

## **CURRICULUM VITAE**

ALEXIOS GEORGE CARAYANNOPOULOS, DO, MPH, FAAPMR, FFSMB, FAAOE

### **Chief**

Department of Physical Medicine and Rehabilitation  
Rhode Island Hospital  
593 Eddy Street  
Providence, RI 02903

### **Chief**

Department of Physical Medicine and Rehabilitation  
Newport Hospital  
20 Powel Avenue  
Newport, RI 02840

### **Chief**

Division of Physical Medicine and Rehabilitation  
Lifespan Physician Group  
593 Eddy Street  
Providence, RI 02903

### **Medical Director**

Rhode Island Hospital  
Comprehensive Spine Center  
Department of Neurosurgery  
593 Eddy Street  
Providence, RI 02903

### **Medical Director**

Newport Hospital  
Comprehensive Spine Center  
Department of Neurosurgery  
11 Friendship Street  
Newport, RI 02840

## EDUCATION

Undergraduate

Bachelors of Arts: Connecticut College, Major: English Literature, Minor: Chemistry, graduated with “Distinction in Major Field”, 1992

Medical School:

Doctor of Osteopathic Medicine Candidate: New York College of Osteopathic Medicine, 1995-1997

Doctor of Osteopathic Medicine: Nova Southeastern University, College of Osteopathic Medicine, 1997-1999

Other Advanced Degrees      Masters of Public Health: Johns Hopkins University, School of Public Health, Focus: Health Policy and Management, Epidemiology, 1995

### POSTGRADUATE TRAINING

Residency                      Intern (PGY-1): National Naval Medical Center, 8901 Rockville Pike, Bethesda, MD 20889, Internship in Transitional Medicine, 1999-2000

Undersea Medicine Officer: Naval Undersea Medical Institute, Box 159 NAVSUBASE NLON, Groton, CT 06349, 2000-2001

Resident (PGY 2-4): Harvard Medical School, Spaulding Rehabilitation Hospital, 300 1<sup>st</sup> Avenue, Charlestown, MA 02129, 2003-2006

Medical Acupuncture: Harvard Medical School, Department of Continuing Education, Structural Acupuncture for Physicians, Beth Israel Deaconess Medical Center, 330 Brookline Avenue, Boston, MA 02215, (300 hours of formal acupuncture studies), 2004-2005

Fellowship                      Fellow (PGY-5): Dartmouth Medical School, Mary Hitchcock Hospital and Dartmouth Hitchcock Medical Center, Department of Anesthesiology Pain Division, 1 Medical Center Drive, Lebanon, NH 03766, 2006-2007

Fellow: American Academy of Physical Medicine and Rehabilitation, Academy Leadership Program, 2015-2017

Fellow: American Academy of Physical Medicine and Rehabilitation, Physical Medicine and Rehabilitation 2015-2025; Pain Medicine 2017 – 2027

Fellow: Federation of State Medical Boards, 2017 - present

Fellow: American Association of Osteopathic Examiners, 2018- present.

## POSTGRADUATE HONORS AND AWARDS

### CIVILIAN HONORS AND AWARDS

Top Doc, Pain Management: Rhode Island Monthly, 2019

America's Most Honored Professionals: Vitals, The American Registry, 2017

America's Most Honored Professionals, Top 10%: Vitals, The American Registry, 2016

Distinguished Doctor: Expert Network, Induction 2016

Pinnacle Professional Member: Continental Who's Who: Induction 2016

Top 10 Pain Specialists, Massachusetts: Vitals, The American Registry, 2014

Most Compassionate Doctor: (2010, 2011, 2012, 2013, 2018, 2018) Vitals, The American Registry, Certificate of Appreciation

Patient's Choice Award 5<sup>th</sup> Anniversary, 2008-2012: Vitals, The American Registry

Patient's Choice Award (2008, 2009, 2010, 2011, 2012, 2018): Vitals, The American Registry

First Place, Resident Writing Award: American Osteopathic College of Physical Medicine and Rehabilitation, 2007

Finalist, Resident Writing Award: American Osteopathic College of Physical Medicine and Rehabilitation, 2004

### MILITARY HONORS

Qualified Submarine Medical Officer: Commander Submarine Squadron 22, La Maddalena, Italy 2002

Qualified Diving Medical Officer: United States Naval Diving and Salvage Training Center, Panama City, FL 2000

United States Navy Diver: United States Naval Dive & Salvage Training Center, Panama City, FL, “Graduation with Honors”, 2000

United States Navy Submarine Officer: United States Navy Submarine School, Groton, CT, 12/2000, “Graduation with Honors”, 2000

United States Navy Officer: United States Navy Indoctrination School, Newport, R.I. 08/1997, Graduation with Honors, Navy Officer, 1997

### MILITARY AWARDS

Navy and Marine Corps Commendation Medal  
Navy and Marine Corps Achievement Medal  
Navy Meritorious Unit Commendation Medal  
National Defense Service Medal (Bronze Star)  
Iraq Campaign Medal  
Global War on Terrorism Expeditionary Medal  
Global War on Terrorism Service Medal  
Navy and Marine Corps Overseas Service Ribbon  
NATO Kosovo Medal  
Navy Expert Rifleman Ribbon  
Navy Expert Pistol Medal

### MILITARY SERVICE

Ensign: United States Navy, Officer Appointment, MEPS, New York, NY, 1994

Ensign: United States Navy Reserves, Medical Corps  
MEPS, New Orleans, LA, 1994

Lieutenant: United States Navy Medical Corps, National  
Naval Medical Center, Bethesda, MD 1999-2000

Lieutenant: United States Navy Medical Corps, Naval  
Undersea Medical Institute, Groton, CT 2000-2001

Lieutenant Commander: United States Navy Medical  
Corps, COMSUBRON 22, United States Naval Hospital,  
Naples, Italy, 2001-2003

Lieutenant Commander: United States Navy Reserves,  
Medical Corps, MEPS, New Orleans, LA, 2003-2007

Lieutenant Commander: United States Navy, Honorable  
Discharge, MEPS, Washington, D.C., 2007

## PROFESSIONAL LICENSES AND BOARD CERTIFICATION

### PROFESSIONAL LICENSURE

Full Medical License, Rhode Island, (active)  
Full Medical License, Massachusetts, (inactive/expired)  
Full Medical License, Florida (inactive/expired)  
Training License, New Hampshire (inactive/expired)  
Training License, Virginia (inactive/expired)

### BOARD CERTIFICATION

Physical Medicine and Rehabilitation (ABPMR): 2007;  
Recertification 2015  
Pain Medicine (ABPMR): 2007; Recertification 2017

## ACADEMIC APPOINTMENTS

Clinical Associate Professor of Neurosurgery, Division of  
Biology and Medicine, Warren Alpert School of Medicine,  
Brown University, Providence, RI: 2014 – present

## FACULTY APPOINTMENTS

American Society of Pain and Neuroscience, Annual Meeting, Miami, FL September 2020.

Watson Institute International and Public Affairs, Brown University Conference on Pain, Relief, and the Role of the Physician. Providence, RI. January 2020.

American Academy of Physical Medicine and Rehabilitation, Annual Meeting, San Antonio, TX, November 2019.

American Osteopathic College of Physical Medicine and Rehabilitation, Annual Meeting, Baltimore, MD, October 2019.

Brown University, Program Director, Interdisciplinary Spine Conference, Providence RI, 9/2016, 2017, 2018, 2019.

American Society of Pain and Neuroscience, Annual Meeting, Miami, FL July 2019

Health-centric Advisors New England Program, Project ECHO ROPE, Providence RI, Feb - May 2019

Rhode Island Department of Labor and Training Worker's Compensation Division: Arrigan Center Conference, Innovations in Rehabilitation of Chronic Pain & Disability, Warwick, RI April 2019.

Rhode Island Governor's Council on Behavioral Healthcare's Advisory Committee: PREVCON Conference, January 2019.

Brown University, 3<sup>rd</sup> Annual Cerebrospinal Fluid Disorders Symposium, Providence RI, June 2018.

American Society of Regional Anesthesia, Associate Clinical Faculty, World Congress, New York, NY April 2018.

London Pain Forum, Clinical Faculty, Winter Pain Symposium, Tignes France, January 2016.

International Association of Pain, Clinical Faculty, Annual Meeting, New York, NY, Clinical Teaching Faculty, May 2016.

Chiari & Syringomyelia Foundation, Research Colloquium, San Diego, CA Sep 2016.

American Society of Regional Anesthesia, Associate Faculty Annual Meeting, San Francisco CO, November 2014.

North American Neuromodulation Society, Clinical Faculty, Annual Meeting, Las Vegas, NV, December 2015.

Boston Scientific Company, Neuromodulation Division, Natick, MA: 2010-2014

Clinical Teaching Faculty, St. Jude Medical, Neuromodulation Division, Plano, TX: 2008 - 2014

Clinical Teaching Faculty, Vertos Medical, Aliso Viejo, CA: 2013

Chief Resident, Department of Physical Medicine and Rehabilitation, Spaulding Rehabilitation Hospital, Boston, MA: 2005-2006

## HOSPITAL APPOINTMENTS

Chief, Department of Physical Medicine and Rehabilitation, Rhode Island Hospital, Providence, RI, December 2018 – present

Chief, Department of Physical Medicine and Rehabilitation, Lifespan Physician Group, Providence, RI, May 2019 – present

Chief, Department of Physical Medicine and Rehabilitation, Newport Hospital, Newport, RI, January 2020 – present

Medical Director, Comprehensive Spine Center, Division Director Pain and Rehabilitation Medicine, Department of Neurosurgery, Newport Hospital, Newport, R.I., 2017 – present

Medical Director, Comprehensive Spine Center, Division Director Pain and Rehabilitation Medicine, Department of Neurosurgery, Rhode Island Hospital, Providence, R.I., 2014 – present

Medical Director, Spine Center, Department of Neurosurgery, Lahey Hospital and Medical Center, Burlington, MA, 2007-2014

Medical Director, Lahey at Emerson Spine Program, Department of Medicine, Emerson Hospital, Concord, MA, 2007-2014

House-staff (Fellow), Pain Clinic, Department of Anesthesiology Dartmouth Hitchcock Medical Center, Lebanon, N.H., 2006-2007

Physician (Moonlighter), Department of Medicine, HealthSouth/New England Rehabilitation Hospital, Woburn, MA, 2005-2007

Physician (Moonlighter), Department of Medicine, HealthSouth/Braintree Rehabilitation Hospital, Braintree MA, 2005-2007

House-staff (Resident), Department of Physical Medicine and Rehabilitation, Spaulding Rehabilitation Hospital, Boston, MA, 2003-2006

Undersea Medical Officer, Department of Medicine, U.S. Naval Hospital, Naples Italy, 2001-2003

House-staff (Intern), Department of Transitional Medicine, National Naval Medical Center, Bethesda, MD 1999-2000

## OTHER APPOINTMENTS

Local/Regional Committees:



Board Member, Rhode Island Department of Medical Licensure and Discipline, Appointed by Governor Gina Raimondo, November 30, 2017- January 1, 2020.

Member-at-large, Governor of Rhode Island Opioid Overdose Prevention and Intervention Task Force, September 2014 - present.

Physician Advisor, Rhode Island Department of Health PCPAC- Primary Care Physicians Advisory Committee May 2016- present.

Physician Advisor, Rhode Island Department of Health Buprenorphine Advisory Board May 2016 - present.

National Committees:

Committee Member: International Neuromodulation Society (INS), Poly-analgesic Consensus Committee 2021 (PACC 2021), 2020 – present.

Committee Member: North American Neuromodulation Society (NANS), Advocacy Coverage Task Force, 2020 – present.

Committee Member: North American Neuromodulation Society (NANS), INS Education & CME Committee Neuromodulation Curriculum, 2020 – present.

Committee Member: North American Neuromodulation Society (NANS), Neuromodulation Centers of Excellence Committee, 2020 – present.

Vice-Chair: American Society of Regional Anesthesia (ASRA), Neuromodulation Special Interest Group, March 2019 - present

President: Rhode Island Society of Interventional Pain Physicians, Inc., February 2019- present

Board of Directors: American Society of Pain and Neuroscience, 2018 – present

Committee Member: American Academy of Physical Medicine and Rehabilitation, Evidence Committee, 2018-present

Committee Co-Chair: International Neuromodulation Society (INS), Young Neuromodulator Committee, 2016-2018

Committee Member: American Society of Regional Anesthesia (ASRA), Research Committee, 2016-2018

Continuing Medical Education Liaison: American Society of Regional Anesthesia (ASRA), Neuromodulation Special Interest Group, 2016-2018

Committee Member: American Society of Interventional Pain Physician, Committee on Education and Research, 2015-2017

Committee Member: American Society of Interventional Pain Physician, Committee on Personal Development, Membership, Young Physicians, 2015-2017

Committee Member: American Society of Interventional Pain Physician, Spinal Cord Stimulation Advisory Board/Special Interest Group Committee, 2014-present

Information Systems Liaison: American Academy of Physical Medicine and Rehabilitation, Resident Physician Council, 2003-2006

National Editorial Boards:

Editorial Board Member: PM&R Knowledge Now, Pain/Neuromuscular Rehabilitation, 2009-present

Editorial Board Member: Neuromodulation Journal, Technology at the Neural Interface Journal (Spinal Cord Stimulation, Peripheral Nerve Stimulation), 2010-present

Editorial Board Member: Physical Medicine and Rehabilitation Journal (Pain, Spine Rehabilitation, Musculoskeletal Medicine), 2008-present

Editorial Board Member: British Medical Journal, Point of Care, 2007 – 2010

Regional Managing Editor: Rehab in Review, Harvard Medical School, Department of Physical Medicine and Rehabilitation, 2004-2006

Other:

Consultant: United States Department of Defense Health Program Congressionally Directed Medical Research Programs, Joint Program Committee 8/Clinical and Rehabilitative Medicine Research Program, Psychological Health and Traumatic Brain Injury Research Program, 2016-2017

Medical Liaison: United States National Oceanic and Atmospheric Association, “Aquarius Mission”, Key Largo, FL, 2002

## HOSPITAL COMMITTEES

### Rhode Island Hospital

Credentials Committee, 2016- present

Neurovascular Steering Committee, 2016 – present

Neurovascular Education Sub-Committee, 2017 - present

Pain Committee, 2018-present

### Lahey Hospital and Medical Center

Website Steering Committee, 2009-2010

Personnel Committee, 2010 - 2012

Pain Committee, 2010 – 2014

Studer Committee, 2011- 2013

EPIC Medical Record Committee, 2013 – 2014

### Dartmouth Hitchcock Medical Center

Professional Practice Committee, 2006-2007

New Hampshire Pain Initiative, 2006-2007

### Spaulding Rehabilitation Hospital

Residency Selection Board Committee, 2004-2005  
Massachusetts Pain Initiative, 2005-2006

### ACTIVE MEMBERSHIP IN SOCIETIES

American Society of Pain and Neuroscience (ASPN)  
American Academy of Physical Medicine and  
Rehabilitation (AAPM&R)  
North American Neuromodulation Society (NANS)  
International Neuromodulation Society (INS)  
American Society of Regional Anesthesia (ASRA)  
American Society of Interventional Pain Physicians  
(ASIPP)  
Rhode Island Society of Osteopathic Physicians and  
Surgeons (RISOPS)

### PUBLICATION LIST

#### ORIGINAL PUBLICATIONS IN PEER-REVIEWED JOURNALS

**Carayannopoulos, AG**, Haan A, Burdenko I. The benefits of combining water and land-based training. *J. Exerc Rehabil.*2020; 16 (1): 20-26.

Haan, A, **Carayannopoulos, AG**. Spinal cord stimulation: The use of neuromodulation for treatment of chronic pain. Accepted for publication in *Rhode Island Medical Journal*, February 2020.

Deer TR, Grider JS, Lamer TJ, Pope JE, Falowski S, Hunter CW, Provenzano DA, Slavin KV, Russo M, **Carayannopoulos AG**, Shah JM, Harned ME, Hegedorn JM, Bolash RB, Arle JE, Kapural L, Amirdelfan K, Sameer J, Liem L, Carlson JD, Malinowski MN, Bendel M. A Systematic Review of Spine Neurostimulation Therapies for the Treatment of Pain. Accepted for publication in *Pain Medicine*, December 2019.

Haan, A, **Carayannopoulos, AG**. Readability of Patient Education Materials in Physical Medicine and Rehabilitation (PM&R): A Comparative Cross-Sectional

Study. *PM&R: The journal of injury, function and rehabilitation*. September 2019.

**Carayannopoulos AG**, Han A, Telfeian AE, Scarfo K. Preoperative surveillance thoracic MRI for thoracic dorsal column stimulation: case series. *Interventional Pain Management Reports* 2019, ISSN 2575-9841; 3 (1).

Gilligan C, **Carayannopoulos AG**. Level-1 Evidence for a New Restorative Neurostimulation Therapy for Chronic Low Back Pain – An International, Multicenter, Prospective, Randomized, Sham Controlled Trial, North American Neuromodulation Society, Annual Meeting, Las Vegas, NV 2019.

Calodney A, Jones C, **Carayannopoulos AG**, Hollander M, Pires D, Mazingo R, Esposito M, Mehul Desai M, Maneshi M, Subbaroyan J. A Prospective Observational Multicenter Study of High-Frequency SCS at 10 kHz in Patients Who Previously Failed Traditional SCS (RENEW). North American Neuromodulation Society, Annual Meeting, Las Vegas, NV 2019.

**Carayannopoulos AG**, Burdenko I. Letter to the editor: comment on “exercise is medicine – ten years and counting looking back, moving forward. *American College of Sports Medicine Journal* 2018; 22 (3): 43.

Han A, **Carayannopoulos AG**, Fessenden GP. Acupuncture Inclusion in Pain Management: Review and Discussion. *Connecticut Medicine*, June/July 2017.

Rosenberg J, Fabi A, Candido K, Knevic N, Creamer M, **Carayannopoulos AG**, Ghodsi A, Nelson C. Bennett M. Spinal cord stimulation provides pain relief with improved psychosocial function: results from EMP3OWER. *Pain Journal*.2016; 0:1-15.

Grider J, Manchikanti L, **Carayannopoulos AG**, Lal Sharma M, Balog C, Harned M, Grami V, Justiz R, Nouri K, Hayek S, Vallejo R, Christo P. Effectiveness of spinal cord stimulation in chronic spinal pain: a systematic review. *Pain Physician* 2016; 19: E ISSN 2150-1149.

Burke DT, Geller AI, **Carayannopoulos AG**, "Inadvertent Percutaneous Endoscopic Gastrostomy Tube Placement through the Transverse Colon to the Stomach Causing Intractable Diarrhea: A Case Report," *Diagnostic and Therapeutic Endoscopy*, 2011; 2011, Article ID 849460, 5 pages doi:10.1155/2011/849460

**Carayannopoulos AG**, Borg-Stein J, Sokolof J, Meleger A, Rosenberg D. Prolotherapy versus corticosteroid therapy for the treatment of chronic lateral epicondylitis, a randomized controlled trial. *PMR*. 2011; 3: 706-715.

Hazard R, Spratt KF, McDonough CM, **Carayannopoulos AG**, LR Sussman LR, Reeves V, Sperry ML, Ossen ES. Does function goal achievement improve prediction of patient satisfaction with treatment outcome at 1 year following functional restoration. *Spine Journal*. 2009; 34 (25): 2797-802.

**Carayannopoulos AG**, Beasley R, Sites BR. Facilitation of percutaneous trial lead placement with ultrasound guidance for peripheral nerve stimulation trial of ilio-inguinal neuralgia: a technical note. *Neuromodulation*. 2009; 12 (9) 296-301.

**Carayannopoulos AG**, Cravero JP, Stinson MT, et al. Use of regional blockade to facilitate inpatient rehabilitation of recalcitrant complex regional pain syndrome. *Journal PMR* 2009; 1: 194-198.

**Carayannopoulos AG**. Teaching case: Occipital Neuralgia in a Young Patient. *Headache: The Journal of Head and Face Pain*. 2007; 47, (9): 1367-1370.

Shah MK, **Carayannopoulos AG**, Burke DT, Al-Adawi S. A Comparison of functional outcomes in hypoxia and traumatic brain injury: A pilot study. *J Neurol Sci* 2007 May 28.

**Carayannopoulos AG**, Borg-Stein J. Persistent unilateral lumbosacral pain in a female adolescent athlete. *Medicine & Science in Sports & Exercise*. 2006; 38 (5): S131

**Carayannopoulos AG**, Borg Stein JP. Shoulder pain secondary to suprascapular neuropathy. *Medicine and Science in Sports & Exercise*. 2005; 37: 5, S8.

**Carayannopoulos AG**, Borg-Stein JP. Low back pain of pregnancy associated with vascular engorgement of the epidural venous plexus: a case report. *Am J Phys Med Rehabil*, 2005 84(3): 209.

Burke DT, **Carayannopoulos AG**. Percutaneous endoscopic gastrostomy tube placement through the transverse colon of stomach causing intractable diarrhea: a case report. *Am J Phys Med Rehabil*, 2005 84(3): 222.

**Carayannopoulos AG**, Burke DT, Al-Adawi S, Dorvlo ASS, Shah MK, Mello JJ. The effect of methylphenidate on attention in acquired brain injury as recorded by useful field of view. *Neurologie and Rehabilitation*. 2004, Sept.; 4: S20.

## OTHER PEER-REVIEWED PUBLICATIONS

### BOOKS AND BOOK CHAPTERS

**Carayannopoulos AG**, Han A. Myofascial Trigger Point Injections. In: Abd-Elsayed A, Editor. *Pain: A Review Guide*, (ISBN: 978-331999-1238): Springer 2019.

Charles D, **Carayannopoulos AG**. Anxiety and Depression in Patients with Chronic Pain. In: Deer T, Pope J, Lamer T, Provenzano D, Editors. *Deer's Treatment of Pain: An Illustrated Guide*, (ISBN: 978-30301-122805): Springer 2019.

Charles D, **Carayannopoulos AG**. Physical Therapy. In: Deer T, Pope J, Lamer T, Provenzano D, Editors. *Deer's Treatment of Pain: An Illustrated Guide*, (ISBN: 978-30301-122805): Springer 2019.

**Carayannopoulos AG**, Han A. Thoracic Strain /Sprain. In: Frontera WR, Silver JK, Rizzo TD, Editors. Essentials of Physical Medicine and Rehabilitation, 4th Edition; (ISBN: 978-0-323-54947-9): Elsevier 2019.

**Carayannopoulos AG**. Peripheral Nerve Stimulation (PNS): Indications. In: Pope J, Deer T, Editors. Treatment of Chronic Pain Condition: A Comprehensive Handbook, (ISBN: 978-1-4939-6976-0): Springer 2017.

**Carayannopoulos AG**. Peripheral Nerve Stimulation (PNS): Trial. In: Pope J, Deer T, Editors. Treatment of Chronic Pain Condition: A Comprehensive Handbook, (ISBN: 978-1-4939-6976-0): Springer 2017.

**Carayannopoulos AG**. Peripheral Nerve Stimulation (PNS): Permanent. In: Pope J, Deer T, Editors. Treatment of Chronic Pain Condition: A Comprehensive Handbook, (ISBN: 978-1-4939-6976-0): Springer 2017.

**Carayannopoulos AG**. Peripheral Nerve Stimulation (PNS): Maintenance. In: Pope J, Deer T, Editors. Treatment of Chronic Pain Condition: A Comprehensive Handbook, (ISBN: 978-1-4939-6976-0): Springer 2017.

**Carayannopoulos AG**. Peripheral Nerve Stimulation (PNS): New Therapies. In: Pope J, Deer T, Editors. Treatment of Chronic Pain Condition: A Comprehensive Handbook, (ISBN: 978-1-4939-6976-0): Springer 2017.

**Carayannopoulos, AG**. Adjuvant Medications for Pain. In: Carayannopoulos AG, Editor. Comprehensive Pain Management in the Rehabilitation Patient: A Reference Guide (ISBN: 978-3-319-16783-1): Springer 2017.

**Carayannopoulos, AG**, Editor. Comprehensive Pain Management in the Rehabilitation Patient (ISBN: 978-3-319-16783-1): Springer 2017.

**Carayannopoulos, AG**. Identification of the Pain Patient. In: Pope J, Falowski S, Editors. Integrating Pain Treatment into Your Spine Practice (ISBN: 978-3-319-27794-3): Springer 2016.



**Carayannopoulos, AG.** Peripheral Nerve Stimulation (PNS) Permanent. In: Deer T, Pope J, Editors. Treatment of Chronic Pain Conditions: A Comprehensive Quick Reference Handbook (ISBN: 978-1-4939-6974-6): Springer 2017.

**Carayannopoulos, AG.** Peripheral Nerve Stimulation (PNS) Maintenance. In: Deer T, Pope J, Editors. Treatment of Chronic Pain Conditions: A Comprehensive Quick Reference Handbook (ISBN: 978-1-4939-6974-6): Springer 2017.

**Carayannopoulos, AG.** Peripheral Nerve Stimulation (PNS) New Therapies. In: Deer T, Pope J, Editors. Treatment of Chronic Pain Conditions: A Comprehensive Quick Reference Handbook (ISBN: 978-1-4939-6974-6): Springer 2017.

**Carayannopoulos, AG.** Peripheral Nerve Stimulation (PNS) Trial. In: Deer T, Pope J, Editors. Treatment of Chronic Pain Conditions: A Comprehensive Quick Reference Handbook (ISBN: 978-1-4939-6974-6): Springer 2017.

Slavin KV, **Carayannopoulos AG**, Plazier M, De Ridder D. Peripheral Nerve Stimulation. In: Knotkova H, Rasche D, Editors. Textbook of Neuromodulation (ISBN: 978-1-4939-1407-4): Springer 2015.

Gronemeyer J, **Carayannopoulos AG**. A Review of Osteopathic Medicine. In: Audette J, Bailey A, Editors. Integrative Pain Medicine (ISBN: 978-1-59745344-8): Humana Press 2008.

**Carayannopoulos AG**, Rosenberg D. Thoracic Strain / Sprain. In: Frontera WR, Silver JK, Editors. Essentials of Physical Medicine and Rehabilitation, 2nd Edition (ISBN: 978-1-4160-4007-1): Saunders Elsevier 2008.

#### CORPORATE AUTHORSHIP OR MULTICENTER TRIALS

**Carayannopoulos AG.** A prospective, multi-centered study evaluating the effect of subject device interaction with a neuromodulation system, St. Jude Medical: Role: PI, project closed.

**Carayannopoulos, AG.** A prospective, multicenter, randomized, double-blind, placebo-controlled study to evaluate the efficacy and safety of a single injection of rexlimestrocel-L alone or combined with hyaluronic acid (HA) in Subjects with chronic discogenic lumbar back pain through 12 months. Role: PI, project closed.

**Carayannopoulos, AG.** ReActiv8 implantable neurostimulation system for chronic low back pain (ReActiv8-B). Role: PI, project closed.

**Carayannopoulos, AG.** A post-approval study to evaluate targeted SCS (DRG) stimulation for the management of moderate to severe chronic, intractable, pain of the lower limbs due to CRPS types I and II (TARGET). Role: PI, project closed.

**Carayannopoulos, AG, Saab CS.** A clinical study in pain patients; longitudinal study to measure several physiological parameters including EEG in patients with chronic pain before/after spinal cord stimulation, in collaboration with Carl Saab laboratory. Role: Co-PI, project closed.

**Carayannopoulos, AG.** Randomized, controlled, single blind, prospective, multicenter study evaluating anatomic versus targeted lead placement for BurstDR therapy during the trial evaluation period (DELIVERY), Abbott Medical, Role: PI, project closed.

**Carayannopoulos, AG.** A prospective observational multicenter study of HF-10 therapy in patients who previously failed traditional SCS RENEW, Nevro Corporation, Role: PI, actively enrolling.

**Carayannopoulos, AG.** Multicenter, prospective, randomized, double-blind, post-market clinical trial comparing ultra-high versus traditional pulse widths using

the ALGOVITA SCS system high fidelity stimulation in the treatment of chronic back and/or leg pain, Nuvectra Company, Role: PI, project closed.

**Carayannopoulos, AG.** A randomized controlled trial evaluating the effectiveness of treatment with Vista Therapy Collar for indication of cervical radicular pain compared to a “wait and see” approach. Aspen Medical Products, Role: PI, actively enrolling.

**Carayannopoulos, AG.** Evaluation of various back braces and their impact on balance. Role: Co-Investigator, pending IRB approval.

**Carayannopoulos AG.** Correlation of Trust and Outcomes following Physical Therapy for Chronic Low Back Pain. Role: Co-Investigator, pending IRB approval.

#### GOVERNMENT GRANTS

**Carayannopoulos, AG.** Neurobiological and psychological benefits of exercise in chronic pain & PTSD, NIH HEAL (U), Role: Co-Investigator, pending IRB approval.

**Carayannopoulos AG.** Strategy for trauma-based opioid misuse prevention (STOMP). NIH HEAL (U), Role: Co-Investigator, pending IRB submission.

**Carayannopoulos AG.** Preventing opioid misuse after surgery. NIH HEAL (RFA), Role: Co-Investigator, pending IRB submission.

**Carayannopoulos AG.** Intelligent spine interface. Defense Advanced Research Projects Agency (DARPA), Role: Co-Investigator, pending IRB approval.

#### INSTITUTIONAL/UNIVERSITY FUNDED GRANTS

**Carayannopoulos, AG.** EEG-AI technology for diagnosing low back pain, Brown University BBII Award, Role: Co-investigator, pending IRB approval.

## PUBLICATIONS SUBMITTED OR IN PREPARATION

1. Levitt J, Edhi M, Thorpe R, Michishita M, Koyama S, Yoshikawa S, Scarfo K, **Carayannopoulos AG**, Gu W, Srivastava K, Clark B, Esteller R, Boston D, Jones S, Saab CS. Pain phenotypes classified by machine learning using electroencephalography features. Submitted to Journal Neuroscience July 2019.
2. Scarfo KS, **Carayannopoulos AG**. The cost effectiveness of compounded Drugs versus monotherapy in intrathecal pump management: in preparation for submission to Neuromodulation Journal

## ABSTRACTS PRESENTED / PUBLISHED

1. **Carayannopoulos AG**. Restorative neurostimulation for mechanical chronic low back pain – results of a randomized sham – controlled trial. ISPRM World Congress and Association of Academic Physiatrists Annual Meeting, March 2020.
2. **Carayannopoulos AG**, Gaudette S, Bennet A. Use of Accelerometry as an Educational Tool. International Neuromodulation Society Biannual Meeting, Sydney, Australia May 2019.
3. Scarfo KS, **Carayannopoulos AG**. Intrathecal Pump Management: Cost Effectiveness of Compounded Drugs versus Monotherapy. International Neuromodulation Society Semi-Annual Meeting, Edinburgh, Scotland, May 2017.
4. **Carayannopoulos AG**. Use of the Actigraph GT3X Accelerometer as an Educational Tool for Spinal Cord Stimulation, Neuromodulation Society Annual Meeting, Las Vegas, NV, January 2017.
5. **Carayannopoulos AG**. A unique case of transient spinal adhesive arachnoiditis following spinal

intervention. American Society of Regional Anesthesia Annual Meeting, San Francisco, CA, November 2014.

6. **Carayannopoulos AG.** The Value of Thoracic Imaging Studies in Neuromodulatory Procedures. North American Neuromodulation Society Annual Meeting, Las Vegas, NV, December 2013
7. **Carayannopoulos AG.** Improving Access to Neuromodulation for Special Populations. International Neuromodulation Society 10<sup>th</sup> Annual Congress, London, England, May 2011
8. **Carayannopoulos AG,** Sites BD, Cravero JP, Stinson MT. Use of Coordinated PT/OT and Peripheral nerve block for inpatient treatment of recalcitrant CRPS, type 1. Annual Meeting of the American Academy of Pain Medicine, Orlando, Florida, February 2008
9. **Carayannopoulos AG,** Beasley RD, Sites BD. Use of Ultrasound Guidance for Placement of Percutaneous Trial Leads for Peripheral Nerve Stimulation of Ilio-inguinal Neuralgia. Annual Meeting of the American Academy of Pain Medicine, Orlando, Florida, February 2008
10. **Carayannopoulos AG,** Meleger A. A case of transient global amnesia from musculoskeletal exam. European Congress of Physical and Rehabilitative Medicine, Madrid Spain, May 2006
11. Cisneros RL, **Carayannopoulos AG,** Onderdonk AB. Passive transfer of betafectin induced mortality associated with intra-abdominal sepsis. Annual Meeting for the American Society for Microbiology, April 1994
12. Cisneros RL, **Carayannopoulos AG,** Onderdonk AB. Efficacy of passive transfer of pgg- glucan induced protection against mortality associated with experimental intraabdominal sepsis. Annual Meeting of the International Symposium of Intestinal Micro ecology, September 1993

## SCHOLARLY WORK PUBLISHED IN OTHER MEDIA

### PEER REVIEWED

**Carayannopoulos AG.** Review of Neuromodulation Waveforms, American Society of Regional Anesthesia and Pain Medicine (ASRA) Newsletter, May 2017.

**Carayannopoulos AG.** “Patient Selection Checklist Including Psychological Considerations”, in American Society of Regional Anesthesia and Pain Medicine website, Neuromodulation (section), September 2016.

**Carayannopoulos AG.** “Discogenic Lumbar Pain”, in American Academy of Physical Medicine and Rehabilitation, Knowledge Now website, Pain/Neuromuscular Medicine Rehabilitation (section), May 2016.

**Carayannopoulos AG.** “Discogenic Lumbar Pain”, in American Academy of Physical Medicine and Rehabilitation, Knowledge Now website, Pain/Neuromuscular Medicine Rehabilitation (section), November 2011.

Hwang S, **Carayannopoulos AG**, Raval A. Lumbosacral Intervertebral Disc Disease. In Epocrates. January 2009-2010.

### NON PEER REVIEWED

#### FEATURED GUEST IN PRINT, TELEVISION, RADIO MEDIA

**Carayannopoulos A G.** “Treating compression fractures”, Reporter Barbara Morse Silva. NBC 10 News Health Check; November 5, 2019.

**Carayannopoulos A G.** “Pulsing radio current relieved herniated disc pain in new study”, Reporter Shamard Charles, MD, NBC News Health; December 3, 2017.

**Carayannopoulos A G.** “Comprehensive Spine Center gives patients with back pain a local option”, Reporter Matt Sheely, Newport Daily News; November 9, 2017.

**Carayannopoulos A G.** “Opioid Epidemic: Why Are We in So Much Pain?” Hosted by Dr. Carole Lieberman. Voice America; October 31, 2017.

**Carayannopoulos A G.** “Five Questions with Dr. Carayannopoulos”, Reporter Nancy Kirsch. Providence Business News; May 22, 2017.

**Carayannopoulos A G.** “Treating low back pain”, Reporter Barbara Morse Silva. NBC 10 News Health Check; March 13, 2017.

**Carayannopoulos A G.** “Doctors warn of dangerous shoveling conditions”, Reporters Annie Shalvey, Susan Campbell. WPRI News; February 5, 2016.

**Carayannopoulos A G.** “Spine center offers continuum of care”, Reporter Nancy Kirsch. Providence Business News; December 12, 2015;

**Carayannopoulos A G.** “Doctor says new device eases chronic back pain”, Reporter Barbara Morse Silva. NBC 10 News Health Check; December 4, 2015.

**Carayannopoulos A G.** “Five Questions with Dr. Carayannopoulos”, Reporter Harold Ambler. Providence Business News; July 13, 2015

**Carayannopoulos A G.** “R.I. Hospital’s new Comprehensive Spine Center offers many alternatives to surgery”, Reporter Richard Salit. Providence Business Journal; July 6, 2105.

## INVITED PRESENTATIONS

1. Counterstrain. Harvard Medical School, Department of Continuing Education “Introduction to Osteopathic

Manipulative Medicine: August 6, 2005, Boston, MA;  
National

2. Prolotherapy for Treatment of Musculoskeletal Pain. Spaulding Rehabilitation Hospital, Physician's Grand Rounds: May 18, 2005, Boston, MA; Regional
3. Rehabilitation in Military Medicine. Spaulding Rehabilitation Hospital, Resident Didactic Lecture Series: June 14, 2005, Boston, MA: Regional
4. History of Pain Legislation. Spaulding Rehabilitation Hospital Grand Rounds: May 19, 2006, Boston MA; Regional
5. Prolotherapy for Treatment of Ligamentous Instability. Dartmouth Hitchcock Medical Center Interdisciplinary Pain Rounds: November 16, 2006, Lebanon, NH; Regional
6. Sacroiliac Joint Pain. Dartmouth Hitchcock Medical Center, Department of Anesthesia, Section of Pain Medicine Lecture Series: December 21, 2006, Lebanon, NH; Regional
7. The Exercise Prescription in Spine Care. Dartmouth Hitchcock Medical Center, Department of Orthopedics Spine Center Grand Rounds: January 25, 2007, Lebanon, NH; Regional
8. Introduction to Electrodiagnostic Medicine. Department of Anesthesia, Section of Pain Medicine Lecture Series: February 5, 2007, Lebanon, NH; Regional
9. Spasticity. Dartmouth Hitchcock Medical Center, Department of Anesthesia, Section of Pain Medicine Lecture Series: February 22, 2007, Lebanon, NH; Regional
10. Introduction to Gait Analysis. Dartmouth Hitchcock Medical Center, Department of Anesthesia, Section of Pain Medicine Lecture Series: March 29, 2007, Lebanon, NH; Regional



11. Psychiatric Diseases and Chronic Pain. Dartmouth Hitchcock Medical Center, Department of Orthopedics Spine Center Grand Rounds: June 21, 2008, Lebanon, NH; Regional
12. Epidural Steroids: The Truth Behind the Myth. Lahey Clinic, Department of Neurosurgery Grand Rounds: January 30, 2008, Burlington, MA; Regional
13. Introduction to Interventional Spine Medicine. Lahey Clinic, Department of Rehabilitation Services Grand Rounds: March 20, 2008, Peabody, MA; Regional
14. Comprehensive Spine Care. Lahey Clinic, Department of Neurology Grand Rounds: April 24, 2008, Burlington, MA; Regional
15. Facet Blocks and Radiofrequency Denervation. Lahey Clinic, Department of Neurosurgery Grand Rounds: October 22, 2008, Burlington, MA; Regional
16. Core Stabilization. What is it, why is it important? Lahey Clinic Wellness Lecture Series: April 7, 2009, Burlington, MA; Regional
17. Advances in Physical Medicine and Rehabilitation of the Spine. Lahey Clinic North Community Lecture Series: April 30, 2009, Peabody, MA; Regional
18. Comprehensive Spine Care. Lahey Clinic North, Department of Internal Medicine Grand Rounds: May 18, 2009, Peabody, MA; Regional
19. Patient Selection in Neuromodulation. St. Jude Medical Pain Fellow's Course: March 14, 2009, Burlington, MA; National
20. Spinal Cord Stimulation, How Midlevel Practitioners Can Implement this into Practice. Boston Scientific Company Midlevel Provider Seminar: September 18, 2010, Baltimore, MD; National

21. Spinal Care at Emerson Hospital. Lincoln Council on Aging: May 20, 2010, Lincoln, MA; Regional
22. Spinal Cord Simulation for Diabetic Neuropathy. Emerson Hospital Diabetic Education Group Forum: August 20, 2010, Concord, MA; Regional
23. Spinal Cord Stimulation Keys to Success. St. Jude Medical Pain Fellow's Course, New England Organ Bank: September 11, 2010, Waltham, MA; National
24. Introduction to Spinal Cord Stimulation. Emerson Hospital Physical Therapy Grand Rounds: November 11, 2010, Concord, MA; Regional
25. Review of Spine Center Evaluation and Treatment Paradigm. Lahey Clinic Burlington, PT/OT Grand Rounds: June 20, 2011, Burlington, MA; Regional
26. Spinal Cord Stimulation. St. Jude Medical Pain Fellow's Course, New England Organ Bank: September 17, 2011, Waltham, MA, National
27. Minimally Invasive Lumbar Decompression (MILD) for Spinal Stenosis, Introduction, Indications, and Treatment Protocol. Lahey Clinic Burlington/Peabody, RN/Midlevel Grand Rounds: April 2, 2013, Peabody, MA; Regional
28. Comprehensive Spine Care. Emerson Hospital Grand Rounds: June 7, 2013, Concord, MA; Regional
29. Comprehensive Spine Care. Rhode Island Hospital, Department of Neurosurgery, Spine Conference: September 9, 2013, Providence, RI; Regional
30. Building MILD into Practice. Vertos Medical: September 19, 2013, Boston, MA; Regional
31. Patient Selection in Spinal Cord Stimulation. St. Jude Medical Pain Fellow's Course, New England Organ Bank: March 15, 2014, Waltham, MA; National

32. Spinal Cord Stimulation. Boston Scientific Company, Vista Laboratory: June 7, 2014, Baltimore, MD; National
33. Spinal Cord Stimulation. St. Jude Medical Fellow's 101 Course: August 8, 2014, Boston, MA; National
34. Spinal Cord Stimulation. St Jude Medical, September 6, 2014, Providence, RI; Regional
35. Spinal Cord Stimulation. St Jude Medical Fellow's 201 Course: October 10, 2014, Dallas, TX; National
36. Incorporating SCS into Practice. St Jude Medical, Beverly Pain Clinic: October 12, 2014, Beverly, MA, Regional
37. An Unusual Case, Arachnoiditis. Annual Meeting of the American Society of Regional Anesthesia: November 14, 2014, San Francisco, CA; National
38. Psychological Considerations in Spinal Cord Stimulation. Annual Meeting of the North American Neuromodulation Society, Certificate of Attendance Fellow's Course: December 3, 2015, Las Vegas, NV; National
39. Spasticity. London Pain Forum, Winter Pain Symposium: January 11, 2016, Tignes, France; International
40. Ethical Considerations in Pain Medicine. London Pain Forum, Winter Pain Symposium: January 11, 2016, Tignes, France; International
41. Technical and Surgical Considerations in Spinal Cord Stimulation and Intrathecal Pump Therapy. Massachusetts General Hospital Pain Clinic: March 8, 2016, Boston, MA; Regional
42. Rehabilitation of Spine Patients. The Miriam Hospital, Physical Therapy Grand Rounds: April 12, 2016, Providence, RI; Regional.

43. Intrathecal Management of Pain in Multidisciplinary Pain Management. World Institute of Pain Conference: May 20, 2016, New York, NY; International
44. Interdisciplinary Pain Management. Governor's Opioid Task Force, Rhode Island Department of Health, Monthly Meeting: June 8, 2016, Providence, RI; Regional
45. Interdisciplinary Spine Care. Primary Care Physicians Advisory Committee, Rhode Island Department of Health, Quarterly Meeting: June 15, 2016, Providence, RI; Regional
46. Ethics in Pain Management. St Jude Fellow's 101 Course: September 17, 2016, Boston, MA; National
47. Cognitive and Behavioral Aspects of Pain. Chiari and Syringomyelia Annual Meeting: September 24, 2016, San Diego, CA; National
48. Practical Opioid Management. 2nd Annual Brown Inter-disciplinary Spine Conference, Warren Alpert Brown Medical School: October 21, 2017, Providence, RI; Regional
49. Spinal Stenosis, Newport Hospital Community Lecture Series. April 12, 2018, Newport, RI; Local
50. Fibromyalgia, Is it a Red Herring? Brown Medical School, 3<sup>rd</sup> Annual Cerebrospinal Fluid Disorders Symposium of the Chiari and Syringomyelia Foundation: RI, June 16, 2018, Providence RI; Local.
51. Comprehensive Pain Management Rhode Island Governor's Council on Behavioral Healthcare's Prevention Advisory Committee (PREVCON) 2019: January 10, 2019. Warwick, RI; Local
52. Nociceptive and Neuropathic Pain, Warren Alpert School of Medicine, Brown University: January 10, 2019, Providence, RI, Local.

53. Integrative Approaches to Rehabilitation of Chronic Pain. Arrigan Center Conference: Innovations in Rehabilitation of Chronic Pain and Disability: 2 April 2019. Warwick, RI; Local.
54. The Treatment of SI Joint Pathology: Injections, Fusion, RFA or Neuromodulation. American Society of Pain and Neuroscience Annual Meeting: July 27 2019, Miami FL; National.
55. Interventional Spine. Osteopathic Medical Education Annual Conference; American College of Osteopathic Physical Medicine and Rehabilitation Annual Meeting: October 27, 2019.
56. Spine/Pain Medicine Pro/Con. American Academy of Physical Medicine and Rehabilitation Annual Assembly: November 15, 2019, San Antonio TX; National.
57. Vertebral Compression Fractures. American Academy of Physical Medicine and Rehabilitation Annual Assembly: November 15, 2019, San Antonio TX; National.
58. Lumbar Spinal Stenosis: A Physiatry Perspective. American Academy of Physical Medicine and Rehabilitation Annual Assembly: November 16, 2019, San Antonio TX; National.
59. Pain Management and the Role of Pain Management. Watson Institute International and Public Affairs, Brown University Conference on Comprehensive Pain Management. Providence, RI. January 2020

## GRANTS

1. 2019, Intelligent spine interface; Sponsor: Defense Advanced Research Projects Agency (DARPA), Role: Co-Investigator, Terms of funding 2 patients 2020: \$6,300,000. October 2019 – present.
2. 2018, A prospective observational multicenter study of HF10 therapy in patients who previously failed traditional SCS (RENEW); Sponsor: Nevro Corporation, Role: PI; Terms of funding 24 Subjects to be enrolled: \$40, 200, August 2018 – present.
3. 2017, Randomized, controlled, single-blind, prospective, multicenter study evaluating anatomic versus target lead placement for BurstDR therapy during the trial evaluation period; Sponsor: Abbott Medical, Role: PI; Terms of funding 21 subjects enrolled: \$50,000, November 2017 - present.
4. 2017, A post-approval study to evaluate targeted SCS (DRG) stimulation for the management of moderate to severe chronic, intractable, pain of the lower limbs due to CRPS types I and II (TARGET); Sponsor: Abbott Medical Role: PI; Terms of funding: 10 subjects enrolled: \$45,200, November 2017 - present.
5. 2017, A clinical study in pain patients; longitudinal study to measure several physiological parameters including EEG in patients with chronic pain before/after spinal cord stimulation, in collaboration with Carl Saab laboratory; Sponsor: Boston Scientific Company, Role: Co-PI; Contract to perform study: \$148, 694, April 2017 - present.
6. 2016, ReActiv8 implantable neurostimulation system for chronic low back pain (ReActiv8-B); Sponsor: Mainstay Medical, Role: PI; Terms of funding: 10 subjects enrolled: \$458,500.00, October 2016 - present.
7. 2015, A Prospective, Multicenter, Randomized, Double-blind, Placebo-Controlled Study to Evaluate the Efficacy and Safety of a Single Injection of relexmestrocet-L alone or Combined with Hyaluronic Acid (HA) in Subjects with Chronic Discogenic Lumbar Back Pain

through 12 Months; Sponsor: Mesoblast Inc, Role: PI; Contract to perform study: \$53,328, November 2015-2017.

8. 2015, A Pilot Study using the Actigraph GT3X Accelerometer as an Educational Tool for Spinal Cord Stimulation; Sponsor: Medtronic, Inc, Role: PI; Grant: \$ 79,115, July 2015 - present.
9. 2011, The EMP<sup>3</sup>OWER<sup>TM</sup> study: Eon Mini<sup>TM</sup> Study - Product Options for Wellness, Effectiveness and Relief; a Multi-Centered Evaluation of Patients with Chronic Pain of the Trunk and/or Limbs Using Paddle Lead(s); Sponsor: St. Jude Medical, Role: PI, Contract to perform study: \$36,800.02, March 2011 - March 2012.

#### UNIVERSITY TEACHING ROLES

Clinical Associate Professor of Neurosurgery, Clinician Educator: Brown University, Warren Alpert School of Medicine, July 1, 2018 – present.

Clinical Assistant Professor of Neurosurgery: Brown University, Warren Alpert School of Medicine, 2014 – June 30, 2016.

Director: Brown University, Warren Alpert School of Medicine, Clinical Rotation in Physical Medicine and Rehabilitation (IM-3420), 2016 - present

Director: Brown University, Warren Alpert School of Medicine, Annual Interdisciplinary Spine Course, 2016 - present

Instructor: Harvard Medical School, Department of Physical Medicine and Rehabilitation Residency, 2007-2010: Interventional Spine, Pain Medicine

Instructor: Tufts Medical School, Department of Physical Medicine and Rehabilitation Residency, 2007-2014: Interventional Spine, Pain Medicine

Instructor: Harvard Medical School Department of Continuing Education CME Course: “Introduction to Osteopathic Manipulative Medicine”, August 14, 2004; August 13, 2005: Osteopathic Medicine

#### HOSPITAL TEACHING ROLES

Instructor: Lahey Neurosurgery Residency, 2007-2014: Pain and Rehabilitation Medicine