

CURRICULUM VITAE

Barbara Rakel, PhD, RN, FAAN
May, 2021

PROFESSOR
Associate Dean of Research and Scholarship
Co-Director, Center for Advancing Multimorbidity Science (CAMS)
COLLEGE OF NURSING
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I. EDUCATION & PROFESSIONAL HISTORY

A. EDUCATION

Dates	Degree	Field of Study	Institution	Location
1979	BSN	Nursing	The University of Iowa	Iowa City, IA
1988	MA	Nursing	The University of Iowa	Iowa City, IA
2002	PhD	Nursing	The University of Iowa	Iowa City, IA
2002-2005	Postdoctoral Study	Nursing	The University of Iowa	Iowa City, IA

Dissertation:

Rakel, B.A. (2002). *The effectiveness of Transcutaneous Electrical Nerve Stimulation (TENS) on postoperative pain with movement*. Doctoral dissertation, The University of Iowa, Iowa City, Iowa

B. POST GRADUATE EDUCATION

Date	Position, Institution, Location, Funding Source if Appropriate
2002	Postdoctoral Training, T32 Nursing Effectiveness Research, College of Nursing, The University of Iowa.
2003	Gerontological Nursing Research Summer Scholars Seminar, College of Nursing, The University of Iowa.
2004	Clinical Investigation, College of Public Health, The University of Iowa.
2003-5	Postdoctoral Fellowship, The John A. Hartford Foundation's Building Academic Geriatric Nursing Capacity Scholar Award Program.

C. LICENSURE/CERTIFICATION

Dates	Organization
1980 to present	Iowa State Board of Nursing, RN licensure #064146
1986	Certification in Organ Transplant Coordination
2001	Institutional Leadership Development Program (ILDLP), UIHC
2004	Certificate in Clinical Investigation

D. HONORS/AWARDS

Dates	Honor/Award
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1984	Induction to Sigma Theta Tau, Gamma Chapter
1994	Theresa E. Christy Award, Iowa Nurses' Association
2004	Above and Beyond Award, University of Iowa Hospitals and Clinics
2005	2004 Mary Hanna Memorial Journalism Award
2006	Distinguished Alumni award, West High School
2008	Harriet H. Werley New Investigator Award, MNRS
2013	Fellow in American Academy of Nursing (FAAN)
2014	Distinguished Researcher Award, MNRS Pain and Symptom Management Research Section
2015	Distinguished Researcher Award, Midwest Pain Society
2018	IASP Hall of Champions, International Association for the Study of Pain (IASP)
2019	Regents Award for Faculty Excellence, University of Iowa
2019	Rita and David Frantz Endowed Professorship, College of Nursing

E. PROFESSIONAL EXPERIENCE

1. Teaching Experience

Dates	Position	College/University	Focal Area
1991 - 1993	Assistant Instructor	The University of Iowa, College of Medicine	Biomedical Ethics
1993 - 1995	Adjunct Instructor	The University of Iowa, College of Nursing	MSN courses
2000 - 2005	Adjunct Clinical Assistant Professor	The University of Iowa, College of Nursing	Adult and Gerontology
2005 - 2008	Assistant Professor	The University of Iowa, College of Nursing	Systems and Practice
2008 - 2011	Assistant Professor	The University of Iowa, College of Nursing	Adult and Gerontology
2008 - 2011	Secondary Appointment	The University of Iowa College of Medicine	Graduate College of Physical Therapy and Rehab Science
2011 - 2016	Associate Professor	The University of Iowa, College of Nursing	Adult and Gerontology
2016 - present	Professor	The University of Iowa, College of Nursing	Nursing
2018 - present	Co-Director	The University of Iowa, College of Nursing	Center for Advancing Multimorbidity Science (CAMS)
2020 - present	Associate Dean of Research and Scholarship	The University of Iowa, College of Nursing	College of Nursing

2. Clinical Experience

Dates	Position	Institution	Area
1980 - 1984	Staff Nurse	The University of Iowa Hospitals and Clinics	Thoracic-Cardiovascular Surgery
1984	Staff Nurse	The University of Iowa Hospitals and Clinics	Intensive Surgical Service
1984 - 1990	Cardiothoracic Transplant Coordinator	The University of Iowa Hospitals and Clinics	Cardiothoracic Transplant
1990 - 1997	Advanced Practice Nurse	The University of Iowa Hospitals and Clinics	Med/Surg/Clinical Cancer Center
1997 - 2001	UIHC Quality Improvement Coordinator	The University of Iowa Hospitals and Clinics	Clinical Outcomes and Resource Management

2001 - 2005	Research Nurse Specialist	The University of Iowa Hospitals and Clinics	Department of Nursing Services and Patient Care
2005 - 2016	Academic Associate	The University of Iowa Hospitals and Clinics	MSS and CNO/Nursing Research

II. SCHOLARSHIP

A. AREAS OF RESEARCH INTEREST

Movement-Evoked Pain, Pain Management, Transcutaneous Electrical Nerve Stimulation (TENS), Quantitative Sensory Testing, Postoperative Pain, Osteoarthritis, Chronic Pain, Persistent Postsurgical Pain, Acceptance and Commitment Therapy, Evidence-Based Practice.

B. PUBLICATIONS

1. Data-Based, Peer-Reviewed Papers

1. Lemmer JH, Ferguson DW, **Rakel BA**, & Rossi NP. (1990). Clinical outcome of emergency repeat coronary artery bypass surgery. *Journal of Cardiovascular Surgery*, 31, 492-497.
2. **Rakel BA** & Bulechek GM. (1990). Development of alterations in learning: Situational learning disabilities. *Nursing Diagnosis*, 1(4), 134-146.
3. Goode CJ, Titler M, **Rakel BA**, Ones DS, Klieber C, Small S, & Triolo PK. (1991). A meta-analysis of effects of heparin flush and saline flush quality and cost implications. *Nursing Research*, 40(6), 324-330.
4. **Rakel BA** (1992). Interventions related to patient teaching. *Nursing Clinics of North America* 27(2); 397-423.
5. Goode CJ, Kleiber C, Titler M, Small S, **Rakel BA**, Steelman VM, Walker JB, & Buckwalter KC. (1993). Improving practice through research: The case of heparin vs. saline for peripheral intermittent infusion devices. *MEDSURG Nursing*, 2(1), 23-27.
6. Hall GR, Karsten M, **Rakel B**, Swanson E, & Davidson A. (1995). Managing constipation using a research-based protocol. *MEDSURG Nursing*, 4(1), 11-18.
7. **Rakel BA**, Bermel MA, Abbott LI, Baumler SK, Burger MR, Dawson CJ, Heinle JA, & Ocheltree IM. (1998). Split-thickness skin graft donor site care: Quantitative synthesis of the research. *Applied Nursing Research*, 11(4), 174-182.
8. **Rakel BA** & Frantz R. (2003). Effectiveness of Transcutaneous Electrical Nerve Stimulation (TENS) on Postoperative Pain with Movement, *The Journal of Pain*, 4(8), 455-464.
9. **Rakel BA**, Cooper, N, Adams HJ, Granquist MJ, Messer BR, Law LAF, Dannen DR, Miller CA, Mitschelen C, Ruggle RC, Vance CGT, Walsh D, Sluka KA. (2009). A new transient sham TENS device allows for investigator blinding while delivering a true placebo treatment. *The Journal of Pain*, 11(3): 230-8.
10. Liebano RE, **Rakel B**, Vance CG, Walsh DM, Sluka KA. (2011). An investigation of the development of analgesic tolerance to TENS in humans. *Pain*, 152(2):335-342.
11. Pantaleão MA, Laurino MF, Gallego NL, Cabral CM, **Rakel B**, Vance C, Sluka KA, Walsh DM, Liebano RE. (2011). Adjusting Pulse Amplitude During Transcutaneous Electrical Nerve Stimulation (TENS) Application Produces Greater Hypoalgesia. *The Journal of Pain*, May 12(5): 891-890. PMID: 21277840.

12. Moran F, Leonard T, Hawthorne S, Hughes CM, McCrum-Gardner E, Johnson MI, **Rakel BA**, Sluka KA, Walsh DM. (2011). Hypoalgesia in Response to Transcutaneous Electrical Nerve Stimulation (TENS) Depends on Stimulation Intensity. *The Journal of Pain*, 12(8): 929-935. PMID: 21481649.
13. Tonelli SM, **Rakel BA**, Cooper NA, Angstrom WL, & Sluka KA. (2011). Women with knee osteoarthritis have more pain and poorer function than men, but similar physical activity prior to total knee replacement, *Biology of Sex Differences*, 2: 12.
14. Vance CGT, **Rakel BA**, Blodgett NP, DeSantana JM, Amendola A, Zimmerman MB, Walsh DM, Sluka KA. (2012). Effects of Transcutaneous Electrical Nerve Stimulation on pain, pain sensitivity, and function in patients with knee osteoarthritis: A randomized controlled trial. *Physical Therapy*, 92(7): 898-910.
15. **Rakel BA**, Blodgett NP, Bridget Zimmerman M, Logsdon-Sackett N, Clark C, Noiseux N, Callaghan J, Herr K, Geasland K, Yang X, Sluka KA. (2012). Predictors of Postoperative Movement and Resting Pain Following Total Knee Replacement, *Pain*, 153(11): 2192-2203.
16. Sato KL, Sanada LS, **Rakel BA**, Sluka KA. (2012). Increasing Intensity of TENS Prevents Analgesic Tolerance in Rats. *The Journal of Pain*. 13(9): 884-90.
17. Dailey DL, **Rakel BA**, Vance CG, Liebano RE, Amrit AS, Bush HM, Lee KS, Lee JE, Sluka KA. (2013). Transcutaneous electrical nerve stimulation reduces pain, fatigue and hyperalgesia while restoring central inhibition in primary fibromyalgia. *Pain*, 154(11): 2554-62.
18. Liebano RE, Vance CGT, **Rakel B**, Lee JE, Cooper NA, Marchand S, Walsh DM, Sluka KA. (2013). Transcutaneous Electrical Nerve Stimulation (TENS) and Conditioned Pain Modulation (CPM) Influence the Perception of Pain in Humans: A Randomized Trial. *Eur J Pain*, 17(10): 1539-46.
19. Gardner SE, Blodgett NP, Hillis SL, Borhart E, Malloy L, Abbott L, Pezzella P, Jensen M, Sommer T, Sluka KA, **Rakel BA**. (2014). HI-TENS reduces moderate-to-severe pain associated with most wound care procedures: a pilot study. *Biological Research for Nursing*, 16(3):310-319.
20. Noiseux NO, Callaghan, JJ, Clark CR, Zimmerman MB, Sluka KA, **Rakel BA**. (2014). Preoperative predictors of pain following total knee arthroplasty. *J Arthroplasty*, 29(7):1383-7.
21. **Rakel BA**, Zimmerman MB, Geasland K, Embree J, Clark CR, Noiseux NO, Callaghan JJ, Herr K, Walsh D, & Sluka KA. (2014). Transcutaneous Electrical Nerve Stimulation (TENS) for the Control of Pain during Rehabilitation Following Total Knee Arthroplasty (TKA): A Randomized, Blinded, Placebo-Controlled Trial. *Pain*, 155(12): 2599-611.
22. **Rakel BA**, Vance CG, Zimmerman MB, Blodgett NP, Amendola A, and Sluka KA. (2015). Mechanical Hyperalgesia and Reduced Quality of Life Occur in People with Mild Knee Osteoarthritis Pain. *Clinical Journal of Pain*, 31(4): 315-22.
23. Vance CGT, **Rakel BA**, Dailey DL, Sluka KA. (2015). Skin impedance is not a factor in transcutaneous electrical nerve stimulation effectiveness. *Journal of Pain Research*, 8: 571-580.
24. Frey-Law L, Bohr N, Sluka KA, Clark CR, Noiseux NO, Callaghan JJ, **Rakel BA**. (2016). Pain sensitivity profiles in patients with knee osteoarthritis. *Pain*, 157(9): 1988-99.
25. Hadlandsmyth K, Sabic E, Zimmerman MB, Sluka KA, Herr KA, Clark CR, Noiseux NO, Geasland KM, Embree JL, **Rakel BA**. (2017). Relationships among pain intensity, pain-related distress, and psychological distress in pre-surgical total knee arthroplasty patients: a secondary analysis. *Psychol Health Med*, 22(5): 552-563.

26. Merriwether, EN, **Rakel BA**, Zimmerman, MB, Dailey DL, Vance CG, Darghosian L, Golchha M, Geasland, KM, Chimenti R, Crofford LJ, Sluka KA. (2016). Reliability and construct validity of the Patient-Reported Outcomes Measurement Information System (PROMIS) instruments in women with Fibromyalgia. *Pain Medicine*, 18(8): 1485-1495.
27. Cooper NA, **Rakel BA**, Tonelli SA, Clark CR, Noiseux NO, Callaghan JJ, Johnston NC, Sluka KA. (2017). Predictors of Multidimensional Functional Outcomes after Total Knee Arthroplasty. *Journal of Orthopaedic Research*, Dec;35(12):2790-279.
28. Iowa Model Collaborative, Buckwalter KC, Cullen L, Hanrahan K, Kleiber C, McCarthy AM, **Rakel B**, Steelman V, Tripp-Reimer T, Tucker S; Authored on behalf of the Iowa Model Collaborative (2017). Iowa Model of Evidence-Based Practice: Revisions and Validation. *Worldviews Evidence Based Nursing*, 14(3):175-182.
29. Hadlandsmyth, K, Dailey DL, **Rakel BA**, Zimmerman MB, Vance CG, Merriwether EN, Chimenti RL, Geasland KM, Crofford LJ, Sluka KA. (2017). Somatic symptom presentations in women with fibromyalgia are differentially associated with elevated depression and anxiety. *J Health Psychol*, Oct 1. [Epub ahead of print]
30. Hadlandsmyth, K, Zimmerman, BM, Wajid, R, Sluka, KA, Herr, K, Clark, CR, Noiseux, NO, Callaghan, JJ, **Rakel, BA**. (2018). Longitudinal Postoperative Course of Pain and Dysfunction Following Total Knee Arthroplasty. *Clinical Journal of Pain*,;34(4):332-338.
31. Dindo L, Zimmerman MB, Hadlandsmyth K, St Marie B, Embree J, Marchman J, Tripp-Reimer T, **Rakel B**. (2018). Acceptance and Commitment Therapy for Prevention of Chronic Post-surgical Pain and Opioid Use in At-Risk Veterans: A Pilot Randomized Controlled Study. *J Pain*, Oct; 19(10):1211-1221.
32. Merriwether EN, Frey-Law LA, **Rakel BA**, Zimmerman MB, Dailey DL, Vance CGT, Golchha M, Geasland KM, Chimenti R, Crofford LJ, Sluka KA. (2018). Physical activity is related to function and fatigue but not pain in women with fibromyalgia: baseline analyses from the Fibromyalgia Activity Study with TENS (FAST). *Arthritis Res Ther*. Aug 29; 20(1):199.
33. Vance CGT, Chimenti RL, Daily DL, Hadlandsmyth K, Zimmerman MB, Geasland KM, Williams JM, Merriweather EN, Munters L, **Rakel BA**, Crofford LJ, Sluka KA. (2018). Development of a method to maximize the transcutaneous electrical nerve stimulation intensity in women with fibromyalgia. *Journal of Pain Research*, 11: 2269-2278.
34. Hadlandsmyth K, Dindo LN, St Marie BJ, Wajid R, Embree JL, Noiseux NO, Tripp-Reimer T, Zimmerman MB, **Rakel BA**. (2019). Patient-Reported Outcomes Measurement Information System (PROMIS) Instruments: Reliability and Validity in Veterans Following Orthopedic Surgery. *Eval Health Prof*. Jun 13. doi: 10.1177/0163278719856406. [Epub ahead of print].
35. Hadlandsmyth K, Dindo LN, Wajid R, Sugg SL, Zimmerman MB, **Rakel BA**. (2019). A single-session acceptance and commitment therapy intervention among women undergoing surgery for breast cancer: A randomized pilot trial to reduce persistent postsurgical pain. *Psychooncology*, 28(11): 2210-2217.
36. Govil M, Mukhopadhyay N, Holwerda T, Sluka K, **Rakel B**, Schutte DL. (2020). Effects of genotype on TENS effectiveness in controlling knee pain in persons with mild to moderate osteoarthritis. *Eur J Pain*, 24(2): 398-412.
37. Dailey DL, Vance CGT, **Rakel BA**, Zimmerman MB, Embree J, Merriwether EN, Geasland KM, Chimenti R, Williams JM, Golchha M, Crofford LJ, Sluka KA. (2020). Transcutaneous

Electrical Nerve Stimulation reduces movement-evoked pain and fatigue: A randomized, controlled trial. *Arthritis Rheumatol*, May; 72(5):824-836.

38. Schutte DL, Mukhopadhyay N, Holwerda T, Sluka K, **Rakel B**, Govil M. (2020). Genetic predictors of knee pain in persons with mild to moderate osteoarthritis. *Res Gerontol Nurs*, Apr 13;1-12. [Epub ahead of print]
39. Wang D, Merkle SL, Lee JE, Sluka KA, **Rakel B**, Graven-Nielsen T, Frey-Law LA (2020). Multisensory Sensitivity is Related to Deep-Tissue but Not Cutaneous Pain Sensitivity in Healthy Individuals. *J Pain Res*. Oct 7;13:2493-2508.
40. Merriwether EN, Agalave NM, Dailey DL, **Rakel BA**, Kolker SJ, Lenert ME, Spagnola WH, Lu Y, Geasland KM, Allen LH, Burton MD, Sluka KA. (2021). IL-5 mediates monocyte phenotype and pain outcomes in fibromyalgia. *Pain*. May 1;162(5):1468-1482.
41. Vance CGT, Zimmerman MB, Dailey DL, **Rakel BA**, Geasland KM, Chimenti RL, Williams JM, Golchha M, Crofford LJ, Sluka KA. (2021). Reduction in movement-evoked pain and fatigue during initial 30-minute transcutaneous electrical nerve stimulation treatment predicts transcutaneous electrical nerve stimulation responders in women with fibromyalgia. *Pain*, May 1;162(5):1545-1555.

2. Non-Data-Based, Peer-Reviewed Papers

1. Titler MG, Klieber C, Steelman V, Goode C, **Rakel BA**, Barry-Walker J, Small S, & Buckwalter KC. (1994). Infusing research into practice to promote quality care. *Nursing Research*, 43(5), 307-313.
2. **Rakel BA**, Titler M, Goode CJ, Walker JB, Budreau G, & Buckwalter KC. (1994). Nasogastric/nasointestinal feeding tube placement: An integrative review of research. *AACN Clinical Issues in Critical Care Nursing*, 5(2), 194-206.
3. Gould R, Thompson R, **Rakel BA**, Jensen J, Hasselman E, & Young L. (1996). Redesigning the RN and NA roles, *Nursing Management*, 27(2), 37-41.
4. Schmidt KL, Alpen MA, & **Rakel BA**. (1996). Implementation of the Agency for Health Care Policy and Research Pain Guidelines, *AACN Clinical Issues*, 7(3), 425-435.
5. **Rakel, B.A.** (1996). Committee meetings: An electronic alternative, *Nursing Management*, 27(9), 32F-32G.
6. Titler MG, Mentis JC, **Rakel BA**, Abbott L, & Baumler S. (1999). From book to bedside: Putting evidence to use in the care of the elderly, *The Joint Commission Journal on Quality and Patient Safety*, 25(10), 545-556.
7. Titler M, Kleiber C, **Rakel BA**, Budreau G, Everett LQ, Steelman VJ, Buckwalter KC, Tripp-Reimer T, & Goode CJ. (2001). The Iowa Model of Evidence-Based Practice to Promote Quality Care (revised), *Critical Care Nursing Clinics of North America*, 13(4), 497-509.
8. Titler M & **Rakel BA**. (2001). Non-Pharmacologic Treatment of Pain, *Critical Care Nursing Clinics of North America*, 13(2), 221-232.
9. **Rakel B** & Barr JO. (2003). Physical modalities in chronic pain management. *Nurs Clin North Am*. 38(3):477-94.
10. **Rakel BA** & Herr K. (2004). Assessment and Treatment of Postoperative Pain in Older Adults, *Journal of Perianesthesia Nursing*, 19(3): 194-208.

11. DeSantana J M, Walsh DM, Vance C, **Rakel BA**, Sluka KA. (2008). Effectiveness of Transcutaneous Electrical Nerve Stimulation for treatment of hyperalgesia and pain. *Current Rheumatology Reports*, 10(6): 492-9.
12. Sluka KA, Bjordal JM, Marchand S, **Rakel BA**. (2013). What makes transcutaneous electrical nerve stimulation work? Making sense of the mixed results in the clinical literature. *Physical Therapy*, 93(10): 1397-1402.
13. Sluka KA, Bjordal JM, Marchand S, **Rakel BA**. (2013). Author response. *Physical Therapy*, 93(10): 1427-1428.
14. Vance CG, Dailey DL, **Rakel BA**, Sluka KA. (2014). Using TENS for pain control: the state of the evidence. *Pain Management, May*, 4(3): 197-209.
15. Noehren B, Dailey DL, **Rakel BA**, Vance CG, Zimmerman MB, Crofford LJ, Sluka KA. (2015). Effect of Transcutaneous Electrical Nerve Stimulation on Pain, Function, and Quality of Life in Fibromyalgia: A Double-Blind Randomized Clinical Trial, *Physical Therapy*, 95(1):129-40.
16. Iowa Model Collaborative, Buckwalter KC, Cullen L, Hanrahan K, Kleiber C, McCarthy AM, **Rakel B**, Steelman V, Tripp-Reimer T, Tucker S. (2017). Iowa Model of Evidence-Based Practice: Revisions and Validation. *Worldviews Evidence Based Nursing*, 14(3): 175-182.
17. Gardner SE, Abbott LI, Fiala CA, **Rakel BA**. (2017). Factors associated with high pain intensity during wound care procedures: A model. *Wound Repair Regeneration*, 25(4): 558-563.
18. Fiala CA, Abbott LI, Carter CD, Hillis SL, Wolf JS, Schuster M, Dulski R, Grice EA, **Rakel BA**, Gardner SE. (2018). Severe pain during wound care procedures: A cross-sectional study protocol. *J. Adv Nurs*. May 7. doi: 10.1111/jan.13699. [Epub ahead of print].
19. Tripp-Reimer T, Williams JK, Gardner SE, **Rakel B**, Herr K, McCarthy AM, Hand LL, Gilbertson-White S, Cherwin C. (2020). Integrated model of multimorbidity and symptom science. *Nursing Outlook*, May 29. doi: 10.1016/j.outlook.2020.03.003 [Epub ahead of print].
20. Roddy MK, Boykin DM, Hadlandsmyth K, Marchman JN, Green DM, Buckwalter JA, Garvin L, Zimmerman MB, Bae, J, Cortesi J, Rodrigues M, Embree J, ***Rakel BA**, ***Dindo L**. (2020). One day Acceptance and Commitment Therapy workshop for preventing persistent post-surgical pain and dysfunction in "at-risk" Veterans: A randomized controlled trial protocol. *J of Psychosomatic Research*, Sep 15;138:110250. doi: 10.1016/j.jpsychores.2020.110250. Online ahead of print. PMID: 32961500.

3. Non-Peer Reviewed Papers

1. **Rakel BA**. (1985). Our first cardiac transplant. *Iowa Nurse*, 12(7), 1-3.
2. **Rakel BA** & Titler MG. (1999). The Department of Nursing Quality Management Program. In: Titler, Marita G. and McCloskey, Joanne M. (eds.) On The Scene: University of Iowa Hospitals and Clinics: Outcomes Management, *Nursing Administration Quarterly*, 24, 31-65.
3. **Rakel BA**. (2002). Using Research in Practice, *The Iowa Nurse Reporter*, 15(2), 2.

4. Books

1. **Rakel BA** & Titler MG. (2001). *Pain Management in Critical Care*, Critical Care Nursing Clinics of North America, 13(2), W. B. Saunders Company, Guest Editor

5. Book Chapters

1. **Rakel BA.** (1991). Knowledge deficit. In: Buckwalter, K. and Maas, M. (eds.), *Nursing Diagnoses and Nursing Interventions for the Long Term Health Care Facility*, Addison-Wesley, Inc., 396-414.
2. Kirchoff KT, & **Rakel BA.** (1999). Outcomes Evaluation. In M. A. Mateo & K. T. Kirchoff (Eds.), *Using and Conducting Nursing Research in the Clinical Setting* (2nd ed.). Philadelphia: Saunders.
3. Pasero C, **Rakel BA**, and McCaffery M. (2005). Postoperative Pain Management in Older Adults. In: Weiner, D. and Gibson, S., *Pain in the Older Adult*, IASP Press.

C. GRANT FUNDING

1. Intramural

Title:	Effect of TENS on knee osteoarthritis pain, hyperalgesia, and function
Role:	PI
Funding Source:	Ralph and Marsha Congdon Fellowship
Duration:	2005-2008
Amount:	\$30,000

Title:	Grant writing support
Role:	Recipient
Funding Source:	Old Gold Summer Fellowship, The University of Iowa
Duration:	Summer, 2006
Amount:	\$6,000

Title:	TENS and Wound Pain
Role:	Co-PI
Funding Source:	College of Nursing
Duration:	2011-2012
Amount:	\$26,150

Title:	Effectiveness of TENS on pain, hyperalgesia, and function after total knee replacement
Role:	PI
Funding Source:	University of Iowa and College of Nursing, Bridge funding
Duration:	2011-2012
Amount:	\$109,311
Title:	Cognitive Work Associated with Evidence-Based Pain Management
Role:	Investigator
Funding Source:	University of Iowa and College of Nursing and UIHC Department of Nursing
Duration:	2014-2015
Amount:	\$15,000

2. Extramural

Title:	Effects of a Structured Exercise Program on Functional Health Status in Patients Post Renal Transplant
Role:	Facilitator/Consultant
Funding Source:	North American Transplant Coordinators Organization
Duration:	1993
Amount:	\$3,000

Title:	From Book to Bedside: Nasoenteral Tube Placement
Role:	PI
Funding Source:	Critikon Research into Practice Grant, American Association of Critical Care Nurses, 027691
Duration:	1993
Amount:	\$3,000

Title:	Scholarship Award
Role:	Recipient
Funding Source:	Nursing Economics Foundation
Duration:	1995
Amount:	\$5,000

Title:	T32 Institutional Predoctoral Fellowship
Role:	Recipient
Funding Source:	NINR, NRO7082-03
Duration:	1995-1997
Amount:	\$15,308

Title:	Hyperalgesia Measurement in Postsurgical Elders
Role:	PI
Funding Source:	Gerontology Nursing Intervention Research Center, P30 NR 03979
Duration:	2002-2003
Amount:	\$12,000

Title:	T32 Institutional Postdoctoral Fellowship
Role:	Recipient
Funding Source:	NINR, NRO7957-01
Duration:	2002-2003
Amount:	\$31,092

Title:	Postdoctoral Award
Role:	Recipient
Funding Source:	John A. Harford Foundation's Building Academic Geriatric Nursing Capacity Scholar Program, A904500
Duration:	2003-2005
Amount:	\$100,000

Title:	Effect of TENS on knee osteoarthritis pain, hyperalgesia, and function
Role:	PI
Funding Source:	NINR, NIH (R03 Award)
Duration:	2007-2009
Amount:	\$100,000

Title:	Effectiveness of TENS on pain, hyperalgesia, and function after total knee replacement
Role:	PI
Funding Source:	NINR, NIH (R01 Award)
Duration:	2007-2011
Amount:	\$2.1 million

Title:	Effect of TENS on knee osteoarthritis pain, hyperalgesia, and function
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Role:	PI
Funding Source:	University of Ulster, Ireland (supplemental funds)
Duration:	2008-2010
Amount:	\$20,000

Title:	Genetic predictors of hyperalgesia and TENS effectiveness in osteoarthritis
Role:	Co-PI
Funding Source:	Gerontology Nursing Intervention Research Center, P30 NR 03979
Duration:	2008-2009
Amount:	\$14,370

Title:	Effect of TENS on Pain and Function in Fibromyalgia
Role:	Investigator and Mentor
Funding Source:	American Physical Therapy Association (APTA)
Duration:	2009-2011
Amount:	\$25,000

Title:	Development of Tolerance to TENS
Role:	Co-PI
Funding Source:	Clinical and Translational Science Award (CTSA)
Duration:	2009-2010
Amount:	\$50,000

Title:	Effectiveness of TENS on Fibromyalgia Pain
Role:	Investigator
Funding Source:	NIAMS, NIH (R34 Award)
Duration:	2011-2012
Amount:	\$100,000

Title:	Pain and Associate Symptoms: Nurse Research Training
Role:	Core Faculty Member
Funding Source:	National Institute of Nursing Research (NINR) T32
Duration:	2009-2021
Amount:	\$?

Title:	Development of Chronic Pain 1 Year Following Total Knee Replacement
Role:	Co-PI
Funding Source:	Clinical and Translational Science Award (CTSA)
Duration:	2011-2012
Amount:	\$50,000

Title:	Development of Chronic Pain 1 Year Following Total Knee Replacement, An International Comparison
Role:	Co-PI
Funding Source:	IASP Development Countries Collaborative Research Grants
Duration:	2011-2012
Amount:	\$15,000

Title:	The Effect of TENS on Mucositis Pain and Function in Head and Neck Cancer Patients: A Randomized and Placebo-Controlled Double Blind Clinical Trial
Role:	Investigator/Mentor

Funding Source:	American Pain Society (APS)
Duration:	2011-2012
Amount:	\$20,000

Title:	Effectiveness of TENS on pain, hyperalgesia, and function after total knee replacement
Role:	PI
Funding Source:	DJO, Inc
Duration:	2012-2013
Amount:	\$106,000

Title:	Transcutaneous Electrical Nerve Stimulation (TENS) and Fibromyalgia
Role:	Site-PI
Funding Source:	NIAMS, NIH (UM1 Award)
Duration:	2013-2017
Amount:	\$2.0 million

Title:	Phenotyping Evoked Central Sensitivity to Painful Stimuli
Role:	Investigator
Funding Source:	NIAMS, NIH (R03 Award)
Duration:	2014-2016
Amount:	\$50,000

Title:	Preventing Persistent Post-Surgical Pain & Opioid Use in Veterans: Effect of ACT
Role:	PI
Funding Source:	NCCIH, NIH (R34 Award)
Duration:	2014-2016
Amount:	\$445,000

Title:	Development of an Electronic Prescription Bundle of Non-Pharmacological Strategies for Chronic Musculoskeletal Pain
Role:	Multi-PI
Funding Source:	American Pain Society (APS)/Pfizer
Duration:	2017-2020
Amount:	\$708,542

Title:	Severe Pain During Wound Care Procedures: Model and Mechanisms
Role:	Investigator
Funding Source:	R01 - NINR
Duration:	2015-2021
Amount:	\$2,341,753

Title:	Center for Advancing Multimorbidity Science: Profiling risk and symptom expression to develop customized therapies for adults with multiple chronic conditions (CAMS)
Role:	Co-Director
Funding Source:	P20 - NINR
Duration:	2018-2023
Amount:	\$500,000

Title:	Preventing Persistent Post-Surgical Pain and Dysfunction in At-Risk Veterans: Effect of a Brief Behavioral Intervention
Role:	Multi-PI
Funding Source:	R01 - NINR
Duration:	2019-2024
Amount:	\$3 million

Title:	Clinical Coordinating Center for the Acute to Chronic Pain Signatures Program
Role:	Clinical Protocol Workgroup
Funding Source:	NIH – U24 NS112873
Duration:	2019-2023

Title:	Multimorbidity patterns in patients with Dementia and associated health service utilization and patient outcomes: A big data approach
Role:	Multi-PI
Funding Source:	Admin Supplement - NINR
Duration:	2020-2021
Amount:	\$374,683

3. Consultant

Title:	Predicting Children's Response to Distraction from Pain Study, Ann Marie McCarthy, PI, Charmaine Kleiber, co-PI
Role:	Consultant
Funding Source:	NINR, NIH (R01 Award)
Duration:	2004-2005
Amount:	~\$2 million

4. Training grants

Title	Young Scientist Program
Role	Mentor
Funding Source	The University of Iowa, College of Nursing, and the John A. Hartford Center for Geriatric Excellence (PI: Toni Tripp-Reimer RN, PhD, FAAN)
Duration	2005
Amount	\$1,000

Title	Postdoctoral Fellowship: Jennifer Lee (Study: The Effect of TENS on Mucositis Pain and Function in Head and Neck Cancer Patients: A Randomized and Placebo-Controlled Double Blind Clinical Trial)
Role	Co-Mentor/Sponsor
Funding Source	NIH T32 NS045549-07 (PI: Hammond)
Duration	2010-2012
Amount	\$80,000

Title	Postdoctoral Fellowship: Katherine 'Katie' Hadlandsmyth (Study: Preventing Chronic Pain Following Surgical Intervention)
Role	Mentor/Sponsor
Funding Source	NIH T32 NS045549-07 (PI: Hammond)
Duration	2014-2016
Amount	\$90,000

Title	Pain and Associated Symptoms: Nurse Research Training (PI: Herr/McCarthy)
Role	Core Faculty
Funding Source	NIH/NINR T32 NR011147
Duration	2009-2021

Title	Pain Research Program (PI: Hammond)
Role	Senior Faculty
Funding Source	NIH T32
Duration	2009-2021

Title:	<u>Optimizing Mealtime Care (OPTIMAL): Development and Pilot Testing of a Person-Centered Mealtime Care Intervention for Nursing Home Residents with Alzheimer's Disease and Related Dementias (ADRD).</u>
Role:	Primary Mentor
Funding Source:	K23 – NIH/NIA
Duration:	2020-2024
Amount:	\$702,564

D. PRESENTATIONS

1. International

2003, November. **Rakel, B.A.**, *Effectiveness of Transcutaneous Electrical Nerve Stimulation (TENS) on Postoperative Pain with Movement*, Sigma Theta Tau International, Honor Society of Nursing 37th Biennial Convention, Toronto, Canada.

2008, August. **Rakel BA**, Cooper NA, Adams HJ, Dannen DR, Granquist MJ, Messer BR, Miller CA, Mitschelen AC, Ruggle RC, Vance CGT, Frey Law LA, Walsh DM, Sluka KA, *A New Transient Placebo TENS Device Allows for Investigator Blinding While Delivering a True Placebo Treatment*, 12th Annual IASP World Congress, Glasgow, Scotland.

2008, August. Vance C, **Rakel BA**, Blodgett NP, DeSantana JM, Amendola A, Walsh DM, Frey-Law LA, Sluka KA, *Effects of High and Low Frequency TENS on Knee Osteoarthritis Pain*, 12th Annual IASP World Congress, Glasgow, Scotland.

2009, September. Liebano R, Zenor A, Hook A, Little A, Franck C, Plum J, Vance C, Walsh D, **Rakel BA**, Sluka K., *An Investigation of the Development of Tolerance to Transcutaneous Electrical Nerve Stimulation (TENS) in Humans*, 6th Congress of the European Federation of IASP Chapters (EFIC) PAIN IN EUROPE VI, Lisbon, Portugal.

2010, June. Vance C, Liebano RE, **Rakel B**, Walsh DM, Sluka KA. *An Investigation of the Development of Tolerance to Transcutaneous Electrical Nerve Stimulation in Humans*, American Physical Therapy Association Combined Sections Meeting, Boston, MA.

2010, August. **Rakel BA**, Logsdan-Sackett N, Yang X, Tonelli S, Cooper N, Herr K, Frantz R, Clark C, Sluka KA. *Knee Osteoarthritis Pain During Movement Builds on Pain at Rest and Correlates with Functional Ability*, 13th Annual IASP World Congress, Montreal, Canada.

2010, August. Tonelli S, Lee J, Cooper N, Sluka KA, Frantz R, Herr K, Clark CR, **Rakel BA**. *Validation of the Knee Injury and Osteoarthritis Outcomes Score (KOOS) Shows Evidence of Pain Subscale Validity but not Function in Daily Living (ADL) Subscale Validity*, 13th Annual IASP World Congress, Montreal, Canada.

- 2010, August. Lee JE, Johnston T, Angstrom W, Logsden-Sackett N, Yang X, Clark C, Herr K, Frantz R, Sluka KA, **Rakel BA**. *Pain is Associated with Decreased Function and Activity Levels after Total Knee Replacement but not Rehabilitation Compliance*, 13th Annual IASP World Congress, Montreal, Canada.
- 2010, August. Dailey DL, Vance CGT, Liebano RE, Anand AS, Lee J, **Rakel BA**, Sluka KA. *Transcutaneous Electrical Nerve Stimulation (TENS) Reduces Pain in Fibromyalgia*, 13th Annual IASP World Congress, Montreal, Canada.
- 2010, August. Liebano R, Vance C, Walsh DM, **Rakel BA**, Sluka KA. *Development of Tolerance to Repeated Low and High Frequency Transcutaneous Electrical Nerve Stimulation (TENS) in Humans*, 13th Annual IASP World Congress, Montreal, Canada.
- 2010, August. Vance CGT¹, Liebano R, Lee JE, Cooper NA, **Rakel BA**, Walsh D, Sluka KA. *TENS and DNIC Influence the Perception of Pain in Healthy Adults*, 13th Annual IASP World Congress, Montreal, Canada.
- 2011, June. Leonard, T.A., Hawthorne, S.R., McCrum-Gardner, E., Johnson, M.I., **Rakel, B.A.**, Sluka, K.A., Hughes, C.M, Moran, F., & Walsh, D. Testing a novel transient placebo transcutaneous electrical nerve stimulation intervention. *Proceedings, 16th International World Confederation for Physical Therapy Congress, Amsterdam*.
- 2011, June. Hawthorne, S.R., Leonard, T.A., McCrum-Gardner, E., Johnson, M.I., **Rakel, B.A.**, Sluka, K.A., Hughes, C.M., Moran, F. & Walsh, D. *An investigation of the dose response hypoalgesic effects of transcutaneous electrical nerve stimulation using pressure pain threshold*. Proceedings, 16th International World Confederation for Physical Therapy Congress, Amsterdam.
- 2011, October. Schutte, D., Mukhopadhyay, N., Vance, C. Walder, R., Sluka, K., **Rakel, B.**, Govil, M. Genetic predictors of knee pain in persons with mild to moderate osteoarthritis. American Society of Human Genetics Meeting, Montreal Canada.
- 2011, October. Mukhopadhyay, N. Schutte, D., Vance, C. Walder, R., Sluka, K., **Rakel, B.**, Govil, M. Effects of genotype on TENS effectiveness in controlling knee pain in persons with to moderate osteoarthritis. American Society of Human Genetics Meeting, Montreal Canada.
- 2012, August. **Rakel B**, Logsden-Sackett N, Clark C, Noiseux N, Callaghan J, Herr K, Frantz R, Zimmerman, B, Sluka KA. *Transcutaneous Electrical Nerve Stimulation (TENS) Reduces Pain and Improves Function Post Total Knee Replacement (TKR)*. 14th Annual IASP World Congress, Milan, Italy.
- 2014, October. Booker, S., Brown, G., Herr, K., Sluka, K., **Rakel, B**. *Predictors of Analgesic Use in Advanced Knee Osteoarthritis*, 15th Annual IASP World Congress, Buenos Aires, Argentina.
- 2014, October. Dailey, DL., Vance, CG., **Rakel, BA.**, Goldman, SE., Malow, B., Zimmerman, MB., Crofford, L.J., & Sluka, KA. *The Relationship Between Pain, Fatigue, Sleep, Disease Severity and Function in Women with Fibromyalgia*, 15th Annual IASP World Congress, Buenos Aires, Argentina.
- 2016, October, St. Marie B, Tripp-Reimer T, Allen J, Hadlandsmyth K, Embree J, Noiseux N, Johnston R, Zimmerman, B, Dindo, L, **Rakel BA**. *Experiences Providing a One-day ACT Workshop to Veterans at risk for Persistent Pain and Opioid Misuse following Orthopedic Surgery*, 16th Annual IASP World Congress, Yokohama, Japan.
- 2016, October. Hadlandsmyth K, Eschker, E, Embree J, Dindo, L, Tripp-Reimer T, St. Marie B, Noiseux N, Johnston R, Zimmerman, B, **Rakel B**. *Methodological Challenges and Solutions to Evaluating an ACT Workshop for U.S. Military Veterans At-Risk for Persistent Post-Surgical Pain*, 16th Annual IASP World Congress, Yokohama, Japan.

2018, September, Dailey DL, Williams J, **Rakel BA**, Vance CGT, Chimenti R, Golchha M, Geasland KM, Zimmerman MB, Sluka KA, Crofford LJ. Differences in pain, fatigue, sleep disturbance, and activity in women with fibromyalgia receiving opioids or not receiving opioids for pain control. IASP World Congress, Boston, MA.

2018, September. Nakad L, Wolf JS, Fiala CA, Abbott LI, Carter CD, Hillis SL, **Rakel BA**, Gardner SE. Psychological Distress and Wound Pain During Dressing Changes. IASP World Congress, Boston, MA.

2018, September. **Rakel BA**, Dailey DL, Vance CGT, Gilbertson-White S, Hightower M, Abernathy G, Herr K, Sluka KA. Development of an Electronic Prescription Bundle of Non-Pharmacological Strategies for Chronic Musculoskeletal Pain, IASP World Congress, Boston, MA.

2020, June. **Rakel BA**, Dindo L, Hadlandsmyth K, Marchman J, Zimmerman MB, Cortesi J, Roddy M. Preventing Persistent Post-Surgical Pain and Dysfunction in At-Risk Veterans undergoing Total Knee Arthroplasty: At-Risk Profiles, IASP World Congress, Amsterdam, Netherlands (*cancelled*).

2020, June. Vance CGT, Dailey DL, Embree J, Daack-Hirsch S, Nakad L, Gilbertson-White S, Herr K, Abernathy GM, Appenheimer SA, Butler NR, Katz DA, Hightower M, ***Rakel BA**, ***Sluka KA**. Primary care provider prescription frequency and perceptions following implementation of a **Bundle for Exercise and TENS** for chronic musculoskeletal pain: The BEsT project, IASP World Congress, Amsterdam, Netherlands (*cancelled*).

2. National

1989, April. **Rakel BA**, *The Development of Two Nursing Diagnoses for Types of Situational Learning Disabilities*, Thirteenth Annual Conference, Midwest Nursing Research Society, Cincinnati, OH.

1989, April. **Rakel BA**, *Restructuring the "Knowing" Pattern of the NANDA Taxonomy*, Thirteenth Annual Conference, Midwest Nursing Research Society, Cincinnati, OH.

1989, November. **Rakel BA**, *Development of a New Nursing Diagnosis: Alterations in Learning Ability*, Fourth Annual Nursing Research Symposium, Chicago, IL.

1990, September. **Rakel BA**, Hasselman, E.L., Zehr, P. & Schaumbacher, B., *Cardiac- Renal Transplantation: A Case Study*, Annual NAATCO Meeting, San Francisco, CA.

1992, March. **Rakel BA**, *Nursing Interventions Related to Patient Teaching*, Sixteenth Annual Midwest Nursing Research Society Conference, Chicago, IL

1993, November. **Rakel BA**, *Strategies for Successful Research Utilization Projects*, 1993 Scientific Sessions, ANA Council of Nurse Researchers, Washington, D.C.

1994, April. **Rakel BA**, *Research to Practice: Difficult Decisions*, First National Research Utilization Conference, The University of Iowa Hospitals and Clinics, Iowa City, IA.

1994, May. **Rakel BA**, *Nasogastric/Nasointestinal Tube Placement: A Research Utilization Project*, National Teaching Institute and Critical Care Exposition, American Association of Critical Care Nurses, Atlanta, GA.

1997, April. **Rakel BA**, *Critiquing Research Articles*, Fourth National Research Utilization Conference, The University of Iowa Hospitals and Clinics, Iowa City, IA.

1997, June. **Rakel BA**, *Critical Review of Research for the Enterostomal Therapist*, 29th Annual, Wound, Ostomy, and Continence Conference, Wound, Ostomy, and Continence Nursing Society, Nashville, TN.

1997, November. **Rakel BA**, *The Effectiveness of Transcutaneous Electrical Nerve Stimulation (TENS) on Postoperative Pain: A Meta-Analysis*, Strategies for Pain Management: An Interdisciplinary Symposium and Workshop for Health Care Professionals, Washington, D.C.

2000, June. **Rakel BA**, *Decision Support: Meeting a JCAHO Standard on Resuscitation*, Eclipsys Decision Support 14th Annual User & Educational Conference, Washington, D.C.

2002, September. **Rakel BA**, *Keynote: Evaluating the Evidence for Use in Practice*, Southern Illinois University School of Nursing, Edwardsville, IL.

2003, April. **Rakel, BA**. *Effectiveness of Transcutaneous Electrical Nerve Stimulation (TENS) on Postoperative Movement Pain*, 22nd Annual Scientific Meeting, American Pain Society, Chicago, IL.

2004, April. **Rakel BA**. *Use of Statistical Process Control for Evaluating Evidence-Based Practices*, 11th National Evidence-Based Practice Pre-Conference: Patient and Staff Safety, Iowa City, IA.

2004, April. **Rakel BA**. *Strategies for Successful Implementation of an Evidence Based Practice Program*, Portland, ME.

2004, November. **Rakel BA**, Brennan T, & Fink L. *Hyperalgesia Measurement is Feasible in Elders Pre and Post Knee Replacement*. Building Academic Geriatric Nursing Capacity Leadership Conference, Washington, D.C.

2005, March. **Rakel BA**, Brennan T, & Fink L. *Hyperalgesia measurements are tolerated but not all stimuli provide sensitive data in elders before and after knee replacement*. 24th Annual Scientific Meeting, American Pain Society, Boston, MA.

2006, March. **Rakel BA**, Herr K, Brennan T, & Fink L. *Hyperalgesia is experienced by older adults after total knee replacement*. 25th Annual Scientific Meeting, American Pain Society, Boston, MA.

2006, March. **Rakel BA**, Herr K, Brennan T, & Fink L. *Hyperalgesia is experienced by older adults after total knee replacement*. Midwest Nursing Research Society, Milwaukee, WI

2006, November. McBride AB, Bolton LB, Pesut DJ, Reinhard S. & **Rakel BA**, *Balancing Career, Family, and Personal Well-Being*. Panel member, John A. Hartford Building Academic Geriatric Nursing Excellence Leadership Conference, Dallas, TX

2007, March. **Rakel BA** & Petsas-Blodgett N. *Sensitivity and Pain Thresholds: A Comparison Between Young Adults, Older Adults, and Adults with Osteoarthritis*. Midwest Nursing Research Society meeting, Omaha, NE.

2007, April. **Rakel BA** *Use of Statistical Process Control Techniques for Evidence-Based Practice Changes*. 14th National Evidence-Based Practice Pre-Conference, Iowa City, IA

2007, April. **Rakel BA**, *The Case for Incorporating Evidence-Based Practice to Promote Quality Patient Care*, Nebraska Methodist Health System, Omaha, NE.

2008, February. Cooper NA, Adams HJ, Dannen DR, Granquist MJ, Messer BR, Miller CA, Mitschelen AC, Ruggle RC, Vance CGT, Frey Law LA, **Rakel BA**, Walsh DM, Sluka KA, *New TENS Placebo Allows for True Double-Blinding*, American Physical Therapy Association Combined Sections Meeting, Nashville, TN.

2008, March. **Rakel BA**, *The John A. Hartford Foundation Institute for Geriatric Nursing BAGNC Postdoctoral Program*, Panel presentation, *Career Opportunities After the Terminal Degree*, Midwest Nursing Research Society, Indianapolis, IN.

2008, May. **Rakel BA**, Cooper NA, Adams HJ, Dannen DR, Granquist MJ, Messer BR, Miller CA, Mitschelen AC, Ruggle RC, Vance CGT, Frey Law LA, Walsh DM, Sluka KA, *A New Transient*

Placebo TENS Device Allows for Investigator Blinding While Delivering a True Placebo Treatment, NIH Pain Consortium, Washington, DC.

2008, November. Blodgett NP, **Rakel BA**, Vance CG, Amendola A, Walsh DM, Sluka KA. *Significant Correlations Between Pain Intensity, Pain Distress, Walking Function, and Recalled Physical Function in Older Adults with Knee Osteoarthritis*, Gerontological Society of America, National Harbor, MD.

2009, March. **Rakel B**, Vance C, Lehman S, Petsas-Blodgett N, DeSantana JM, Walsh D, Amendola N, Sluka K. *TOPS: TENS for Osteoarthritis Pain Study*, Midwest Nursing Research Society, Minneapolis, MN.

2009, May. Blodgett NP, Clark CR, Frantz R, Herr K, Noiseux N, Sluka KA, **Rakel B**. *Using Equianalgesic Conversions to Determine Analgesic Intake Post Total Knee Replacement*. 28th Annual Scientific Meeting, American Pain Society, San Diego, CA.

2010, May. **Rakel B**, Logsdon-Sackett N, Yang X, Cooper N, Tonelli S, Herr K, Frantz R, Clark C, Sluka KA. *Knee Osteoarthritis Pain Correlates with Mechanical Pain Sensitivities But Does Not Influence Active Flexion or Walking Function*, 29th Annual Scientific Meeting, American Pain Society, Baltimore, MD.

2011, February. Dailey, DL, CGT Vance, RE Liebano, AS Anand, JE Lee, **BA Rakel**, KA Sluka. *Transcutaneous Electrical Nerve Stimulation (TENS) Reduces Pain in Fibromyalgia*. Poster presented at the annual meeting of the American Physical Therapy Association (APTA) Combined Sections Meeting, New Orleans, LA.

2011, May. Cooper, NA, **Rakel, B**, Tonelli SM, Clark CR, Noiseux NO, Sluka KA. *Daily activities are limited by knee osteoarthritis and correlate with perceived disability and quality of life*. 30th Annual Scientific Meeting, American Pain Society, Austin, TX

2011, May. Lee JE, Dailey DL, Vance CGT, Liebano R, **Rakel BA**, Sluka KA. *Psychological distress and fatigue influence pain and function in fibromyalgia patients*. 30th Annual Scientific Meeting, American Pain Society, Austin, TX

2011, May. Lee JE, **Rakel BA**, Sluka KA, Logsdon-Slockett N, Yang X. *The role of biopsychosocial factors in the level of TENS amplitude selected when used for incisional pain immediately following total knee replacement*. 30th Annual Scientific Meeting, American Pain Society, Austin, TX

2011, May. Dailey, DL, Vance, CGT, Liebano, RE, Anand, AS, Lee, JE, **Rakel, BA**, Sluka, KA. *Fatigue and Fibromyalgia: Fatigue Associated with Hyperalgesia and Function*. 30th Annual Scientific Meeting, American Pain Society, Austin, TX

2011, May. Dailey, DL, Vance, CGT, Liebano, RE, Anand, AS, Lee, JE, **Rakel, BA**, Sluka, KA. *Transcutaneous Electrical Nerve Stimulation (TENS) Reduces Pain and Improves Function in Fibromyalgia*. 30th Annual Scientific Meeting, American Pain Society, Austin, TX

2011, October. Tonelli S., **Rakel, BA.**, Cooper N., & Sluka, KA. *Females with late stage knee osteoarthritis have more pain and less functional ability than males but similar physical activity*. NINR 25th Anniversary Celebration, Washington DC.

2011, October. Cooper NA., **Rakel, BA.**, Tonelli SM., Clark CR., Noiseux NO., & Sluka KA. *Daily activities are limited by knee osteoarthritis and correlate with perceived disability and quality of life*. NINR 25th Anniversary Celebration, Washington DC.

2012. April. Schutte, D., Mukhopadhyay, N., Vance, C. Walder, R., Sluka, K., **Rakel, B.**, Govil, M. *Genetic predictors of knee pain in persons with mild to moderate osteoarthritis*. Midwest Nursing Research Society Annual Conference. Dearborn, MI. (paper)

2012, May. **Rakel, B.** *Quantitative Sensory Testing in Patients Undergoing Total Knee Replacement.* 31st Annual Scientific Meeting, American Pain Society, Honolulu, Hawaii.

2012, May. **Rakel, B.**, Vance, C., Zimmerman, B., & Sluka, K. *Mild to moderate knee osteoarthritis causes primary and secondary hyperalgesia.* 31st Annual Scientific Meeting, American Pain Society, Honolulu, Hawaii.

2012, May. Malloy, L., Borhart, E., Gardner, S., Blodgett, N.P., Logsdan-Sackett, N., & **Rakel, B.** *High Intensity TENS reduces pain during dressing changes on open wounds: A proof of concept study.* 31st Annual Scientific Meeting, American Pain Society, Honolulu, Hawaii.

2012, May. Lee, J., **Rakel, B.**, Johnston, T., Angstrom, W., Logsdan-Sackett, N., Perkhounkova, Y., Yang, X., Clark, C., Noiseux, N., Callaghan, J., & Sluka, K. *Does rehabilitation dose predict functional recovery after total knee replacement?* 31st Annual Scientific Meeting, American Pain Society, Honolulu, Hawaii.

2012, May. Lee, J., **Rakel, B.**, Dailey, D., Vance, C., Broderick, A., Sluka, K., & Anderson, C. *The effectiveness of TENS for head and neck cancer pain and function: A randomized and placebo-controlled double blind pilot study.* 31st Annual Scientific Meeting, American Pain Society, Honolulu, Hawaii.

2012, September. Callaghan JJ, Noiseux N, Clark CR, Sluka K, **Rakel B.** *Predictors Of Pain Following Total Knee Arthroplasty.* The Knee Society and The American Association of Hip and Knee Surgeons (AAHKS), San Francisco, CA.

2013, April. **Rakel, B.**, Vance, C., Zimmerman, B, Petsas, N., Amendola, A., and Sluka K.A. (2013). *Mild to moderate knee osteoarthritis causes peripheral and central pain sensitization and reduced quality of life,* 32nd Annual Scientific Meeting, American Pain Society, New Orleans, LA.

2013, April. **Rakel, B.**, Noiseux, N., Zimmerman, B., Callaghan, J., Clark, C., and Sluka, K. (2013). *Predictors of pain following total knee arthroplasty.* 32nd Annual Scientific Meeting, American Pain Society, New Orleans, LA.

2013, May, **Rakel B.** *Effective use of TENS for Clinical Pain,* 32nd Annual Scientific Meeting, American Pain Society, New Orleans, LA.

2014, May, **Rakel B.** *Biopsychosocial Mechanisms and Treatment of Pain in Older Adults,* 33rd Annual Scientific Meeting, American Pain Society, Tampa, Florida.

2014, May. Lee, J., **Rakel, B.**, Anderson, C., Perkounkova, Y., Dailey, D., Vance, C., Broderick, A., Sleuwenhoek, B., & Sluka, K. *Transcutaneous Electrical Nerve Stimulation (TENS) Reduces Head and Neck Cancer Pain: A Randomized and Placebo-Controlled: Double Blind Pilot Study.* 33rd Annual Scientific Meeting, American Pain Society, Tampa, Florida.

2014, November. Adu, J, Chung CP, Munters LA, Darghosian L, Spitz R, Dailey DL, **Rakel BA,** Sluka KA Crofford LJ. *Fibromyalgia Patients Taking Opioids Have Low Self-Efficacy and High Pain Catastrophizing but No Reduction in Pain or Improvement in Activity.* American College of Rheumatology in Boston, MA.

2015, April. Cullen L and **Rakel BA.** *Unveiling the Revised Iowa Model of Evidence-Based Practice to Promote Quality Care.* 23rd National Evidence-Based Practice Conference: Changing Landscapes: Contemporary Issues Influencing Nursing Care, Iowa City, IA.

2015, May. **Rakel BA.** *Pain and Function in Older Adults with Knee Osteoarthritis.* 34th Annual Scientific Meeting, American Pain Society, Palm Springs, CA.

2015, May. Bussler J, O'Sullivan C, Zimmerman MB, Sluka KA, Herr KA, Clark CR, Noiseux NO, Callaghan J, **Rakel BA**. *A comparison of regional versus general intraoperative anesthesia/analgesia for Total Knee Arthroplasty*. 34th Annual Scientific Meeting, American Pain Society, Palm Springs, CA.

2015 May. Sabic E, Hadlandsmyth K, Embree J, Sluka KA, Geasland KM, Herr KA, Clark CR, Noiseux NO, Zimmerman MB, **Rakel BA**. *Catastrophizing moderates the relationship between pain intensity and pain-related distress*. 34th Annual Scientific Meeting, American Pain Society, Palm Springs, CA.

2015, May. Vance CGT, Dailey DL, **Rakel BA**, Geasland KM, Darghosian L, Munters LA, Merriwether EN, Crofford LJ, Sluka KA. *A novel method to obtain higher intensity TENS stimulation in clinical application*. 34th Annual Scientific Meeting, American Pain Society, Palm Springs, CA.

2015, May. Merriwether EN, **Rakel BA**, Dailey DL, Munters LA, Darghosian L, Vance CGT, Crofford LJ, Sluka KA. Higher physical activity is associated with lower pain in women with fibromyalgia. 34th Annual Scientific Meeting, American Pain Society, Palm Springs, CA.

2015, May. Merriwether EN, **Rakel BA**, Zimmerman MB, Dailey DL, Munters LA, Darghosian L, Vance CGT, Crofford LJ, Sluka KA. *Validity and reliability of the Patient-Reported Outcomes Measurement Information System (PROMIS) for pain interference and quality of life in women with fibromyalgia*. 34th Annual Scientific Meeting, American Pain Society, Palm Springs, CA.

2015, August. Rakel BA. *Transcutaneous Electrical Nerve Stimulation*. Piecing Together the Pain Puzzle: The Biopsychosocial Model, American Physical Therapy Association (APTA) Section on Research Retreat, Providence, RI.

2015, August. Merriwether EN, **Rakel BA**, Dailey DL, Muenters A, Darghosian L, Abdelhamid R, Vance CGT, Frey-Law LA, Crofford LJ, Sluka KA. *Pain Outcomes, Physical Activity Level, and Monocyte Phenotype in Women With Fibromyalgia*. Piecing Together the Pain Puzzle: The Biopsychosocial Model, American Physical Therapy Association (APTA) Section on Research Retreat, Providence, RI.

2015, August. Vance CGT, Dailey DL, **Rakel BA**, Geasland KM, Darghosian L, Alemo Munters, L Merriwether, EN, Crofford LJ, Sluka KA. *A novel method to obtain higher intensity TENS stimulation in clinical application*. Piecing Together the Pain Puzzle: The Biopsychosocial Model, American Physical Therapy Association (APTA) Section on Research Retreat, Providence, RI.

2015, August. Dailey, DL, Vance, CG, **Rakel, BA**, Goldman, SE, Malow, B, Zimmerman, MB, Crofford, LJ, & Sluka, KA. *Piecing Together the Pain Puzzle: The Biopsychosocial Model*, American Physical Therapy Association (APTA) Section on Research Retreat, Providence, RI.

2015, October, Wajid, R, Hadlandsmyth, K, Zimmerman, MB, Eschker, E, Sluka, KA, Herr, KA, Clark, CR, Noiseux, NO, Callaghan, JJ, **Rakel, BA**. *Post-Operative Predictors of Persistent Pain Following Total Knee Arthroplasty*, Midwest Pain Society 39th Scientific Meeting, Chicago, IL.

2016, May, Hadlandsmyth, K., Dindo, L., Sugg, S., Wajid, R., Zimmerman, MB., **Rakel, BA**. *A Brief Psychological Intervention Targeting Persistent Pain Prevention Following Mastectomy or Lumpectomy: A Pilot Investigation*. American Pain Society's 35th Annual Scientific Meeting, Austin, TX

2016, May, Bohr, N., **Rakel, BA**., Kolker, SJ., Sluka, K., & Gardner, SE. *Cytokine expression in wound fluid: A pilot study*. American Pain Society 35th Annual Scientific Meeting, Austin, TX.

2016, July. **Rakel, BA**. *Preventing Persistent Post-Surgical Pain & Opioid Use in At-Risk Veterans: Effect of ACT*, In Progress Review for the FY14 NIH-VA initiative on Non-Pharmacological Approaches to Managing Pain and Co-Morbid Conditions in U.S. Military Personnel, Veterans, and their Families, Bethesda, MA.

2017, April, **Rakel BA**. *Research Evidence: Truth or Alternative Facts?* 24th National Evidence-Based Practice Conference, Personalized Health Care: Shades of Gray in Evidence-Based Care, University of Iowa Health Care, Iowa City, IA

2017, April, Cullen, L, Hand LL, **Rakel BA.**, Wagner, M. *Making the Decision About Sufficient Evidence*, 24th National Evidence-Based Practice Conference, Personalized Health Care: Shades of Gray in Evidence-Based Care, University of Iowa Health Care, Iowa City, IA.

2017, May, **Rakel BA**, & Embree, J. *Development of an Electronic Prescription Bundle of Non-Pharmacological Strategies for Chronic Musculoskeletal Pain*, APS & Pfizer IGLC Grant Kick-Off, Pittsburgh, PA.

2017, May, **Rakel BA.**, *Multidisciplinary Pain Management in Complex Older Adults*, 12th Annual NIH Pain Consortium Symposium, National Institutes of Health, Bethesda, Maryland.

2017, July. **Rakel, BA**. & Dindo, L. *Preventing Persistent Post-Surgical Pain & Opioid Use in At-Risk Veterans: Effect of ACT*, In Progress Review for the FY14 NIH-VA initiative on Non-Pharmacological Approaches to Managing Pain and Co-Morbid Conditions in U.S. Military Personnel, Veterans, and their Families, Bethesda, MA.

2018, July. **Rakel, BA**. *Preventing Persistent Post-Surgical Pain & Opioid Use in At-Risk Veterans: Effect of ACT*, In Progress Review for the FY14 NIH-VA initiative on Non-Pharmacological Approaches to Managing Pain and Co-Morbid Conditions in U.S. Military Personnel, Veterans, and their Families, Bethesda, MA.

2019, January. **Rakel, BA** & Gardner, S. *Center on Advancing Multimorbidity Science (CAMS)*. NINR Center Directors Webinar, National Institute of Nursing Research, Bethesda, MA.

2019, April. **Rakel, BA**. & Sluka, KA. *Implementation of Bundle for Exercise and TENS for Chronic Musculoskeletal Pain*. American Pain Society 38th Annual Scientific Meeting, Milwaukee, WI.

2019, April. **Rakel, BA**. *Role of Nurses on Research Teams*, American Pain Society 38th Annual Scientific Meeting, Milwaukee, WI.

2019, April. Schmidt M, Haythornthwaite J, Chen W, Napadow V, Dougherty P, Ibrahim M, **Rakel, BA**. *Mock Study Section R21 Animal Studies Panel*, American Pain Society 38th Annual Scientific Meeting, Milwaukee, WI.

1. State and Local

1985, October. **Rakel BA**, *Heart Transplantation*, First Annual Convention, Great Plains Association of the American Association for Medical Transcription, Iowa City, IA.

1985, November. **Rakel BA**, *A Tool to Assess Readiness to Learn*, Third Annual Patient Education Conference: Influencing Patient Compliance, University of Iowa Hospitals and Clinics, Iowa City, IA.

1986, January 1986. **Rakel BA**, *Cardiac Transplantation*, Organ Transplantation at the University of Iowa Hospitals and Clinics, Mount Mercy College, Cedar Rapids, IA.

1986, March. **Rakel BA**, *Cardiac Transplantation*, Spring Symposium, American Association of Critical Care Nurses, Iowa City, IA.

1986, April. **Rakel BA**, *Cardiac Transplantation*, Second Annual Transplant Update Workshop, The University of Iowa Hospitals and Clinics, Iowa City, IA.

1986, August. **Rakel BA**, *Cardiac Rehabilitation*, Television "Health Beat" Interview Series, The University of Iowa Hospitals and Clinics, Iowa City, IA.

- 1986, September. **Rakel BA**, *Cardiac Transplantation*, Transplant Update, Henry County Nurses' Association, Mount Pleasant, IA.
- 1987, January. **Rakel BA**, *Cardiac Transplantation*, Transplant for Life, Iowa Methodist Hospital, Des Moines, IA.
- 1987, March. **Rakel BA**, *Cardiac Transplantation*, Eleventh Annual Advanced Cardiovascular Nursing Conference, The University of Iowa Hospitals and Clinics, Iowa City, IA.
- 1987, March. **Rakel BA**, *Facts About Organ Donation*, PEO, Iowa City, IA.
- 1987, November. **Rakel BA**, *Cardiac Transplantation*, 1987 Update for Nurses, The University of Iowa Hospitals and Clinics, Iowa City, IA.
- 1987, November. **Rakel BA**, *Cardiac Transplantation: A New Beat on Life*, PEO, Iowa City, IA.
- 1987, November. **Rakel BA**, *Patient Compliance*, Home Health Conference: Cardiac Care, The University of Iowa Hospitals and Clinics, Iowa City, IA.
- 1988, February. **Rakel BA**, *Facts About Organ Donation*, PEO, Iowa City, IA.
- 1989, April. **Rakel BA**, *Development of a New Nursing Diagnosis: Alterations in Learning Ability*, Graduate Student Research Day, The University of Iowa College of Nursing, Iowa City, IA.
- 1990, May. **Rakel BA**, *Unit-Based Quality Assurance*, Quality Assurance: Pathway to Excellence, The University of Iowa Hospitals and Clinics, Iowa City, IA.
- 1990, October. **Rakel BA**, *Third Party Reimbursement*, Annual Convention, Iowa Nurses' Association, Sioux City, IA.
- 1991, October. **Rakel BA**, *Teaching Interventions*, Diabetes Education Update, The University of Iowa Hospitals and Clinics, Iowa City, IA.
- 1992, September. **Rakel BA**, *Applying the AHCPN Pain Guidelines at UIHC*, Progressive Nursing Day: Pain Management, Iowa City, IA.
- 1993, October. **Rakel BA**, *Applying the AHCPN Pain Guidelines*, Management of Cancer Pain in the Elderly, Ankeny, IA.
- 1993, October & November. **Rakel BA**, *Research-Based Standards*, Unit-Based QAI Programs: Making the Difference, The University of Iowa Hospitals and Clinics, Iowa City, IA.
- 1995, March. **Rakel BA**, *Patient Education Process and Learning Barriers*, The Patient Education Process: Are You and Your Patient Ready?, Mercy Hospital, Cedar Rapids, IA.
- 1996, February. **Rakel BA**, *Pain Management: What We Know Now*, PEO, Iowa City, IA.
- 1996, March. **Rakel BA**, *Nasogastric/Nasointestinal Tube Placement: Translating Research into Practice*, Mercy Hospital, Cedar Rapids, IA.
- 1996, April. **Rakel BA**, *Data Management*, Managing Information: Improving Quality, The University of Iowa Hospitals and Clinics, Iowa City, IA.
- 1997, February. **Rakel BA**, *Research Utilization Projects at UIHC*, Graduate Research Course, The University of Iowa College of Nursing, Iowa City, IA.
- 1997, September. **Rakel BA**, *Putting Research Into Practice*, The University of Iowa Child Health Specialty Clinics, Iowa City, IA.

1997, November. **Rakel BA**, *Quality and Performance Improvement at The University of Iowa Hospitals and Clinics*, Department of Food and Nutrition Services, The University of Iowa Hospitals and Clinics, Iowa City, IA.

1997, November. **Rakel BA**, *Core Indicators: What Are They?* Quality Management for the Future, The University of Iowa Hospitals and Clinics, Iowa City, IA.

1998, February. **Rakel BA**, *Making Data Talk to Improve Quality*, Nurse Manager Leadership/Management Development Series, University of Iowa Hospitals and Clinics, Iowa City, IA.

1998, March & April. **Rakel BA**, *Changes in the Quality Improvement Program*, Clinical and Hospital Quality Improvement Chairpersons, The University of Iowa Hospitals and Clinics, Iowa City, IA.

1998, May. **Rakel BA**, *Statistical Quality Control Techniques: Use of Run and Control Charts*, Clinical and Hospital Department Quality Improvement Chairpersons, The University of Iowa Hospitals and Clinics, Iowa City, IA.

2000, March. **Rakel BA**, *Managing Pain: Individually and Institutionally, Building an Institutional Commitment to Pain Management, and Principles of Effective Pain Management*, Fort Madison Community Hospital, Fort Madison, IA.

2000, October. **Rakel BA**, *Patient/Family Education*, Train-the-Trainer Workshop, Evidence-Based Practice: Acute Pain Management in the Elderly, University of Iowa College of Nursing, Iowa City, IA.

2001, April. **Rakel BA**, *Why Do A Pilot?* Evidence-Based Practice Internship, University of Iowa Hospitals and Clinics, Iowa City, IA.

2002, April. **Rakel BA**, *Evaluating the Research for Use in Practice*, Evidence-Based Practice in the Real World (Pre-Conference), University of Iowa Hospitals and Clinics, Iowa City, IA.

2002, October. **Rakel BA**, *Practice Makes Perfect: Trailing/Piloting the Change*, Advanced Practice Institute, Iowa City, IA.

2002, October. **Rakel BA**, *Evaluation Methodologies*, Advanced Practice Institute, Iowa City, IA.

2002, November. **Rakel BA**, *Effectiveness of Transcutaneous Electrical Nerve Stimulation (TENS) on Postoperative Pain with Movement*, Collaborative Pain Management Forum, University of Iowa Hospitals and Clinics, Iowa City, IA.

2003, April. **Rakel BA & Frantz R.** *The Effectiveness of Transcutaneous Electrical Nerve Stimulation (TENS) on Postoperative Pain with Movement*. Poster presented at the Student Interdisciplinary Health Research Poster Session, Iowa City, IA.

2003, September. **Rakel BA**, *Piloting The Practice Change*, 2nd Annual Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.

2003, September. **Rakel BA**, *Evaluation Methodologies*, 2nd Annual Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.

2004, April. **Rakel BA**, *Monofilament Pain Thresholds in Healthy Elders.* Poster presented at the Student Interdisciplinary Health Research Poster Session, Iowa City, IA.

2004, September., **Rakel BA**, *Piloting The Practice Change*, 3rd Annual Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.

2004, September. **Rakel B.A.**, *Evaluation Methodologies*, 3rd Annual Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.

- 2005, January. **Rakel BA**, Brennan, T., & Fink, L. *Hyperalgesia Measurement Feasibility in Post-Surgical Elders*. Poster presented at Midwestern Conference: Healthcare in the Elderly, Iowa City, IA.
- 2005, September. **Rakel BA**, *Piloting The Practice Change*, 4th Annual Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2005, September. **Rakel BA**, *Evaluation Methodology Plans*, 4th Annual Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2006, February. **Rakel BA**, *Piloting The Practice Change*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2006, February. **Rakel BA**, *Evaluation Methodology Plans*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2006, March. **Rakel BA**, *Piloting The Practice Change*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2006, March. **Rakel BA**, *Evaluation Methodology Plans*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2006, September. **Rakel BA**, *Piloting The Practice Change*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2006, September. **Rakel BA**, *Evaluation Methodology Plans*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2006, October. **Rakel BA**, *Piloting The Practice Change*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2006, October. **Rakel BA**, *Evaluation Methodology Plans*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2007, February. **Rakel BA**, *Piloting The Practice Change*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2007, March. **Rakel BA**, *Piloting The Practice Change*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2007, March. **Rakel BA**, *Piloting The Practice Change*, Evidence-Based Practice Staff Nurse Internship, Iowa City, IA.
- 2007, March. **Rakel BA**, *Evaluation of the Practice Change*, Evidence-Based Practice Staff Nurse Internship, Iowa City, IA.
- 2007, February. **Rakel BA**, *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2007, March. **Rakel BA**, *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2007, April. Cooper NA, Adams HJ, Dannen DR, Granquist MJ, Messer BR, Miller CA, Mitschelen AC, Ruggle RC, Vance CGT, Frey Law LA, **Rakel BA**, Walsh DM, Sluka KA, *New TENS Placebo Allows for True Double-Blinding*, Graduate Programs in Physical Therapy and Rehabilitation Science Research Day, University of Iowa, Iowa City, IA.
- 2008, April. Cessna M, Meyer T, Pappas E, Scherrer E, Marchand S, Vance CG, **Rakel B**, Sluka KA, *Application of DNIC prevents the analgesic effects of TENS*, Graduate Programs in Physical Therapy and Rehabilitation Science Research Day, University of Iowa, Iowa City, IA.

2008, April. Cooper NA, Adams HJ, Dannen DR, Granquist MJ, Messer BR, Miller CA, Mitschelen AC, Ruggle RC, Vance CGT, Frey Law LA, **Rakel BA**, Walsh DM, Sluka KA. *A New Transient Placebo TENS Device Allows for Investigator Blinding While Delivering a True Placebo Treatment*, Graduate Program in Physical Therapy and Rehabilitation Science Research Day, Univ of Iowa, Iowa City, IA.

2009, September. **Rakel BA**, *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.

2010, April. Lee JE, Johnston T, Angstrom W, Logsdon-Sackett N, Yang X, Clark C, Herr K, Frantz R, Sluka KA, **Rakel BA**. *Pain is Associated with Decreased Function and Activity Levels after Total Knee Replacement but not Rehabilitation Compliance*, Department of Physical Therapy and Rehabilitation Science Research Day, Carver College of Medicine, University of Iowa, Iowa City, IA

2010, September. **Rakel BA**. *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.

2011, February. **Rakel BA**. *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.

2011, April. Lee JE, Dailey DL, Vance CGT, Liebano R, **Rakel BA**, Sluka KA. Psychological distress and fatigue influence pain and function in fibromyalgia patients. Poster presentation, University of Iowa Health Sciences Research Week, Iowa City, IA.

2011, October. **Rakel BA**. *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.

2012, January. **Rakel BA**. *Nursing Management of the Patient Post Knee Replacement*, 34th Annual Midwestern Conference on Health Care in the Elderly; Orthopedics and Rheumatology, Iowa City, IA.

2012, January. **Rakel BA**. *Mechanisms and Effectiveness of TENS*, Institute for Clinical and Translational Science, University of Iowa, Iowa City, IA.

2012, February. **Rakel BA**. *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.

2012, April. Tonelli S., **Rakel, BA.**, Cooper N., & Sluka, KA. *Females with late stage knee osteoarthritis have more pain and less functional ability than males but similar physical activity*. Physical Therapy & Rehabilitation Science Graduate Program Annual Research Day, University of Iowa, Iowa City, IA

2012, April. Cooper NA., **Rakel, BA.**, Tonelli SM., Clark CR., Noiseux NO., & Sluka KA. *Daily activities are limited by knee osteoarthritis and correlate with perceived disability and quality of life*. Physical Therapy & Rehabilitation Science Graduate Program Annual Research Day, University of Iowa, Iowa City, IA

2012, June. **Rakel, BA**. *Research trajectory and program of research*, University of Iowa Hartford Center for Geriatric Nursing Excellence and the Office for Nursing Research June 2012 Summer Scholars Grantsmanship Workshop, University of Iowa College of Nursing, Iowa City, IA.

2012, June. **Rakel, BA**. *Responding to Reviewer Comments*, University of Iowa Hartford Center for Geriatric Nursing Excellence and the Office for Nursing Research June 2012 Summer Scholars Grantsmanship Workshop, University of Iowa College of Nursing, Iowa City, IA.

2012, September. **Rakel, BA**. *What to do with the difficult pain patient? Multidisciplinary Expert Panel, Myths, Mechanisms and Management of Persistent Musculoskeletal Pain*, Department of Physical Therapy and Rehabilitation Science, Carver College of Medicine, University of Iowa, Iowa City, IA.

- 2012, November. **Rakel BA.** *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2013, October. **Rakel BA.** *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2014, February. **Rakel BA.** *Effective Use of TENS for Postoperative Pain*. Pain Interest Group, University of Iowa College of Pharmacology, Iowa City, IA.
- 2014, February. **Rakel BA.** *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2014, May. **Rakel, BA.** *Responding to Reviewer Comments*, University of Iowa Hartford Center for Geriatric Nursing Excellence and the Office for Nursing Research 2014 Summer Scholars Grantsmanship Workshop, University of Iowa College of Nursing, Iowa City, IA.
- 2014, October. **Rakel BA.** *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2014, October, Rakel BA. *Effective Meetings*, Faculty Development Series, University of Iowa College of Nursing, Iowa City, IA.
- 2015, January. **Rakel BA.** *Evaluation Methodologies: Statistical Process Control Charts*, Advanced Practice Institute: Promoting Adoption of Evidence-Based Practice, Iowa City, IA.
- 2015, February. Frey-Law, L & **Rakel BA.** *Measures of Central Sensitivity in Humans*. Pain Interest Group, University of Iowa College of Pharmacology, Iowa City, IA.
- 2015, September, **Rakel BA.** *A Scholarship on Pain or a Painful Scholarship: You Decide*. University of Iowa College of Nursing, Iowa City, IA.
- 2016, April, Hadlandsmyth, K, Vander Weg, M, Sluka, KA, Herr, KA, Clark, CR, Noiseux, NO, Zimmerman, MB, **Rakel, BA.** *Veteran Outcomes 6 and 12 Months Following Total Knee Arthroplasty*, Health Sciences Research Week, University of Iowa, Iowa City, IA.
- 2017, February, **Rakel BA.** *What I Learned from My NIH Clinical Trial Planning Grants (NIH R34)*, University of Iowa College of Nursing, Iowa City, IA.
- 2017, March, **Rakel, BA.** *Designing, Reporting and Interpreting Clinical Trials*, College of Medicine, Department of Anesthesia, University of Iowa, Iowa City, IA.
- 2017, April, **Rakel, BA.** *Importance of Nursing Research*, March for Science, University of Iowa, Iowa City, IA.
- 2017, June, **Rakel BA.** *Developing a Research Protocol and Addressing Recruitment Challenges*, Summer Scholars Grantsmanship Workshop, University of Iowa College of Nursing, Iowa City, IA
- 2018, June, **Rakel BA.** *Developing a Research Protocol*, Summer Scholars Grantsmanship Workshop, University of Iowa College of Nursing, Iowa City, IA.
- 2018, June. **Rakel, BA.** *Psychological Influence and Treatment for Persistent Postsurgical Pain*, Orthopedic Surgery, University of Iowa Hospitals and Clinics, Iowa City, IA.
- 2018, December. **Rakel, BA.** *Interdisciplinary Team Science to Improve the Management of Pain*, Center for Advancement, University of Iowa, Iowa City, IA.
- 2019, June. **Rakel, BA.** *Developing a Research Protocol*, Summer Scholars Grantsmanship Workshop, University of Iowa College of Nursing, Iowa City, IA.

2019, October. **Rakel, BA.** *Effective Meetings: Contributing and Leading*, Faculty Development Seminar, University of Iowa College of Nursing, Iowa City, IA.

2019, November. **Rakel BA** and Marchman J. *Preventing Chronic Pain, Opioid Use and Dysfunction in At-Risk Veterans*, Iowa Legislators Visit, University of Iowa, Iowa City, IA.

2020, March. **Rakel BA** and Embree J. *Preparing a Manual of Operations*. CAMS Seminar, University of Iowa College of Nursing, Iowa City, IA.

III. SERVICE

A. PROFESSIONAL SERVICE

1. Professional Organizations

- 1984 -Present American/Iowa Nurses Association
Secretary, Clinical Nurse Specialist Council (1987-1989)
Chair, Clinical Nurse Specialist Council (1989-1991)
Member, Nominating Committee (1990-1991)
Member, Nurse Practice Committee (1991-1995)
Delegate (1992, 1995)
Leadership Succession Committee (2004-2005)
- 1984 -Present Sigma Theta Tau
Publicity Committee, Professional Nursing Day (1986-1987)
Member, Nominating Committee (1987-1988)
Chair, Undergraduate Scholarship Award Committee (2006-2008)
Gamma Chapter Research Grant Review (2011-2013)
Gamma Chapter Research Committee Chair (2021-present)
- 1984-1987 International Society of Heart Transplantation
1985-1992 American Heart Association
Chair, Program Committee (1985-1989)
- 1987-1990 North American Transplant Coordinator's Organization
1987-1999 American Association of Critical Care Nurses
2001-2019 American Pain Society
Member, Scientific Program Committee (2006-2007)
Co-Chair, Nursing Issues SIG (2007-2009)
Member, Future Leaders in Pain Research Grants Program (2010-present)
Member, Scientific Program Committee (2013-2015)
Member, Sharon S. Keller Grants Review Committee (2015-present)
Board of Directors, Director-at-Large (2015-2017)
- 2002-present Midwest Nursing Research Society
Chair Elect/Chair/Ex-officio Chair, Pain and Symptom Management SIG (2006-2009)
- 2003-2008 Gerontological Society of America
Member, Health Sciences Section Education Committee (2006-2008)
- 2003-present International Association for the Study of Pain
2013-present American Academy of Nursing
Inducted as Fellow (2013)
- 2014 Patient-Centered Outcomes Research Institute (PCORI) grant reviewer community

2. Advisory Boards/Task Forces/Expert Panels

- 2005 Incorporating Evidence-Based Practice into Nursing Curriculum, University of South Alabama Medical Center

2007-2008 Leadership Conference Advisory Committee, John A. Hartford Foundation

3. *Journal Reviewer*

2004-present The Journal of Pain
2014-2018 Western Journal of Nursing Research
2004-present Clinical Journal of Pain
2004-present Journal of Gerontology: Biological Sciences and Medical Sciences
2013-present Physical Medicine and Rehabilitation
2013-present Pain Medicine and Research
2014-present Pain Medicine
2016-present Pain

4. *Editorial Boards*

2014-present The Journal of Pain
2021-present Non-Pharmacological Treatment of Pain (section of Frontiers in Pain Research)

5. *Editorships*

2001 *Pain Management in Critical Care*, Critical Care Nursing Clinics of North America, 13(2), W. B. Saunders Company

6. *Grant Review Panels*

2009 Mayday Fund, Program for Research Review Committee, Donahue Foundation.
2010-2019 APS, Future Leaders in Pain Research Grants Program
2011 NIH, National Institute on Drug Abuse, Small N43DA-11-2224
2011 Department of Defense, Clinical Trials - Pain (CT-P) peer review panel, Defense Medical Research and Development Program (DMRDP)
2011-2012 Sigma Theta Tau Gamma Chapter Grant Review Panel
2016-2018 NIH, Nursing and Related Clinical Sciences Study Section [NRCS]
2017-2019 Fellowship, Grants and Awards Working Group, IASP
2018 NIH, ZRG1 ETTN-C, Business Grants
2019 NIH, ZRG1 ETTN-C, HEAL Initiative "Helping to End Addiction Long-Term"
2020 NIH, NINR Special Emphasis Panel, ZNR1 REV W
2020 NIH, NINR Special Emphasis Panel, ZNR1 REV C01
2020 NIH, NINR Special Emphasis Panel, ZNR1 M36
2021 NIH, NINR Special Emphasis Panel, ZRGI PSE-W
2021 NIH, NINR Special Emphasis Panel, ZNR1 REV W24
2021-present Chair, DSMB for POSITIVE Study (PI: Vowles and Witkiewitz, New Mexico)
2021 Chair, NIH, NINR Special Emphasis Panel, ZNR1 REV M39

7. *External Faculty Reviews*

2020 *Dr. Mari Griffioen*, University of Delaware College of Health Sciences
2020 *Dr. Yenisel Cruz-Almeida*, Department of Community Dentistry and Behavioral Science at the University of Florida College of Dentistry (UFCD)

B. COLLEGIATE AND UNIVERSITY SERVICE

1. *College of Nursing*

2005-2010 Fellow, Nursing Intervention Classification Center
2007 Member, Secretary Search Task Force, Systems and Practice
2007-2008 Member, MSN Admissions Committee
2007-2009 Member, Simulation Task Force
2007-2009 Junior Faculty Liaison, Research Advisory Committee
2008-2009 Member, Biostatistician Search Task Force, Research Office
2008-2009 Member, PhD Curriculum Review Task Force

2009-2011	Member, Academic Council Committee
2010	Member, BSN NCLEX Review Task Force
2010-2012	Member, Technology Services Advisory Subcommittee
2011-2012	Fellow, John A Hartford Foundation Center of Geriatric Nursing Excellence (HCG)
2013	Member, Near Miss Policy Task Force
2013-2015	Chair, Council on Student Affairs
2013-2015	Member, Governance Leadership Committee
2012-2014	Faculty Mentor, BSN Undergraduates (Class of Dec. 2014)
2012-2020	Internal reviewer, Promotion and Tenure and Reappointment Process
2014-2015	Member, Revised Iowa Model of Evidence-Based Practice to Promote Quality Care Task Force
2015	Member, PhD Course Development Task Force “Biological Markers in Health Research”
2015-2016	Faculty Mentor, BSN Undergraduates (Class of Dec. 2016)
2015-2020	Leader/Facilitator, Pain Interest Group
2015-2017	PhD Core Curriculum Task Force
2016-2020	Co-Chair, Faculty Council
2016-present	Member, Strategic Leadership Group
2017-2020	Faculty Mentor, BSN Undergraduates (Class of May. 2020)
2018-2020	Chair, PhD Admission and Progression Subcommittee
2020-present	Member, PhD Admission and Progression Subcommittee
2020-present	Chair, Research Advisory Committee
2020-present	Member, Executive Leadership Team
2021-present	Member, CON Return to Campus Committee

2. University of Iowa

2001-2003	University of Iowa Biomedical Institutional Review Board, IRB-01
2002-2015	Advanced Practice Institute on Evidence-Based Practice, UIHC, Nursing Dept.
2005-2006	UIHC, Department of Nursing Pain Management Task Force
2005-2013	UIHC, Interdisciplinary Pain Management Subcommittee
2009-2012	University of Iowa Faculty Senate, At-Large Position
2011-2014	Conflict of Interest in Research Committee
2013	UIHC, Pain Management Task Force
2013-2014	Biomedical/Biological Grant Review Committee
2016-2020	Graduate Council
2018	Hearing Panel member representing Graduate Council
2020-present	UIHC Nursing Research Committee
2020-present	UINC Collaboratory/Co-Chair of UINC Research CLG
2020-present	Associate Dean of Research Committee

IV. TEACHING

A. COURSE INSTRUCTION

1. Courses

Semester	University	Assigned Courses	Brief Description
Spring 2003, Spring 2004	University of Iowa	96:173 Clinical Inquiry	4 s.h. didactic course on clinical reasoning, evidence-based practice, and scholarship/scientific writing for MNHP program. 30 – 40 students (co-taught with 3 other UIHC staff).
Summer 2005	University of Iowa	96:178 Therapeutic Nursing Interventions II	4 s.h. didactic course on physiological and behavioral concepts and nursing

			interventions for pre-licensure program (MNHP). 48 students (assisted Dr. Culp).
Fall 2005, Spring 2006, Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008, Spring 2009, Spring 2010, Spring 2011, Spring 2012	University of Iowa	96:135 Complex Concepts of Nursing Care	4 s.h. didactic course on physiological and behavioral concepts and nursing interventions for BSN program. 73 - 95 students.
Fall 2006	University of Iowa	96:460 Innovations in Nursing Management	3 s.h. discussion course on recent innovations in nursing and health care management that impact responsibilities of nurse administrators for PhD program. 4 students (co-taught with Dr. Watson).
Spring 2007	University of Iowa	96:185 Internship of Care Management	14 s.h. practicum course for intensive clinical experience with nurse preceptors for MNHP program. 15 students.
Fall 2009, Fall 2010	University of Iowa	96:143 EXW Research for Nursing Practice	3 s.h. on-line, didactic course on concepts and process of research in nursing for RN-BSN program. 105 - 125 students (co-taught with another faculty member: Dr. Martin 2009, Dr. Ayres 2010).
Spring 2012, Spring 2014	University of Iowa	96:412 (NURS 7310) Methods and Measurement in Clinical Pain Research	2 s.h. synchronous discussion course on issues and challenges related to the conduct of clinical pain research for PhD program. 5-8 students.
Spring 2013	University of Iowa	96:121 (NURS 3138) Nursing and Pharmacologic Interventions I	5 s.h. didactic course on basic biophysical concepts that inform nursing and pharmacological interventions for BSN program. 29 students (taught with Dr. Cram).
Fall 2013, Spring 2014	University of Iowa	96:133 (NURS 3460) Professional Role II: Research	2 s.h. didactic course on understanding and using research evidence in practice for BSN program. 27-54 students.
Fall 2014, Spring 2015, Fall 2015, Spring 2016, Fall 2016, Spring 2017	University of Iowa	96:133 EXV/W (NURS 3460) Professional Role II: Research	2-3 s.h. on-line, didactic course on understanding and using research evidence in practice for RN-BSN program. 20-40 students.
Fall 2017, Fall 2018, Fall 2019	University of Iowa	7310:OEXW Measurement in Health Research	3 s.h. face-to-face/on-line synchronous course on how to develop and employ measures that are operationalized within the context of theories and conceptual models for PhD students. 9 students.

2. Guest Lectures

Spring, 2006	University of Iowa, College of Nursing	<i>Data Analysis, Benchmarking, and Interpretation</i> – Nursing Administration course, Master’s Program.
Fall 2008, 2010, 2011, 2012	University of Iowa, College of Nursing	<i>Osteoarthritis Research</i> - Biology of Aging course, PhD Program
Fall 2008, Spring 2013, Spring 2014, Spring 2015, Spring 2016, Spring 2017, Spring 2018, Spring 2019, Spring 2020, Spring 2021	University of Iowa, Physical Therapy	<i>Osteoarthritis Pain</i> , Mechanism of Pain Transmission course, PhD Program
Summer, 2009, 2010, 2011, 2012	University of Iowa, College of Nursing	<i>Run, Control, and Gant Charts</i> - Capstone Clin Immers Microsys Improv Ldr course, CNL Program
Fall 2010	University of Iowa, Physical Therapy	<i>Clinical Investigation</i> - Mechanism of Pain Transmission course, PhD Program
Fall 2010	University of Iowa, College of Nursing	<i>Measurement Psychometrics</i> - Nursing Theory Construction I, PhD Program
Spring 2012, Spring 2014, Spring 2015	University of Iowa, College of Nursing	<i>Measurement Error and Instrument Reliability</i> - Quantitative Methods course, PhD Program
Fall 2020	University of Iowa, College of Nursing	<i>Measurement of Physiologic Variables – Measurement in Health Research</i>

B. STUDENTS SUPERVISED

1. Postdoctoral Student Advisor

2008-2009	Richard Liebano, Physical Therapy, Brazil	Co-Advisor
2010–2012	Jennifer Lee, Preventive Medicine	Co-Advisor
2010-2012	Maxine Adegbola, Nursing (Texas)	Co-Advisor
2014 - 2016	Kathryn Hadlandsmyth, Psychology	Advisor
2015 - 2019	Ruth Chimenti, Physical Therapy	Co-Advisor
2017-2019	Marcia Shade, Nursing (Nebraska)	Co-Advisor
2018-2020	Heather Dunn, Nursing	Advisor
2019-2020	Catherine Fiala, Nursing	Co-Advisor
2020-present	Kyung Soo Kim	Advisor

2. PhD Student Advisor

2006-2008	Tom Blodgett	Hartford Pre-doc Member
2007-2014	Nicole Petsas-Blodgett	Co-Advisor/Advisor
2009-2017	Deb Shibley	Advisor
2010-2012	Andreanna Steinhoff	Advisor
2013-2015	Lister Onsongo	Advisor
2014-2020	Nicole Bohr	Advisor
2015-2018	Catherine Fiala	Dissertation Advisor
2016-present	Lynn Nakad	Advisor
2019-present	Brian Jacobs	Advisor

2021-present	Samantha Bjornson	Advisor
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3. PhD Comprehensive Exams

2006-2007	Nicole Petsas-Blodgett, Nursing	Committee Member
2006	Leah Shever, Nursing	Committee Member
2008-2009	Mary Peters, Nursing	Committee Member
2008-2009	Hui Chen, Nursing	Committee Member
2009 - 2010	Carol Vance, Physical Therapy	Committee Member
2010 - 2011	Dana Dailey, Physical Therapy	Committee Member
2011	Nicholas Cooper, Physical Therapy	Committee Member
2012	Arliss Dudley-Cash, Neuroscience	Committee Member
2013	Shalome Tonelli, Nursing	Committee Member
2014	Catherine Fiala, Nursing	Committee Member
2014	Deb Shibley, Nursing	Chair
2015	Star Booker, Nursing	Committee Member
2015	Lister Onsongo, Nursing	Chair
2014-2015	Shannon Merkle, Physical Therapy	Committee Member
2017	Nicole Bohr	Chair
2018	Claire Shaw	Committee Member
2019	Lynn Nakad	Chair

4. PhD Dissertations

2006-2007	Leah Shever, Nursing	Committee Member
2008	Mikyoung Lee, Nursing	Committee Member
2008	Hui Chen Tseng, Nursing	Committee Member
2008-2013	Carol Vance, Physical Therapy	Committee Member
2008-2013	Dana Dailey, Physical Therapy	Committee Member
2010-2012	Mary Peters, Nursing	Committee Member
2011-2017	Nicholas Cooper, Physical Therapy	Committee Member
2011-2013	Shalome Tonelli, Nursing	Committee Member
2012-2014	Nicole Petsas-Blodgett, Nursing	Chair
2014-2015	Christine Haedke, Nursing	Committee Member
2015-2016	Shannon Merkle, Physical Therapy	Committee Member
2015-2017	Staja Booker, Nursing	Committee Member
2015-2017	Lister Onsongo, Nursing	Committee Member
2015-2019	Catherine Fiala, Nursing	Chair
2017-2020	Nicole Bohr	Chair
2019-present	Lynn Nakad	Chair
2019-2021	Clair Shaw	Committee Member

5. DNP Projects (minimal work)

2008-2009	Rebecca Villeneuve	Committee Member
2010-2011	Tara Whitmire	Committee Member
2011-2012	Ann Lackman	Committee Member
2013	Whitney Ash	Capstone Committee Member
2014	Wendy Dennis	Capstone Committee Member

6. Doctorate in Physical Therapy (DPT) Students

2006-2007	Messer BR, Miller CA, Mitschelen AC, Ruggle RC	Faculty mentor/advisor for <i>Placebo TENS study</i>
2007-2008	Cooper NA, Adams HJ, Dannen DR, Granquist MJ	Faculty mentor/advisor for <i>Placebo TENS study</i>

2007-2008	Cessna M, Meyer T, Pappas E, Scherrer E	Faculty mentor/advisor for <i>DNIC and TENS study</i>
2008-2009	Franck, CC, Hook, AJ, Little, AS, Plum, JD, Zenor, AN	Faculty mentor/advisor for <i>Tolerance to TENS study</i>
2012-2013	Hanson, R, Heffling, R., March, A, Nicol, J, Tiedt, S, Wittman, K.	Faculty mentor/advisor for <i>Effects of Manual Therapy</i>

7. MSN Theses/Projects/Advising

2005	Thuraya Eid (U. Melbourne)	Committee Member
2006	Tami Seabolt	Committee Member
2006	Jacquelyn Depoorter	Committee Member
2007	Priyanka Hingne (Physical Therapy)	Committee Member
2008-2012	Erin Rindels	Advisor
2010	Casey O'Brien	Committee Member
2010	Jasmine Beverly	Education Preceptor
2011	Lorraine Femino	Education Preceptor

8. Undergraduate Projects

2005	Ann Riesselman	Young Scientist Mentor <i>Analysis and dissemination of postdoc study results to American Pain Society. Hyperalgesia measurement in postsurgical elders.</i>
2005	Melissa Miller	Honors Independent Study Mentor – <i>data collection and entry for Effect of TENS on osteoarthritis pain.</i>
2005-2006	Adelaide Gerling	Honors Independent Study Mentor – <i>student review sessions and individual tutoring, Complex Concepts of Nursing Care</i>
2005-2006	Erin Cohen	Honors Independent Study Mentor – <i>student review sessions and individual tutoring, Complex Concepts of Nursing Care</i>
2006	Heather Hansen	Honors Independent Study Mentor – <i>data collection and entry for TOP (TENS for osteoarthritis pain) study.</i>
2006-2007	Rebecca Reynolds	Honors Independent Study Mentor – <i>student review sessions, Complex Concepts of Nursing Care</i>
2006-2007	Alana Peterson	Honors Independent Study Mentor – <i>student review sessions, Complex Concepts of Nursing Care</i>
2007-2008	Lauren Birkel	Honors Independent Study Mentor – <i>involvement with TENS post TKR study</i>
2007-2008	Lara	Honors Independent Study Mentor – <i>involvement with TENS post TKR study</i>
2007-2008	Alison Gerlach	Honors Independent Study Faculty Advisor – <i>Acute Care Nurse Practitioner role</i>
2007-2008	Kristine Breitbach	Independent Study mentor – <i>involvement with TENS for Osteoarthritis Pain Study</i>
2007-2008	Nicole Bohr	Independent Study Mentor – <i>student review sessions, Complex Concepts of Nursing Care</i>
2007-2009	Kassandra Fisher	Honors Independent Study Mentor – <i>student review sessions, Complex Concepts of Nursing Care</i>
2008	Theresa Parsons	Honors Independent Study Mentor – <i>student tutoring, Complex Concepts of Nursing Care</i>
2008	Megan Buurman	Honors Independent Study Mentor – <i>involvement with TANK study</i>
2008	Alison Truax	Honors Independent Study Mentor – <i>involvement with TANK study</i>
2009	Candace Peterson	CNL Mentor - Robert Wood Johnson Scholar

2011	Patrice Rosenberg	Honors Independent Study Mentor – involvement with TANK study
2011	Maggie Losasso	Honors Independent Study Mentor – involvement with TANK study
2011-2012	Ellen Borhart	Young Scientist Mentor, TENS for Wound Care Procedure Pain
2013-2015	Jason Bussler	Young Scientist Mentor, Anesthesia/Analgesia for TKR project
2014	Shelby Waldschmidt	Honors Independent Study Facilitator – connection with Karen Stenger for UIHC ER experience.
2015	Brianne Benjamin	Honors Independent Study Mentor – involvement with PreACT Study
2015	Lauren Jacobsen	Honors Independent Study Mentor – involvement with PreACT Study
2015-2016	Claire Benschoter	Volunteer, involvement with PreACT Study
2015-2016	Emma Eschkar	Volunteer, involvement with PreACT Study
2017	Emma Eschkar	Honors Independent Study Mentor – comprehension assessment in at-risk Veterans
2017	Casey Gartlan	Honors Independent Study Mentor – APS/Pfizer project
2020	Mathew Meyer	Honors Independent Study Mentor – pain education for DNP practice