

Richard Vogel, PhD
Board-Certified Neurophysiologist
President, American Society of Neurophysiological Monitoring

Curriculum Vitae
Last Update: November 15, 2024

Contact & Demographics

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[LinkedIn](#)

Location: Nashville, TN

Birthplace: Pennsylvania

Age: 48

Citizenship: USA

Education

PhD – Neuroscience

- Indiana University (Bloomington, IN). September 2002 – May 2009.
- Foci: neurophysiology, pharmacology

PhD – Psychology

- Indiana University (Bloomington, IN). September 2002 – May 2009.
- Foci: learning, memory, cognition

BS/MS – Psychology

- St. Joseph's University (Philadelphia, PA). September 1994 – May 2000.
- Foci: learning, memory, cognition, addiction, pharmacology

Postdoctoral Training

Clinical Neurophysiology – Intraoperative Neurophysiological Monitoring

- Surgical Monitoring Associates (Springfield, PA). May 2010 – May 2011.

Pharmacology & Neurophysiology

- University of Pennsylvania School of Medicine (Philadelphia, PA). April 2009 – April 2010.

Board Certifications

American Board of Neurophysiologic Monitoring (ABNM). May 2014 – Present.

- Board certified in the professional aspects of intraoperative neurophysiological monitoring and mapping of the human nervous system, including supervision of technologists, interpretation of data, elaboration of differential diagnosis, recommendations for therapeutic intervention & independent reporting with clinical impression.

American Board of Registration of Electroencephalographic and Evoked Potential Technologists (ABRET). 2011 – Present

- Certified in Neurophysiological Intraoperative Monitoring (CNIM Certification) attesting to competency in the technical aspects of monitoring and mapping of the human nervous system during high-risk surgical procedures.

Other Credentials & Training

Credential of Readiness – Business:

- Harvard University (Boston, MA). January 2021 – May 2021.
- Courses: Economics for Managers, Financial Accounting, Business Analytics. Offered by Harvard Business School Online.

Evidence-Based Medicine Training Program

- North American Spine Society (Online/Interactive). February 2018 – April 2018.

Patient Safety with TeamSTEPPS Training

- Teamwork Skills Workshop (Philadelphia, PA). May 2013.
- Sponsors: LifeWings Partners, LLC and The University of Tennessee College of Medicine.

Safety in Spine Surgery

- Checklists & Guidelines Which Make Spine Surgery Safer (Webinar). April 2022.
- Safety in Spine Surgery (Webinar). April 2021.
- 5th Annual Safety in Spine Surgery Summit (New York, NY). March 2020.
- 4th Annual Safety in Spine Surgery Summit (New York, NY). April 2019.

Current Academic Appointments

Rush University, College of Health Sciences (Chicago, IL).

- Adjunct Instructor, Department of Health Sciences. 2022 – Present.
- Chair of Kathryn (Overzet) Jaquez's dissertation committee.

Past Academic Appointments

Temple University, College of Arts and Sciences (Philadelphia, PA).

- Adjunct Assistant Professor, Department of Psychology. Spring Semester 2010.

University of Pennsylvania School of Medicine (Philadelphia, PA).

- Postdoctoral Fellow, Department of Pharmacology. 2009-2010.

Indiana University, College of Arts and Sciences (Bloomington, IN).

- Graduate Research & Teaching Assistant, Departments of Neuroscience & Psychology. 2002-2006.

Employment History

Real Time Neuromonitoring Associates | Allied Managed Processes (Nashville, TN).

- Vice President of Clinical Services. 2022 – 2024.

Neurological Monitoring Associates (Milwaukee, WI).

- President & CEO. 2021 – 2022.

NuVasive Clinical Services (Columbia, MD; Worked in Philadelphia).

- *Transition by acquisition of SafePassage Health (below) in March 2018.*
- Leader of Clinical Strategy. 2018 – 2021.
- Neurophysiologist. 2018 – 2021.

SafePassage Health (New York, NY; Worked in Philadelphia).

- Director of Special Projects and Strategic Initiatives. 2016 – 2018.
- Area Manager, Philadelphia. 2015 – 2018.
- Neurophysiologist. 2014 – 2018.

SpecialtyCare (Brentwood, TN; Worked in Philadelphia).

- *Transition by acquisition of Surgical Monitoring Associates (below) in 2011.*
- Area Manager, Philadelphia. 2012 – 2014.
- Clinical Trainer. 2012 – 2014.
- Neurophysiologist. 2011 – 2014.

Surgical Monitoring Associates (Springfield, PA).

- Neurophysiologist. 2011.
- Neurophysiology Fellow. 2010 – 2011.

University of Kansas (Lawrence, KS).

- Visiting Researcher, Department of Psychology. 2006 – 2009.

Temple University Hospital (Philadelphia, PA).

- Staff Researcher, Radiology & Diagnostic Imaging. 2000 – 2002.

Albert Einstein Healthcare Network (Philadelphia, PA).

- Lab Manager, Cognitive and Behavioral Neuroscience. 1999 – 2002.

Contract Employment History

Stimulating Stuff, LLC (Nashville, TN)

- Founder and CEO. 2023 - Present
- A consulting and advisory practice focused on elevating healthcare and biotech firms with expert consultation on market trends, education, communications, and strategy.

Golden Gate Neuromonitoring (San Francisco, CA; Worked in Philadelphia, PA).

- Remote Oversight Neurophysiologist (Independent Contractor). 2015 – 2016.

For-Profit Board Positions

Nervio Neurophysiological AI (Israel)

- Scientific Advisory Board. 2023 – Present.

Not-For-Profit Board Positions

American Society of Neurophysiological Monitoring (ASNM)

- President. 2019 – 2020; 2024 – 2025.
- At-Large Board Member. 2016 – 2018.

Other Volunteer Leadership

American Board of Neurophysiologic Monitoring

- Director (Board Member & Examiner). 2015 – Present.
- Application Review Committee. 2016 – Present.
- Social Media Committee. 2023 – Present.

American Society of Neurophysiological Monitoring

- Bylaws Committee: 2018 – 2024.
- Education Committee: 2017 – Present (Co-Chair 2017 – 2019).
- Executive Committee: 2018 – 2021; 2023 – Present.
- Finance & Audit Committee: 2023 – Present.
- Nominating Committee: 2024 – Present.
- Research Committee: 2016 – 2018.

ASET – The Neurodiagnostic Society

- Continuing Education Unit (CEU) Committee: 2016 – 2024.

North American Spine Society (NASS)

- Co-Founder & Co-Chair – Neuromonitoring Section. 2017 – Present.
- Committee Member – Section Development Committee: 2017 – Present.

Honors and Awards

Founder’s Award – American Society of Neurophysiological Monitoring (ASNM)

- Awarded in recognition of commitment to the profession of IONM as evidence by contributions to the Society, contributions to the literature, and commitment to delivering the highest quality of patient care in IONM. ASNM Annual Meeting: May 2023.

Fellow – American Society of Neurophysiological Monitoring (ASNM)

- Awarded in recognition of service to the Society and to the profession of intraoperative neurophysiological monitoring (IONM). ASNM Annual Meeting: February 2018.

Teamwork Excellence – SpecialtyCare, Inc.

- This national award recognizes one Team Leader in each Service Line who goes above and beyond the scope of his or her job, and consistently demonstrates outstanding qualities that motivate and inspire others to succeed. Requires nomination by peers and/or senior management. SpecialtyCare, Inc.: January 2013

Clinical Excellence – SpecialtyCare, Inc.

- This national award recognizes Associates who have demonstrated commitment to delivering the highest quality of patient care. Requires nomination by senior management. SpecialtyCare, Inc.: January 2013

Research Awards – American Society of Neurophysiological Monitoring (ASNM)

- **First Place Abstract:** Na S, Callahan B, Vogel R. A Multi-Institutional Analysis of Intraoperative Neurophysiologic Monitoring in Transcarotid Artery Revascularization Procedures. Annual Meeting: May 2021.

- **First Place Poster:** Blodgett C, Greenberg H, Callahan BE, McCarthy KM, Moussa M, and Vogel RW. Utility of Intraoperative Facial Electroneurography during Ethanol Ablation of a Recurrent Parotid Tumor. Annual Meeting: May 2021.

Predoctoral Fellowship – Indiana University Program in Neuroscience

- Awarded to outstanding graduate student by faculty selection process. NINDS Training Grant (5 T32-NS007487) to Dr. George V. Rebec. Indiana University: September 2005.

Sigma Xi Induction (Associate Member) – The Scientific Research Honor Society

- Awarded in recognition of scientific achievement. Saint Joseph’s University: March 1999 (Member ID: 996680012).

Psi Chi Induction (Lifetime Member) – National Honor Society in Psychology

- Awarded in recognition of academic achievements in Psychology. Saint Joseph’s University: March 1999.

Professional Affiliations

American Clinical Neurophysiology Society (ACNS)

- Full Member. 2012 – Present.

American Society of Neurophysiological Monitoring (ASNM)

- Full Member: 2012 – 2017.
- Fellow Member: 2018 – Present.

International Society for Intraoperative Neurophysiology (ISIN)

- Full Member. 2014 – Present.

Intraoperative Neurophysiology Society of Asia-Pacific (INSA)

- Honorary Member. 2022 – Present.

North American Spine Society (NASS)

- Affiliate Member. 2015 – Present.

The Neurodiagnostic Society (ASET)

- Full Member. 2014 – Present.

Pedagogical Training & Experience

Indiana University (Bloomington, IN)

- Student: Public Speaking: Four years of training in public speaking in doctoral program. 2002 – 2006.
- Student: The Teaching of Psychology (P660): Training included curriculum and syllabus development, lecturing, grading, and ethical considerations.
- Graduate Teaching Assistant:
 - Introduction to Psychology for the Major (2 semesters)
 - The Psychology of Motivation (3 semesters)
 - Learning and Behavior (1 semester)
 - Cognitive Neuroscience (1 semester)
 - Motivation (1 semester)
 - Behavioral Neuroscience (1 semester)

- Sensation and Perception (1 semester)
- Introduction to Psychology Laboratory (1 semester, 2005)

Temple University (Philadelphia, PA)

- Instructor: Fundamentals of Neuroscience (1 semester, 2010)

North American Spine Society (Online)

- NASS Faculty Development Program: Strategies to Become an Effective Facilitator of Learning. 2023.

Conferences & Symposia Organized and Moderated

Conference Chair/Organizer

American Society for Neurophysiological Monitoring

- Annual Meeting (Washington, DC): May 2024.
- Annual Meeting (St. Louis, MO; Cancelled – COVID-19): May 2020.
- Fall Symposium (Nashville, TN): September 2018.
- Fall Symposium (Boston, MA): September 2016.

Atlantic Health Neuroscience Conference (Dissolved)

- Annual Meeting (Summit, NJ): March 2015, April 2016, April 2017, April 2018.

Moderator

American Society for Neurophysiological Monitoring

- Session: *Setting the Standard for Measuring Quality and Efficacy*. Fall Symposium (Boston, MA). September 2016.
- Session: Multiple sessions throughout meeting. Fall Symposium (Nashville, TN). September 2018.
- Session: *Neuromonitoring Below the Dens*: Winter Town Hall (Virtual). February 2020.

ArabSpine

- Session: *Course Diploma Module II*. Annual Meeting (Dubai, UAE). April 2018.

Symposium Organizer & Moderator

North American Spine Society

- Symposium: *Debating Practices in Neuromonitoring*. Annual Meeting (Los Angeles, CA). October 2023.
- Symposium: *Roundtable: Neuromonitoring: Prediction and Prevention of Neurological Deficits*. Annual Meeting (Chicago, IL). October 2022.
- Symposium: *Regulatory and Medicolegal Aspects of Neuromonitoring in Spine Surgery*. Annual Meeting Pre-Course (Virtual/OnDemand). September 2021.
- Symposium: *Neuromonitoring in Cervical Spine Surgery: Utility, Value, and Lessons Learned*. Annual Meeting (Boston, MA). September 2021.
- Symposium: *Intraoperative Neuromonitoring and Deformity Surgery*. Annual Meeting (Virtual). October 2020.
- Symposium (Organizer Only): *Intraoperative Neuromonitoring: To Use or Not to Use, That is the Question*. Annual Meeting (Virtual). October 2020.

- Symposium: *Neuromonitoring in Spine Surgery: What Would You Do?* Annual Meeting (Chicago, IL). September 2019.
- Symposium: *Analyzing the Utility, Evidence, and Value of Neuromonitoring in Spine Surgery*. Annual Meeting (Los Angeles, CA). September 2018.
- Abstract Symposium: *Navigation and Intraoperative Monitoring*. Annual Meeting (Los Angeles, CA). September 2018.

10th Interdisciplinary World Congress on Low Back and Pelvic Girdle Pain

- Symposium: *A Critical Appraisal of Electrodiagnostics and Intraoperative Neuromonitoring*. Semi-Annual Meeting (Antwerp, BE). October 2019.

Other Digital Education

Expert Panelist – “Ask The Experts” – A video series by the North American Spine Society

- *Neuromonitoring for Intramedullary Spinal Cord Tumor Resection*. Recorded at NASS Annual Meeting, October 2023.
- *Classifying clinical outcomes in the context of neuromonitoring data*. Recorded at NASS Annual Meeting, September 2022.
- *Safety and teamwork in IONM: Where can we improve?* Recorded at NASS Annual Meeting, October 2021.
- *The past, present and future of intraoperative neuromonitoring*. Recorded at NASS Annual Meeting, October 2021.
- *The therapeutic value of neuromonitoring*. Recorded at NASS Annual Meeting, October 2021.
- *What are the real criteria for a neuromonitoring alerts in spine surgery?* Recorded at NASS Annual Meeting, September 2018.

Virtual Education Course – “Communication, Documentation, and Medicolegal Concepts in Neuromonitoring” – A 12-part modular course for ASET – The Neurodiagnostic Society, November 2024. Example modules include:

- Teamwork in Neuromonitoring
- Communication in the Operative Setting
- Documentation Standards in Neuromonitoring
- Documenting Your Career
- Medicolegal Principles in Neuromonitoring

Editorial & Peer-Review Work

The Monitor

- Editor, Associate Editor. 2014 – 2016. Editor of “The Stacks” column which provided monthly summaries of recently-published literature. The Monitor was a monthly newsletter published by the American Society of Neurophysiological Monitoring.

The Neurodiagnostic Journal

- Peer/Editorial Reviewer. 2015 – Present.

The Spine Journal

- Peer/Editorial Reviewer. 2017 – Present.

Publications

Book Chapters

- Doan AT, Vogel RW, & Sestokas AK. (2018). Chapter 12: Spinal Cord and Nerve Root Monitoring (Neurophysiologic Monitoring). In: Vaccaro AR, Su BW, Wang Y, Dvorak MF, Mayer MH, Chiba K, *et al* (Eds.). *The Spine: Medical & Surgical Management*. New Delhi: Jaypee Brothers Medical Publishers. [ISBN: 9789351524946](#).

Peer-Reviewed Manuscripts

- DeBruyn L, Kenney K, Ebinger K, Vogel R. There's No "I" in "Team": Recommendations for Effective Teamwork and Communication in IONM. *Neurodiagn J*. 2024 May 29;1-16. PMID: [38810271](#).
- Johnson P, Mur T, Vogel R, Roehm PC. Percutaneous Threshold of Facial Nerve Stimulation Predicts Facial Canal Dehiscence. *Neurodiagn J*. 2019;59(2):91-103. PMID: [31210607](#).
- Gertsch JH, Moreira JJ, Lee GR, Hastings JD, Ritzl E, Eccher MA, Cohen BA, Shils JL, McCaffrey MT, Balzer GK, Balzer JR, Boucharel W, Guo L, Hanson LL, Hemmer LB, Jahangiri FR, Mendez Vigil JA, Vogel RW, Wierzbowski LR, Wilent WB, Zuccaro JS, Yingling CD; membership of the ASNMM. Practice guidelines for the supervising professional: intraoperative neurophysiological monitoring. *J Clin Monit Comput*. 2019 Apr;33(2):175-183. PMID: [30374759](#)
- Riley MR, Doan AT, Vogel RW, Aguirre AO, Pieri KS, Scheid EH. Use of motor evoked potentials during lateral lumbar interbody fusion reduces postoperative deficits. *Spine J*. 2018 Oct;18(10):1763-1778. PMID: [29505853](#).
- Singh H, Vogel RW, Lober RM, Doan AT, Matsumoto CI, Kenning TJ, Evans JJ. Intraoperative Neurophysiological Monitoring for Endoscopic Endonasal Approaches to the Skull Base: A Technical Guide. *Scientifica (Cairo)*. 2016;2016:1751245. PMID: [27293965](#).
- Vogel RW, Amundson JC, Lindquist DH, Steinmetz JE. Eyeblink conditioning during an interstimulus interval switch in rabbits (*Oryctolagus cuniculus*) using picrotoxin to disrupt cerebellar cortical input to the interpositus nucleus. *Behav Neurosci*. 2009 Feb;123(1):62-74. PMID: [19170431](#).
- Lindquist DH, Vogel RW, Steinmetz JE. Associative and non-associative blinking in classically conditioned adult rats. *Physiol Behav*. 2009 Mar 2;96(3):399-411. doi: 10.1016/j.physbeh.2008.11.008. Epub 2008 Nov 27. PMID: [19071146](#).
- Woodruff-Pak DS, Vogel RW 3rd, Wenk GL. Mecamylamine interactions with galantamine and donepezil: effects on learning, acetylcholinesterase, and nicotinic acetylcholine receptors. *Neuroscience*. 2003;117(2):439-47. PMID: [12614684](#).
- Vogel RW, Ewers M, Ross C, Gould TJ, Woodruff-Pak DS. Age-related impairment in the 250-millisecond delay eyeblink classical conditioning procedure in C57BL/6 mice. *Learn Mem*. 2002 Sep-Oct;9(5):321-36. PMID: [12359840](#).

- Woodruff-Pak DS, Vogel RW 3rd, Ewers M, Coffey J, Boyko OB, Lemieux SK. MRI-assessed volume of cerebellum correlates with associative learning. *Neurobiol Learn Mem.* 2001 Nov;76(3):342-57. PMID: [11726241](#).
- Woodruff-Pak DS, Vogel RW 3rd, Wenk GL. Galantamine: effect on nicotinic receptor binding, acetylcholinesterase inhibition, and learning. *Proc Natl Acad Sci U S A.* 2001 Feb 13;98(4):2089-94. Epub 2001 Feb 6. PMID: [11172080](#).

Non-Refereed Publications

- Vogel RW, Fader ED. OIG Advisory Opinion Cautions Against “Surgeon Deals” in Neuromonitoring. *SpineLine*, May-June, 2024. A North American Spine Society publication.
- Vogel R. Review of “Parkinson’s Disease and Other Movement Disorders (2nd Edition),” by Mark J. Edwards, Maria Stamelou, Niall Quinn, and Kailash P. Bhatia. *Neurodiagn J.* 2023;63(1):105-106. <https://doi.org/10.1080/21646821.2023.2183011>
- Wilent WB, Ney JP, Balzer J, Donohur ML, Gertsch JH, Holdefer R, Jahangiri FR, Overzet K, Shils J, Vogel R. Neurosurgical Forum. Letters to the Editor: Intraoperative neurophysiological monitoring and ACDF. *J Neurosurg Spine.* 2019 Oct 4:1-2. PMID: [31585415](#).
- Vogel RW, Doan AT. Overview of the NASS IONM Section. *SpineLine*, November-December, 2019. A North American Spine Society publication.
- Gertsch JH, Moreira JJ, Lee GR, Hastings JD, Ritzl E, Eccher MA, Shils JL, Balzer GK, Balzer JR, Boucharel W, Guo L, Hanson LL, Hemmer LB, Jahangiri FR, Mendez Vigil JA, Vogel RW, Wierzbowski LR, Wilent WB, Zuccaro JS, Yingling CD. Response to: Is the new ASNM intraoperative neuromonitoring supervision "guideline" a trustworthy guideline? A commentary. *J Clin Monit Comput.* 2019 Feb 26;33:193-194. PubMed PMID: [30806935](#).
- Vogel R. Review of "The Central Nervous System, 5th Edition," by Per Brodal. *Neurodiagn J.* 2018;58(4):260-262. PMID: [30365395](#).
- Vogel R, Balzer J, Gertsch J, Holdefer RN, Lee GR, Moreira JJ, Wilent B, Shils JL. Letter to the Editor. Re: Guidelines for the Use of Electrophysiological Monitoring for Surgery of the Human Spinal Column and Spinal Cord. *Neurosurgery.* 2018 Jun 1;82(6):E190-E191. PMID: [29608713](#).
- Vogel RW. NASS Faculty Participate in Dubai International Spine and Arab Spine Diploma Courses. *SpineLine*, May-June, 2018. A North American Spine Society publication.
- Doan A, Vogel R. To The Editor. Re: Routine Use of Intraoperative Neuromonitoring During ACDFs for the Treatment of Spondylotic Myelopathy and Radiculopathy Is Questionable: A Review of 15,395 Cases. *Spine (Phila Pa 1976)* 2017 Jan 1;42(1):14-19. *Spine (Phila Pa 1976).* 2017 May 22. [Epub ahead of print] PMID: [28538592](#).
- Vogel R. Review of "Practical Neurology Visual Review, 2nd Edition," by José Biller and Alberto Espay. *Neurodiagn J.* 2016;56(3):218-219. PMID: [28436764](#).

- Vogel R. Review of "Handbook for Clinical Research: Design, Statistics, and Implementation," by Flora M. Hammond, James F. Malec, Todd G. Nick, and Ralph M. Buschbacher. *Neurodiagn J.* 2016;56(3):220-222. PMID: [28436769](#).
- Vogel RW. The economics of IONM expertise: When supply falls short of demand. *Monitor Newsletter, Provider Notes* (June, 2015). An American Society for Neurophysiological Monitoring publication.
- Vogel RW. Pharmacological perturbations of the cerebellum during eye-blink classical conditioning: Effects on behavior and electrophysiology. Dissertation, Indiana University: March 23, 2009.

Acknowledgements

- Tumber S, Bacon A, Stondell C, Tafoya S, Taylor SL, Javidan Y, Klineberg E, Roberto R. High- versus low-dose tranexamic acid as part of a Patient Blood Management strategy for reducing blood loss in patients undergoing surgery for adolescent idiopathic scoliosis. *Spine Deform.* 2022 Jan;10(1):107-113. PMID: [34272686](#).

Posters & Abstracts

- Vogel R, Kermany E, Bachner, N, Zeevi G, Regev D, Eliyahu R, Zarchi O. (2025 - SUBMITTED). *A Comparison Between an AI-Based Alert System and Experts in Classifying Neurophysiological Monitoring (NIOM) Data.* ACNS Annual Meeting, Baltimore, MD, USA.
- DeBruyn L, Kenney K, Ebinger K, Vogel R. (2023). *Application of Quality Concepts and Framework in IONM.* Poster presented at ASET Annual Meeting. Orlando, FL, USA.
- DeBruyn L, Kenney K, Ebinger K, Vogel R. (2023). *Tools and Strategies to Increase Teamwork Culture in IONM.* Poster presented at ASET Annual Meeting. Orlando, FL, USA.
- Kenney K, DeBruyn L, Ebinger K, Vogel R. (2023). *Utility of TcMEPs from the EAS in the Surgical Correction of Pediatric Spinal Deformity Procedures.* Poster presented at ASET Annual Meeting. Orlando, FL, USA.
- DeBruyn L, Kenney K, Ebinger K, Vogel R. (2023). *Application of Quality Concepts and Framework in IONM.* Poster presented at ASNM Annual Meeting. Dallas, TX, USA.
- DeBruyn L, Kenney K, Ebinger K, Vogel R. (2023). *Tools and Strategies to Increase Teamwork Culture in IONM.* Poster presented at ASNM Annual Meeting. Dallas, TX, USA.
- Kenney K, DeBruyn L, Ebinger K, Vogel R. (2023). *Utility of TcMEPs from the EAS in the Surgical Correction of Pediatric Spinal Deformity Procedures.* Poster presented at ASNM Annual Meeting. Dallas, TX, USA.
- Blodgett C, Greenberg H, Callahan BE, McCarthy KM, Moussa M, and Vogel RW. (2021). *Utility of Intraoperative Facial Electroneurography during Ethanol Ablation of a Recurrent Parotid Tumor.* Poster presented at ASNM Annual Meeting. Virtual, Online Meeting.

- Na S, Callahan B, Vogel R. (2021). *A Multi-Institutional Analysis of Intraoperative Neurophysiologic Monitoring in Transcarotid Artery Revascularization Procedures*. Poster presented at ASNM Annual Meeting. Virtual, Online Meeting.
- Vogel R, Connor D, Doan A. (2019). *Loss of Lower Extremity Sensation With Preserved Cortical SSEP in Spinal Cord Tumor Surgery: What Can We Learn About The Neurophysiology?* Platform presentation at the ASET Annual Meeting. Kansas City, MO, USA.
- Doan AT, Ney J, Vogel RW. (2019). *Use of Intraoperative Neuromonitoring in Lumbar Spine Surgery is Associated with Reduced Incidence of Postoperative Urinary Retention (POUR)*. The 48th Annual Meeting of the Japanese Society for Spine Surgery and Related Research (JSSR). Yokohama, Japan.
- Riley MR, Doan AT, Vogel RW, Sheid EH. (2018). *Use of motor evoked potentials during direct lateral lumbar interbody fusion reduces postoperative deficits*. Abstract presentation delivered by Richard Vogel at the 33rd Annual Meeting of the North American Spine Society. Los Angeles, CA, USA.
- Vogel RW, Lewis B, Andalib P, Doan A. (2018). *Examination of IONM-related needle stick injuries across 34,769 patients*. Poster presented at ASET Annual Meeting. New Orleans, LA, USA.
- Doan A, Johnson A, Lewis B, Andalib P, Shaughnessy J, Vogel RW. (2018). *The utility and safety of monitoring trapezius muscle during ACDF is questionable*. Platform presentation delivered by Richard Vogel at the ASET Annual Meeting. New Orleans, LA, USA.
- Doan AT, Johnson A, Shaughnessy J, Vogel R. (2018). *The utility and safety of recording motor data from trapezius muscles during anterior extradural spine surgery*. E-Poster #: 21. Presented at the 3rd Annual Safety in Spine Surgery Summit: New York, NY, USA.
- Riley MR, Doan AT, Vogel RW, Sheid EH. (2018). *Use of motor evoked potentials during direct lateral lumbar interbody fusion reduces postoperative deficits*. E-Poster #: 22. Presented at the 3rd Annual Safety in Spine Surgery Summit: New York, NY, USA.
- Vogel RW, Johnson P, Mur T, Roehm PC. (2018). *Percutaneous Threshold of Facial Nerve Stimulation Predicts Fallopian Canal Dehiscence*. Presented at the 31st International Congress of Clinical Neurophysiology (ICCN 2018): Washington, DC, USA.
- Johnson P, Mur T, Amer K, Vogel RW, Roehm PC. (2017). *Percutaneous Threshold of Facial Nerve Stimulation Predicts Fallopian Canal Dehiscence*. Second Place Award Winner at Annual Meeting of the Pennsylvania Academy of Otolaryngology – Head and Neck Surgery: Bedford, PA, USA.
- Mur T, Amer K, Johnson P, Vogel RW, Roehm PC. (2017). *Percutaneous Threshold of Facial Nerve Stimulation Predicts Fallopian Canal Dehiscence*. Combined Otolaryngology Spring Meetings (COSM): San Diego, CA, USA.
- Doan AT & Vogel RW. (2016). *Are Lower Extremity Somatosensory Evoked Potentials Useful in Carotid Endarterectomy Surgery? A Multicenter Study*. Atlantic Health Neuroscience Symposium: Summit, NJ, USA.

- Bhalodia VM, Sestokas AK, Glassman D, Loftus W, Levin S, Contratti J, Vogel RW, Sharan AD. (2013). *Use of Intraoperative Collision Testing versus Electromyography for Predicting Postoperative Foot Paresthesias During Spinal Cord Stimulation*. Congress of Neurological Surgeons: San Francisco, CA, USA.
- Vogel RW. (2013). *Radial nerve compression in the lateral decubitus position revealed with motor evoked potentials*. Annual Meeting of SpecialtyCare, Inc., Nashville, TN, USA.
- Bhalodia VM, Sestokas AK, Glassman D, Loftus W, Levin S, Contratti J, Vogel RW, Sharan AD. (2012). *Use of Intraoperative Collision Testing versus Electromyography for Predicting Postoperative Foot Paresthesias During Spinal Cord Stimulation*. Annual Meeting of the North American Neuromodulation Society: Las Vegas, NV, USA.
- Vogel RW, Shaffie R, Tsau S, Amundson JC, Lindquist DH, Steinmetz JE. (2008). *Eyeblink conditioning with GABA or AMPA blockade in cerebellar anterior cortex*. Annual Meeting of the Society for Neuroscience: Washington, DC, USA.
- Lindquist DH, Mahoney LP, IHEME EU, Vogel RW, Amundson JC, Steinmetz JE. (2008). *Behavioral responding and hippocampal function analyzed during sequential Trace-Delay eyeblink conditioning in adult rats exposed to ethanol as neonates*. Annual Meeting of the Society for Neuroscience: Washington, DC, USA.
- Amundson JC, Pack JK, Vogel RW, Lindquist DH, Steinmetz JE. (2008). *Picrotoxin infusions to interpositus nucleus differentially affect acquisition of the conditioned eyeblink response to a short versus long interstimulus interval across stimulus modalities*. Annual Meeting of the Society for Neuroscience: Washington, DC, USA.
- Vogel RW, Lindquist DH, Steinmetz JE. (2008). *Glutamate and GABA neurotransmission in cerebellar cortex during eyeblink classical conditioning: Don't overlook the interval!* Annual Meeting of the Pavlovian Society: Weehawken, NJ, USA.
- Vogel RW. (2008). *A differential role for cerebellar cortex in learning optimal versus non-optimal intervals in eyeblink classical conditioning*. Indiana University, Center for Integrative Studies of Animal Behavior: Bloomington, IN, USA.
- Vogel RW, Lindquist DH, Amundson JC, Steinmetz JE. (2007). *Picrotoxin infusions to interpositus nucleus differentially affect acquisition and timing of the conditioned eyeblink response to a short versus long interstimulus interval*. Annual Meeting of the Pavlovian Society: Austin, TX, USA.
- Vogel RW, Amundson JC, Lindquist DH, Steinmetz JE. (2007). *Cerebellar AMPA receptor blockade differentially affects retention of the conditioned eyeblink response to a long or short interstimulus interval*. Annual Meeting of the Society for Neuroscience: San Diego, CA, USA.
- Garraghty PE, Mowery TM, Buchholz JB, Walls SM, Vogel RW, Steinmetz JE, Stanton ME. (2007). *Possible sexual dimorphisms in an animal model of autism*. Annual Meeting of the Pavlovian Society: Austin, TX, USA.
- Vogel RW & Steinmetz JE. (2005). *Effects of CNQX in anterior cerebellar cortex on eyeblink classical conditioning*. Annual Meeting of the Pavlovian Society: Baltimore, MD, USA.

- Vogel RW & Steinmetz JE. (2005). *Effects of AMPA-kainate receptor blockade in anterior cerebellar cortex on eyeblink classical conditioning*. Annual Meeting of the Society for Neuroscience: Washington, DC, USA.
- Vogel RW. (2005). *Effects of AMPA/kainate receptor blockade during eyeblink classical conditioning*. Indiana University, Program in Neural Science: Bloomington, IN, USA.
- Vogel RW, Green JT, & Steinmetz JE (2004). Post-training inactivation of the cerebellar interpositus nucleus disrupts performance of the classically conditioned eye-blink response and some learning-related activity of Purkinje cells in the anterior cerebellar cortex. *Integrative Physiological and Behavioral Science*, 39(1), 76-77. Abstracts from the Annual Meeting of the Pavlovian Society: Baltimore, MD, USA.
- Vogel RW, Green. JT, Steinmetz JE. (2003). *Learning-related neuronal activity in cerebellar anterior lobe during interpositus nucleus inactivation*. Annual Meeting of the Pavlovian Society: Bloomington, IN, USA.
- Vogel RW. (2003). *Learning-related neuronal activity in cerebellar anterior cortex during interpositus nucleus inactivation*. Indiana University, Department of Psychological and Brain Sciences: Bloomington, IN, USA.
- Woodruff-Pak DS, Vogel RW, Wenk GL. (2001). *The allosteric potentiating ligand, Galantamine, facilitates learning and retention in rabbits*. Fifth International Meeting on Alzheimer's and Parkinson's Disease: Kyoto, Japan.
- Woodruff-Pak DS, Ewers M, Vogel RW, Shiotani T, Watabe S, Tanaka M, Wenk GL. (2001). *Nefiracetam enhances the effect of physostigmine, and allosteric potentiating ligand, on a test sensitive to Alzheimer's disease*. Fifth International Meeting on Alzheimer's and Parkinson's Disease: Kyoto, Japan.
- Woodruff-Pak DS, Ewers M, Vogel RW. (2001). *An associative learning measure sensitive to Alzheimer's disease early in disease progression*. Fifth International Meeting on Alzheimer's and Parkinson's Disease: Kyoto, Japan.
- Woodruff-Pak DS, Vogel RW, Gould TJ. (2001). *Age differences in 250-msec delay eyeblink conditioning in C57BL/16 mice*. Annual Meeting of the Society for Neuroscience: San Diego, CA, USA.
- Watabe S, Ewers M, Vogel RW, Shiotani T, Tanaka M, Wenk GL, Woodruff-Pak DS. (2001). *Low doses of physostigmine potentiate the effect of nefiracetam on learning*. Annual Meeting of the Society for Neuroscience: San Diego, CA, USA.
- Woodruff-Pak DS, Vogel RW, Wenk GL. (2000). *Acetylcholinesterase inhibition, learning, and nicotinic receptors*. World Alzheimer's Congress: Washington, DC, USA.
- Woodruff-Pak DS, Vogel RW, Downey-Lamb MM, Goldenberg G, Boyko OB, Lemieux SK (2000). *Volumetric MRI assessment of cerebellum and associative learning over the adult age span*. Annual Meeting of the Society for Neuroscience: New Orleans, LA, USA.
- Oh MM, Wu WW, Vogel RW, Woodruff-Pak DS, Disterhoft JF. (2000). *Galantamine enhances CA1 neuronal excitability and facilitates learning in young and older rabbits*. Annual Meeting of the Society for Neuroscience: New Orleans, LA, USA.

- Ewers M, Vogel RW, Woodruff-Pak DS. (2000). *Physostigmine ameliorates impaired eyeblink conditioning in older rabbits*. Annual Meeting of the Society for Neuroscience: New Orleans, LA, USA.

Lectures

Note: this list does not include hundreds of educational lectures developed and/or delivered as part of employment with academic and private/corporate organizations.

- Vogel RW. (2024). Communication and documentation in IONM: Demonstrate competence and credibility while saving your butt. Axis Neuromonitoring. Virtual Webinar.
- Vogel RW. (2024). Medicolegal insights from an expert witness. Axis Neuromonitoring. Virtual Webinar.
- Vogel RW, Montgomery J. (2024). Public speaking and presentation skills for the neurodiagnostic technologist. Symposium: “Finding Your Voice: Speak with Confidence, Lead with Influence.” ASET Annual Meeting. Phoenix, AZ, USA.
- Vogel RW, Ebinger K, Walbert A, Pace C. (2024). IONM in the Courtroom: A Panel Discussion. ASET Annual Meeting. Phoenix, AZ, USA.
- Vogel RW. (2024). Incoming president’s address. ASNM Annual Meeting. Washington, D.C., USA.
- Vogel RW. (2024). Essentials of public speaking. California Neurodiagnostic Society. Virtual Conference.
- Vogel RW. (2023). Pearls for monitoring intracranial surgery. United Medical Monitoring Annual Meeting. Melville, NY, USA.
- Vogel RW. (2023). Panel Discussion: Qualifications for Neurodiagnostic Personnel. Meeting of the Louisiana Chapter of ASET. Virtual Lecture.
- Vogel RW. (2023). An overview of the ASNM. Neuro Pathway CEU Online Lecture Series. Virtual Lecture.
- Vogel RW. (2023). A debate on over-use vs under-use of IONM during spine surgery: IONM is under-used. NASS Annual Meeting. Los Angeles, CA, USA.
- Vogel RW. (2023). Public speaking for the neurodiagnostic professional. Rocky Mountain Neurodiagnostic Society Annual Meeting. Virtual Lecture.
- Vogel RW. (2023). Public speaking for the neurodiagnostic professional. SSET Annual Meeting – IONM Track. San Antonio, TX, USA.
- Vogel RW. (2023). Public speaking for the neurodiagnostic professional. SSET Annual Meeting – EEG Track. San Antonio, TX, USA.
- DeBruyn L, Kenney K, Pace C, Seubert CN, Vogel RW. (2023). Panel Discussion: Expectations/Roles in the OR: Staying in Your Lane. ASET Annual Meeting. Orlando, FL, USA.
- Vogel RW. (2023). MEPs for intracranial surgery: An enigma wrapped in a paradox and shrouded in a conundrum. ASET Annual Meeting. Orlando, FL, USA.
- Vogel RW. (2023). IONM best practices in spine surgery. ASNM Annual Meeting. Dallas, TX, USA.

- Vogel RW. (2023). Neuromonitoring for cervical myelopathy: Pros and cons. NASS Symposium at Spineweek 2023. Melbourne, Australia.
- Vogel RW. (2023). Panel discussion on quality measurement and quality improvement in IONM. ASNM Winter Virtual Webinar. Virtual Lecture.
- Vogel RW. (2023). MEPs for intracranial surgery: An enigma wrapped in a paradox and shrouded in a conundrum. Real Time Neuromonitoring Associates Physician Education. Nashville, TN, USA.
- Vogel RW. (2022). Surgeon's Underuse of IONM. ISIN Annual Meeting. Chicago, IL, USA.
- Vogel RW. (2022). Coordinating a Cranial Nerve Monitoring Plan. SSET Annual Meeting. Clearwater, FL, USA.
- Vogel RW. (2022). MEP Monitoring in Supratentorial Brain Surgery. SSET Annual Meeting. Clearwater, FL, USA.
- Vogel RW. (2022). Risk Management. ASET Annual Meeting. Louisville, KY, USA.
- Vogel RW, Lopez J, Wiggins CR. (2022). Panel Discussion on Risk Management & Patient Safety. ASET Annual Meeting. Louisville, KY, USA.
- Vogel RW. (2022). Interpretation of EMG for Cranial Nerve Monitoring – Focus on the Facial Nerve. Real Time Neuromonitoring Associates Physician Education. Nashville, TN, USA.
- Vogel RW. (2022). Overview of Corticobulbar Motor Evoked Potentials. ASNM Annual Meeting. Clearwater Beach, FL, USA.
- Vogel RW. (2022). Speed Round – Setup of Corticobulbar Motor Evoked Potentials. ASNM Annual Meeting. Clearwater Beach, FL, USA.
- Vogel RW & Jahangiri F. (2022). Debate on Routine Use of Corticobulbar Motor Evoked Potentials. ASNM Annual Meeting. Clearwater Beach, FL, USA.
- Vogel RW. (2022). Intraoperative Neurophysiological Monitoring for Intracranial Surgery. ASNM Winter Town Hall. Virtual Lecture.
- Vogel RW. (2022). Intraoperative Neurophysiology Through the Years: Experiences, Observations & Insights. Intraoperative Neurophysiology Society of Asia-Pacific. Virtual Lecture.
- Vogel RW. (2021). Introduction and Basics of Intraoperative Neurophysiological Monitoring. Surgeon Education Program: Intraoperative Monitoring for Spinal Surgery Symposium and Workshop. Chinese University of Hong Kong. Kowloon, Hong Kong. Virtual Lecture.
- Vogel RW. (2021). Intraoperative Neurophysiological Monitoring: Basic Science and Neurophysiology. 36th Annual Meeting of the North American Spine Society. Boston, MA, USA.
- Vogel RW. (2021). Neuromonitoring guidelines and standards rarely known to the surgeon. 36th Annual Meeting of the North American Spine Society. Boston, MA, USA.
- Vogel RW. (2021). Direct Stimulation of Cranial Nerves. ASNM 2021 Winter Symposium. Online Virtual Meeting.

- Vogel RW. (2020). Lumbar Nerve Root Monitoring. Principles and Practice of Intraoperative Neuromonitoring Annual Course. University of Pittsburgh Medical Center. Pittsburgh, PA, USA. Online virtual meeting due to COVID-19.
- Vogel RW. (2020). Intraoperative Neurophysiology for the Anesthesiologist. Temple University Hospital Department of Anesthesiology. Philadelphia, PA, USA.
- Vogel RW. (2020). Intraoperative Neurophysiological Monitoring: Basic Science and Neurophysiology. 35th Annual Meeting of the North American Spine Society. Online virtual meeting due to COVID-19.
- Vogel RW. (2020). Challenges in Neuromonitoring: Physician Oversight Compliance & Advocacy. Annual Meeting of the California Chapter of ASET. Newport Beach, CA, USA. Online virtual meeting due to COVID-19.
- Vogel RW. (2020). Advanced Spinal Cord Tumor Monitoring: Method, Data Analysis & Common Pitfalls. Annual Meeting of the California Chapter of ASET. Newport Beach, CA, USA. Online virtual meeting due to COVID-19.
- Vogel RW. (2020). Intraoperative Neuromonitoring: State of the Art. 4th Annual Safety in Spine Conference. New York, NY.
- Vogel RW. (2020). Eloquent Brain Mapping In Tumor Resection. ASNM 2020 Winter Symposium. Online Virtual Meeting.
- Vogel RW. (2020). Neuromonitoring for Spinal Cord Stimulator Placement. ASNM 2020 Winter Symposium. Online Virtual Meeting.
- Vogel RW. (2019). Intraoperative Neuromonitoring (IONM): Basic Science and Neurophysiology. 10th Interdisciplinary World Congress on Low Back and Pelvic Girdle Pain. Antwerp, BE.
- Vogel RW. (2019). Optimizing Outcomes and Efficiency: the Utility of IONM for guiding spinal cord stimulator placement under general anesthesia. 10th Interdisciplinary World Congress on Low Back and Pelvic Girdle Pain. Antwerp, BE.
- Vogel RW. (2019). Analyzing Value: When and Where is IONM Cost-Effective? 10th Interdisciplinary World Congress on Low Back and Pelvic Girdle Pain. Antwerp, BE.
- Vogel RW. (2019). Electromyography (EMG) and Nerve Conduction Studies (NCS): Basic Science and Neurophysiology. 10th Interdisciplinary World Congress on Low Back and Pelvic Girdle Pain. Antwerp, BE.
- Vogel RW. (2019). Why Did Neuromonitoring Fail? 34rd Annual Meeting of the North American Spine Society. Chicago, IL, USA.
- Vogel R, Connor D, Doan A. (2019). False Negative Cortical SSEPs in Spinal Cord Tumor Resection: What Can We Learn About the Neurophysiology? Annual Meeting of the American Society of Electroneurodiagnostic Technology (ASET). Kansas City, MO, USA.
- Faust S, Vogel R, Arena J, Pawar K. (2019). Medical Negligence: Panel Discussion on Liability in IONM. Annual Meeting of the American Society of Electroneurodiagnostic Technology (ASET). Kansas City, MO, USA.
- Vogel RW. (2019). Incoming president's address. ASNM Annual Meeting. Washington, D.C., USA.

- Vogel RW. (2019). Neuromonitoring in Spinal Deformity Surgery. University of Sydney. Sydney, Australia.
- Vogel RW. (2019). Neuromonitoring for Cranial Aneurysms, AVM and CEA. University of Sydney. Sydney, Australia.
- Vogel RW. (2019). Expert Panel on Neuromonitoring Literature. Annual Meeting of the American Society of Neurophysiological Monitoring. Chicago, IL, USA.
- Vogel RW. (2019). Into the Crystal Ball: Perspectives on the Future of Neuromonitoring. Annual Meeting of the California Chapter of ASET. Tiburon, CA, USA.
- Vogel RW. (2019). Teamwork in Neuromonitoring. Annual Meeting of the California Chapter of ASET. Tiburon, CA, USA.
- Vogel RW. (2019). Neuromonitoring Literature: A Year in Review. ASNM Winter Symposium. Westlake Village, CA, USA.
- Vogel RW. (2019). A Blueprint for Building Acceptance of Neuromonitoring in the OR. American Society of Electroneurodiagnostic Technology (ASET). Webinar.
- Vogel RW. (2019). Intraoperative Neurophysiology for the Anesthesiologist – Part 2. Temple University Hospital Department of Anesthesiology. Philadelphia, PA, USA.
- Vogel RW. (2018). Intraoperative Neurophysiology for the Anesthesiologist – Part 1. Temple University Hospital Department of Anesthesiology. Philadelphia, PA, USA.
- Vogel RW. (2018). A Blueprint for Building Acceptance of Neuromonitoring in the OR. Annual Meeting of the Texas Neurodiagnostic Society and the Southern Society of Electroneurodiagnostic Technology. Dallas, TX, USA.
- Vogel RW, Riley MF, Doan AT, Scheid EH. (2018). Use of Motor Evoked Potentials During Lateral Lumbar Interbody Fusion Reduces Postoperative Deficits. 33rd Annual Meeting of the North American Spine Society. Los Angeles, CA, USA.
- Vogel RW. (2018). Barriers to Quality and Safety in the Performance of Neuromonitoring. 33rd Annual Meeting of the North American Spine Society. Los Angeles, CA, USA.
- Vogel RW. (2018). Transforming Resistance to Acceptance of Neuromonitoring in the OR. ASNM Fall Symposium. Nashville, TN, USA.
- Vogel RW. (2018). Neuromonitoring Literature: A Year in Review. ASNM Fall Symposium. Nashville, TN, USA.
- Vogel RW. (2018). Transforming Resistance to Acceptance of Neuromonitoring in the OR. ASET Annual Meeting. New Orleans, LA, USA.
- Vogel RW. (2018). Review of SSEPs. Florida Chapter of ASET. Sand Key, FL, USA.
- Vogel RW. (2018). Review of EMG. Florida Chapter of ASET. Sand Key, FL, USA.
- Vogel RW. (2018). Into the Crystal Ball: Perspectives on the Future of Neuromonitoring. Annual Meeting of the Florida Chapter of ASET. Sand Key, FL, USA.
- Vogel RW. (2018). Use of Motor Evoked Potentials During Lateral Lumbar Interbody Fusion Reduces Postoperative Deficits. Florida Chapter of ASET. Sand Key, FL, USA.
- Vogel RW. (2018). Intraoperative Neurophysiological Monitoring for Endoscopic Endonasal Approaches to the Skull Base. Florida Chapter of ASET. Sand Key, FL, USA.

- Vogel RW. (2018). Advances in Intraoperative Neurophysiologic Monitoring (IONM) for the Lateral Approach to the Lumbar Spine. 19th Dubai International Spine Conference. Dubai, UAE.
- Vogel RW. (2018). Advances in Intraoperative Neurophysiologic Monitoring (IONM) for Intramedullary Spinal Cord Tumor Resection. 19th Dubai International Spine Conference. Dubai, UAE.
- Vogel RW. (2018). Neurophysiologic Monitoring for Spinal Navigation. Arab Spine Course Diploma. Dubai, UAE.
- Vogel RW. (2018). Overview of Intraoperative Neurophysiologic Monitoring (IONM) Modalities for Spine Surgery. Arab Spine Course Diploma. Dubai, UAE.
- Vogel RW. (2018). Neurophysiology of Spinal Pathology: Lumbar Radiculopathy. Arab Spine Course Diploma. Dubai, UAE.
- Vogel RW. (2018). IONM for Intramedullary Spinal Cord Tumors. 4th Annual Atlantic Health System Neuroscience Conference. Summit, NJ, USA.
- Vogel RW. (2018). Intraoperative D-Wave Monitoring. Continuing Education Seminar. Real Time Neuromonitoring Associates. Nashville, TN, USA.
- Vogel RW. (2018). The Role of Neuromonitoring in the Care of Your Patients. OR nursing in-service to vascular, neurosurgery and orthopedic surgery units. Beth Israel Deaconess Medical Center. Boston, MA, USA.
- Vogel RW. (2018). The Role of Neuromonitoring in Vascular Surgery. Cardiovascular nursing in-service. Beth Israel Deaconess Medical Center. Boston, MA, USA.
- Vogel RW. (2018). Overview of Monitoring Peripheral (non-spine) Orthopedic Surgery. Axis Neuromonitoring Winter Seminar. Dallas, TX, USA.
- Vogel RW. (2018). Monitoring Cardiovascular and Cardiothoracic Surgery. Axis Neuromonitoring Winter Seminar. Dallas, TX, USA.
- Vogel RW. (2018). Navigating the IR Suite. Axis Neuromonitoring Winter Seminar. Dallas, TX, USA.
- Vogel RW. (2018). Facial Nerve Monitoring for ENT Surgery. Axis Neuromonitoring Winter Seminar. Dallas, TX, USA.
- Vogel RW. (2017). The Role of Neuromonitoring in the Care and Treatment of Your Patients. CRNA in-service. Temple University Hospital. Philadelphia, PA, USA.
- Vogel RW. (2017). The Role of Neuromonitoring in the Care and Treatment of Your Patients. Meeting of the AORN Westchester NY Chapter. Tarrytown, NY, USA.
- Vogel RW. (2017). Best Practices for Neuromonitoring in Brain and Spine Surgery. Anesthesiology Grand Rounds. Cape Cod Hospital. Cape Cod, MA, USA.
- Vogel RW. (2017). The Role of Neuromonitoring in the Care and Treatment of Your Patients. Westchester Medical Center. Valhalla, NY, USA.
- Vogel RW. (2017). Overview of Infratentorial Craniotomies. Axis Neuromonitoring Summer Seminar. Houston, TX, USA.
- Vogel RW. (2017). Overview of EEG in Cranial Procedures. Axis Neuromonitoring Summer Seminar. Houston, TX, USA.
- Vogel RW. (2017). Neuromonitoring for Skull Base Surgery. Axis Neuromonitoring Summer Seminar. Houston, TX, USA.

- Vogel RW. (2017). Mapping the Floor of the 4th Ventricle and Spinal Cord. Axis Neuromonitoring Summer Seminar. Houston, TX, USA.
- Silverstein JW, Vogel RW. (2017). Round Table Discussion of Documentation and Medicolegal Concerns Related to Neuromonitoring. Axis Neuromonitoring Summer Seminar. Houston, TX, USA.
- Vogel RW. (2017). Best Practices for Neuromonitoring in Spine Surgery. Combined Grand Rounds for Orthopedic Spine Surgery and Anesthesiology at Methodist Hospitals. Merrillville, IN, USA.
- Vogel RW. (2017). Intraoperative Monitoring for Intradural Spine Surgery. Invited Webinar. Axis Neuromonitoring. Dallas, TX, USA.
- Vogel RW. (2017). Intraoperative Monitoring for Intradural Spine Surgery. Annual Meeting of the American Society of Neurophysiological Monitoring. Cleveland, OH, USA.
- Vogel RW. (2017). Intraoperative Mapping of Brainstem and Cranial Nerves in Skull Base Surgery. Recent Advances in Neurosurgery Symposium, Chinese University of Hong Kong, Kowloon, Hong Kong.
- Vogel RW. (2017). Overview and Update on Intraoperative Monitoring in Skull Base Surgery. Recent Advances in Neurosurgery Symposium, Chinese University of Hong Kong, Kowloon, Hong Kong.
- Vogel RW. (2017). Controversies in Mapping of Sensorimotor Cortex. Invited Webinar. Axis Neuromonitoring. Dallas, TX, USA.
- Vogel RW. (2017). Intraoperative Mapping of Sensorimotor Cortex: A Cause Célèbre? Winter Symposium of the American Society of Neurophysiological Monitoring. San Diego, CA, USA.
- Vogel RW. (2017). Review of Anatomy and Physiology of the Central Nervous System. Axis Neuromonitoring Winter Seminar. Plano, TX, USA.
- Vogel RW. (2017). Review and Update on EEG Monitoring in the OR. Axis Neuromonitoring Winter Seminar. Plano, TX, USA.
- Vogel RW. (2017). Vascular Supply of the Head and Neck. Axis Neuromonitoring Winter Seminar. Plano, TX, USA.
- Vogel RW. (2016). Neuromonitoring for Microvascular Decompression Surgery. Invited Webinar. Axis Neuromonitoring. Dallas, TX, USA.
- Vogel RW. (2016). Neuromonitoring Alerts, Events and Interventions. Fall Symposium of the American Society of Neurophysiological Monitoring. Boston, MA, USA.
- Vogel RW. (2016). Intraoperative Neuromonitoring for the Direct Lateral Transpsoas Approach to the Lumbar Spine. Annual Meeting of the American Society for Electroneurodiagnostic Technology, Pittsburgh, PA, USA.
- Vogel RW. (2016). Advances in Cranial Nerve Monitoring. 2nd Annual Atlantic Health System Neuroscience Conference. Summit, NJ, USA.
- Vogel RW. (2016). Motor Evoked Potential Guidelines. Winter Symposium of the American Society of Neurophysiological Monitoring. Dallas, TX, USA.
- Vogel RW. (2016). Intraoperative Neurophysiology for the Anesthesiologist. Anesthesiology Journal Club, Chestnut Hill Hospital, Philadelphia, PA, USA.

- Dilgen JD & Vogel RW. (2016) Introduction to Intraoperative Neurophysiology for the OR Nursing Team. Operating Room Nursing In-Service, Temple University Hospital, Philadelphia, PA, USA.
- Vogel RW. (2015). Introduction to Intraoperative Neurophysiology for the Anesthesiologist. Anesthesiology Resident CME Seminar, Temple University Hospital, Philadelphia, PA, USA.
- Vogel RW. (2015). Neuromonitoring Literature: The Good, the Bad and the Ugly. Annual Meeting of the American Society for Electroneurodiagnostic Technology, Weston, FL, USA.
- Vogel RW. (2015). Monitoring and Mapping of Nervous System Function During Neurosurgical Procedures. Neurosurgery, Neurology and Neuroscience Grand Rounds, Temple University School of Medicine, Philadelphia, PA, USA.
- Vogel RW. (2015). Sharps Safety in Intraoperative Neurophysiology. Operating Room In-Service, New England Baptist Hospital, Boston, MA, USA.
- Vogel RW. (2015). Anesthetic Considerations for Intraoperative Neurophysiology. Anesthesiology In-Service, Lakeland Regional Medical Center, Lakeland, FL, USA.
- Vogel RW. (2014). Sharps Safety in Intraoperative Neurophysiology. Spine Group In-Service, New England Baptist Hospital, Boston, MA, USA.
- Doan AT & Vogel RW. (2013). Intraoperative Neurophysiologic Monitoring. 4th Annual PMC Nursing Perioperative Conference, University of Pennsylvania Health System, Philadelphia, PA, USA
- Vogel RW. (2013). Intraoperative Neurophysiologic Monitoring. PACU and Operating Room Nursing In-Service, Einstein Hospital, Montgomery Campus, Norristown, PA, USA.
- Martin E, Doan AT, Vogel RW. (2014). Intraoperative Neurophysiologic Monitoring. Operating Room Nursing In-Service, Thomas Jefferson University Hospital, Philadelphia, PA, USA.
- Vogel RW. (2013). Comparison of stimulator-triggered electromyography and SSEP collision testing for assessment of spinal cord stimulator lateralization under general anesthesia. SpecialtyCare, Inc., Annual Meeting: Nashville, TN, USA.
- Vogel RW. (2008). The neuropharmacology and neurophysiology of learning and timing in the cerebellum. Harvard Medical School, Department of Neurobiology: Boston, MA, USA.
- Vogel RW. (2008). The neuropharmacology and neurophysiology of learning and timing in the cerebellum. The University of South Florida College of Medicine, Department of Neurosurgery: Tampa, FL, USA.
- Vogel RW. (2008). Pharmacological perturbations and microelectrode recordings in the cerebellum during motor learning: A splinter in the groove. University of Pennsylvania School of Medicine, Department of Pharmacology: Philadelphia, PA, USA.
- Vogel RW. (2008). Pharmacological perturbations and microelectrode recordings in the cerebellum during motor learning: A splinter in the groove. University of Kansas,

Department of Molecular Biosciences (Llewellyn Borgendale, Jr. Award Ceremony):
Lawrence, KS, USA.

Blogs

NeuroLogicLabs.com

Owner & Writer. 2014-2018.

- I wrote a blog dedicated to the intraoperative neurophysiology (IONM) profession. The blog served as a hub for information and news related to IONM as well as a place to discuss interesting clinical cases and exchange ideas. The blog attracted approximately 2,500 monthly readers, which was >50% of the profession's global workforce at the time.

Podcasts

Stimulating Stuff Podcast

Owner, Writer, Host, Producer. 2023 – Present.

- Founded in June 2023, the “Stimulating Stuff” podcast reaches listeners from more than 20 countries on 6 continents. Originally conceived to bridge connections within the niche field of intraoperative neuromonitoring, "Stimulating Stuff" has broadened its horizons to include topics in business, neuroscience, psychology, society, and culture. From the intricacies of organizational culture, the art of negotiation, and the power of persuasion, to mastering the crafts of writing, editing, and public speaking, every episode promises a journey into knowledge that captivates and educates.

The NASS Podcast

Contributing Writer, Co-Host & Guest. 2019 – 2023.

- Co-Host. Episode: “What information is critical to communicate to the IONM team and how far in advance of surgery?” January 15, 2019.
- Co-Host. Episode: “What are the real criteria for a neuromonitoring alert in spine surgery?” March 5, 2019.
- Co-Host. Episode: “Neuromonitoring in spine surgery, can't anyone cover the case?” March 6, 2019.
- Co-Host. Episode: “Why does IONM need access to my patients and their charts before and after surgery?” April 4, 2019.
- Co-Host. Episode: “What are the anesthetic recommendations for neuromonitoring in various spine surgeries and why?” May 7, 2019.
- Co-Host. Episode: “Does use of IONM necessarily add time to your surgery?” June 4, 2019.
- Co-Host. Episode: “How can you use neuromonitoring to guide and optimize positioning for spine surgery?” April 13, 2019.
- Co-Host. Episode: “Are there any real contraindications to MEPs?” April 27, 2019.
- Co-Host. Episode: “What can you do to improve accuracy of pedicle screw stimulation?” September 10, 2019.
- Co-Host. Episode: “Is it really an alert? Whence the criteria?” October 8, 2019.

- Co-Host. Episode: “Diagnostic accuracy of IONM from the neurophysiologist’s perspective.” November 19, 2019.
- Co-Host. Episode: “Neuromonitoring lost their signals, now what?” November 26, 2019.
- Co-Host. Episode: “Are wakeups always prolonged with neuromonitoring under TIVA?” December 10, 2019.
- Organizer. Episode: “Value-based GAP analysis of neuromonitoring.” February 25, 2020.
- Co-Host. Episode: “Neuromonitoring: State of the art in 2021 and beyond.” February 4, 2021.
- Guest. Episode: “Neuromonitoring societies: Who are they and what are they working on?” February 23, 2021.
- Host. Episode: “Administrative claims databases and neuromonitoring: What can we learn? An interview of John Ney, MD.” April 15, 2021.
- Organizer. Episode: “Use of neuromonitoring in cervical spine surgery. Interview of Dr. Todd Albert.” May 6, 2021.
- Organizer. Episode: “How do I use neuromonitoring in cervical spine surgery? An interview of F. Todd Wetzel, MD.” May 17, 2021.
- Host. Episode: “Interview of Dr. Lawrence Lenke: Use of dynamic spinal cord mapping to localize signal loss in spinal deformity surgery.” June 19, 2021.
- Participant. Episode: “The therapeutic value of neuromonitoring.” February 1, 2022.
- Co-Host. Episode: “Safety and teamwork in IONM: Where can we improve?” February 15, 2022.
- Co-Host. Episode: “NASS Section on IONM: Past, present and future.” March 1, 2022.
- Host. Episode: “Interview of Dr. Simon Harris: Use of neuromonitoring in spinal deformity surgery – Canadian Experience.” May 3, 2022.
- Host: “Interview of Dr. Steven Falowski: How can neuromonitoring optimize SCS placement?” May 9, 2022.
- Host/Participant. Episode: “Classifying clinical outcomes in the context of neuromonitoring data.” June 6, 2023.

The Neuropod

- Guest. Episode: “A Discussion About Neuromonitoring and Leading the ASNM.” Published July 2023.

IONM4life Podcast

- Guest. Episode: “Edili and the Mentors.” Published October 2022.

Other Media Appearances

Radio

NPR Morning Edition

- *Bill of the Month: A Year After Spinal Surgery, A \$94,031 Bill Feels Like A Backbreaker.* Interviewed by Jon Hamilton as President of ASNM. June 17, 2019.

Film

Discovering Psychology

- *Episode 9: Remembering and Forgetting*. Captured conducting Alzheimer's research. Executive Producer: Michele Korf. Produced by WGBH Boston with the American Psychological Association. 2001.

Television

NBC 10 (Philadelphia, PA)

- Topic: Memory research being conducted in our lab. Medical/Health News Segment. October 2001.

CBS – KYW3 (Philadelphia, PA)

- Topic: Memory research being conducted in our lab. Medical/Health News Segment. November 2001.

Comcast Network CN8 (Philadelphia, PA)

- Topic: Memory research being conducted in our lab. Medical/Health News Segment. October 2001.

Continuing Education

Available upon request.

References

Available upon request.