383-1389. doi: 10.3171/2015.10.JNS151959. Epub 2016 Feb 12. PMID: 26871202
47. Adeeb N, Patel AS, Griessenauer CJ, Moore JM, Foreman PM, Gupta R, **Harrigan MR**, Ogilvy CS, Thomas AJ. Treatment of bifurcation aneurysms using single stent-coiling with relation to aneurysm configuration: A cohort study of two academic institutions in the United States. *Neurosurgery Aug 53 Suppl 1*:148, 2016
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### Chapters

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Reviews, Editorials and Letters to the Editor

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### Projects

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Goal: Determine genetic predictors of risk and clinical outcomes for aneurysmal subarachnoid hemorrhage. 31 May 2013.

### MEETING PRESENTATIONS

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| 1993 | <b>Harrigan MR</b> and Malouf AT. The effect of beta-amyloid on rat hippocampal slice cultures. <i>34th Annual National Student Research Forum</i> , Galveston, Texas           |

- 1997 **Harrigan MR.** Influence of seat belt usage and air bags on severity of head injury in motor vehicle crashes. *Michigan Association of Neurological Surgeons*, Lewiston, Michigan
- 1998 **Harrigan MR**, Butch SH, Sonad SS, and Sagher O. Blood transfusion in neurosurgery. *Michigan Association of Neurological Surgeons*, Thompsonville, Michigan
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- 1999 **Harrigan MR**, Satti JA, Deveikis JP, and Thompson BG. Effect of hematocrit on calculation of cerebral blood flow and lambda in xenon CT. *Fifth International Conference on Xenon CT-CBF*, Tokyo, Japan
- 2000 **Harrigan MR** and Keep RF. Therapeutic cerebral angiogenesis. *Joint Meeting of the AANS/CNS Section on Cerebrovascular Surgery*, New Orleans, Louisiana
- 2000 **Harrigan MR** and Keep RF. Therapeutic cerebral angiogenesis. *Michigan Association of Neurological Surgeons*, Traverse City, Michigan
- 2000 **Harrigan MR.** Xenon CT quantitative cerebral blood flow measurement. *Continuing Medical Education Series*, University of Texas Southwestern Medical Center
- 2001 **Harrigan MR.** CT perfusion cerebral blood flow measurement. *Michigan Association of Neurological Surgeons*, Mackinac Island, Michigan
- 2001 **Harrigan MR**, Ennis SR, Sullivan SE, and Keep RF. Effects of intraventricular infusion of vascular endothelial growth factor on cerebral blood flow, edema, and infarct volume. *Congress of Neurological Surgeons*, San Diego
- 2001 Park P, **Harrigan MR**, Chu S, Thompson, BG, and Deveikis, JP. Size and location of ruptured intracranial aneurysms. *Congress of Neurological Surgeons*, San Diego
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- 2002 **Harrigan MR.** Deep brain stimulation for obsessive compulsive disorder. *American Association of Neurological Surgeons*, Chicago
- 2002 **Harrigan MR**, Deveikis JP, Thompson BG, Hoeffner EG. Predictive value of CT perfusion in cerebral vasospasm after subarachnoid hemorrhage, *Radiology Society of North America*, Chicago

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- 2003 **Harrigan MR**, Magnano CR, Guterman LR, Hopkins LN. CT perfusion in the management of subarachnoid hemorrhage, *3<sup>rd</sup> International Symposium on CT and MR Brain Perfusion*, St. Louis, Missouri
- 2004 **Harrigan MR**, Villalobos HJ, Hopkins LN. Carotid angioplasty and stenting in the elderly, *Neurosurgery at Jackson Hole*, Jackson, Wyoming
- 2004 **Harrigan MR**. Carotid endarterectomy: Who benefits most? 11th Annual Stroke Belt Consortium Meeting, Orlando, Florida
- 2004 **Harrigan MR**. Stent-assisted coiling of intracranial aneurysms. *21<sup>st</sup> Annual Galbraith Society Meeting*, Birmingham, Alabama
- 2005 **Harrigan MR**. Carotid angioplasty and stenting. *Alabama Neurosurgery Society Meeting*, Seagrove Beach, Florida
- 2005 **Harrigan MR**. New developments in the care of patients with subarachnoid hemorrhage. *Alabama Neurosurgery Society Meeting*, Seagrove Beach, Florida
- 2005 **Harrigan MR**. Carotid angioplasty and stenting. *UAB Neurology and Neurosurgery Grand Rounds*, Birmingham, Alabama
- 2005 **Harrigan MR**. New advances in neuroendovascular therapies. *The Alabama Academy of Neurology 2<sup>nd</sup> Annual Neurology Update*, Birmingham, Alabama
- 2006 **Harrigan MR**. Update on neurovascular surgery. *Alabama Neurosurgery Society Meeting*, Sandestin, Florida
- 2006 **Harrigan MR**. Update on treatment of carotid disease. *Southern Surgeons Travel Club*, Birmingham, Alabama
- 2007 **Harrigan MR**. CT Perfusion Imaging. *UAB Department of Neurology*, Birmingham, Alabama
- 2007 **Harrigan MR**. Panel Discussion: Intra-arterial rescue, *Stroke Update 2007*; Birmingham, Alabama
- 2008 **Harrigan MR**. Update on the management of patients with intracranial aneurysms. *Alabama Neurosurgery Society Meeting*, Santa Rosa Beach, Florida
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- 2009 **Harrigan MR**. Latest developments in the management of atherosclerotic cerebrovascular disease. *25<sup>th</sup> Annual Galbraith Society Meeting*, Birmingham, Alabama

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- 2009 **Harrigan MR.** New developments in neuroendovascular therapies. *6<sup>th</sup> Annual Neurology Update 2009*, Birmingham, Alabama
- 2020 **Harrigan MR.** Poster presentation. Cerebral Large Artery Disease. *International Stroke Conference*. Los Angeles, CA. February 20, 2020
- 2021 **Harrigan MR,** Ducruet A, Fox C, Tjoumakaris S. Congress of Neurological Surgery Oral Board Review Fall 2021: *Cerebrovascular*. Webinar. 05 Oct 2021.
- 2021 **Harrigan MR.** Luncheon Seminar #: M05. Title: Neurovascular Care in Neurotrauma. *2021 Congress of Neurosurgical Surgeons Annual Meeting*. Austin, TX. 18 Oct 2021
- 2022 **Harrigan MR.** Title: Blood thinners for spontaneous extracranial cerebrovascular dissections. *International Stroke Conference*. New Orleans, LA. 17 Feb 2022.
- 2022 **Harrigan MR.** Title: 21<sup>st</sup> Century Management of Carotid Artherosclerosis. *Neurosurgical Society of Alabama Annual Meeting*. Gulf Shores, AL. June 10-12, 2022.
- 2023 **Harrigan MR.** Session Title: Who Should We Save? A Multi-Disciplinary Case Based Discussion. Panelist: *Open Neurosurgery*. 2023 International Stroke Conference. Dallas, TX. 10 Feb 2023
- 2023 **Harrigan MR.** Cerebrovascular Abstract Reviewer. *2023 AANS Annual Scientific Meeting*. Los Angeles, CA. April 21-24, 2023.

### **VISITING PROFESSORSHIPS**

- 07/2012 University of New Mexico, Albuquerque, NM, Department of Neurosurgery
- 01/2013 Ascension Providence Hospital, Southfield, MI, Department of Neurosurgery
- 07/2018 Columbia University, NYC, NY, Department of Neurosurgery
- 11/2018 MetroHealth Medical Center, Cleveland, OH, Department of Neurosurgery
- 09/2022 Michigan State University, Southfield, MI, Department of Neurosurgery
- 11/2022 Paracelsus Medical University (PMU) Salzburg, Institute for Neuroscience – Austria, Department of Neurosurgery

### **MEDIA**

- 04/04/2014 **Harrigan, MR.** Sign of an Aneurysm. *ABC 33/40 News – Your Health*. [Your Health: Sign of an Aneurysm | WBMA \(abc3340.com\)](https://www.abc3340.com/sign-of-an-aneurysm).
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- 08/24/2016 **Harrigan MR**. New Developments in the Management of Intracerebral Hemorrhage. *UAB Medicine*. [Dr. Mark Harrigan, MD - Birmingham, AL - Endovascular Neurosurgery, Neurosurgery - Book Appointment \(uabmedicine.org\)](https://www.uabmedicine.org).
- 03/27/2018 **Harrigan MR**. UAB alumnus/student/employee becomes patient following brain blood clot. *UAB News – Health & Medicine*. [UAB alumnus/student/employee becomes patient following brain blood clot - News | UAB](https://www.uab.edu/news)
- 04/29/2020 **Harrigan MR**. Coronavirus linked to strokes in younger Adults. *CBS News*. [Coronavirus linked to strokes in younger adults - CBS News](https://www.cbsnews.com).
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- 10/28/2020 Jones, JGA, **Harrigan M**, Liptrap EJ. UAB Medicine, "Treatment of Intracranial Aneurysms". *UAB Med Cast*. [Treatment of Intracranial Aneurysms \(radiomd.com\)](https://www.radiomd.com).
- 11/30/2020 **Harrigan M**, Liptrap E. UAB Medicine, "State of the Art Management of Carotid Disease". *UAB Med Cast*. [State of the Art Management of Carotid Disease \(radiomd.com\)](https://www.radiomd.com).
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- 02/07/2022 **Harrigan MR**. UAB School of Medicine-Department of Neurosurgery. News & Events. "UAB Neurosurgery propels Stroke Care to receive Women's Choice Award designation". [UAB Neurosurgery propels Stroke Care to receive Women's Choice Award designation - Neurosurgery | UAB](https://www.uab.edu/news)
- 07/08/2022 Shufflebarger E, **Harrigan MR**, et al. UAB School of Medicine-Department of Neurosurgery. News & Events. "Cross-departmental research team seeks to educate high-risk patients about stroke". [Cross-departmental research team seeks to educate high-risk patients about stroke - Neurosurgery | UAB](https://www.uab.edu/news)
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