

# Michael J. Schneider, PhD, DC

## CURRICULUM VITAE

(updated 8 August 2016)

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### BIOGRAPHICAL

**Name:** Michael J. Schneider, PhD, DC

**Business Address:**

University of Pittsburgh, Dept of Physical Therapy  
Bridgeside Point 1  
100 Technology Drive, Suite 210  
Pittsburgh, PA 15219-3130

**Business Phone:** 412-383-6640

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**Email:** mjs5@pitt.edu

### EDUCATION AND TRAINING

#### UNDERGRADUATE

**Dates attended**

1975 – 1978

**Institution**

State University of New York  
PO Box 6000  
Binghamton, NY 13902

**Degree**

n/a;  
Biology major

#### GRADUATE

**Dates attended**

1979 – 1982

**Institution**

Palmer College of Chiropractic  
1000 Brady Street  
Davenport, IA 52803

**Degree**

DC;  
Doctor of Chiropractic

2002 – 2008

School of Health and Rehabilitation Sciences  
University of Pittsburgh, Pittsburgh, PA

PhD;  
Rehabilitation Science

#### POST GRADUATE

**Dates attended**

2008 – 2009

**Institution**

Clinical and Translational Science Institute  
University of Pittsburgh, Pittsburgh, PA

**Degree**

Certificate (Master's level);  
Clinical Research

### APPOINTMENTS AND POSITIONS

#### ACADEMIC

2006 – 2008

Department of Physical Therapy,  
School of Health and Rehabilitation Sciences  
University of Pittsburgh, Pittsburgh, PA

Adjunct Visiting  
Assistant Professor

2008 – 2010	Department of Physical Therapy, School of Health and Rehabilitation Sciences University of Pittsburgh, Pittsburgh, PA	Visiting Assistant Professor
2009	University of Western States Portland, Oregon	Visiting Assistant Professor
2010 -	School of Chiropractic and Sports Science Murdoch University, Perth, Australia	Adjunct Senior Lecturer
2010 – 2013	Department of Physical Therapy, School of Health and Rehabilitation Sciences University of Pittsburgh, Pittsburgh, PA	Assistant Professor
2014 -	Department of Physical Therapy, School of Health and Rehabilitation Sciences University of Pittsburgh, Pittsburgh, PA	Associate Professor (Primary appointment)
2011 -	Clinical and Translational Science Institute University of Pittsburgh, Pittsburgh, PA	Associate Professor (Secondary appointment)

#### **NON-ACADEMIC**

1982 – 1990	Private practice of chiropractic Back Care Center Dumont, NJ 07628
1991 – 2009	Private practice of chiropractic Spine and Pain Care Center Pittsburgh, PA 15241
2009 – 2014	Private practice of chiropractic UPMC Center for Integrative Medicine 580 South Aiken Avenue Pittsburgh, PA 15232

#### **CERTIFICATION AND LICENSURE**

##### **SPECIALTY CERTIFICATION**

1989 -	Pennsylvania Board of Chiropractic Examiners; License #DC004201L
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##### **MEMBERSHIPS IN PROFESSIONAL AND SCIENTIFIC SOCIETIES**

1980 -	Member of American Chiropractic Association
1990 -	Member of Pennsylvania Chiropractic Association
1992 - 2009	Member of Foundation for Chiropractic Education and Research
2006 -	Member and Past President, West Hartford Group, Inc.
2006 -	Member of American Public Health Association
2011 -	Member of North American Spine Society
2016 -	Member of International Society for the Study of the Lumbar Spine

## HONORS/AWARDS

- 2009 1<sup>st</sup> Prize original research: "Mechanical vs. Manual Manipulation for Low Back Pain". Association of Chiropractic Colleges-Research Agenda for Chiropractic Annual Conference, Mar 13, 2009
- 2011 2<sup>nd</sup> Prize poster: "Complementary and Alternative Medicine for the Treatment of Pain in Fibromyalgia: A Systematic Review". World Federation of Chiropractic 11<sup>th</sup> Biennial Congress, Apr 7-9, 2011
- 2013 Researcher of the Year Award - American Chiropractic Association
- 2014 1<sup>st</sup> Prize poster: "Mechanobiology of complex loading in functional spinal units: flexion/extension with combined torsion". 41<sup>st</sup> Annual Meeting of International Society for the Study of the Lumbar Spine. June 3-7, 2014
- 2015 Jerome F. McAndrews Memorial Research Fund Award
- 2016 Faculty Honoree: University of Pittsburgh, Honors Convocation Feb 26, 2016
- 2016 International Society for the Study of the Lumbar Spine (ISSLS) 1<sup>st</sup> Prize for Best Clinical Lumbar Spine Research. "Consensus on the Clinical Diagnosis of Lumbar Spinal Stenosis: Results of an International Delphi Study"
- 2016 Presidential Award - American Chiropractic Association
- 2016 Distinguished Service Award - American Public Health Association, Chiropractic Health Care Section

## PUBLICATIONS

### PEER REVIEWED ARTICLES

1. **Schneider M**, Evans R, Haas M, Leach M, Delagran L, Hawk C, et al. The effectiveness and feasibility of an online educational program for improving evidence-based practice literacy: an exploratory randomized study of US chiropractors. *Chiropr Man Therap*. Aug 2016; 24:27. PMID: 27486510
2. Hurwitz EL, Vassilaki M, Li D, **Schneider MJ**, Stevans J, Phillips R, Phelan S, Lewis E, Armstrong R. Variations in Patterns of Utilization and Charges for the Care of Headache in North Carolina, 2000-2009: A Statewide Claims' Data Analysis. *J Manipulative Physiol Ther*. May 2016; 39(4): 229-39. PMID: 27166404
3. Hurwitz EL, Li D, Guillen J, **Schneider MJ**, Stevans J, Phillips R, Phelan S, Lewis E, Armstrong R, Vassilaki M. Variations in Patterns of Utilization and Charges for the Care of Neck Pain in North Carolina, 2000 to 2009: A Statewide Claims' Data Analysis. *J Manipulative Physiol Ther*. May 2016; 39(4): 240-51. PMID: 27166405
4. Hurwitz EL, Li D, Guillen J, **Schneider MJ**, Stevans J, Phillips R, Phelan S, Lewis E, Armstrong R, Vassilaki M. Variations in Patterns of Utilization and Charges for the Care of Low Back Pain in North Carolina, 2000 to 2009: A Statewide Claims' Data Analysis. *J Manipulative Physiol Ther*. May 2016; 39(4): 252-62. PMID: 27166406

5. Hawk C, **Schneider MJ**, Vallone S, Hewitt EG. Best Practices for Chiropractic Care of Children: A Consensus Update. *J Manipulative Physiol Ther.* 2016; 39(3):158-68. doi: 10.1016/j.jmpt.2016.02.015. Epub 2016 Mar 31. PMID: 27040034
6. **Schneider MJ**, Terhorst L, Murphy D, Stevans JM, Hoffman R, Cambron JA. Exploratory Analysis of Clinical Predictors of Outcomes of Nonsurgical Treatment in Patients with Lumbar Spinal Stenosis. *J Manipulative Physiol Ther.* 2016; 39(2): 88-94. PMID: 26907616
7. Terhorst L, Leach M, Bussi eres A, Evans R, **Schneider MJ**. Evaluating the Psychometric Properties of the Evidence-Based Practice Attitude and Utilization Survey. *J Altern Complement Med.* 2016; 22(4):328-35. doi: 10.1089/acm.2015.0221. Epub 2016 Mar 16. PMID: 26982906
8. Tomkins-Lane C, Melloh M, Lurie J, Smuck M, Freeman B, Samartzis D, Hu R, Barz T, Stuber K, **Schneider M**, Haig A, Schizas C, Cheung J, Mannion AF, Staub L, Comer C, Macedo L, Ahn SH, Takahashi K, Sandella D. Consensus on the Clinical Diagnosis of Lumbar Spinal Stenosis: Results of an International Delphi Study. *Spine.* Feb 2016; [Epub ahead of print] PMID: 26839989
9. Alrwaily M, Timko M, **Schneider M**, Stevans J, Bise C, Hariharan K, et al. The Treatment-Based Classification System for Low Back Pain: Revision and Update. *Phys Ther.* Dec 2015. [Epub ahead of print] doi: 10.2522/ptj.20150345 PMID: 26637653
10. Greco CM, Yu L, Johnston K, Dodds N, Morone N, Glick R, **Schneider MJ**, et al. Measuring nonspecific factors in treatment: item banks that assess the healthcare experience and attitudes from the patient's perspective. *Qual Life Res.* Nov 2015; doi: 10.1007/s11136-015-1178-1. PMID: 26563249
11. Futch D, **Schneider MJ**, Murphy D, Grayev A. Vertebral artery dissection in evolution found during chiropractic examination. *BMJ Case Rep.* 2015 Nov 12, 2015. pii: bcr2015212568. doi: 10.1136/bcr-2015-212568. PMID: 26564115
12. Piva SR, Moore C, **Schneider M**, Gil A, Almeida G, Irrgang J. A randomized trial to compare exercise treatment methods for patients after total knee replacement: protocol paper. *BMC Musculoskeletal Disorders.* 2015; 16:303 doi:10.1186/s12891-015-0761-5 PMID: 26474988
13. Bussieres AE, Terhorst L, Leach M, Stuber K, Evans R, **Schneider MJ**. Self-reported attitudes, skills and use of evidence-based practice among Canadian doctors of chiropractic: a national survey. *J Can Chiropr Assoc.* 2015; 59(4):332-48. PMID: 26826412
14. **Schneider MJ**, Evans R, Haas M, Leach M, Hawk C, Long C, et al. US chiropractors' attitudes, skills and use of evidence-based practice: A cross-sectional national survey. *Chiropr Man Therap.* 2015; 23:16.
15. **Schneider M**, Haas M, Glick R, Stevans J, Landsittel D. Comparison of spinal manipulation methods and usual medical care for acute and subacute low back pain: a randomized clinical trial. *Spine.* 2015; 40(4):209-17.
16. **Schneider MJ**, Ammendolia C, Murphy D, Glick R, Piva S, Hile E, Tudorascu D, Morton SC. Comparison of non-surgical treatment methods for patients with lumbar spinal stenosis: protocol for a randomized controlled trial. *Chiropr Manual Ther.* 2014; 22:19.doi:10.1186/2045-709X-22-19

17. Ammendolia C, Tomkins C, Kennedy C, Stuber K, Furlan A, **Schneider MJ**, Rampersaud R. What interventions improve walking ability in neurogenic claudication with lumbar spinal stenosis? A systematic review. *Eur Spine J*. 2014; 36(7):905-14.
18. Cambron JA, **Schneider M**, Dexheimer JM, Iannelli G, Chang M, Terhorst L, Cramer GD. A pilot randomized controlled trial of flexion-distraction dosage for chiropractic treatment of lumbar spinal stenosis. *J Manipulative Physiol Ther*. 2014; 37(6):396-406.
19. Weiner DK, Morone NE, Spallek H, Karp JF, **Schneider M**, Washburn C, Dziabiak MP, Hennon JG, Elnicki DM: E-Learning Module on Chronic Low Back Pain in an Older Adult: Evidence of Impact on Medical Student OSCE Performance. *Journal of the American Geriatrics Society*. 2014; doi:10.1111/jgs.12871
20. Greco CM, Yu L, Dodds N, Johnston K, Glick R, Morone N, **Schneider M**, Klem ML, Ryan N, Pilkonis P. Measuring the Healing Context in CAM: Progress on Developing Patient-Reported Measures of Nonspecific Contributors to Treatment Outcome. *J Altern Compl Med*. 2014; 20(5):A13-14. DOI:10.1089/acm.2014.5032.abstract.
21. Greco CM, Glick R, Morone N, **Schneider MJ**. Addressing the “It Is Just Placebo” Pitfall in CAM: Methodology of a Project to Develop Patient-Reported Measures of Nonspecific Factors in Healing. *Evidence-Based Complementary and Alternative Medicine*. Volume 2013, Article ID 613797.
22. **Schneider MJ**, Perle S: Challenges and Limitations of the Cochrane Systematic Review of Spinal Therapy. *J Amer Chiro Assoc*. 2012; 49(6):28-32.
23. **Schneider MJ**, Weinstein S, Chimes GP: Cervical Manipulation for Neck Pain. *PM&R*. 2012; 4(8):606-612.
24. **Schneider MJ**. Chiropractic and dissections. *J Neurosurgery*. 2012; Epub March 30. DOI: 10.3171/2011.10JNS111811b
25. Hawk C, **Schneider MJ**, Evans MW, Redwood D. Consensus process to develop a best practices document on the role of chiropractic care in health promotion, disease prevention and wellness. *J Manip Physiol Ther*. 2012; 35(7):556-67.PMID: 22742964
26. **Schneider MJ**. Clinical Brief: Challenges with the Differential Diagnosis of Fibromyalgia. *Top Integrative Health Care*. 2011; 2(3) ID: 3007
27. Terhorst L, **Schneider MJ**, Goozdich L, Kim K, Stillely C. Complementary and Alternative Medicine for the Treatment of Pain in Fibromyalgia: A Systematic Review of Randomized Controlled Trials. *J Manip Physiol Ther*. 2011; 34(7):483-96.
28. Murphy DR, Justice B, Paskowski I, Perle S, **Schneider MJ**. The Establishment of a Primary Spine Care Practitioner and its Benefits to Health Care Reform in the United States. *Chiro & Man Ther*. 2011; 19:17
29. Mathers KS, **Schneider MJ**, Timko M. Occult Hypermobility of the Craniocervical Junction. *J Orthop Sports Phys Ther*. 2011; 41(6):444-457.
30. **Schneider MJ**. Equivalent benefits/risks of cervical manipulation and mobilization. *Arch Phys Med Rehabil*. 2011; 92(2): 325-6.
31. Paskowski I, **Schneider MJ**, Stevans J, Ventura J, Justice B. A Hospital-Based Standardized Spine Care Pathway: Report of a Multidisciplinary Evidence-Based Process. *J Manip Physiol Ther*. 2011; 34(2):98-106. PMID: 21334541

32. Hawk C, **Schneider MJ**, Dougherty P, Gleberzon BJ, Killinger LZ. Best Practices Recommendations for Chiropractic Care for Older Adults: Results of a Consensus Process. *J Manip Physiol Ther.* 2010; 33(6):464-473. PMID: 20732584
33. Haas M, **Schneider M**, Vavrek D. Illustrating Risk Difference and Number Needed to Treat from a Randomized Controlled Trial of Spinal Manipulation for Cervicogenic Headache. *Chiropr Osteopat.* 2010; 18:9. PMCID: PMC2893201
34. **Schneider MJ**, Brach J, Irrgang J, Verdolini-Abbott K, Wisniewski S, Delitto A. Mechanical versus manual manipulation for low back pain: An observational cohort study. *J Manip Physiol Ther.* 2010; 33(3):193-200. PMCID: PMC2850274
35. Hawk C, **Schneider MJ**, Ferrance R, Hewitt E, Van Loon M, Tanis L. Best Practices Recommendations for Chiropractic Care for Infants, Children, and Adolescents. *J Manip Physiol Ther.* 2009; 32(8):639-647. PMID: 19836600
36. **Schneider MJ**, Vernon H, Ko GD, Lawson G, Perera J. Chiropractic Management of Fibromyalgia Syndrome: A Systematic Review of the Literature. *J Manip Physiol Ther.* 2009; 32(1): 25-40. PMID: 19121462
37. Vernon H, **Schneider MJ**. Chiropractic Management of Myofascial Trigger Points and Myofascial Pain Syndrome: A Systematic Review of the Literature. *J Manip Physiol Ther.* 2009; 32(1): 14-24. PMID: 19121461
38. **Schneider MJ**, Erhard R, Brach J, Tellin W, Imbarlina F, Delitto A. Spinal palpation for lumbar segmental mobility and pain provocation: An inter-examiner reliability study. *J Manip Physiol Ther.* 2008; 31(6): 465-73. PMID: 18722203
39. Murphy DR, **Schneider MJ**, Seaman D, Perle S, Nelson C. How can chiropractic become a respected mainstream profession? The example of podiatry. *BMC Chiropractic & Osteopathy.* 2008; 16(10): doi:10.1186/1746-1340-16-10. PMCID: PMC2538524
40. **Schneider MJ**, Homonai R, Moreland B, Delitto A. Inter-examiner Reliability of the Prone Leg Length Analysis Procedure. *J Manip Physiol Ther.* 2007; 30(7): 514-521. PMID: 17870420
41. **Schneider MJ**, Brady DM, Perle S. Differential Diagnosis of Fibromyalgia Syndrome. *J Manip Physiol Ther.* 2006; 29(6): 493-501. PMID: 16904498
42. **Schneider MJ**, Santolin S, Farrell P. False negative MRI results. *J Manip Physiol Ther.* 2005; (28) 4: 278-284. PMID: 15883582
43. **Schneider MJ**, Brady DM. Fibromyalgia Syndrome: A new paradigm for differential diagnosis and treatment. *J Manip Physiol Ther.* 2001; (24)8: 1-13. PMID: 11677554
44. Gatterman MI, Cooperstein R, Lantz C, Perle SM, **Schneider MJ**. Rating specific chiropractic technique procedures for common low back conditions. *J Manip Physiol Ther.* 2001; (24)7: 449-456. PMID: 11562653
45. Cooperstein R, Perle SM, Gatterman MI, Lantz C, **Schneider MJ**. Chiropractic technique procedures for specific low back conditions: Characterizing the literature. *J Manip Physiol Ther.* 2001; (24)6: 407-424. PMID: 11514818
46. Perle SM, **Schneider MJ**, Seaman DR. Chiropractic management of peripheral neuropathy: Pathophysiology, assessment, and treatment. *Top Clin Chiro.* 1999; 6(4): 6-19.

47. **Schneider MJ**, Filson R, Cooperstein R. Proceedings of the 26th Intercollegiate Conference on Technique Fundamentals. *J Chiro Technique*. 1996; 8(3): 1-5.
48. Cooperstein R, **Schneider MJ**. Assessment of Chiropractic Techniques and Procedures. *Top Clin Chiro*. 1996; 3(1): 44-51.
49. **Schneider MJ**. Tender Points/Fibromyalgia vs. Tender Points/Myofascial Pain Syndrome: A Need for Clarity in Terminology and Differential Diagnosis. *J Manip Physiol Ther*. 1995; 18(6): 398-406. PMID: 7595112
50. **Schneider MJ**. Receptor Tonus Technique Assessment. *J ChiroTechnique*. 1994; 6(4):156-59
51. **Schneider MJ**. Soft tissue effects of lumbar and sacroiliac joint manipulation. *J Chiro Technique*. 1992; 4(4):136-142.
52. **Schneider MJ**. The traction methods of Cox and Leander: The neglected role of the multifidus muscle in low back pain. *J Chiro Technique*. 1991; 3(3): 109-115.
53. **Schneider MJ**. Snapping hip syndrome in a marathon runner: Treatment by manual trigger point therapy. *Chiro Sports Medicine*. 1990; 4(2): 54-58.
54. Cohen JH, **Schneider MJ**. Receptor-Tonus Technique: An Overview. *J Chiro Technique*. 1990; 2(1): 13-16.

#### BOOK CHAPTERS AND BOOKS

1. Brady DM, **Schneider MJ**. Fibromyalgia and Gastrointestinal Disorders. Chapter in: *Integrative Gastroenterology*. Oxford University Press. 2011.
2. **Schneider MJ**. Nimmo Technique: Soft Tissue Manipulation. Chapter in: *Conservative Management of Sports Injuries*. Hyde T, Gengenbach M, eds. Jones and Bartlett, Co. 2007.
3. **Schneider MJ**. Myofascial Low Back Pain. Chapter in: *Low Back Syndromes*. Morris C, ed. McGraw-Hill Publishers. 2006.
4. **Schneider MJ**. Tennis Elbow. Chapter in: *Clinical Mastery in the Treatment of Myofascial Pain and Dysfunction*. Whyte-Ferguson L, Gerwin R, eds. Lippincott, Williams & Wilkins. 2005.
5. **Schneider MJ**, Cohen JH, Laws S, eds. *The Collected Writings of Nimmo and Vannerson: Pioneers of Chiropractic Trigger Point Therapy*. Privately published by the editors. 2001. Pittsburgh, PA.
6. **Schneider MJ**. *Principles of Manual Myofascial Therapy*. Privately published by the author. 1999. Pittsburgh, PA.
7. **Schneider MJ**. Principles in the Management of Myofascial and Muscular Disorders; Chapter in *Advances in Chiropractic: Volume 3*. Ed: Dana Lawrence. Mosby Year Book, Inc. August 1996.

## OTHER PUBLICATIONS

### Non-peer reviewed magazines and journals:

1. **Schneider M.** Manual and Mechanically Assisted Adjustment Methods: Are They Therapeutically Equal? *The American Chiropractor*. August 2015. pp 12-20.
2. **Schneider M.** Manual-thrust manipulation offers best short-term improvements for acute and sub-acute low back pain. *Spinal News International*. March 2015; p. 19.
3. Brady DM, **Schneider MJ.** Pain and Fatigue: When It's Fibromyalgia and When It's Not. *Townsend Letter*. October 2012; 351:44-50.
4. Patient educational booklets; published and distributed by O.P.T.P. Inc. Minneapolis, MN. 2004.

**Schneider MJ**, Farrell P. *Preventing Neck and Shoulder Pain*

**Schneider MJ**, Farrell P. *Preventing Low Back Pain and Injury*

**Schneider MJ**, Farrell P. *Low Back Rehabilitative Exercises*

**Schneider MJ**, Farrell P. *Neck and Shoulder Rehabilitative Exercises*

## RESEARCH

### CURRENT RESEARCH ACTIVITIES

#### **NCMIC Foundation, Inc.**

Title: Intervertebral Kinematics of the Cervical Spine Before, During and After High Velocity Low Amplitude Mobilization

Term: 12/1/2015 – 11/30/2016

Amount: \$10,000 (direct costs)

Role: Co-Principal Investigator (in kind support)

This exploratory pilot study aims to characterize the three-dimensional intervertebral kinematics in the cervical spine before, during and after spinal manipulation using biplane radiography in 10 patients with neck pain. This proof-of-concept pilot study will provide an opportunity to develop data collection methods for 3-D radiographic imaging of cervical vertebral motion during manipulation.

#### **PCORI Contract # CER-1410-25056**

Title: A Comparison of Non-Surgical Treatment Methods for Patients with Lumbar Spinal Stenosis

Term: 1/15/2013 – 6/30/2016

Amount: \$1,707,750 (\$1,227,442 direct costs)

Role: Principal Investigator (35% FTE)

This is a 3-year comparative effectiveness trial that will recruit 240 older adults with lumbar spinal stenosis. Eligible subjects will be randomized into one of three pragmatic treatment approaches: 1) usual medical care; 2) community-based group exercise; or 3) clinic-based individualized manual therapy and rehabilitative exercise. All subjects will be treated for a 6-week course of care. Primary outcome measures are two validated research measurement tools; the Swiss Spinal Stenosis Questionnaire (self-reported pain/function) and the Self-Paced Walking Test (performance-based walking measure).

**PCORI Contract # PCS-1402-10867**

Title: Targeted interventions to Prevent Chronic Low Back Pain in High Risk Patients: A Multi-Site Pragmatic Randomized Controlled Trial

Term: 7/01/2015 – 9/30/2020

Amount: \$12,174,689 (\$10,000,000 direct costs)

Role: Co-Investigator (5% FTE in years 1 and 2) [Principal Investigator: Anthony Delitto, PT, PhD]

This trial is designed to study the number of patients who transition from acute to chronic low back pain (LBP), using a cluster randomization approach in 60 outpatient primary care physician (PCP) offices. Patients with acute LBP will be randomized to one two treatment approaches: 1) usual medical care or 2) early referral to a physical therapist who has received training in psychologically informed therapy. The primary outcome measure will occur at one year, and will be a comparison between the proportions of patients in each treatment group who have transitioned to chronic LBP.

**PCORI Contract # CER-1310-06994**

Title: A Comparison of Treatment Methods for Patients Following Total Knee Replacement

Term: 9/1/2014 to 8/31/2017

Amount: \$1,961,395

Role: Co-Investigator (10% FTE) [Principal Investigator: Sara Piva, PT, PhD]

To compare the outcome of physical function and physical activity between 3 treatment groups: clinic-based individual outpatient rehabilitative exercise, community-based group exercise classes, and usual medical care. Physical function will be assessed by a self-reported questionnaire of knee function and a battery of validated performance-based tests germane to patients after total knee replacement.

**PCORI Contract # ME-1306-03827**

Title: Modeling Strategies for Observational Comparative Effectiveness Research - What Works Best When

Term: 03/01/2014 – 02/28/2017

Amount: \$242,302 (direct costs)

Role: Co-Investigator (2.5% FTE) [Principal Investigator: Doug Landsittel, PhD]

Without clear guidance for when to use what method in analysis of observational data, researchers often apply suboptimal methods, analytical findings suffer from serious flaws, and important topics in comparative effectiveness research (CER) go unanswered, or are answered incorrectly. Developing a comprehensive decision tree tool for dictating the best analytical approach for a given circumstance is therefore urgently needed to effectively utilize ever-expanding sources of observational data for CER. Results of this study will significantly enhance the subsequent quality of CER for observational studies.

**NCMIC Foundation, Inc.**

Title: Outcomes in Neurogenic Claudication due to Degenerative Lumbar Spinal Stenosis: A Patient's Perspective

Term: 6/15/2013 – 6/14/2014

Amount: \$23,372 (direct costs)

Role: Principal Investigator (in-kind support)

This will be a qualitative pilot study using semi-structured one-on-one telephone interviews with 25 patients diagnosed with lumbar spinal stenosis. The main objective of this study is to determine what outcomes are perceived to matter most among individuals seeking operative and/or non-operative care for neurogenic claudication due to their lumbar spinal stenosis.

**NCCAM / NIH Grant: 1 R21 AT007547-01**

Title: Distance Education Online Intervention for Evidence Based Practice Literacy

Term: 9/30/2012 – 8/29/2014

Amount: \$382,699 (\$275,000 direct costs)

Role: Principal Investigator (20% FTE)

The specific aims of this study are to develop and test the effectiveness of a distance-learning educational program about the principles of evidence-based practice (EBP) for chiropractic providers. The outcome measure will be a validated EBP instrument that provides information about the attitudes, skills, and use of EBP in chiropractic practice.

**NIH Pain Consortium – Contract #: GS-10F-0261K Task Order #: HHSN271201100111U**

Title: Center of Excellence in Pain Education: Pain Challenges in Primary Care

Term: 7/9/2012 – 6/30/2015

Amount: \$412,985 (\$272,597 direct costs)

Role: Co-Investigator (2.5% FTE) [Principal Investigator: Debra Weiner, MD]

This is a three-year grant that was awarded to 12 health professional schools around the U.S. to create Centers of Excellence in Pain Education. Each center is expected to act as an activity hub for the development and distribution of pain management curriculum resources for medical and other health professional schools.

**NCCAM / NIH Grant: 1 R01 AT006453-01**

Title: The Healing Context in CAM: Instrument Development and Initial Validation

Term: 9/30/2010 – 8/31/2015 [currently in 1-year no-cost extension]

Amount: \$2,320,010 (\$1,545,010 direct costs)

Role: Co-Investigator (10% FTE) [Principal Investigator: Carol Greco, PhD]

The overall objective of this study is to develop and test an efficient self-report instrument to measure CAM-relevant contextual factors important in healing.

**University of Pittsburgh Rehabilitation Institute Pilot Grant**

Title: Reliability Study for Assessment of Cranio-Cervical Junction Hypermobility

Term: 6/1/2013 – 5/31/2015

Amount: \$27,500.00

Role: Co-Investigator (in-kind support) [Principal Investigator: Michael Timko, PT]

The specific aims of this pilot study are designed to gather preliminary data about the reliability of physical examination and radiographic screening procedures for occult hypermobility of the cranio-cervical junction (CCJ). Exploratory aims are performing correlations between other clinical findings and these screening procedures, as well as gathering a preliminary estimate of the point prevalence of CCJ hypermobility in a sample of sports concussion patients.

## **COMPLETED RESEARCH ACTIVITIES**

### **NCCAM / NIH Grant: 4 R00 AT004196-05**

Title: A comparison of manual vs. mechanical chiropractic manipulation methods

Term: 6/1/2010 – 5/31/2013

Amount: \$756,339 (\$530,221 direct costs)

Role: Principal Investigator (20% FTE)

This study will compare the clinical effectiveness of the two most commonly used chiropractic manipulation methods for patients with acute low back pain, with a standard medical care comparison group. We successfully achieved our complete recruitment goal (N=105) with greater than 90% adherence to treatment in all three arms of the study. Data analysis has been completed and a manuscript with the results published in *Spine*.

### **NCCAM / NIH Grant: 1 K99 AT004196-02**

Title: A Comparison of Manual vs. Mechanical Chiropractic Manipulation Methods

Term: 8/1/2008 – 5/31/2010

Amount: \$190,714 (\$176,587 direct costs)

Role: Principal Investigator (75% FTE)

This grant was the 2-year post-doctoral training component of a 5-year K99/R00 NIH award entitled "Pathways to Independence". During the first year of this award, I completed the 1-year certificate program in Clinical Research at the Clinical and Translational Science Institute (CTSI) and the University of Pittsburgh. During the second year I travelled to the University of Western States in Portland, Oregon to work with the principal investigator of a large NIH-funded clinical trial of manipulation for chronic low back pain.

### **NCCAM / NIH Grant: 5 R21 AT003969-03**

Title: Prolotherapy for treatment of chronic lateral epicondylitis

Term: 9/1/2007 – 8/31/2011

Amount: \$549,414 (\$367,500 direct costs)

Role: Co-Investigator (10% FTE) [Principal Investigator: Ronald Glick, MD]

Three-year randomized trial designed to compare prolotherapy injection (hypertonic dextrose) with control injection (normal saline) for the treatment of chronic tennis elbow.

### **NCMIC Foundation Grant**

Title: Consensus Process to Develop a “Best Practices” Document on the Role of Chiropractic Care in Health Promotion, Disease Prevention and Wellness

Term: 10/01/2010 - 09/30/2011

Amount: \$65,325 (direct costs)

Role: Co-Investigator [Principal Investigator: Cheryl Hawk, DC, PhD]

The goal of this project was to develop a “best practices” document on chiropractic care for health promotion, disease prevention and wellness.

### **NCMIC Foundation Grant**

Title: Consensus Process to Develop “Best Practices” Document for Chiropractic Care for Older Adults

Term: 09/01/2009-05/31/2010

Amount: \$58,250 (direct costs)

Role: Co-Investigator [Principal Investigator: Cheryl Hawk, DC, PhD]

The goal of this project was to develop a “best practices” document on chiropractic care for older adults, using formal consensus methods.

### **Foundation for Chiropractic Education and Research Grant**

Title: Consensus Process to Develop “Best Practices” Document for Chiropractic Care for Children

Term: 08/01/2008 - 07/31/2009

Amount: \$96,000 (direct costs)

Role: Co-Investigator [Principal Investigator: Cheryl Hawk, DC, PhD]

The goal of this project was to develop a “best practices” document on chiropractic care for children, using formal consensus methods.

### **OTHER RESEARCH RELATED ACTIVITIES**

#### **Reviewer for Peer Reviewed Scientific Journals**

I have served on the editorial review board or have been a reviewer for the following journals:

1. *The Spine Journal*: official journal of the North American Spine Society.
2. *Chiropractic & Manual Therapies* (formerly *Chiropractic & Osteopathy*): An open access journal published by BioMed Central.
3. *BMC Musculoskeletal Disorders*: An open access journal published by BioMed Central.
4. *Journal of Manipulative and Physiological Therapeutics*: A publication of Elsevier.
5. *Journal of Orthopedic and Sports Physical Therapy*: Official publication of the Orthopaedic Section and the Sports Medicine Section of the American Physical Therapy Association.
6. *Topics in Integrative Health Care*: published by Healthindex, Inc.
7. *Physical Medicine and Rehabilitation Journal*: A publication of Elsevier.
8. *Archives of Physical Medicine and Rehabilitation*: Official journal of the American Congress of Rehabilitation Medicine and the American Academy of Physical Medicine and Rehabilitation
9. *Journal of Chiropractic Medicine*: A publication of Elsevier.

I also rate articles on a regular basis for the McMaster Online Rating of Evidence (MORE) system, which provides clinical research updates for several pre-appraised online resources: including PLUS, PIER, and EvidenceUpdates.

### **LIST OF CURRENT RESEARCH INTERESTS**

My current research interests include the following topics:

- Clinical comparative effectiveness trials of non-surgical treatment approaches for back and neck pain, including lumbar spinal stenosis
- Dissemination and Implementation / Knowledge Translation studies; evidence based practice and adherence to clinical guidelines
- Reliability of physical examination and diagnostic imaging procedures for cervical spine related disorders