

## 2008 Indexes by Article, Author, and Key words

### January 2008, Volume 11, Number 1

#### EDITORIAL

- ◆ Pain Physician: An Emerging Journal of Interventional Pain Management in the New Millennium 1  
Howard Smith, MD, Bert Fellows, MA, and Laxmaiah Manchikanti, MD

#### COMMENTARY

- ◆ Toward a Moral Grounding of Pain Medicine: Consideration of Neuroscience, Reverence, Beneficence, and Autonomy 7  
Leslaw T. Niebrój, PhD, Danuta Jadamus-Niebrój, MD, PhD, and James Giordano, PhD

#### HEALTH POLICY REVIEW

- ◆ Health Care Reform in the United States: Radical Surgery Is Needed Now More Than Ever 13  
Laxmaiah Manchikanti, MD

#### ORIGINAL CONTRIBUTIONS

##### PROSPECTIVE EVALUATION

- Quality Assurance for Interventional Pain Management Procedures in Private Practice 43  
Yili Zhou, MD, PhD, and Sally Thompson, PA-C

##### ANATOMIC TECHNICAL REPORT

- Sacral Vertebral Augmentation: Confirmation of Fluoroscopic Landmarks by Open Dissection 57  
Andres Betts, MD

##### RETROSPECTIVE EVALUATION

- Age-Related Prevalence of Facet-Joint Involvement in Chronic Neck and Low Back Pain 67  
Laxmaiah Manchikanti, MD, Kavita N. Manchikanti, BA, Kimberly A. Cash, RT,  
Vijay Singh, MD, and James Giordano, PhD

#### CASE REPORTS

- ◆ Epidural Blood Patch for Chronic Daily Headache with Postural Component:  
A Case Report and Review of Published Cases 77  
Torin Shear, MD, and Shihab U. Ahmed, MBBS, MPH
- ◆ Neuromodulation in the Management of Pain from Brachial Plexus Injury 81  
Silviu Brill, MD, and Itay Goor Aryeh, MD
- ◆ Acute Spinal Pain During an Attempted Lumbar Epidural Blood Patch  
in Congenital Lumbar Spinal Stenosis and Epidural Lipomatosis 87  
W. Michael Hooten, MD, Michael S. Hogan, MBBCh, Thomas C. Sanemann, MD,  
and Timothy J. Maus, MD
- ◆ Successful Treatment of Digital Ulcers in a Scleroderma Patient with Continuous Bilateral  
Thoracic Sympathetic Block 91  
Kyung Ream Han, MD, PhD, Chan Kim, MD, PhD, and Eun Jung Park, MD
- ◆ Subdural Hematoma Following Spinal Cord Stimulator Implant 97  
Srinivas Chiravuri, MD, Ronald Wasserman, MD, Amit Chawla, MD,  
and Naeem Haider, MD

**March/April 2008, Volume 11, Number 2****ORIGINAL CONTRIBUTIONS**

- ◆ Lumbar Facet Joint Nerve Blocks in Managing Chronic Facet Joint Pain: One-Year Follow-up of a Randomized, Double-Blind Controlled Trial: Clinical Trial NCT00355914 121  
Laxmaiah Manchikanti, MD, Vijay Singh, MD, Frank J.E. Falco, MD, Kimberly A. Cash, RT, and Vidyasagar Pampati, MSc
- ◆ Prevalence of Complex Regional Pain Syndrome in a Cohort of Multiple Sclerosis Patients 133  
Robert J. Schwartzman, MD, Chamindra Gurusinghe, MD, and Edward Gracely, MD
- ◆ Response to Pulsed and Continuous Radiofrequency Lesioning of the Dorsal Root Ganglion and Segmental Nerves in Patients with Chronic Lumbar Radicular Pain 137  
Thomas T. Simopoulos, MD, Jan Kraemer, MD, Jyotsna V. Nagda, MD, Musa Aner, MD, and Zahid H. Bajwa, MD
- ◆ Influence of Psychological Variables on the Diagnosis of Facet Joint Involvement in Chronic Spinal Pain 145  
Laxmaiah Manchikanti, MD, Kimberly A. Cash, RT, Vidyasagar Pampati, MSc, and Bert Fellows, MA

**REVIEWS**

- ◆ Evidence-Based Medicine, Systematic Reviews, and Guidelines in Interventional Pain Management, Part 1: Introduction and General Considerations 161  
Laxmaiah Manchikanti, MD
- ◆ Implanted Occipital Nerve Stimulators 187  
Joseph F. Jasper, MD and Salim M. Hayek MD, PhD
- ◆ Combination Opioid Analgesics 201  
Howard S. Smith, MD
- ◆ Ultrasound-guided Interventional Procedures for Patients with Chronic Pelvic Pain — A Description of Techniques and Review of Literature 215  
Philip W.H. Peng, MBBS, FRCPC, and Paul S. Tumber, MD, FRCPC
- ◆ Opioid Antagonists, Partial Agonists, and Agonists/Antagonists: The Role of Office-Based Detoxification 225  
Standiford Helm II, MD, Andrea M. Trescot, MD, James Colson, MD, Nalini Sehgal, MD, and Sanford Silverman, MD
- ◆ Variations in Opioid Responsiveness 237  
Howard S. Smith, MD

**CASE REPORTS**

- ◆ Clostridial Sacroiliitis in a Patient with Fecal Incontinence: A Case Report and Review of the Literature 249  
Ryan C. McHugh, MD, Jeffrey M. Tiede, MD, and Toby N. Weingarten, MD
- ◆ Percutaneous Occipital Stimulator Lead Tip Erosion: Report of 2 Cases 253  
Terrence L. Trentman, MD, David W. Dodick, MD, Richard S. Zimmerman, MD, and Barry D. Birch, MD
- ◆ Sclerotherapy of Baker's Cyst with Imaging Confirmation of Resolution: A Case Report 257  
Christopher J. Centeno, MD, John Schultz, MD, and Michael Freeman, PhD

**LETTERS TO THE EDITOR**

- ◆ Diameter of Suprascapular Nerve in the Suprascapular Notch 263  
Smoljanovic Tomislav, MD, Miklic Dina, MD, MS, and Grgurevic Lovorka, MD, PhD
- In Response 264

## Articles Index

### May/June 2008, Volume 11, Number 3

#### HEALTH POLICY REVIEWS

- 
- ◆ Review of Occupational Medicine Practice Guidelines for Interventional Pain Management and Potential Implications 271  
Laxmaiah Manchikanti, MD, Vijay Singh, MD, Richard Derby, MD, Standiford Helm II, MD, Andrea M. Trescot, MD, Peter S. Staats, MD, Joshua P. Prager, MD, and Joshua A. Hirsch, MD
  - ◆ A Critical Appraisal of 2007 American College of Occupational and Environmental Medicine (ACOEM) Practice Guidelines for Interventional Pain Management: An Independent Review Utilizing AGREE, AMA, IOM, and Other Criteria 291  
Laxmaiah Manchikanti, MD, Vijay Singh, MD, Standiford Helm II, MD, Andrea M. Trescot, MD, and Joshua A. Hirsch, MD

#### ORIGINAL CONTRIBUTIONS

- ◆ Accuracy of MRI for Diagnosis of Discogenic Pain 311  
Conor O'Neill, MD, Marina Kurgansky, MD, Jay Kaise, MD, and Winnie Lau, BS
- ◆ Confirmation of Needle Placement Within the Piriformis Muscle of a Cadaveric Specimen Using Anatomic Landmarks and Fluoroscopic Guidance 327  
Peter Gonzalez, MD, Michelle Pepper, MD, William Sullivan, MD, and Venu Akuthota, MD

#### CASE REPORTS

- ◆ Efficacy of Transverse Tripolar Spinal Cord Stimulator for the Relief of Chronic Low Back Pain from Failed Back Surgery 333  
Asokumar Buvanendran, MD, and Timothy J. Lubenow, MD
- ◆ Ketamine Treatment for Intractable Pain in a Patient with Severe Refractory Complex Regional Pain Syndrome: A Case Report 339  
Peyman Shirani, MD, Alicia R. Salamone, BA, Paul E. Schulz, MD, and Everton A. Edmondson, MD
- ◆ Increased Knee Cartilage Volume in Degenerative Joint Disease using Percutaneously Implanted, Autologous Mesenchymal Stem Cells 343  
Christopher J. Centeno, MD, Dan Busse MD, John Kisiday, PhD, Cristin Keohan, Michael Freeman, PhD, and David Karli, MD
- ◆ Tension Pseudomeningocele Associated with Retained Intrathecal Catheter: A Case Report with a Review of Literature 355  
Mohan S. Vodapally, MD, Mark A. Thimineur, MD, and Patrick P. Mastroianni, MD
- ◆ Severe Peripheral Edema During an Outpatient Continuous Epidural Morphine Infusion Trial in a Patient with Failed Back Surgery Syndrome 363  
Xiulu Ruan, MD, Riaz Tadia, MD, J. Patrick Couch, MD, Jingchun Ruan, MD, and Srinivas Chiravuri, MD
- ◆ Intrathecal Granuloma in a Patient Receiving High Dose Hydromorphone 369  
Christian N. Ramsey, MD, Robert D. Owen, MD, William O. Witt, MD, and Jay S. Grider, DO, PhD

#### LETTERS TO THE EDITOR

- ◆ Sclerotherapy for Baker's Cyst 375  
Felix Linetsky, MD
- ◆ Anatomy, Imaging Treatment Options for Baker's Cyst 376  
Sridhar Pinnamaneni, MD, and P. Sebastian Thomas, MD
  - In Response: Christopher J. Centeno, MD 378
- ◆ No Consistent Methodology Used in Application of RF to Allow Valid Comparisons 379  
Dan C. Martin, MD
  - In Response: Thomas Simopoulos 380
- ◆ The Entrapment of Dorsal Nerve of Penis/Clitoris Under the Pubis: An Alternative Source of Pudendal Neuralgia 381  
Jiri Šedý, MD
  - In Response: Phillip Peng, MBBS, FRCPC 382

## July/August 2008, Volume 11, Number 4

### EDITORIAL

---

- ◆ Ethics of, and in, Pain Medicine: Constructs, Content, and Contexts of Application 391  
James Giordano, PhD

### HEALTH POLICY REVIEW

---

- ◆ Reassessment of Evidence Synthesis of Occupational Medicine Practice Guidelines for Interventional Pain Management 393  
Laxmaiah Manchikanti, MD, Vijay Singh, MD, Richard Derby, MD, David M. Schultz, MD, Ramsin M. Benyamin, MD, Joshua P. Prager, MD, and Joshua A. Hirsch, MD

### ETHICS

---

- ◆ An Ethical Analysis of Crisis in Chronic Pain Care: Facts, Issues and Problems in Pain Medicine; Part I 483  
James Giordano, PhD, and Michael S. Schatman, PhD

### ORIGINAL CONTRIBUTIONS

---

#### RANDOMIZED TRIAL

- ◆ Effectiveness of Thoracic Medial Branch Blocks in Managing Chronic Pain: A Preliminary Report of a Randomized, Double-Blind Controlled Trial; Clinical Trial NCT00355706 491  
Laxmaiah Manchikanti, MD, Vijay Singh, MD, Frank J.E. Falco, MD, Kimberly A. Cash, RT, and Vidyasagar Pampati, MSc

#### RANDOMIZED CONTROLLED EVALUATION

- ◆ The Biomechanics of the Lumbosacral Region In Acute And Chronic Low Back Pain Patients 505  
Güldal Funda Nakipoğlu, MD, Aynur Karagöz, MD, and Nese Özgirgin, MD

#### SYSTEMANTIC REVIEW

- ◆ Systematic Review of Lumbar Provocation Discography in Asymptomatic Subjects with a Meta-analysis of False-positive Rates 513  
Lee R. Wolfer, MD, MS, Richard Derby, MD, Jeong-Eun Lee, PT, and Sang-Heon Lee, MD, PhD

#### OBSERVATIONAL REPORT

- ◆ Does Opioid Use for Pain Management Warrant Routine Bone Mass Density Screening in Men? 539  
Joseph D. Fortin, DO, Gina M. Bailey, BS, and Joel A. Vilensky, PhD

### CASE REPORTS

---

- ◆ Ultrasound-Guided Sacroiliac Joint Injection Technique 543  
Dominic Harmon, MD, FCARCSI, and Michael O'Sullivan, MB, MRCS
- ◆ Fluoroscopically-Guided Injections to Treat "Kissing Spine" Disease 549  
Timothy S. Lamer, MD, Jeffrey M. Tiede, MD and Douglas S. Fenton, MD
- ◆ Use of Spinal Cord Stimulator for Treatment of Lumbar Radiculopathy in a Patient with Severe Kyphoscoliosis 555  
Joseph Atallah, MD, Freda A. Armah, MD, Daryl Wong, MD, Patricia A Weis, MSN, CNS, RN-BC, and Brenda G. Fahy, MD
- ◆ Pulsed Radiofrequency of Lumbar Dorsal Root Ganglia for Chronic Post-Amputation Stump Pain 561  
Vidya Ramanavarapu MD, and Thomas T. Simopoulos MD

### LETTER TO THE EDITOR

---

- ◆ In Reference to Manchikanti et al's Criticism of ACOEM Guidelines 567  
Kurt T. Hegmann, MD, MPH, James B. Talmage, MD, Elizabeth Genovese, MD, MBA, Steven D. Feinberg, MD, MPH, Wilhelmina C. Korevaar, MD, MMM, and Kathryn L. Mueller, MD, MPH
- In Response: In Defense of Critical Analysis of ACOEM Guidelines for Interventional Pain Management 568  
Laxmaiah Manchikanti, MD, Vijay Singh, MD, and Joshua A. Hirsch, MD

**September/October 2008, Volume 11, Number 5****ETHICS**

- ◆ A Crisis in Chronic Pain Care: An Ethical Analysis  
Part Two: Proposed Structure and Function of an Ethics of Pain Medicine  
James Giordano, PhD, and Michael S. Schatzman, PhD 589

**SYSTEMATIC REVIEWS**

- ◆ CNS or Classic Drugs for the Treatment of Pain in Functional Dyspepsia? A Systematic Review and Meta-Analysis of the Literature  
Maria do Carmo Friche Passos, MD, PhD, Debora Dur, MD, MS, and Felipe Fregnani, MD, PhD 597
- ◆ Systematic Review of Diagnostic Utility and Therapeutic Effectiveness of Thoracic Facet Joint Interventions  
Sairam Atluri, MD, Sukdeb Datta, MD, Frank JE Falco, MD, and Marion Lee, MD 611
- ◆ Systematic Review of Thoracic Discography as a Diagnostic Test for Chronic Spinal Pain  
Vijay Singh, MD, Laxmaiah Manchikanti, MD, Rino V. Shah, MD, Elmer E. Dunbar, MD, and Scott E. Glaser, MD 631

**ORIGINAL CONTRIBUTIONS****CLINICAL SURVEY**

- ◆ An Assessment of the Association Between Smoking Status, Pain Intensity, and Functional Interference in Patients with Chronic Pain  
Toby N. Weingarten, MD, Susan M. Moeschler, MD, Anne E. Ptaszynski, MD, W. Michael Hooten, MD, Timothy J. Beebe, PhD, and David O. Warner, MD 643

**RANDOMIZED TRIAL**

- ◆ Environmental Conditions and Performance Outcomes: A Preliminary Report of Implications for Patient Outcomes  
Joseph D. Fortin, DO, Donna Holland, PhD, and Erin Korrech, MA 655

**GUIDELINES**

- ◆ Intradiscal Electrothermal Therapy (IDET) for the Treatment of Discogenic Low Back Pain: Patient Selection and Indications for Use  
David S. Kloth, MD, Douglas S. Fenton, MD, Gunnar B.J. Andersson, MD, PhD, and Jon E. Block, PhD 659

**CADAVERIC STUDY**

- ◆ Cadaveric Intervertebral Disc Temperature Mapping During Disc Biacuplasty  
Kevin Pauza, MD 669

**CASE REPORTS**

- ◆ Subdural Intrathecal Catheter Placement: Experience with Two Cases  
Andrea Sorokin, MD, Emil Annabi, MD, Wen-Chang Yang, MD, and Ronald Kaplan, MD 677
- ◆ Acute Renal Failure During a Trial of Spinal Cord Stimulation: Theories as to a Possible Connection  
Thomas M. Larkin, MD, Anthony Dragovich, MD, and Steven P. Cohen, MD 681
- ◆ Unusual Cause of Back Pain in an Adolescent Patient: A Case Report and Natural History of Aggressive Vertebral Hemangioma in Children  
Bhawna Jah, MD, and Arabinda Choudhary, MD 687
- ◆ Vertebral Osteomyelitis: A Potentially Catastrophic Outcome after Lumbar Epidural Steroid Injection  
Thomas T. Simopoulos, MD, Jan J. Kraemer, MD, Paul Glazer, MD, and Zahid H. Bajwa, MD 693

**LETTERS TO THE EDITOR**

- ◆ The Evolving Management of Malignant Compression Fractures  
Ariel E. Hirsch, MD, and Joshua A. Hirsch, MD 699
- ◆ Comment on Manchikanti et al's ACOEM Guideline Criticism  
Lora L. Brown, MD, Luis A. Escobar, MD, and Alvin Stein, MD 700
- ◆ ACOEM Guideline Analysis  
Joseph Jasper, MD 701
- ◆ In Support of Manchikanti et al ACOEM Guideline Criticisms  
Marshall D. Bedder, MD 703
- ◆ California Needs to Make Improvements in Guideline Implementation  
Francis X. Riegler, MD, Ray H. d'Amours, MD, and Shahin A. Sadik, MD 704
- In Response: Interventional Pain Management and ACOEM Guidelines  
Laxmaiah Manchikanti, MD, Vijay Singh, MD, and David M. Schultz, MD 705

## November/December 2008, Volume 11, Number 6

### EDITORIAL

---

- ◆ Back to the Future? The End of the Steroid Century? 713  
Marc A. Huntoon, MD, and Abram H. Burgher, MD

### HEALTH POLICY REVIEW

---

- ◆ Evidence-Based Medicine, Systematic Reviews, and Guidelines in Interventional Pain Management: 717  
Part 2: Randomized Controlled Trials  
Laxmaiah Manchikanti, MD, Joshua A. Hirsch, MD, and Howard S. Smith, MD

### ETHICS

---

- ◆ A Crisis in Chronic Pain Care: An Ethical Analysis. Part Three: Toward an Integrative, 775  
Multi-disciplinary Pain Medicine Built Around the Needs of the Patient  
James Giordano, PhD, and Michael E. Schatzman, PhD

### RANDOMIZED TRIALS

---

- ◆ Preliminary Results of a Randomized, Equivalence Trial of Fluoroscopic Caudal Epidural Injections 785  
in Managing Chronic Low Back Pain: Part 1. Discogenic Pain without Disc Herniation or Radiculitis  
Laxmaiah Manchikanti, MD, Kimberly A. Cash, RT, Carla D. McManus, RN, BSN, Vidyasagar Pampati, MSc,  
and Howard S. Smith, MD
- ◆ Preliminary Results of a Randomized, Equivalence Trial of Fluoroscopic Caudal Epidural Injections 801  
in Managing Chronic Low Back Pain: Part 2. Disc Herniation and Radiculitis  
Laxmaiah Manchikanti, MD, Vijay Singh, MD, Kimberly A. Cash, RT, Vidyasagar Pampati, MSc, Kim S. Damron, RN,  
and Mark V. Boswell, MD, PhD
- ◆ Preliminary Results of a Randomized, Equivalence Trial of Fluoroscopic Caudal Epidural Injections 817  
in Managing Chronic Low Back Pain: Part 3. Post Surgery Syndrome  
Laxmaiah Manchikanti, MD, Vijay Singh, MD, Kimberly A. Cash, RT, Vidyasagar Pampati, MSc, and Sukdeb Datta, MD
- ◆ Preliminary Results of a Randomized, Equivalence Trial of Fluoroscopic Caudal Epidural Injections 833  
in Managing Chronic Low Back Pain: Part 4. Spinal Stenosis  
Laxmaiah Manchikanti, MD, Kimberly A. Cash, RT, Carla D. McManus, RN, BSN, Vidyasagar Pampati, MSc,  
and Salahadin Abdi, MD, PhD

### ORIGINAL CONTRIBUTIONS

---

#### OBSERVATIONAL STUDIES

- ◆ Deep Cervical Plexus Block for the Treatment of Cervicogenic Headache 849  
Michael E. Goldberg, MD, Robert J. Schwartzman, MD, Richard Domsky, MD,  
Michael Sabia, MD, and Marc C. Torjman, PhD
- ◆ Contrast Flow Selectivity During Transforaminal Lumbosacral Epidural 855  
Steroid Injections  
Michael B. Furman, MD, MS, Thomas S. Lee, MD, Ariz Mehta, MD, Jeremy I. Simon, MD, and William G. Cano, MD

#### TECHNICAL REPORTS

- ◆ Radiofrequency Cannula with Active Tip Radio-opaque Marker: Image Analysis for 863  
Facet, Gray Ramus, and Dorsal Root Ganglion Techniques  
Joseph F. Jasper, MD

November/December 2008, Volume 11, Number 6

**Technical Reports Cont.**

- ◆ Experimental Evaluation of Hyaluronidase Activity in Combination with Specific Drugs Applied in Clinical Techniques of Interventional Pain Management and Local Anaesthesia 877  
Christoph Schulze, MD, Thomas Bittorf, PD, Hermann Walzel, PD,  
Günther Kundt, MD, PD, Rainer Bader, MD, and Wolfram Mittelmeier, MD
  
  - ◆ Ultrasound Guided Trigger Point Injections in the Cervicothoracic Musculature: A New and Unreported Technique 885  
Kenneth P. Botwin, MD, Kavita Sharma, DO, Romeo Saliba, MD, and Bharat C. Patel, MD
- FOCUSED REVIEW**
- ◆ Anti-inflammatory Effects of Electronic Signal Treatment 891  
Robert H. Odell, Jr., MD, PhD, and Richard E. Sorgnard, PhD

---

**CASE REPORTS**

---

- ◆ The Utilization of Transcutaneous Oxygen Pressures to Guide Decision-Making for Spinal Cord Stimulation Implantation for Inoperable Peripheral Vascular Disease: A Report of Two Cases 909  
David A. Provenzano, MD, Gaye Jarzabek, RN, and Phillip Georgevich, MD
  
- ◆ Corticosteroid Induced Psychosis in the Pain Management Setting 917  
Ramsin Benyamin, MD, Ricardo Vallejo, MD, Jeffery Kramer, PhD, and Roueen Rafeyan, MD

---

**LETTER TO THE EDITOR**

---

- ◆ Pulsed Radiofrequency for Metastatic Pain Treatment 921  
Alexander Zeldin, MD, and Alexander Ioscovich, MD

## March/April 2008, Volume 11, Number 2S

### EDITORIAL

---

- ◆ Opioid-Related Issues "Popping" Up Again S1  
Howard S. Smith, MD

### GUIDELINES

---

- ◆ Opioids in the Management of Chronic Non-Cancer Pain: An Update of American Society of Interventional Pain Physicians' (ASIPP) Guidelines S5  
Andrea M. Trescot, MD, Standiford Helm, MD, Hans Hansen, MD, Ramsin Benyamin, MD, Scott E. Glaser, MD, Rajive Adlaka, MD, Samir Patel, DO, and Laxmaiah Manchikanti, MD

### REVIEWS

---

- ◆ Therapeutic Opioids: A Ten-Year Perspective on the Complexities and Complications of the Escalating Use, Abuse, and Nonmedical Use of Opioids S63  
Laxmaiah Manchikanti, MD, and Angelie Singh, BS, BA
- ◆ Intrathecal Drug Delivery S89  
Howard S. Smith, MD, Timothy R. Deer, MD, Peter S. Staats, MD, Vijay Singh, MD, Nalini Sehgal, MD, and Harold Cordner, MD
- ◆ Opioid Complications and Side Effects S105  
Ramsin Benyamin, MD, Andrea M. Trescot, MD, Sukdeb Datta, MD, Ricardo Buenaventura, MD, Rajive Adlaka, MD, Nalini Sehgal, MD, Scott E. Glaser, MD, and Ricardo Vallejo, MD
- ◆ Peripherally-acting Opioids S121  
Howard S. Smith, MD
- ◆ Opioid Pharmacology S133  
Andrea M. Trescot, MD, Sukdeb Datta, MD, Marion Lee, MD, and Hans Hansen, MD
- ◆ Monitoring Opioid Adherence in Chronic Pain Patients: Tools, Techniques, and Utility S155  
Laxmaiah Manchikanti, MD, Sairam Atluri, MD, Andrea M. Trescot, MD, and James Giordano, PhD
- ◆ Effectiveness of Opioids in the Treatment of Chronic Nonmalignant Pain S181  
Andrea Trescot, MD, Scott E. Glaser, MD, Hans Hansen, MD, Ramsin Benyamin, MD, Samir Patel, DO, and Laxmaiah Manchikanti, MD

## Author Index

---

### **A**

- Abdi, Salahadin, MD, PhD ..... 833  
 Adlaka, Rajive, MD ..... 55  
 Ahmed, Shihab U., MBBS, MPH ..... 77  
 Akuthota, Venu, MD ..... 327  
 Andersson, Gunnar B.J., MD, PhD ..... 659  
 Aner, Musa, MD ..... 137  
 Annabi, Emil, MD ..... 677  
 Armah, Freda A., MD ..... 555  
 Aryeh, Itay Goor, MD ..... 81  
 Atallah, Joseph, MD ..... 555  
 Atluri, Sairam, MD ..... 611, S155

### **B**

- Bader, Rainer, MD ..... 877  
 Bailey, Gina M., BS ..... 539  
 Bajwa, Zahid H., MD ..... 137, 693  
 Bedder, Marshall D., MD ..... 703  
 Beebe, Timothy J., PhD ..... 643  
 Benyamin, Ramsin M., MD ..... 393, 909, S5, S181  
 Betts, Andres, MD ..... 57  
 Birch, Barry D., MD ..... 253  
 Bittorf, Thomas, PD ..... 877  
 Block, Jon E., PhD ..... 659  
 Boswell, Mark V., MD, PhD ..... 801  
 Botwin, Kenneth P., MD ..... 885  
 Brill, Silviu, MD ..... 81  
 Brown, Lora L., MD ..... 700  
 Burgher, Abram H., MD ..... 713  
 Busse, Dan, MD ..... 343  
 Buvanendran, Asokumar, MD ..... 333

### **C**

- Cano, William G., MD ..... 855  
 Cash, Kimberly A., RT ..... 67, 121, 145, 491, 775, 801, 817, 833  
 Centeno, Christopher J., MD ..... 257, 343, 378  
 Chawla, Amit, MD ..... 97  
 Chiravuri, Srinivas, MD ..... 97, 363  
 Choudhary, Arabinda, MD ..... 687  
 Cohen, Steven P., MD ..... 681  
 Colson, James, MD ..... 225  
 Cordner, Harold, MD ..... 589  
 Couch, J. Patrick, MD ..... 363

### **D**

- d'Amours, Ray H., MD ..... 704  
 Damron, Kim S., RN ..... 801  
 Datta, Sukdeb, MD ..... 611, 817, S133  
 Deer, Timothy R., MD ..... 889  
 Derby, Richard, MD ..... 271, 393, 513  
 Dodick, David W., MD ..... 253  
 Domsky, Richard, MD ..... 849  
 Dragovich, Anthony, MD ..... 681  
 Dunbar, Elmer E., MD ..... 631  
 Dur, Debora, MD, MS ..... 597

### **E**

- Edmondson, Everton A., MD ..... 339  
 Escobar, Luis A., MD ..... 700

### **F**

- Fahy, Brenda G., MD ..... 555  
 Falco, Frank J.E., MD ..... 121, 491, 611

- Feinberg, Steven D., MD, MPH ..... 567  
 Fellows, Bert, MA ..... 1, 145  
 Fenton, Douglas S., MD ..... 549, 659  
 Fortin, Joseph D., DO ..... 539, 655  
 Freeman, Michael, PhD ..... 257, 343  
 Fregni, Felipe, MD, PhD ..... 597  
 Furman, Michael B., MD, MS ..... 855

### **G**

- Genovese, Elizabeth, MD, MBA ..... 567  
 Georgevich, Phillip, MD ..... 909  
 Giordano, James, PhD ..... 7, 67, 391, 483, 589, 775, S155  
 Glaser, Scott E., MD ..... 631, S5, S105, S181  
 Glazer, Paul, MD ..... 693  
 Goldberg, Michael E., MD ..... 849  
 Gonzalez, Peter, MD ..... 327  
 Gracely, Edward, MD ..... 133  
 Grgurevic, Lovorka, MD, PhD ..... 263  
 Grider, Jay S., DO, PhD ..... 369  
 Gurusinghe, Chamindra, MD ..... 133

### **H**

- Haider, Naeem, MD ..... 97  
 Han, Kyung Ream, MD, PhD ..... 91  
 Hansen, Hans, MD ..... S5, S133, S181  
 Harmon, Dominic, MD, FCARCSI ..... 543  
 Hayek, Salim M., MD, PhD ..... 187  
 Hegmann Kurt T., MD, MPH ..... 567  
 Helm, Standiford II, MD ..... 225, 271, 291, S5  
 Hirsch, Ariel E., MD ..... 699  
 Hirsch, Joshua A., MD ..... 271, 291, 393, 568, 699, 717  
 Hogan, Michael S., MBBCh ..... 87  
 Holland, Donna, PhD ..... 655  
 Hooten, W. Michael, MD ..... 87, 643  
 Huntoon, Mark, MD ..... 713

### **I**

- Ioscovich, Alexander, MD ..... 921

### **J**

- Jadamus-Niebrój, Danuta, MD, PhD ..... 7  
 Jah, Bhawna, MD ..... 687  
 Jarzabek, Gaye, RN ..... 909  
 Jasper, Joseph F., MD ..... 187, 701, 863

### **K**

- Kaise, Jay, MD ..... 311  
 Kaplan, Ronald, MD ..... 677  
 Karagöz, Aynur, MD ..... 505  
 Karli, David, MD ..... 343  
 Keohan, Cristin ..... 343  
 Kim, Chan, MD, PhD ..... 91  
 Kisiday, John, PhD ..... 343  
 Kloth, David S., MD ..... 659  
 Korevaar, Wilhelmina C., MD, MMM ..... 567  
 Korrech, Erin, MA ..... 655  
 Kraemer, Jan, MD ..... 137, 693  
 Kramer, Jeffery, PhD ..... 917  
 Kundt, Günther, PD ..... 877  
 Kurgansky, Marina, MD ..... 311

### **L**

- Lamer, Timothy S., MD ..... 549

Larkin, Thomas M., MD.....	681
Lau, Winnie, BS.....	311
Lee, Jeong-Eun, PT .....	513
Lee, Sang-Heon, MD, PhD.....	513
Lee, Marion, MD.....	611, S133
Lee, Thomas S., MD.....	855
Linetsky, Felix, MD.....	375
Lubenow, Timothy J., MD .....	333
<b>M</b>	
Manchikanti, Kavita N., BA.....	67
Manchikanti, Laxmaiah, MD.....	1, 13, 67, 121, 145, 161, 271, 291, 393, 491, 568, 631, 705, 717, 775, 801, 817, 833, S5, S63, S155, S181
Martin, Dan C., MD .....	379
Mastroianni, Patrick P., MD .....	355
Maus, Timothy J., MD .....	87
McHugh, Ryan C., MD .....	249
McManus, Carla D., RN, BSN.....	775, 833
Mehhta, Ariz, MD.....	855
Miklic, Dina, MD, MS.....	263
Mittelmeier, Wolfram, MD .....	877
Moeschler, Susan M., MD.....	643
Mueller, Kathryn L., MD, MPH.....	567
<b>N</b>	
Nagda, Jyotsna V., MD .....	137
Nakipoglu, Güldal Funda, MD.....	505
Niebró, Leslaw T., PhD .....	7
<b>O</b>	
O'Neill, Conor, MD .....	311
O'Sullivan, Michael, MB, MRCS .....	543
Odell, Robert H. Jr., MD, PhD .....	891
Owen, Robert D., MD.....	369
Özgirgin, Nese, MD .....	505
<b>P</b>	
Pampati, Vidyasagar, MSc..	121, 145, 491, 775, 801, 817, 833
Park, Eun Jung, MD.....	91
Passos, Maria do Carmo Friche, MD, PhD .....	597
Patel, Bharat C., MD.....	885
Patel Samir, DO.....	S5, S181
Pauza, Kevin, MD .....	669
Peng, Philip W.H., MBBS, FRCPC.....	215, 382
Pepper, Michelle, MD.....	327
Pinnamaneni, Sridhar, MD .....	376
Prager, Joshua P., MD .....	271, 393
Provenzano, David A., MD.....	909
Ptaszynski, Anne E., MD.....	643
<b>R</b>	
Rafeyan, Roueen, MD .....	917
Ramanavarapu, Vidya, MD .....	561
Ramsey, Christian N., MD .....	369
Riegler, Francis X, MD .....	704
Ruan, Xiulu, MD .....	363
Ruan, Jingchun, MD .....	363
<b>S</b>	
Sabia, Michael, MD .....	849
Sadik, Shahin A., MD.....	704
Salamone, Alicia R., BA.....	339
Saliba, Romeo, MD.....	885
Sanemann, Thomas C., MD.....	87
Schatman, Michael S., PhD .....	483, 589, 775
Schultz, John, MD.....	257
Schultz, David M.,MD.....	393, 705
Schulz, Paul E., MD.....	339
Schulze, Christoph, MD.....	877
Schwartzman, Robert J., MD .....	133, 849
Šedý, Jiri, MD .....	381
Sehgal, Nalini, MD.....	225, S89, S105
Shah, Rinoo V., MD .....	631
Sharma, Kavita, DO .....	885
Shear, Torin, MD .....	77
Shirani, Peyman, MD.....	339
Silverman, Sanford, MD .....	225
Simon, Jeremy I., MD .....	855
Simopoulos, Thomas T., MD.....	137, 380, 561, 693
Singh, Vijay, MD.....	67, 121, 271 291, 393, 491, 568, 631, 705, 801, 817, S89
Singh, Angelie, BS, BA .....	563
Smith, Howard, MD.....	1, 201, 237, 717, 775, S1, S89, S121
Smoljanovic,Tomislav, MD.....	263
Sorgnard, Richard E., PhD.....	891
Sorokin, Andrea, MD .....	677
Staats, Peter S., MD .....	271, S89
Stein, Alvin, MD.....	700
Sullivan, William, MD .....	327
<b>T</b>	
Tadia, Riaz, MD.....	363
Talmage, James B., MD .....	567
Thimineur, Mark A., MD .....	355
Thomas, P. Sebastian, MD .....	376
Thompson, Sally, PA-C.....	43
Tiede, Jeffrey M., MD .....	249, 549
Torjman, Marc C., PhD .....	849
Trentman, Terrence L., MD .....	253
Trescot, Andrea M.,MD.....	225, 271, 291, S5, S133, S155, S181
Tumber, Paul S., MD, FRCPC.....	215
<b>V</b>	
Vallejo, Ricardo, MD.....	917, S105
Vilensky, Joel A., PhD .....	539
Vodapally, Mohan S., MD .....	355
<b>W</b>	
Walzel, Hermann, PD .....	877
Warner, David O., MD .....	643
Wasserman, Ronald, MD.....	97
Weingarten, Toby N., MD .....	249, 643
Weis, Patricia A., MSN, CNS, RN-BC.....	555
Witt, William O., MD .....	369
Wolfer, Lee R., MD, MS .....	513
Wong, Daryl, MD .....	555
<b>Y</b>	
Yang, Wen-Chang, MD .....	677
<b>Z</b>	
Zeldin, Alexander, MD .....	921
Zhou, Yili, MD .....	43
Zimmerman, Richard S., MD .....	253

## A

- ACOEM..... 271, 291, 393  
 acute  
 low back pain..... 505  
 renal failure ..... 681  
 spinal pain..... 87  
 addiction..... S105, S155  
 adherence monitoring..... S5, 155  
 adhesiolysis..... 877  
 adverse events/effects..... S105, S181  
 AGREE ..... 271, 291  
 AHCPR ..... 271, 291  
 AHRQ ..... 271, 291  
 allocation concealment..... 717  
 AMA ..... 271, 291  
 analgesic responsiveness..... 237  
 anesthesiology..... 863  
 annuloplasty..... 659  
 antagonist..... 225  
 antianxiety..... 597  
 antidepressants..... 597  
 antisecretory agents..... 597  
 applied ethics ..... 589  
 American Society of Interventional Pain Physicians  
 (ASIPP) ..... 271, 291  
 asymptomatic subjects ..... 513  
 autologous mesenchymal stem cells ..... 343

## B

- Bastrup's ..... 549  
 back pain ..... 327, 555, 659, 687  
 baclofen ..... 589  
 Baker's cyst..... 257  
 biomechanic ..... 505  
 blinding..... 717  
 bone mass density ..... 539  
 brachial plexus injury ..... 81  
 brain activity..... 597  
 brief pain inventory ..... 643  
 broken intrathecal catheter ..... 355  
 buprenorphine ..... 225  
 butorphanol ..... 225

## C

- cAMP membrane repair and stabilization..... 891  
 cartilage..... 343  
 caudal epidural injections..... 785, 801  
 Centers for Medicare and Medicaid Services (CMS)..... 13  
 cervical provocation discography..... 631  
 cervical spine ..... 67  
 cervicogenic headache..... 187, 849  
 chest wall pain..... 631  
 chronic pain..... 483 S5, 849, 891  
 back pain..... 311  
 daily headache..... 77, 187  
 low back..... 121, 505, 785, 801, 817  
 lumbosacral radicular pain..... 137  
 pain guidelines ..... 271, 291, 393  
 spinal pain..... 491  
 thoracic pain ..... 611  
 clinical guidelines..... 161  
 clostridium..... 249  
 cluster headache ..... 187, 253  
 codeine ..... S105, S133, S181

- combination opioid analgesic ..... 201  
 complex regional pain syndrome ..... 133, 339  
 congenital spinal stenosis ..... 87  
 consolidated standards of reporting trials (CONSORT) .. 717  
 constipation..... S105  
 continuous radiofrequency lesioning ..... 137  
 controlled comparative local anesthetic blocks .... 67, 121,  
 145, 491, 611, 785  
 controlled prescription drug abuse..... S63  
 controlled substances..... S5  
 crisis..... 483

## D

- deep cervical block..... 849  
 denervation ..... 669  
 deontology ..... 589  
 dependence..... 225, S5  
 detoxification ..... 225  
 dextrose ..... 257  
 diagnostic accuracy ..... 631  
 disc  
 biacuplasty ..... 669  
 contour..... 311  
 disruption..... 659  
 herniation ..... 785, 801  
 pain..... 631, 669, 785  
 discography ..... 311  
 diversion ..... S5  
 dorsal root ganglia..... 137, 561  
 drug abuse ..... S155  
 drug testing ..... S5  
 duroplasty..... 355  
 dynorphins ..... S133

## E

- efficacy..... 43  
 electroanalgesia ..... 891  
 electronic signal treatment (EST) ..... 891  
 endorphins..... S133  
 enkephalins ..... S133  
 environment..... 655  
 enzymatic activity..... 877  
 epidural..... 333  
 adhesions ... ..... 817  
 blood patch ..... 77, 87  
 fibrosis ..... 817  
 injections..... 833  
 lipomatosis ..... 87  
 morphine infusion trial ..... 363  
 steroids..... 801  
 steroid injection ..... 693, 817, 855  
 epigastric pain ..... 597  
 Estimated Spending According to Wealth ..... 13  
 ethics ..... 483, 775  
 evidence-based medicine..... 161, 271, 291, 393

## F

- facet arthrosis..... 67  
 facet joint ..... 631  
 nerve blocks ..... 611  
 nerve or medial branch blocks..... 12, 491  
 pain..... 67, 145  
 Fagerstrom test for nicotine dependence ..... 643  
 failed back surgery syndrome ..... 333, 363, 555

false-positive rate.....	67, 145, 513
false-positive response.....	631
fecal incontinence.....	249
fentanyl.....	S133, S105, S181
fluoroscopy.....	327
functional dyspepsia .....	597
functional improvement.....	S181

**G**

gene polymorphism .....	237
generalized anxiety disorder.....	145
genitofemoral nerve .....	215
grading of evidence .....	161
grading systems.....	161
guidelines .....	271, 393
development.....	271, 291, 393

**H**

headache .....	97, 187, 253
health care reform .....	13
health technology assessments .....	161
hearing loss.....	S105
high intensity zone .....	311
humanities.....	483, 589
hyaluronidase .....	877
hydrocodone .....	S105, S133, S181
hydromorphone .....	S133, S181
hyperalgesia .....	225, S105
hypogonadal .....	539

**I**

intradiscal electrothermal therapy (IDET).....	659
iliohypogastric nerve.....	215
ilioinguinal nerve .....	215
immune cells.....	S121
immune system.....	891
implantable .....	889
improved outcomes .....	655
inflammation, anti-inflammatory effects .....	891
mass .....	369
pain.....	S121
infusion .....	589
integrative care .....	775
interventional pain management.....	271, 291, 393
procedures .....	43
techniques.....	291, 393
intervertebral disc .....	631, 669
intractable pain .....	S133
intraspinal drug delivery.....	369
pump .....	363
intrathecal .....	S89
catheter .....	355, 677
granuloma.....	369
hydromorphone.....	369
IOM .....	271, 291

**K**

ketamine.....	339
kissing spine.....	549
knee .....	257, 343
kyphoplasty .....	57
kyphoscoliosis .....	555

**L**

leukocytes .....	S121
local anesthetic.....	785, 801, 833, 877
low back pain .....	333, 833
guidelines.....	271, 291, 393
lower extremity pain.....	801, 833
lumbar	
discography.....	513
facet or zygapophysial joint pain .....	121
lordosis .....	505
provocation discography.....	631
radiculopathy .....	555
spine .....	67
stability.....	505
swelling .....	355
lumbosacral .....	505

**M**

major depression.....	145
managed health care reform .....	13
medial branch blocks .....	611
meta-analysis.....	513
methadone .....	363, S105, S133, S181
methicillin-resistant staphylococcus aureus (MRSA) .....	693
methylnaltrexone .....	225
mid back or upper back pain.....	611
migraine.....	187, 253
migration .....	677
minimal clinical important difference (MCID).....	717
minimal clinically important change (MCIC) .....	717
misuse .....	S155
morphine .....	S89, S105, S133, S181
MRI .....	311
multi-disciplinary pain care .....	775
multiple sclerosis .....	133
mu opioid receptor .....	237
myofascial pain.....	885

**N**

nalbuphine .....	225
naloxone .....	225
narcotics.....	S105, S133
narrative reviews.....	161
National Center on Addiction and Substance Abuse	
at Columbia University .....	S63
National Survey on Drug Use and Health .....	S63
neural signal .....	311
neurogenic inflammation .....	891
neurology .....	863
neurolysis .....	863
neuromodulation .....	187
neuropathic pain .....	81
neurostimulation .....	187
neurosurgery .....	863
non-cancer pain .....	55
non-compliance .....	S155
nonmedical use of	
opioids .....	S63
psychotherapeutic drugs .....	S63
normative ethics .....	589
NSAIDs .....	891

## O

- occipital
  - neuralgia ..... 187
  - stimulation ..... 253
- OPIAD ..... 539
- opioids ..... 225, 237, 53, S5, S105, S121, S155, S181
  - abuse ..... 563
  - effectiveness ..... S181
  - interactions ..... S133
  - metabolism ..... S133
  - misuse ..... S63
  - induced hyperalgesia ..... 201
- Organisation of for Economic Cooperation and Development ..... 13
- oscillo/torsional effect ..... 891
- osteoarthritis ..... 343
- osteomyelitis ..... 693
- osteoporosis ..... 57
- outpatient pain management ..... 643
- oxycodone ..... S105, S133
- oxymorphone ..... S133

## P

- pain ..... 201, 237, S121
  - care/management ..... 877, 891
  - medicine ..... 483, 589, 775
  - relief ..... S181
- partial agonist ..... 225
- patient satisfaction ..... 43
- pediatrics ..... 687
- pentazocine ..... 225
- pericatheter leak ..... 355
- peripheral
  - analgesia ..... S121
  - edema ..... 363
  - nerve stimulation ..... 187
  - vascular disease ..... 909
  - acting opioids (PAO) ..... S121
- persistent pain ..... S5
- pharmacology ..... S133
- physical medicine and rehabilitation ..... 863
- physicians' attitudes ..... 655
- piriformis muscle ..... 215
- piriformis syndrome ..... 327
- placebo-controlled trial ..... 717
- policy ..... 775
- post lumbar laminectomy syndrome ..... 817
- post lumbar surgery syndrome ..... 817
- post-dural puncture
  - headache ..... 77
- pragmatic controlled trial ..... 717
- prescription drug abuse ..... 55
- prescription monitoring ..... 55
- prevalence ..... 67, 133, 145
- prokinetics ..... 597
- propoxyphene ..... S133
- provocation discography ..... 785
- psedomeningocele ..... 355
- pudendal nerve ..... 215
- pulsed radiofrequency
  - lesioning ..... 137
- pump ..... S89
- pyogenic sacroilitis ..... 249

## Q

- quality assurance ..... 43

## R

- radiculitis ..... 785, 801
- radiofrequency
  - ablation ..... 669
- radiology ..... 863
- randomization ..... 717
- randomized controlled trial (RCT) ..... 717
- Raynaud's phenomenon ..... 91
- real-time ..... 543
- recommendations ..... 161
- recurrent disc herniation ..... 817
- retained ..... 355
- rhizotomy ..... 863
- ROC curve ..... 311

## S

- sacral ..... 505
- sacral insufficiency fractures ..... 57
- sacroiliac joint ..... 543
- sacroiliac joint injection ..... 249
- sacroplasty ..... 57
- sample size ..... 717
- sciatica ..... 327
- scleroderma ..... 91
- sclerosing ..... 257
- sclerotherapy ..... 257
- sedation ..... S105
- segmental nerve ..... 137
- selective nerve root block ..... 855
- side effects ..... S105
- smoking status ..... 643
- sociology ..... 483
- sodium morrhuate ..... 257
- somatization disorder ..... 145
- spinal cord stimulation ..... 81, 97, 333, 555, 681, 909
- spinal stenosis ..... 817, 833
- spine injection ..... 549
- steroids ..... 785, 833, 891
- stimulator ..... 187
- strength of evidence ..... 161
- stump pain ..... 561
- subdural ..... 97, 677
- substance abuse ..... 55
- support ..... 655
- systemic reviews ..... 161, 271, 291, 393

## T

- technique ..... 543
- therapeutic lumbar facet joint nerve blocks ..... 121
- therapeutic thoracic medial branch blocks ..... 491, 611
- thoracic
  - disc herniation ..... 631
  - facet or zygapophysial joint pain ..... 491, 611
  - intervertebral disc ..... 631
  - intraarticular facet joint injections ..... 611
  - pain ..... 491, 631
  - provocation discography ..... 631
  - radiofrequency neurotomy ..... 611
  - sympathetic catheter ..... 91
- tolerance ..... 201, 225, S105

tramadol .....	5133	vertebral hemangioma .....	687
transcutaneous oxygen pressure monitoring.....	909	vertebroplasty vertebral augmentation .....	57
transdiscal.....	669	virtue ethics .....	589
transforaminal contrast flow.....	855	visualization.....	543
transformed migraine.....	187		
treatment.....	339		
trigger point injection .....	885		
tripolar stimulation.....	333		

**U**

ultrasound .....	215, 543, 877
universal health care.....	13
urine drug testing .....	S155

**V**

ventriculoperitoneal shunt.....	355
---------------------------------	-----

**W**

withdrawal .....	225
workers' compensation.....	271, 291, 393

**X**

xymorphone .....	S105
------------------	------

**Z**

zygapophysial joint pain.....	145
-------------------------------	-----