

Curriculum Vitae

NAME: Mark B. Frenkel, M.D, M.A, FAANS

CURRENT TITLE: Board Certified Neurosurgeon

ADDRESS: Neuroscience and Spine Associates
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EDUCATION (in chronologic order):

2003-2007	Bachelor of Science in Human Biology Awarded with Honors Michigan State University East Lansing, MI
2007-2008	Master of Arts in Medical Sciences Loyola University Chicago Chicago, IL
2008-2013	Doctor of Medicine Awarded with Honors with Distinction in Research Case Western Reserve University School of Medicine Cleveland, OH
2013-2020	Resident Physician in Neurosurgery Wake Forest Baptist Medical Center Winston Salem, NC
2018-2020	Chief Resident Physician in Neurosurgery Wake Forest Baptist Medical Center Winston Salem, NC

EMPLOYMENT:

2020-Present	Neuroscience and Spine Associates Neurosurgery - Complex and Minimally Invasive Spine Neurosurgery - General Naples, FL
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PROFESSIONAL LICENSURE

2013-2020	State of North Carolina Medical License
2020-Present	State of Florida Medical License

SPECIALTY CERTIFICATION

2013-2020	Resident Physician, Department of Neurological Surgery
2022-Present	Board Certified by the American Board of Neurological Surgery

EMPLOYMENT:

Research Experience

2005-2007	Brain Research and Repair Lab, Michigan State University, Focus on Neuroprotective Agents
2011-2012	The Miami Project to Cure Paralysis Dr. Allan Levi, P.I.

OTHER PROFESSIONAL APPOINTMENTS AND INSTITUTIONAL SERVICE:

Institutional Committee Service:

2013-2019	Resident Quality Improvement Committee, Member
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AWARDS:

Award for Academic Excellence. Wake Forest Department of Neurological Surgery. 2017. Awarded for scoring in the 92nd percentile on the Neurosurgery written board exam.

First Place – Wake Forest Team - Congress of Neurological Surgeons 2018 SANS Challenge

BIBLIOGRAPHY:

Grants:

Resident Research Grant. “Will Augmented Reality Prove to be a Useful Tool for Spine Surgery and the Natural Evolution of Intraoperative Navigation?” North Carolina Spine Society. July 2016

Peer-Reviewed Journal Articles:

Renfrow JJ, Soike MH, West JL, Ramkissoon SH, Metheny-Barlow L, Mott RT, Kittel CA, D'Agostino RB Jr, Tatter SB, Laxton AW, **Frenkel MB**, Hawkins GA, Herpai D, Sanders S, Sarkaria JN, Lesser GJ, Debinski W, Strowd RE. Attenuating hypoxia driven malignant behavior in glioblastoma with a novel hypoxia-inducible factor 2 alpha inhibitor. *Sci Rep*. 2020 Sep 16;10(1):15195.

Juneja P, **Frenkel MB**, Carmichael SP, Sarwal A. Gray-Scale Sonography of the Spinal Cord in Postlaminectomy Patient. *J Diag Med Sonography*. 2021;37(2):200-205.

West JL, **Frenkel MB**, Renfrow JJ, Wilson JA. Craniocervical Osteoradionecrosis Treated with Neoadjuvant and Adjuvant Hyperbaric Oxygen in Combination with Posterior Spinal Fusion. *World Neurosurgery*. Accepted, pending publication. 2019.

Renfrow JJ, Soike MH, Debinski W, Ramkissoon SH, Mott RT, **Frenkel MB**, Sarkaria JN, Lesser GJ, Strowd RE. Hypoxia-inducible factor 2 α : a novel target in gliomas. *Future Med Chem*. 2018;10(18):2227-2236.

Frenkel MB, Frey CD, Renfrow JJ, Wolfe SQ, Powers AK, Branch CL Jr. A Call for Consistent Radiographic Definition of Lumbar Lordosis. *J Neurosurg Spine*. 2018;29(2):231-234.

McDonald ML, Patel N, Masmoudi Y, **Frenkel M**, Taxter A, Miller DM, Dharod A. “A WHIRL-wind innovation: Revolutionizing inpatient rounding with the WHIRL”. *Journal of General Internal Medicine* 2018;33(2 Suppl):S757.

Frenkel MB, Sarwal A, Wren MP, Newey CR, Couture DC. Subdural Instillation of a Thrombolytic Agent for Treatment of Recurrent Subdural Hematoma. *Clin Neuropharmacol*. 2017;40(6):279-280.

Frenkel MB, Renfrow JJ, Singh J, Garg N, Wolfe SQ. Combined interventional and surgical treatment of tandem middle cerebral artery embolus and internal carotid artery occlusion: case report. *J Neurosurg*. 2018;129(3):718-722.

Renfrow JJ, **Frenkel MB**, Edwards MS, Wilson JA. Evaluation of a Traumatic Vertebral Artery Occlusion. *World Neurosurg*. 2017 Feb 27.

Renfrow JJ, **Frenkel MB**, Hsu W. Fungal Contamination of Methylprednisolone Causing Recurrent Lumbosacral Intradural Abscess. *Emerg Infect Dis*. 2017 Mar;23(3):552-553

Ahmad FU, **Frenkel MB**, Levi AD. Spinal stability after resection of nerve sheath tumors. *J Neurosurg Sci* 2015

Frenkel MB, Cahill KS, Javahary RJ, Zacur G, Green BA, Levi AD. "Fusion rates in multilevel, instrumented anterior cervical fusion for degenerative disease with and without the use of bone morphogenetic protein". *J Neurosurg Spine*. 2013 Mar;18(3):269-73.

Krishnamurthy RG, Senut M-C, Zemke D, Min J, **Frenkel MB**, et al. "Asiatic acid, a pentacyclic triterpene from *Centella asiatica*, is neuroprotective in a mouse model of focal cerebral ischemia." *J. Neurosci. Res*. 2009;87(11):2541–2550.

Rajanikant GK, Zemke D, Senut M-C, **Frenkel MB**, et al. "Carnosine is neuroprotective against permanent focal cerebral ischemia in mice." *Stroke*. 2007;38(11):3023–3031.

Book Chapters:

Frenkel MB, Hart DJ. Pre-psoas (oblique) lateral interbody fusion at L5/S1. *Modern Techniques in Lumbar Interbody Fusion*. Elsevier. 2018

Frenkel MB, Renfrow JR, Branch CL. Lumbar Cortical Screw Fixation. *Essentials of Spinal Stabilization*. Springer Science. 2018

Renfrow JR, **Frenkel MB**, Branch CL. MAST MIDLIF Modern Techniques in Lumbar Interbody Fusion. Elsevier. 2018

Frenkel MB, Hart DJ. Odontoid Screw Fixation. *Essentials of Spinal Stabilization*. Springer Science. 2018

Grand Rounds:

Neurosurgery Grand Rounds: Osteoporosis for the Neurosurgeon. October 17, 2017

Neurosurgery Grand Rounds: Upper Extremity Peripheral Nerve. December 20, 2016.

Neurosurgery Grand Rounds: Cerebral Veins: Anatomy and Implications. March 22, 2016

Neurosurgery Grand Rounds: Management of Odontoid Fractures. April 26, 2016

Quality Improvement Projects:

Developed EMR-integrated patient management system for the Department of Neurosurgery

Developed Wake Health Inpatient Rounding List (WHIRL) EHR-integrated application (currently rolling out to additional pilot sites) – 300 lists printed a day with over 1.8 million patients queried to date.

Abstracts/Scientific exhibits/Presentations at national meetings:

Gomez J, Frenkel M, Carmicheal S, Sarwal A. Case Report: B mode ultrasound images of the thoracic

spine. American Academy of Neurology 71st Annual Meeting. May 2019. Philadelphia, PA

Frenkel M, Gomez J, Carmicheal S, Sarwal A. Case Report: B mode ultrasound images of the thoracic spine. 42nd Annual Meeting of the American Society of Neuroimaging, Rio Grande, Puerto Rico, USA 2018

Frenkel MB, Taxter A, Dharod A. "Institution-Wide Implementation of a Custom-Developed Inpatient Rounding List System: Preliminary Outcome." Congress of Neurological Surgeons 2018 Annual Meeting; October 2018, Houston, TX

Frenkel MB, Taxter A, Dharod A. "WHIRL: Wake Health Inpatient Rounding Data: Preliminary Data". Presentation at 2018 Wake Forest Baptist Medical Center Quality Improvement Showcase; May 2018. Oral and Poster Presentation. Award – QI Project of the Year Finalist

McDonald ML, Patel N, Masmoudi Y, Frenkel MB, Taxter A, Miller DM, Dharod A. "A WHIRL-wind innovation: Revolutionizing inpatient rounding with the WHIRL". Presentation at Annual Society of General Internal Medicine Conference; April; 2018. Denver, CO.
Received Honorable Mention – Wild card category

Dharod A, Frenkel MB, Babcock D, Taxter A. Wizarding aROUND the WHIRLd with FHIR: Improving Inpatient Rounding Lists. North Carolina Epic UGM 2018. Greensboro, NC. February 22-23, 2018

McDonald ML, Patel N, Masmoudi Y, Frenkel MB, Taxter A, Miller DM, Dharod A. "A NOVEL INPATIENT ROUNDING LIST: GIVE IT A WHIRL". Society of Hospital Medicine 2018 Annual Meeting. Poster Presentation. April 2018.

Frenkel, MB, Countryman C, Mathes AR, Branch Jr CL. "Cortical Bone Trajectory Screws for Midline Lumbar Fusion". Congress of Neurological Surgeons 2017 Annual Meeting. Poster Presentation. Boston, MA. September 2017.

Dharod A, Frenkel MB, Babcock D, Taxter A. *UGM008: Wizarding Around the WHIRLd with FHIR: Improving Inpatient Rounding Lists (CME, CNE, and CPE)*. Oral presentation at: Annual Epic Users Group Meeting (UGM); September; 2017. Verona, WI.

Frenkel, MB. "Will Augmented Reality Prove to be a Useful Tool for Spine Surgery and The Natural Evolution of Intraoperative Navigation?" Oral Presentation. North Carolina Spine Society Annual Meeting. August, 2017

Frenkel, Mark B., MD, Mathes, Adam R., MD, Hart, David J., MD, Branch Jr., Charles L., MD. Lordotic Cages Contribute to Segmental Lordosis In Posterior Lumbar Interbody Fusions. Poster Presentation. Wake Forest Department of Surgical Services Research Day, November, 2016

Frenkel MB. "Lordotic Cages Contribute to Segmental Lordosis in Posterior Lumbar Interbody Fusions." Poster presentation. AANS Annual Scientific Meeting. May, 2016

Frenkel MB. "Placement of Lordotic Cages Maintains Segmental and Lumbar Lordosis in Posterior Lumbar Interbody Fusions." Oral Presentation. CNS Section on Disorders of the Spine and Peripheral Nerves annual meeting. March, 2016

Mark B. Frenkel MD, Stacey Q. Wolfe MD. A Customized Patient List System with Electronic Medical Record Integration. Poster presentation. AANS Annual Scientific Meeting 2015

Mark B. Frenkel MD, Stacey Q. Wolfe MD. A Customized Patient List System with Electronic Medical Record Integration. Poster presentation. Wake Forest Department of Surgical Services Research Day, 2014

Mark B Frenkel MD, Aarti Sarwal MD, Daniel Couture MD. Subdural Injection of a Thrombolytic Agent for Treatment of Recurrent Subdural Hematoma. Poster presentation. AANS Annual Scientific Meeting 2015.

Frenkel MB. "The Use Of BMP In Anterior Cervical Discectomy and Fusion." Oral presentation. University of Miami Rosomoff Research Day, May 2012.

Co-author, "Proposal of a Community-Based Approach to Increase Diabetes Awareness." Poster presentation. Presented March 2009.