



DRIVING INNOVATION THROUGH SCIENCE & EVIDENCE



NANS 23RD ANNUAL MEETING | JANUARY 23–26, 2020 | CAESARS PALACE | LAS VEGAS, NV

THURSDAY, JANUARY 23

7 am-5 pm

PRE-MEETING COURSES

OQUENDO CENTER FOR
CLINICAL EDUCATION

Certificate of Attendance: Advanced Neuraxial Neuromodulation

Directors: Michael A. Fishman, MD MBA; Michael Hanes, MD; Bryan C. Hoelzer, MD

Certificate of Attendance: Peripheral Nerve Stimulation

Directors: Michael A. Fishman, MD MBA; Einar Ottestad, MD

Hands-On Cadaver Course for Engineers

Directors: Al Mashal, PhD

Neuromodulation for Advanced Implantable Therapies: A Hands-On Cadaver Course for Neurosurgery Residents and Fellows

Directors: Ahmed Raslan, MD; Ashwin Viswanathan, MD

Neuromodulation for Advanced Implantable Therapies: A Hands-On Cadaver Course for Pain Fellows

Directors: Michael A. Fishman, MD MBA; Michael Hanes, MD; Bryan C. Hoelzer, MD

Neurology Neuromodulation Workshop

Directors: Scott J. Pello, MD; Christopher T. Skidmore, MD

8 am-5 pm

PRE-MEETING COURSES

CAESARS PALACE

8 am-5 pm

Advanced Practice Provider Course (PAs, NPs, Nurses): A to Z in Neuromodulation

Directors: Lauren Cimino, APN-CNP; Teresita Devera, MSN CRNP ANP-BC; Christy A. Gomez, APN

8 am-5 pm

Controversies in Intrathecal Therapy

Directors: Aaron K. Calodney, MD; Michael F. Saulino, MD PhD; Erik Shaw, DO

8 am-5 pm

Engineering Principles of Spinal Cord Stimulation and Deep Brain Stimulation for Clinicians

Directors: Marom Bikson, PhD; Scott F. Lempka, PhD

8 am–12 pm

Spinal Cord Stimulation Programming: Basics, Science, Coding

Director: Steven M. Falowski, MD

8:30 am–4:30 pm

Professional Development Workshop

Director: Julie G. Pilitsis, MD PhD

1–5 pm

Introduction to Intraoperative Neuromonitoring for Spinal Cord Stimulation

Director: Steven M. Falowski, MD

1–6 pm

Emerging Technology Forum

Director: Jason E. Pope, MD DABPM FIPP



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FRIDAY, JANUARY 24

6:45-7:45 am THEMATIC ABSTRACT SESSIONS

8-10 am PLENARY SESSION I

WHAT WE HAVE LEARNED ABOUT PLACEBO: IMPLICATIONS FOR CLINICAL PRACTICE AND THE INTERPRETATION OF EVIDENCE ABOUT ANALGESICS

Moderators: *Nathaniel P. Katz, MD MS; Ricardo Vallejo, MD PhD*

Learning Mechanisms and Mechanism of Expectancy in Placebo Response

Luana Colloca, MD PhD MS

Ethical Use of Placebo in Clinical Practice: Should We Avoid it or Take Advantage of it?

Tor Wager, PhD

Understanding Placebo and Nocebo Effects in Clinical Research

Marta Peciña, MD PhD

Phenotype as Predictor of Susceptibility to Placebo

Nathaniel P. Katz, MD MS

Honored Guest Lecturer: Memory and Implications for Pain: Can Optogenetics Turn Memories On and Off?

Christine Ann Denny, PhD

10:30 am-Noon PLENARY SESSION II

WHEN IT'S TIME TO SAY NO: PATIENT SELECTION

Moderators: *Julie G. Pilitsis, MD PhD; David A. Provenzano, MD*

Identifying the High-Risk Patients: Strategies for Neuromodulators

Julie G. Pilitsis, MD PhD

Presidential Address

B. Todd Sitzman, MD MPH

Presentation of Award Winners

B. Todd Sitzman, MD MPH

When Hospitals Say No: Limiting Elective Surgery on Patients With BMI Over 35

Ajit A. Krishnaney, MD

The Ethics of Saying No to Surgery in Patients

Megan Applewhite, MD

Noon-1:30 pm LUNCH SYMPOSIA (NON-CME)



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1:30-3 pm CONCURRENT SESSIONS

EMERGING INDICATIONS FOR DEEP BRAIN STIMULATION

Moderators: *Ellen L. Air, MD PhD; Jennifer A. Sweet, MD*

Depression (DBS & VNS)

Konstantin V. Slavin, MD

Pain

Alexander L. Green, MD FRCS (SN) BSc MB BS

Cognition/Dementia

Nanthia Suthana, PhD

Epilepsy

Robert Fisher, MD PhD

Addiction

Ali R. Rezai, MD

THE FIRST YEAR OUT

Moderators: *Bryan C. Hoelzer, MD; Jay M. Shah, MD*

Marketing and Growing Your Practice

Corey W. Hunter, MD FIPP

Neuromodulation Clinical Workflow

Jason E. Pope, MD DABPM FIPP

Practical Pump Management (Inheriting Patients, Titrating New Patients, Measuring Outcomes)

Kiran V. Patel, MD

How Clinical Trials Influence My Practice

Ajay Antony, MD

ADVANCING PAIN MANAGEMENT SCIENCE AND EDUCATION: ASRA SPECIAL SESSION

Moderators: *David A. Provenzano, MD; Eugene R. Viscusi, MD*

Opioid's Sequelae on Surgical Outcomes

Eugene R. Viscusi, MD

Interventional Headache Medicine: A New Subspecialty

Samer N. Narouze, MD PhD

Imaging Safety in Interventional Pain Medicine: Contrast Selection and Reactions

David A. Provenzano, MD

Impact of Perioperative Pain Management on Cancer Recurrence: An ASRA/ESRA Special Article

Oscar A. de Leon-Casasola, MD



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APPROPRIATE AND EFFECTIVE COLLABORATION WITH INDUSTRY

Moderators: *Tim J. Lamer, MD; Dawn A. Sparks, DO*

The History of Industry Involvement in Medicine and The Future Trajectory

Peter Konrad, MD PhD

Consulting: The Ups and Downs

Jessica Jameson, MD

Industry and Research

Jonathan D. Carlson, MD

Managing Conflicts of Interest and The Impact on Clinical Decision Making

Padma Gulur, MD

FRONTIERS OF NON-INVASIVE NEUROMODULATION

Moderators: *Marom Bikson, PhD; Jiande Chen, MD PhD*

Feasibility of Temporal Interference Brain Stimulation to Treat Neurological and Psychiatric Conditions

Cameron McIntyre, PhD

Neuromodulatory Effects of Transcranial Laser Stimulation

Jacek Dmochowski, PhD

Transcutaneous Auricular Vagus Nerve Stimulation (taVNS): Technique, Targeting, and Considerations

Christopher J. Czura, PhD

Updates on Non-Invasive Brain Stimulation in Neurorehabilitation

Ela Plow, PhD

NEUROMODULATION IN EPILEPSY: FROM BENCH TO OR TO OUTCOMES

Moderators: *Dario J. Englot, MD PhD; Damian S. Shin, MSc PhD*

Neuromodulation in Epilepsy: Neural Underpinnings and The Way Forward

Dario J. Englot, MD PhD

Targets and Mechanisms: Animal Studies of DBS in Epilepsy

Damian S. Shin, MSc PhD

Consciousness, Cognition, and Mood in Neurostimulation for Epilepsy

John D. Rolston, MD PhD

Case Presentations: Hippocampal Stimulation in Epilepsy

Arthur Cukiert, MD

Case Presentations: RNS vs. DBS in Epilepsy

Chengyuan Wu, MD



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3:30-5 pm CONCURRENT SESSIONS

PEDIATRIC NEUROMODULATION

Moderators: Ron L. Alterman, MD; Jeffrey S. Raskin, MS MD

Challenges in Pediatric Population

Oguz Cataltepe, MD

Neuromodulation for Pediatric Epilepsy

George M. Ibrahim, MD PhD FRCSC

Neuromodulation for Pediatric Pain

Timothy R. Lubenow, MD

Neuromodulation for Pediatric Movement Disorders

John Honeycutt, MD

PAIN PRACTICE: THE STATE OF THE ART

Moderators: Michael A. Fishman, MD MBA; Michael Hanes, MD

Defining Success in Chronic Pain Practice

Jules Huang-Lionnet, MD MBA

Neuromodulation “Outside the Box”

Leonardo Kapural, MD PhD

Opioids: Real World Management in 2020

Charles E. Argoff, MD

Emerging Pain Treatments: TBD

Dawood Sayed, MD

ADVANCED PRACTICE PROVIDERS SESSION: GUIDANCE ON COMMON CLINICAL QUESTIONS

Moderator: Christy A. Gomez, APN

The Problem With Pain: Differentiating Types of Pain and Choosing Best Treatment

Teresita Devera, MSN RN APN-BC

Back Surgery vs. Spinal Cord Stimulation

Joshua M. Rosenow, MD FACS

Spinal Cord Stimulation Waveforms and Advanced Programming

Zohra Hussaini, MSN FNP-BC MBA

MRI Considerations in Neuromodulation

Lauren Cimino, APN-CNP



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3:30-5 pm CONCURRENT SESSIONS

REDEFINING TRIALS IN NEUROMODULATION

Moderators: *Richard B. North, MD; Simon J. Thomson, MBBS FRCA FIPP FPPMRCA*

Historical Background

Simon J. Thomson, MBBS FRCA FIPP FPPMRCA

Recent Studies (TRIAL-STIM. RCT)

Sam S. Eldabe, MB ChB FRCA FPPMRCA

Recent Technical Developments

Konstantin V. Slavin, MD

Health Economic Implications

Rui Duarte, MSc PhD

NOVEL METHODS TO RESTORE SENSORY AND MOTOR FUNCTION

Moderators: *Scott F. Lempka, PhD; Steven A. Prescott, MD PhD*

Spinal Cord Stimulation for Sensory Neuroprostheses

Lee E. Fisher, PhD

Spinal Cord Stimulation for Upper Limb Motor Neuroprostheses

Marco Capogrosso, PhD

Peripheral Nerve Stimulation to Restore Sensation to Human Amputees

Dustin J. Tyler, PhD

Regenerative Peripheral Nerve Interface for Restoring Motor Control in Human Amputees

Cynthia A. Chestek, PhD

5-6 pm ROUND TABLE SESSION

ROUND TABLE OF ESSENTIAL NEUROMODULATION CASES

Moderator: *Stephanie G. Vanterpool, MD MBA*

Case Discussion

Rany T. Abdallah, MD PhD MBA; Rajni K. Jutla, MD; Joshua M. Rosenow, MD FACS

5-7 pm PAPER POSTER PRESENTATIONS



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SATURDAY, JANUARY 25

6:45-7:45 am THEMATIC ABSTRACT SESSIONS

8-10 am PLENARY SESSION III

SPINAL CORD STIMULATION STUDIES: TIME OF RECKONING

Moderators: *Salim M. Hayek, MD PhD; Richard B. North, MD*

ION & NANS Collaboration Highlights

Salim M. Hayek, MD PhD

RCT Design in Device Studies: Minimizing Bias and the Placebo Effect

Sam S. Eldabe, MB ChB FRCA FFPMRCA

Limitations of Spinal Cord Stimulation RCT's

Anuj Bhatia, MD

Designing Future Spinal Cord Stimulation RCT's

John Markman, MD

ION/IMPACT Guidelines and Neuromodulation

Robert H. Dworkin, PhD

Krishna Kumar Memorial Lecture: TBD

TBD

10:30 am-Noon PLENARY SESSION IV

INTERPRETING NEW EVIDENCE IN THE FIELD OF SPINAL CORD STIMULATION

Moderators: *Ricardo Vallejo, MD PhD; Stephanie G. Vanterpool, MD MBA*

Scientific Evidence vs. Real Life Experience: How to Make Clinical Decisions

David A. Provenzano, MD

New Indications for Spinal Cord Stimulation

Leonardo Kapural, MD PhD

Spinal Cord Stimulation and New Evidence

Nebojsa (Nick) Knezevic, MD PhD

Keynote Address: "Listening" and "Talking" to Neurons: Non-Neuronal Cells Amplify Pain and Drug Reward ~ Pathways from Basic Science to Human and Veterinary Clinical Trials ~

Linda R. Watkins, PhD

Noon-1:30 pm LUNCH SYMPOSIA (NON-CME)



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SATURDAY, JANUARY 25

1:30-3 pm CONCURRENT SESSIONS

STRUCTURAL-FUNCTIONAL BRAIN MAPPING WORKSHOP

Moderators: Mahdi Alizadeh, PhD; Dario J. Englot, MD PhD

DTI: Basics and Applications in Neuromodulation

Nader Pouratian, MD

BOLD fMRI: Basics and Applications in Neuromodulation

Scott Faro, MD

Image Processing and Analysis: DTI and fMRI

Mahdi Alizadeh, PhD

Connectomics in Neurological Disorders

Dario J. Englot, MD PhD

CHALLENGES IN NEUROMODULATION FOR PAIN

Moderators: Anuj Bhatia, MD; Salim M. Hayek, MD PhD

What to Do When Neuromodulation Therapy Treatment Options Do Not Work

Paul E. Verrills, MD

Role of Combining Spinal Cord Stimulation and Intrathecal Therapy for Pain

Richard L. Rauck, MD

Why Does Neuromodulation Fail?

Michael F. Saulino, MD PhD

Can We Use Imaging and Bio-Markers to Understand and Predict Outcomes of Spinal Cord Stimulation?

Anuj Bhatia, MD

AMERICAN ACADEMY OF PAIN MEDICINE: MULTIDISCIPLINARY PAIN CARE TO OPTIMIZE NEUROMODULATION OUTCOMES

Moderators: Tim J. Lamer, MD; Ajay D. Wasan, MD MSc

Impact of Opioids on Spinal Cord Stimulation Outcomes and a Practical Approach to Taper After Implant

W. Michael Hooten, MD

Impact of Psychological Factors on Spinal Cord Stimulation Outcomes

Ajay D. Wasan, MD MSc

Emerging Pharmacologic Therapies in Pain

Charles E. Argoff, MD

Emerging Regenerative Medicine and Gene Therapy Treatments in Pain

Jianguo Cheng, MD PhD



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1:30-3 pm CONCURRENT SESSIONS

MATCHING PAIN AND PATHOLOGY WITH DEVICE AND TECHNIQUE

Moderators: *Jordan Tate, MD MPH; Ricardo Vallejo, MD PhD*

Peripheral Nerve Stimulation: Indications and Evidence

Michael A. Fishman, MD MBA

10,000 Hz: Indications and Evidence

Jessica Jameson, MD

Dorsal Root Ganglion Stimulation: Indications and Evidence

Corey W. Hunter, MD FIPP

Burst Stimulation: Indications and Evidence

Kiran V. Patel, MD

The Choice Between Targeted Drug Delivery vs. Spinal Cord Stimulation for Chronic Pain: Science or Conventional Wisdom?

Nagy A. Mekhail, MD PhD

REVEALING CIRCUITS OF PAIN AND ITCH: FROM MOLECULES TO NETWORKS

Moderators: *David L. Cedeno, PhD; Robert D. Foreman, FAHA PhD*

The Gate Control Circuits for Pain and Itch

Bo Duan, PhD

TBD

TBD

Neurotrophic Factors and Neurotransmitters in Pain

Theodore J. Price, PhD

Pathological Changes in Neural Information Processing That Lead to Chronic Pain: Implications for Neuromodulation

Steven A. Prescott, MD PhD

SPINE INTERVENTION SOCIETY: RADIOFREQUENCY ABLATION—ASSESSING THE CURRENT EVIDENCE

Moderator: *Aaron K. Calodney, MD*

Does Imaging Predict Diagnosis?

Vance T. Lehman, MD

How Block Technique and Evaluation Affect Outcomes

Matthew Smuck, MD

Research Methodology: A Critique of the MINT Trials

David J. "D.J." Kennedy, MD

New Evidence for Basivertebral Ablation

Matthew Smuck, MD



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3:30-5 pm CONCURRENT SESSIONS

WHAT'S IN THE SIGNAL? THE VALUE UNDERLYING CLOSED LOOP STIMULATION

Moderators: *Svjetlana Miocinovic, MD PhD; John T. Willie, MD PhD*

RNS: Epilepsy

Ahmed Raslan, MD

ECog v. LFPs for Closing the Deep Brain Stimulation Loop

Svjetlana Miocinovic, MD PhD

Closing the Loop for Pain: Use of EEG

Ilknur Telkes, MSc PhD

Brain Computer Interface: Where Are We Now?

Wael Asaad, MD PhD

BEYOND PAIN: ROLE OF NEUROMODULATION IN TREATING NON-PAIN SYNDROMES

Moderators: *Salim M. Hayek, MD PhD; Julie G. Pilitsis, MD PhD*

Intrathecal Therapy for Treating Hypertension, Facial Pain

Salim M. Hayek, MD PhD

Spinal Cord Stimulation for Improving Motor, Bladder, and Bowel Control After Spinal Cord Injury

April N. Herrity, DC PhD

New Indications for Deep Brain Stimulation: Chronic Pain, Tinnitus, Epilepsy, and Alzheimer's Disease

Julie G. Pilitsis, MD PhD

New Indications for Sacral Nerve Stimulation: Overactive Bladder and Bowel Incontinence

Dean Elterman, MD MSc FRCSC

EMERGING ROLE OF NEUROMODULATION FOR CANCER PAIN

Moderators: *Amitabh Gulati, MD; Jill Sindt, MD*

Intrathecal Therapies: What is New for Cancer Pain?

Lisa Stearns, MD

Spinal Cord Stimulation for Cancer Pain: Implications for Cancer Surveillance Imaging

Amitabh Gulati, MD

Peripheral Nerve Stimulation for Cancer Pain

Einar Ottestad, MD

Impact of Intrathecal Opioid Therapy on Serum Opioid Levels and Clinical Outcomes in Cancer Pain

Shane E. Brogan, MB BCH



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SATURDAY, JANUARY 25

3:30-5 pm CONCURRENT SESSIONS

SPINAL CORD STIMULATION PROGRAMING: OPENING THE BLACKBOX

Moderators: Sam S. Eldabe, MB ChB FRCA FFPMRCA; Halena M. Gazelka, MD

Basics of Spinal Cord Stimulation Programming

Kenneth B. Chapman, MD

Discuss What is Known for Major Landmark Studies Regarding Spinal Cord Stimulation Programming

Kiran V. Patel, MD

Can Spinal Cord Stimulation Programming Follow an Algorithm?

Jose De Andres, MD PhD FIPP EDRA EDPM

Does Programming Matter?

Magdalena M. Anitescu, MD PhD

EMERGING MECHANISMS OF NEUROMODULATION: FROM CELLULAR TO NETWORK SUBSTRATES

Moderators: Marom Bikson, PhD; Damian S. Shin, MSc PhD

Modeling the Effects of Deep Brain Stimulation Parameters on Fibers and Cell Bodies

Cameron McIntyre, PhD

Effects of Ultrasound on Brain Function

Jan Kubanek, PhD

Deep Brain Neuromodulation Alters Gene Expression

Lili-Naz Hazrati, MD PhD FRCPC

Optical Imaging of the Neural Response to Electrical Stimulation in the Brain

Takashi DY Kozai, PhD

5-6 pm ROUND TABLE SESSION

ROUND TABLE OF ADVANCED NEUROMODULATION CASES

Moderator: Stephanie G. Vanterpool, MD MBA

Case Discussion

Johnathan H. Goree, MD; Ellen Lin, MD; Nader Pouratian, MD

*Faculty and presentations subject to change.