

CURRICULUM VITAE

MICHAEL A. SMITH, PHARMD, FCCP, FAAHPM, BCPS

4549 NORTH UNIVERSITY BUILDING, 428 CHURCH ST, ANN ARBOR, MI 48109

OFF: 734-764-5374 | EMAIL: MANDSMIT@MED.UMICH.EDU

CURRENT APPOINTMENTS

November 2023 — Present	Research Health Scientist (25%) Geriatric Research Education and Clinical Center LTC Charles S. Kettles VA Medical Center, Ann Arbor, MI
September 2019 — Present	Clinical Associate Professor Department of Clinical Pharmacy University of Michigan, College of Pharmacy, Ann Arbor, MI

EDUCATION AND TRAINING

July 2012 — June 2013	PGY2 Internal Medicine Pharmacy Residency UPMC Presbyterian Shadyside, Pittsburgh, PA
July 2011 — June 2012	PGY1 Pharmacy Residency UPMC Presbyterian Shadyside, Pittsburgh, PA
August 2007 — April 2011	Doctor of Pharmacy University of Pittsburgh, School of Pharmacy, Pittsburgh, PA
August 2003 — August 2007	Bachelor of Science in Chemistry with a Bioscience Option University of Pittsburgh, Pittsburgh, PA

CERTIFICATION AND LICENSURE

2016 — Present	Pharmacist, Michigan (5302044264)
2014	Teaching and Learning Academy, American College of Clinical Pharmacy
2012, 2019	Board Certified Pharmacotherapy Specialist, Board of Pharmacy Specialties
2012	Mastery of Teaching, University of Pittsburgh, School of Pharmacy
2011 — Present	Pharmacist, Pennsylvania (RP-445521)

ACADEMIC, ADMINISTRATIVE, AND CLINICAL APPOINTMENTS

ACADEMIC APPOINTMENTS

September 2019 — Present	Clinical Associate Professor
November 2015 — August 2019	Clinical Assistant Professor Department of Clinical Pharmacy University of Michigan, College of Pharmacy
July 2013 — November 2015	Assistant Professor of Clinical Pharmacy Department of Pharmacy Practice and Pharmacy Administration University of the Sciences, Philadelphia College of Pharmacy

ADMINISTRATIVE APPOINTMENTS

October 2018 — June 2024 Residency Program Director
Pain Management and Palliative Care PGY2 Pharmacy Residency
University of Michigan Health, Ann Arbor, MI

CLINICAL APPOINTMENTS

November 2015 — December 2023 Clinical Pharmacist Specialist, Pain and Palliative Care
University of Michigan Health, Ann Arbor, MI

July 2013 — November 2015 Clinical Pharmacy Specialist, Adult Internal Medicine
Penn Medicine, Philadelphia, PA

SCHOLARSHIP

Peer-Reviewed Publications

Note: †PharmD student, ‡Pharmacy resident/fellow under my direction

51. Swarm RA, Youngwerth JM, Agne JL, Angheliescu DL, Are M, Buga S, Chwistek M, Cleary J, Copenhaver D, Craig D, Finnes H, Greenlee H, Gupta M, Hansen E, Javed S, Kamdar MM, Kandil E, Mackey S, McDonald A, McGrath K, Moryl N, Nesbit S, Norris J, Paice JA, Poe L, Prsic E, Rabow MW, Rickerson E, Sag A, Sindt J, **Smith MA**, Vorenkamp K, Yang Bruce J, Yoo S. NCCN Clinical Practice Guidelines in Oncology: Adult Cancer Pain, Version 1.2024.

50. Irwin MN, Cooke DA, Berland DW, Marshall VA, **Smith MA**. Efficacy and safety of low dose naltrexone for chronic pain. *J Pain Palliat Pharmacother*. 2024; e-Print.

49. Funk MC, Nash S, Smith A, Barth K, Suzuki J, Rustad JK, Buonocore S, Khandai AC, **Smith MA**, Jin S, Drexler K, Renner JA. Treatment of opioid use disorder in the general hospital. *Am J Psych*. 2023. 180; 8: 594-6.

48. ‡Zerfas I, †McGinn R, **Smith MA**. Pharmacologic management of cancer-related pain in pregnant patients. *Drugs*. 2023; 83 (12): 1067-76.

47. Swarm RA, Youngwerth JM, Agne JL, Angheliescu DL, Are M, Biswas T, Buga S, Chwistek M, Cleary J, Copenhaver D, Craig D, Finnes H, Greenlee H, Hansen E, Javed S, Jones C, Kamdar MM, Kandil E, Mackey S, McDonald A, McGrath K, Moryl N, Nesbit S, Paice JA, Phung P, Poe L, Prsic E, Rabow MW, Rickerson E, Shatsky R, Sindt J, **Smith MA**, Yang Bruce J. NCCN Clinical Practice Guidelines in Oncology: Adult Cancer Pain, Version 1.2023.

46. Chua KP, Waljee JF, **Smith MA**, Bahl S, Nalliah RP, Brummett CM. Estimation of the prevalence of delayed dispensing of opioid prescriptions from U.S. surgeons and dentists. *JAMA Netw Open*. 2022; 5 (5): e2214311.

45. ‡Irwin MN, **Smith MA**. Validation of ICD-9 codes for identification of chronic overlapping pain conditions. *J Pain Palliat Pharmacother*. 2022;36(3):166-77.

44. ‡Quirk K **Smith MA**. Risk factors for the development of neuropsychiatric adverse effects in ketamine-treated pain. *J Pain Palliat Pharmacother*. 2022; 36(2): 88-94.

43. ‡Dela Pena J, Marshall V, **Smith MA**. Impact of NCCN guideline adherence in adult cancer pain on length of stay. *J Pain Palliat Pharmacother*. 2022; 36(2): 95-102.
42. ‡Elijah J, †Powell K, **Smith MA**. The efficacy of capsaicin on sleep quality and fatigue in fibromyalgia. *J Pain Palliat Pharmacother*. 2022; 36 (2): 112-6.
- #41. ‡Spreen LA, †Dittmar EN, Quirk KC, **Smith MA**. Buprenorphine initiation strategies for opioid use disorder and pain management: A systematic review. *Pharmacother*. 2022; 42: 411-27.
40. Kral LA, Bettinger JJ, Vartan CM, Hadlandsmyth K, Kullgren J, **Smith MA**. A survey on opioid tapering practices, policies, and perspectives by pain and palliative care pharmacists. *J Pain Palliat Pharmacother*. 2022; 36 (1): 2-10.
39. Swarm RA, Youngwerth JM, Agne JL, Anghelescu DL, Are M, Buga S, Chwistek M, Copenhaver D, Craig D, Finnes H, Greenlee H, Hansen E, Kamal AH, Kamdar MM, Kandil E, Mackey S, McDonald A, McDowell MR, McGrath K, Moryl N, Nesbit S, O'Connor N, Paice JA, Phung P, Prsic E, Rabow MW, Rickerson E, Shatsky R, Sindt J, **Smith MA**, Yang Bruce J. NCCN Clinical Practice Guidelines in Oncology: Adult Cancer Pain, Version 1.2022.
38. ‡Kadouh N, Lang S, Shamoun M, Scott E, Singh SA, **Smith MA**. Mexiletine: an adjuvant option for refractory pain in patients with sickle cell disease and comorbid autism spectrum disorder. *Pediatr Blood Cancer*. 2022. e29526.
37. ‡Irwin M, Ellingrod V, **Smith MA**. Pharmacogenetics of methadone for pain management in palliative care. *J Pain Symptom Manage*. 2022; 63 (1): e142-5.
36. ‡Irwin M, Gunther W, Keefer P, Saul D, Singh SA, Wright J, **Smith MA**. Buprenorphine for chronic pain in a pediatric patient with sickle-cell disease. *J Pain Symptom Manage*. 2021; 62 (5): 1086-91.
35. ‡Irwin M, ‡Quirk K, †Banner A, †Hosseini K, **Smith MA**. Strategies for rotation between gabapentinoids in the inpatient setting. *J Pain Palliat Pharmacother*. 2021; 35 (1): 13-22.
34. Swarm RA, Youngwerth JM, Anghelescu DL, Are M, Buga S, Chwistek M, Craig D, Finnes H, Gafford E, Greenlee H, Hansen E, Kamal AH, Kamdar MM, Kandil E, LeGrand S, Mackey S, McDonald A, McDowell MR, Moryl N, Nesbit S, O'Connor N, Paice JA, Phung P, Rabow MW, Rickerson E, Shatsky R, Sindt J, **Smith MA**, Yang Bruce J. NCCN Clinical Practice Guidelines in Oncology: Adult Cancer Pain, Version 2.2021.
33. ‡Irwin M, Petersen K, **Smith MA**. Rapid buprenorphine induction for cancer pain in pregnancy. *J Pall Med*. 2021; 24 (8): 1257-62.
32. Thiel M, Harden K, Brazier LJ, Marks A, **Smith MA**. Improving the interdisciplinary clinical education of a palliative care program through improvement initiatives. *Pall Med Rep*. 2020; 1 (1): 270-9.

31. Coon SA, Hill LG, Hutchison RW, Arnold LM, Jarrett JB, Ottney AR, Oung AB, Painter NA, **Smith MA**, Stranges PM, Tran TH, McFee Winans AR, Bratberg JP. Mobilizing pharmacists to address the opioid crisis, a joint opinion of the Ambulatory Care and Adult Medicine Practice and Research Networks of the American College of Clinical Pharmacy. *J Am Coll Clin* 2020; 3: 1493-1513.
30. Cho K, Ashjian EJ, **Smith MA**, Pai AB. Approaches to medication management in patients with kidney failure opting for conservative management. *Nephrol Nurs J*. 2020; 47 (4): 319-71.
29. ‡Quirk K, Wright J, Marks A, **Smith MA**. Sublingual buprenorphine for pediatric cancer pain: a case report and review of the literature. *J Pain Symptom Manage*. 2020; 60 (5): 1055-8.
28. McGinness T, **Smith MA**, Waite LH. Impact of a problem-based learning elective on performance in non-problem-based learning required courses. *Curr Pharm Teach and Learn*. 2020; 12 (12): 1470-6.
27. Lagisetty P, Smith A, Antoku D, Winter S, **Smith MA**, Jannausch M, Choe HM, Bohnert ASB, Heisler M. A physician-pharmacist collaborative care model to prevent opioid misuse. *Am J Health-Syst Pharm*. 2020; 77: 771-80.
26. ‡Quirk K, **Smith MA**. Acetaminophen in patients receiving strong opioids for cancer pain. *J Pain Palliat Pharmacother*. 2020; 34 (4): 197-202.
25. †Godley E, **Smith MA**. Efficacy of acupuncture for chronic low back pain: A systematic review. *Complement Clin Ther Pract*. 2020; 39: 101146.
24. **Smith MA**, ‡Quirk K, Saul D, Rodgers P, Silveira MJ. Comparing methadone rotation to consensus opinion. *J Pain Symptom Manage*. 2020; 59: 116-20.
23. Thiel M, Harden K, Brazier LJ, Marks A, **Smith MA**. Evaluation tools for interdisciplinary palliative care learning experiences - a literature review. *J Pall Med*. 2020; 25 (5): 698-702.
22. †Walter KS, †Gillespie H, †Moqbel D, Choe HM, **Smith MA**. The impact of palliative care interventions on medication regimen complexity. *J Pall Med*. 2020; 23 (2): 156-7.
21. Swarm RA, Youngwerth JM, Anghelescu DL, Are M, Buga S, Chwistek M, Cleeland C, Craig D, Finnes H, Gafford E, Greenlee H, Hansen E, Kamal AH, Kamdar MM, LeGrand S, Mackey S, McDowell MR, Moryl N, Nabell LM, Nesbit S, O'Connor N, Paice JA, Rabow MW, Rickerson E, Shatsky R, Sindt J, **Smith MA**, Yang Bruce J. NCCN Clinical Practice Guidelines in Oncology: Adult Cancer Pain, Version 1.2020.
20. Caudle KE, Gammal RS, Karnes JH, Afanasjeva J, Anderson KC, Barreto EF, Beavers C, Bhat Shubha, Birrer KL, Chahine EB, Ensor CR, Flowers SA, Formea CM, George JM, Gosser RA, Hebert MF, Karaoui LR, Kolpek JH, Lee JC, Leung JG, Maldonado AQ, Minze MG, Pulk RA, Shelton CM, Sheridan M, **Smith MA**, Soefje S, Tellez-Corrales E, Walko CM, Cavallari LH. PRN Opinion Paper: Application of precision medicine across pharmacy specialty areas. *Journal of the American College of Clinical Pharmacy*. 2019; 2: 288-302.

19. †Jaward L, O'Neil TA, Marks A, **Smith MA**. Differences in adverse effect profiles of corticosteroids in palliative care patients. *Am J Hosp Palliat Med*. 2019; 36 (2): 158-68.
18. Vordenberg SE, **Smith MA**, Diez HL, Remington TL, Bostwick JR. Using the Plan-Do-Study-Act (PDSA) model for continuous quality improvement of an established simulated patient program. *Innovations in Pharmacy*. 2018; 9 (2): Article 19.
17. **Smith MA**, †Cho K, Rodgers P. Provider perspectives on topical analgesics. *J Pain Palliat Care Pharmacother*. 2018; 32 (1): 44-8.
16. ‡Dadiomov D, Keefer P, **Smith MA**. Using the LACE score as a predictor of clinical outcomes in patients referred for inpatient palliative care consultation: A single center experience. *Am J Hosp Palliat Med*. 2018; 1049909118793170.
15. †Pickmans L, **Smith MA**, Keefer P, Marks A. Management of ischemic limb pain #352. *J Pall Med*. 2018; 21 (5): 720-1.
14. Owusu Obeng A, Hamadeh I, **Smith MA**. Review of opioid pharmacogenetics and considerations for pain management. *Pharmacother*. 2017; 37 (9): 1105-21.
13. **Smith MA**, Waite LH. Utilization of a virtual patient for advanced assessment of student performance in pain management. *Curr Pharm Teach Learn*. 2017; 9 (5): 893-7.
12. †Gillespie H, **Smith MA**, O'Neil TA. Transplant medication management for patients nearing end-of-life #333 *J Pall Med*. 2017; 20 (8); 895-6.
11. Alpert CM, **Smith MA**, Hummel SL, Hummel EK. Symptom burden in heart failure: assessment, impact on outcomes, and management. *Heart Fail Rev*. 2017; 22: 25-39.
10. **Smith MA**, Siemianowski LA, Benedict NJ. Virtual patient case sharing across two schools of pharmacy. *Am J Pharm Educ*. 2016; 80 (9): Article 153.
9. **Smith MA**, Regal RE, Mohammad RA. Daclatasvir: A NS5A replication complex inhibitor for hepatitis c infection. *Ann Pharmacother*. 2016; 50 (1): 39-46.
8. **Smith MA**, Lim A. Profile of paritaprevir/ritonavir/ombitasvir plus dasabuvir in the treatment of chronic hepatitis c virus (HCV) genotype 1 infection. *Drug Des Dev Ther*. 2015; 9: 6083-94.
7. **Smith MA**, Love BL, Mohammad RA. The changing landscape of adverse drug events associated with chronic hepatitis c virus therapy. *Expert Opin Drug Safety*. 2015; 14 (11): 1649-52.
6. **Smith MA**, Chan J, Mohammad RA. Ledipasvir-sofosbuvir: interferon-/ribavirin-free regimen for chronic hepatitis c virus infection. *Ann Pharmacother*. 2015; 49 (3): 343-50.

5. **Smith MA**, Benedict NJ. Effectiveness of educational technology to improve patient care in pharmacy curricula. *Am J Pharm Educ.* 2015; 79 (1): Article 15.
4. **Smith MA**, Mohammad RA. Vedolizumab: an $\alpha 4\beta 7$ integrin inhibitor for inflammatory bowel diseases. *Ann Pharmacother.* 2014; 48 (12): 1629-35.
3. **Smith MA**, Mohammad RA, Benedict NJ. Use of virtual patients in an advanced therapeutics pharmacy course to promote active, patient-centered learning. *Am J Pharm Educ.* 2014; 78 (6): Article 125.
2. **Smith MA**, Johnson HJ, Chopra K, Dunn M, Ulrich A, Mohammad RA. Incidence and management of rash in telaprevir-treated patients. *Ann Pharmacother.* 2014; 48 (9): 1166-71.
1. **Smith MA**, Hibino M, Falcione BA, Eichinger KM, Patel R, Empey KM. Immunosuppressive aspects of analgesics and sedatives used in mechanically ventilated patients: an underappreciated risk factor for the development of ventilator-associated pneumonia in critically ill patients. *Ann Pharmacother.* 2014; 48 (1): 77-85.

Invited, Non Peer-Reviewed Publications

1. **Smith MA**, Mohammad RA. Ledipasvir-sofosbuvir for hepatitis C genotype 4 infection. *Lancet Infect Dis.* 2015; 15 (9): 993-5.

Book Chapters

5. Irwin MN, **Smith MA**. Acute Pain Management. In: Matthias KR, Katz MED eds. *Pharmacotherapy Principles and Practice Study Guide: A Case Based Care Plan Approach*, 6th ed. New York: McGraw Hill Medical; 2023. ISBN 978-1-264-27891-6.
4. **Smith MA**. Chronic Non-Cancer Pain Management. In: Murphy JE, Lee MW, eds. *Pharmacotherapy Self-Assessment Program, 2022 Book 2. Current Issues in Pharmacotherapy*. Lenexa, KS: American College of Clinical Pharmacy. 2022; 141-66.
3. **Smith MA**. Bone Pain in Metastatic Disease: NSAIDs and Corticosteroids. In: Herndon CM, ed. *Pain: What Do I Do Now? Palliative Care*. Oxford University Press. New York, NY; 2022: 251-5.
2. **Smith MA**. "New Guidelines for Management of Low Back Pain." *Pharmacotherapy Updates*, 13 March 2017. McGraw-Hill, New York, NY, 2017. *AccessPharmacy*. <http://accesspharmacy.mhmedical.com/updatesContent.aspx?gbosid=354423§ionid=155769250>.
1. Mohammad RA, **Smith MA**. Biologic Therapies for Gastrointestinal Diseases. In: Murphy JE, Lee MW, eds. *Pharmacotherapy Self-Assessment Program, 2014 Book 2. Chronic Illnesses*. Lenexa, KS: American College of Clinical Pharmacy, 2014: 261 - 289.

Other Publications

1. Funk MC, Nash S, Smith A, Barth K, Suzuki J, Rustad JK, Buonocore S, Khandai AC, **Smith MA**, Jin S, Drexler K, Renner JA. APA Resource Document on the Treatment of Opioid Use Disorder in the General Hospital. American Psychiatric Association. <https://www.psychiatry.org/Psychiatrists/Search-Directories-Databases/Resource-Documents/2022/Treatment-of-Opioid-Use-Disorder-in-the-General-Hospital.pdf>

Grant Funding - Active

K08 (AWD: 1K08AG0810505), NIH - National Institute on Aging (PI: Smith).

Dates: 12/01/23-11/30/28 Effort: 75%. \$810,000 Total Costs

Centralized Pain Management in Older Adult Cancer Survivors

This study will utilize SEER-Medicare data in a mixed methods design to evaluate the determine the effect of age on developing centralized pain, examining medication use, and identifying barriers to centralized pain management in older adult cancer survivors.

Upjohn Award, University of Michigan College of Pharmacy (PI: Smith).

Dates: 05/01/23-04/30/24 Effort: 15%. \$50,000 Total Costs

Identifying Inequities in the Diagnosis and Management of Centralized Pain in Older Adults

This study will utilize Medicare data to evaluate the disparities in the diagnosis and management of centralized pain in older adults through the use of diagnosis codes and medication claims.

Grant Funding - Completed

Society of Pain and Palliative Care Pharmacists, Pilot Grant (PI: Irwin). Mentor.

Dates: 01/01/23-12/31/23 Effort: 0%. \$5,000 Total Costs

Pharmacist Interventions for Insomnia in Palliative Care: Key Stakeholder Perspectives

The study seeks to understand the barriers and opportunities to expand access to cognitive behavioral therapy for insomnia for palliative care patients using pharmacist provided interventions.

Eisenberg Family Depression Center, Research Incubator Program (PI: Smith).

Dates: 09/01/22-08/31/23 Effort: 0%. \$0 Total Costs

Relationship of Depression and Centralized Pain in Older Adults

The Data & Design Core at the Eisenberg Family Depression Center supports emerging scholars through the Research Incubator program. This study will utilize administrative data to understand the relationships between aging, depression, and centralized pain in older adults.

Claude D. Pepper Older Americans Independence Centers, Pilot and Exploratory Studies Core (PI: Smith).

Dates: 07/01/22-06/30/23 Effort: 0%. \$20,000 Total Costs

Intersection of Insomnia and Centralized Pain in Older Adults: Effects on Medication Use

This study will utilize administrative data to understand medication use in the context of how centralized pain and insomnia mediate the interaction between age and potentially inappropriate medication use.

Duellman Scholarship University of Michigan College of Pharmacy (PI: Irwin). Mentor.

Dates: 07/01/22-06/30/23 Effort: 0%. \$20,000 Total Costs

Patterns of Opioid Use for Centralized Pain in Older Adults.

The goal of this study is to explore the use of opioids and non-opioids for older adults with centralized pain in administrative data.

University of Michigan, Pilot and Exploratory Projects in Palliative Care (PI: Smith).

Dates: 03/01/22-02/28/23 Effort: 0%. \$20,000 Total Costs

Quality of Life and Potentially Inappropriate Medications in Older Adult Cancer Survivors.

This study will utilize SEER-MHOS data to evaluate potentially inappropriate medication use and quality of life in older adult cancer survivors who report pain.

E20221872-00 Michigan Department of Health and Human Services (PI: Englesbee). Co-Investigator.

Dates: 10/01/21-09/30/22 Effort: 5%. \$2,510,071 Total Costs

Michigan Opioid Prescribing Engagement Network

The overall goal of this initiative is to reduce the number of opioids prescribed to surgical patients by 50%, reduce new chronic post-operative opioid use by 50%, and reduce opioid diversion into our communities.

E20213445-001 Michigan Department of Health and Human Services (PI: Brummett). Co-Investigator.

Dates: 10/01/21-09/30/22 Effort: 5%. \$499,481 Total Costs

Michigan Opioid Prescribing Engagement Network

The overall goal of this initiative is to reduce the number of opioids prescribed to surgical patients by 50%, reduce new chronic post-operative opioid use by 50%, and reduce opioid diversion into our communities.

Claude D. Pepper Older Americans Independence Centers (PI: Yung). Research Education Core Scholar.

Dates: 07/01/21-06/30/23 Effort: 40%. \$40,000 Total Costs

REC Scholar: Centralized Pain in Older Adult Cancer Survivors

The overall goal of this project is to recruit, select, support, mentor, and train junior faculty to become independent investigators in aging-related research and academic leaders in geriatrics and gerontology within their respective disciplines.

E20213443-001 Michigan Department of Health and Human Services (PI: Brummett). Co-Investigator.

Dates: 10/01/20-09/30/21 Effort: 5%. \$2,156,243 Total Costs

Michigan Opioid Prescribing Engagement Network

The overall goal of this initiative is to reduce the number of opioids prescribed to surgical patients by 50%, reduce new chronic post-operative opioid use by 50%, and reduce opioid diversion into our communities.

Duellman Scholarship University of Michigan College of Pharmacy (PI: Smith).

Dates: 02/01/20-01/31/22 Effort: 0%. \$35,000 Total Costs

Electronic monitoring of non-opioid adherence compared to opioid adherence in patients at risk for misuse.

The overall goal of this study is to pilot the use of medication event monitoring systems in patients with pain who utilize opioids and non-opioids.

MCubed University of Michigan (PI: Silveira). Role. Co-Investigator.

Dates: 02/01/20-01/31/22

Effort: 0%.

\$60,000 Total Costs

Electronic monitoring of opioid adherence in patients at risk for misuse.

The overall goal of this study is to pilot the use of medication event monitoring systems in patients with pain who utilize opioids.

Interprofessional Education Exchange (iPEX). National Cancer Institute (PI: Marks). Role. Co-Investigator.

Dates: 06/01/18-05/31/19

Effort: 0%.

\$0 Total Costs

Standardization of clinical education in interdisciplinary palliative care.

The overall goal of this study is to develop a standardized interprofessional education program for palliative care learners in the clinical setting.

Blue Cross Blue Shield of Michigan Foundation (PI: Lagisetty). Role. Co-Investigator.

Dates: 06/01/18-05/31/19

Effort: 10%.

\$75,000 Total Costs

Physician-pharmacist collaborative to enhance safe opioid and buprenorphine prescribing.

The overall goal of this study is to test the acceptability and feasibility of a collaborative practice model with specialized pharmacist helping to manage patients with chronic pain.

MICHR Pilot Research Project Grant. (PI: Smith).

Dates: 01/26/17-01/25/18

Effort: 0%.

\$5,000 Total Costs

Exploring the pharmacogenetics of methadone rotation in palliative care patients

The goal of this study is to analyze the relationship between the pharmacogenetics of methadone and a successful rotation in palliative care patients with pain.

Invited Lectures/ Continuing Education Presentations

*Denotes health disparities work

NATIONAL

11. Stevenson MH, **Smith MA**. Acute Pain Treatment for Patients Taking Buprenorphine. Society of Pain and Palliative Care Pharmacists - Buprenorphine CE Series. October 2023.
10. **Smith MA**. Buprenorphine Initiation Strategies: Pharmacology & Pitfalls. VISN-16 Veterans in Pain - Pain Management, Opioid Safety and Suicide Prevention (VIP-POST) Conference, 2023. July 2023. New Orleans, LA.
9. **Smith MA** (Panelist). Considerations for Buprenorphine Initiation and Maintenance Care: Buprenorphine Initiation in the Inpatient Setting. Reagan-Udall Foundation for the FDA - Virtual Public Meeting. May 2023.
8. **Smith MA**. Alternative Initiation Strategies with Buprenorphine for Opioid Use Disorder. American Association of Psychiatric Pharmacists - Annual Meeting. Atlanta, GA. April 2023.
7. **Smith MA**. Pain Management and Judicious Opioid Use. PharmCon - FreeCE. May 2022.
6. **Smith MA**. Optimal Treatment Choices for Pain Management with OTCs. Altarum. April 2020. Narrated.
5. **Smith MA**, Aronson S. Assessing and Managing Pain in Dementia and Serious Mental Illness. Clinical Issues in the Care of Older Adults - Palliative Care CME Conference. Hosted by Michigan Medicine. September 2019.

4. **Smith MA.** Pain Pharmacology 101: Clinical Applications. International Pelvic Pain Society. Washington, DC. October 2017.

3. **Smith MA.** Updates in Pain Management. Clinical Issues in the Care of Older Adults - Palliative Care CME Conference. Hosted by Michigan Medicine. September 2017.

2. **Smith MA,** Hummel EK. Nuts and Bolts of Using Opioids. Clinical Issues in the Care of Older Adults - Palliative Care CME Conference. Hosted by Michigan Medicine. September 2017.

1. Moderator. Pharmacotherapy Advances and Nutrition in the Management of Patients with IBD and IBS. ACCP Annual Meeting. San Francisco, CA. October 2015.

STATE

23. **Smith MA.** Pain Management. MSHO Great Lakes Cancer Conference. October 2023.

22. **Smith MA.** Complex Patient Cases - Pain. Southeast Michigan HPM Fellowship Seminar. September 2023.

21. **Smith MA.** Ketamine for Depression in Palliative Care and Hospice. Medical Affairs Conference. Hospice of Michigan. May 2023.

20. **Smith MA.** The Ins and Outs of Buprenorphine. Medical Affairs Conference. Hospice of Michigan. May 2023

19. **Smith MA.** Advanced Pharmacologic Pain Management: Buprenorphine and Methadone. Southeast Michigan HPM Fellowship Seminar. September 2022.

18. **Smith MA.** Advanced Pharmacologic Pain Management. Southeast Michigan HPM Fellowship Seminar. September 2021.

17. **Smith MA.** Anticoagulation in Palliative Care and Hospice. Medical Affairs Conference. Hospice of Michigan. June 2021.

16. **Smith MA.** End of Life Management. Michigan Oncology Quality Consortium Webinar Series. January 2021.

15. **Smith MA.** Nausea and Vomiting Mechanisms and Management. Michigan Oncology Quality Consortium Webinar Series. January 2021.

14. **Smith MA.** Anxiety and Depression Mechanisms and Management. Michigan Oncology Quality Consortium Webinar Series. January 2021.

13. **Smith MA.** Advanced Pharmacologic Pain Management. Southeast Michigan HPM Fellowship Seminar. September 2020.

12. **Smith MA.** Marijuana Drug Interactions. Michigan Pharmacists Association. Virtual Law and Policy Symposium. April 2020.
11. **Smith MA.** Pain Mechanisms and Management. Michigan Oncology Quality Consortium Webinar Series. March 2020.
10. **Smith MA.** Not Quite the Kitchen Sink: Pain Management. Michigan Oncology Quality Consortium Biannual Meeting. January 2020.
9. **Smith MA.** Clinical Pearls for Medication Use in End of Life Care. Michigan Oncology Quality Consortium Biannual Meeting. June 2019.
8. **Smith MA.** Delirium Management. Hospice of Michigan. June 2019.
7. **Smith MA.** Opioids in the Michigan Dental Practice. Southwest District Dental Society. January 2019.
6. **Smith MA.** Pain Management. The Power of Palliative and End-of-Life Care. Michigan Medicine. October 2018.
5. **Smith MA.** Tapering Opioids and Psychotropic Medications. Michigan Pharmacists Transforming Care & Quality. Okemos, MI. January 2018.
4. Heys L, **Smith MA.** Symptom Management Breakout. The Power of Palliative and End-of-Life Care. Michigan Medicine. October 2017.
3. Heys L, **Smith MA.** Pain Management Breakout. The Power of Palliative and End-of-Life Care. Michigan Medicine. October 2017.
2. **Smith MA.** Pain Management. The Power of Palliative and End-of-Life Care. Michigan Medicine. October 2017.
1. **Smith MA.** Management of Chronic, Non-Terminal Pain. Michigan Council of Nurse Practitioners Annual Conference. Detroit, MI. March 2017.

LOCAL

22. **Smith MA.** Pain Mechanisms, Assessment, and Management. HPM Fellow Orientation. University of Michigan Health. July 2023.
21. **Smith MA.** How and When to Bup. Corewell Health Lunch and Learn. June 2023.
20. **Smith MA.** Updated Guidelines for Prescribing Opioids. Tom D. Rowe Annual Pharmacy Lectures. University of Michigan College of Pharmacy. October 2022.

- *19. Janevic M, Robinson-Lane S, **Smith MA**. Racial/Ethnic Disparities in Pain Management. 32nd Annual MLK Health Sciences Program. University of Michigan. February 2022.
18. **Smith MA**. Centralized Pain in Older Adult Cancer Survivors. University of Michigan Claude D. Pepper Older Americans Independence Center. Research Education Core Seminar. September 2021.
- *17. **Smith MA**. Race in Healthcare: Racial Bias and Pain Treatment. University of Michigan College of Pharmacy. March 2021.
16. **Smith MA**. Opioid Awareness Training. Tom D. Rowe Annual Pharmacy Lectures. University of Michigan College of Pharmacy. October 2020.
15. **Smith MA**. Benzodiazepine Pharmacology. University of Michigan Safer Benzodiazepine Management Symposium. June 2019.
14. **Smith MA**. What a Pain. University of Michigan Pharmacy Innovations and Partnerships Annual Retreat. April 2019.
13. †Rondon L, **Smith MA**. Sleep Aids. Hot Topics Webinar. Michigan Pharmacists Transforming Care and Quality. September 2017.
12. **Smith MA**. Neuropathic Pain. Hot Topics Webinar. Michigan Pharmacists Transforming Care and Quality. April 2017.
11. **Smith MA**. Chronic Non-Terminal Pain: Opioid Based Treatment. Hot Topics Webinar. Michigan Pharmacists Transforming Care and Quality. December 2016.
10. **Smith MA**. Chronic Non-Terminal Pain: Non-Opioid Based Treatment. Hot Topics Webinar. Michigan Pharmacists Transforming Care and Quality. November 2016.
9. **Smith MA**. Are All KPC's Created Equally: A Phenotypic Characterization. Seminar Presentation. UPMC Presbyterian Shadyside. Pittsburgh, PA. June 2013.
8. **Smith MA**. Management and Complications of Ascites. Pharmacy Grand Rounds. UPMC Presbyterian Shadyside. Pittsburgh, PA. May, 2013.
7. **Smith MA**. Antibiotic Use for the Prevention of COPD Exacerbations. Seminar Presentation. UPMC Presbyterian Shadyside. Pittsburgh, PA. October 2012.
6. **Smith MA**, Patel R. Updates in Incretin Analogues for Diabetes. Pharmacy Grand Rounds. UPMC Presbyterian Shadyside. Pittsburgh, PA. May 2012.
5. **Smith MA**. Immunosuppressive Effects of Fentanyl and Dexmedetomidine in Critically-ill Patients who Develop Ventilator-Associated Pneumonia. Platform Presentation. Eastern States Conference 2012. Hershey, PA. May 2012.

4. **Smith MA.** From Student to Pharmacist: A Prescription for Success. Invited Presentation. University of Pittsburgh School of Pharmacy. Pittsburgh, PA. April 2012.
3. **Smith MA.** Immunosuppressive Effects of Fentanyl and Dexmedetomidine in Critically-ill Patients who Develop Ventilator-Associated Pneumonia. Seminar Presentation. UPMC Presbyterian Shadyside. Pittsburgh, PA. April 2012.
2. **Smith MA.** Bad Blood. Platform Presentation. UPMC Presbyterian Shadyside. Pittsburgh, PA. December 2011.
1. **Smith MA.** Ketamine use in the Critically Ill. Seminar Presentation. UPMC Presbyterian Shadyside. Pittsburgh, PA. November 2011.

Scientific Presentations

PLATFORM

10. Quirk K, Bazzi RM, Kullgren J, **Smith MA.** Unlikeliest Friends: Michigan and Ohio State or Buprenorphine and Palliative Care? AAHPM Annual. Nashville, TN. February 2022.
9. Marks A, O'Neil TA, **Smith MA.** Balancing the Double-Edged Sword: Appropriate Use of NSAIDs for Symptom Management. AAHPM Annual. Virtual. February 2021.
8. Marks A, O'Neil TA, **Smith MA.** Balancing the Double-Edged Sword: Appropriate Use of NSAIDs for Symptom Management. AAHPM Annual. San Diego, CA. March 2020. (Canceled due to COVID-19)
7. ‡Quirk K, Marks A, Wright J, **Smith MA.** Sublingual buprenorphine to treat pediatric cancer pain. AAHPM Annual. San Diego, CA. March 2020. (Canceled due to COVID-19)
6. O'Neil TA, Marks A, **Smith MA.** 'Roid Rage No More: A Review of Corticosteroid Adverse Drug Effects in Palliative Care Patients. AAHPM Annual. Orlando, FL. March 2019.
5. **Smith MA.** Virtual Patient Technology in Pharmacy Education. AACP Technology in Pharmacy Education and Learning Special Interest Group Webinar. November 2016.
4. **Smith MA,** Benedict N. Virtual Patient Case Sharing Across Schools of Pharmacy. Mini-Session. AACP Annual Meeting. Anaheim, CA. July 2016.
3. **Smith MA.** Molecular and Phenotypic Characteristics of KPC-Kp Strains are Associated With Clinical Outcomes in Transplant Recipients With Bacteremia. Slide Session. ICAAC 2013. Denver, CO. September 2013.
2. **Smith MA.** Evaluating the Incidence and Treatment of Telaprevir-Induced Rash. Platform Presentation. GI/Liver/Nutrition PRN of ACCP. Hollywood, FL. October 2012.
1. **Smith MA,** Mascara G, Gardner E. Therapeutic Class Review: Eltrombopag and Romiplostim. AMCP/FMCP National P&T Competition, AMCP Annual Meeting and Showcase. San Diego, CA. April 2010.

POSTER

†Indicates pharmacy learner under my direction

43. Nixdorf N, Marks A, **Smith MA**. Rivastigmine and the cholinergic components of pain: A case study. AAHPM Annual Meeting. Phoenix, AZ. March 2024.

42. Eliach R, Taylor M, **Smith MA**. Buprenorphine use for complex pain in a patient with HIV/AIDS and inoperable epidural abscess. AAHPM Annual Meeting. Phoenix, AZ. March 2024.

41. †Zerfas I, Sayyae A, **Smith MA**. Effectiveness, safety, and methods of serotonin-norepinephrine reuptake inhibitor switching in the setting of neuropathic pain. ASHP Midyear Clinical Meeting (Vizient). Anaheim, CA. December 2023.

40. †Meyer KB, **Smith MA**. Impact of adverse childhood experiences on marijuana use among adults in the U.S. ASHP Midyear Clinical Meeting. Anaheim, CA. December 2023.

39. **Smith MA**, †Dean M, †Irwin MN. The intersection of insomnia and centralized pain in older adults. The Gerontological Society of America. Tampa, FL. November 2023.

38. †Sabharwal B, Lawal N, **Smith MA**. Conversion factors of full agonist opioids to buprenorphine in palliative care patient.. ACCP Annual Meeting. Dallas, TX. October 2023.

37. †Irwin MN, Marshall V, **Smith MA**. Centralized pain management in older adults with and without cancer. OAIC National Meeting. Arlington, VA. April 2023.

36. †Dean MJ, **Smith MA**, †Irwin MN. Intersection of insomnia and centralized pain in older adults: effects on medication use. ASHP Midyear Clinical Meeting (Vizient). Las Vegas, NV. December 2022.

35. †Schwery A, †Irwin MN, **Smith MA**. Prevalence of chronic overlapping pain conditions in older adults with and without cancer. ACCP Global Conference. San Francisco, CA. October 2022.

34. †Bazzi R, Kullgren J, Menke N, **Smith MA**, Quirk K, DiClemente J. Evaluation of the safety and efficacy of using transdermal buprenorphine vs. buccal buprenorphine as a method to buprenorphine initiation. ACCP Global Conference. San Francisco, CA. October 2022.

33. †Irwin MN, **Smith MA**. Low dose naltrexone for management of chronic pain in adults. ACCP Global Conference. San Francisco, CA. October 2022.

32. †Marriott M, **Smith MA**. Prevalence of Chronic Overlapping Pain Conditions in Adult Cancer Patients. ASHP Midyear Clinical Meeting (Vizient). Virtual. December 2021.

31. † DeMarco R, †Banner A, **Smith MA**. Correlation between residency offered mentorship and supportive resources in PGY1 perceived burnout levels. ASHP Midyear Clinical Meeting. Virtual. December 2021.

30. McDevitt S, Heys L, **Smith MA**, Knight C, Moles V, McLaughlin V. Dyspnea management in a group 3 pulmonary hypertension patient: a palliative care case report. PHA PHPN Symposium. September 2021.

29. Kadouh NK, Poyer AK, **Smith MA**, Bostwick JR. The future of academia: does burnout affect PharmD students' attitudes towards pursuing an academic career? Pharmacy Education 2021: AACP Annual Meeting. July 2021.
28. Baldwin N, Dammeyer J, **Smith MA**. Pairing the respiratory distress observation scale with standardized opioid administration at end of life. Nurse Poster Day. University of Michigan. May 2021.
27. †Irwin MN, Guenter W, Keefer T, Saul D, Wright J, **Smith MA**. Buprenorphine induction for sickle-cell pain in a pediatric patient. AAHPM Annual Meeting. Virtual. February 2021.
26. †Irwin MN, †Banner A, †Hosseini K, **Smith MA**. Strategies for rotation between gabapentinoids in the inpatient setting. ACCP Annual Meeting. Virtual. October 2020.
25. †Irwin M, **Smith MA**. Gabapentinoid conversions. ASHP Midyear Clinical Meeting (Vizient). Las Vegas, NV December 2019.
24. †Quirk K, **Smith MA**. Risk factors for the development of neuropsychiatric events in ketamine treated pain. ASHP Midyear Clinical Meeting (Vizient). Las Vegas, NV. December 2019.
23. †To C, **Smith MA**. Evaluation of controlled substance agreements in patients with cancer. ACCP Annual Meeting. New York, NY. October 2019.
22. †Quirk K, **Smith MA**. Medicine in search of evidence: the use of acetaminophen in patients receiving strong opioids for cancer pain. ACCP Annual Meeting. New York, NY. October 2019.
21. Lagisetty P, †Smith A, Winter S, **Smith MA**, Bohnert A, Heisler M. Physician-Pharmacist Collaborative Care Models to Prevent Opioid Misuse: A Pilot Study. Academy Health Annual Research Meeting. June 2019.
20. Lagisetty P, †Smith A, Winter S, **Smith MA**, Bohnert A, Heisler M. Physician-Pharmacist Collaborative Care Models to Prevent Opioid Misuse: A Pilot Study. Society of General Internal Medicine Annual Meeting. May 2019.
19. Harden K, Marks A, **Smith MA**, Theil M, Brazier LJ. Development of an interprofessional education curriculum for palliative care learners. Health Professions Education Day, University of Michigan. April 2019.
18. †Smith A, Winter S, **Smith MA**, Choe HM, Bohnert A, Lagisetty P. Physician-Pharmacist Collaborative Care Models to Prevent Opioid Misuse: A Pilot Study. IHPI Member Forum. January 2019.
17. †Quirk K, **Smith MA**. Acetaminophen in Advanced Cancer Pain. ASHP Midyear Clinical Meeting. Anaheim, CA. December 2018.
16. †To C, **Smith MA**. The use of controlled substance agreements in patients with cancer. ASHP Midyear Clinical Meeting. Anaheim, CA. December 2018.

15. †Walter K, **Smith MA**. Determining the Medication Regimen Complexity in Palliative Care Patients. ACCP Global Conference. Seattle, WA. October 2018.
14. †Tankasala M, **Smith MA**. Evaluating the Initial Opioid Prescription by Palliative Care Providers for Patients with Cancer Pain. ACCP Global Conference. Seattle, WA. October 2018.
13. †Steffke N, **Smith MA**. Effect of Scheduling Around-the-clock Opioids with the Option to Refuse Doses on Pain Control for Cancer Patients Receiving Palliative Care. ASHP Midyear Clinical Meeting. Anaheim, CA. December 2017.
12. **Smith MA**, Silveira MJ, Marks A, O'Neil TA, Rodgers PE. MeRIT Project: Evaluation of a Methadone Rotation Protocol on Patient Outcomes. Preliminary Results. ACCP Annual Meeting. Phoenix, AZ. October 2017.
11. McGinness T, **Smith MA**, Waite LH. Impact of a Problem-based Acute Care Pharmacy Elective Course on Student Performance. ACCP Annual Meeting. Phoenix, AZ. October 2017.
10. †Dadiomov D, Keefer P, **Smith MA**. Using the LACE Score as a Predictor of Clinical Outcomes in Palliative Care Patients. ASHP Midyear Clinical Meeting. Las Vegas, NV. December 2016.
9. **Smith MA**, Silveira MJ, Marks A, O'Neil TA, Rodgers PE. MeRIT Project: Evaluation of a Methadone Rotation Protocol on Patient Outcomes. Project Proposal. ACCP Annual Meeting. Hollywood, FL. October 2016.
8. Siemianowski LA, **Smith MA**. Virtual Patient Case Utilization in an Elective Pharmacy Course. Bright Idea Award Nomination. University of the Sciences. Philadelphia, PA. May 2015.
7. **Smith MA**, Mohammad RA, Benedict NJ. Use of Virtual Patients to Promote Active, Patient-Centered Learning in an Advanced Pharmacy Therapeutics Course. AACP Annual Meeting. Grapevine, TX. July 2014.
6. **Smith MA**, Johnson HJ, Chopra K, Dunn M, Ulrich A, Mohammad RA. Evaluating the Incidence and Treatment of Telaprevir-Induced Rash. ACCP Annual Meeting. Albuquerque, NM. October 2013.
5. **Smith MA**, Johnson HJ, Chopra K, Dunn M, Mohammad RA. Evaluating the Incidence and Treatment of Telaprevir-Induced Rash. ASHP Midyear Clinical Meeting. Las Vegas, NV. December 2012.
4. Swintek LM, **Smith MA**, Johnson HJ, Dunn M, Mohammad RA. Evaluation of the Clinical Impact of the Calcium Channel Blockers—Direct-Acting Antivirals Interaction in Chronic Hepatitis C Patients. ASHP Midyear Clinical Meeting. Las Vegas, NV. December 2012.
3. **Smith MA**, Hibino M, Kloet MA, Seaton SM. Improving Patients' Admission Drug Reconciliation: the IPAD Reconciliation Study. ASHP Midyear Clinical Meeting. New Orleans, LA. December 2011.
2. **Smith MA**. Captivating Active P1 Student Leaders (CAPSL) Project. APhA Annual Meeting & Exposition. San Antonio, TX. March 2009.

1. **Smith MA**, Cost MR, Bajpayee GL, Yang H, Rohan LC. The Development of UC-781 as a Microbicide: Tissue Localization and Film Formulation. CTSI. Pittsburgh, PA, August 2008.

POST-GRADUATE TRAINEE INVOLVEMENT

University of Michigan College of Pharmacy, Ann Arbor, MI

Clinical Pharmacy Translational Science Post-Doctoral Fellowship — Research Mentor

2021-23 Pain Fellow — Madison Irwin

University of Michigan Health, Ann Arbor, MI

Pain Management and Palliative Care PGY2 Pharmacy Residency — Residency Program Director

2023-24 PGY2 Pharmacy Resident — Isabelle Zerfas

2022-23 PGY2 Pharmacy Resident — Abbey Schwery

2021-23 PGY2 Pharmacy Resident — Rania Bazzi (Non-Traditional Resident)

2021-22 PGY2 Pharmacy Resident — Aradhna Mayalall

2020-21 PGY2 Pharmacy Resident — Madison Irwin

2019-20 PGY2 Pharmacy Resident — Kyle Quirk

Hospice and Palliative Medicine Fellowship — Clinical Lecturer

Elective Rotation — Adult Palliative Care, Inpatient Consult Service/Inpatient Primary Service

2023-24 PGY1 Pharmacy Resident — Eric Duguay

2022-23 PGY1 Pharmacy Resident — Kenton Cooksey, Isabelle Zerfas, Nour Kadouh, Ashlyn Whitesell

2021-22 PGY1 Pharmacy Resident — Conner Ball, Morgan Marriott

2020-21 PGY1 Pharmacy Resident — Jalen Evans, Colin Finley

2019-20 PGY1 Pharmacy Resident — Madison Irwin, Millicynth Talagtag, Alina Varabyeva, Madeline Ochs,
Andrew Tam

2018-19 PGY1 Pharmacy Resident — Emily Hoylman

Elective Rotation — Adult Pain and Palliative Care, Ambulatory

2021-22 PGY2 Ambulatory Care Residents — Henry Huang

2020-21 PGY2 Ambulatory Care Residents — Mary Jo Elder, Jenni Xu

2019-20 PGY2 Ambulatory Care Residents — Emily Johengen

2018-19 PGY2 Ambulatory Care Residents — Samantha Maryan

2017-18 PGY2 Ambulatory Care Residents — Sarah Aldrich, Amber Rollins

2016-17 PGY2 Ambulatory Care Residents — Nada Farhat, Jessica Fennelly

Penn Medicine, Philadelphia, PA

Adult Internal Medicine Rotation

2015-16 PGY1 Pharmacy Resident — Emily Kreider

2014-15 PGY1 Pharmacy Resident — Kasey Brown

TEACHING

University of Michigan, College of Pharmacy, Ann Arbor, MI

COORDINATOR

Principles of Research and Problem Solving. 2024.

PharmD Investigations sequenced course for research proposal development

Fundamentals of Pain Management (PharmD Program). 2023.

Problem-based learning course for graduate students interested in pain management

Fundamentals of Pain Management (BSPS Program). 2022-23.

Autonomous and asynchronous online course for undergraduate students interested in pain management

Pharmacy Practice Skills IV (PharmD Program). 2020-24.

Oversight of resident instructors in acute care clinical skills based course

Chronic Disease Management (PharmD Program). 2016, 2017.

Oversight of resident instructors and simulated patients in chronic disease clinical skills based course

MENTOR

University of Michigan Health Pharmacy Residency Research and Writing

2023-24 — Isabelle Zerfas (research, writing), Nour Kadouh (writing)

2022-23 — Abbey Schwery (research), Megan Dean (research), Brianna Groen (writing)

2021-22 — Aradhna Mayalall (writing), Lauren Spreen (writing), Morgan Marriott (research)

2020-21 — Madison Irwin (research, writing), Kaylee Clark (writing), Colin Finley (research), Jacqueline Dela Pena (research)

2019-20 — Kyle Quirk (research, writing), Madison Irwin (research)

2018-19 — Kyle Quirk (research)

2017-18 — Kaylyn Dougherty (writing), Rachael Leek (writing), Amber Rollins (writing)

2016-17 — David Dadiomov (research)

Michigan Institute for Clinical & Health Research

2018 Summer Immersion Program. Mrunalini Tankasala

DIDACTIC

Outcome Measures for Medication Use and Pharmacy Practice (CPTS Program)

Lecturer — **Pain and Pain Medications**. 2023.

Fundamentals of Pain Management (BSPS Program)

Lecturer — **Approaches to Pharmacological Pain Management**. 2022-3.

Biopharmaceutics and Pharmacogenetics (PharmD Program)

Lecturer — **Pain Pharmacogenetics**. Winter 2019-21.

Clinical and Research Ethics (BSPS Program)

Lecturer — **End of Life Care and Religious Objections**. Winter 2018-24.

Research Methods (PharmD Program)

Facilitator — PharmD Investigations Proposals. Winter 2018-24.

Introduction to Drug Discovery and Drug Product Development (BSPS Program)

Lecturer — **Drug Addiction and Dependency**. Winter 2017-24.

Therapeutic Problem Solving (PharmD Program)

Lecturer — **Substance Use Disorders**. Winter 2017-24.

Lecturer — **Pain**. Fall 2017.

PharmD Investigations Preceptor (PharmD Program)

Class of 2026 — Teresa Knecht, Reagan McGinn

Class of 2025 — Eunice Herman, Christiana Kim

Class of 2024 — Katelyn Meyer, Lubana Nawaz

Class of 2023 — Emma Dittmar, Paige McGee

Class of 2022 — Andrea Banner, Rachel DeMarco

Class of 2021 — David Farber, Ally Orzel

Class of 2020 — Yong Jae Kim

Class of 2019 — Heather Gillespie, Darene Moqbel, Krysta Walter

Class of 2018 — Taylor Bergmann, Nathan Steffke

PharmD Seminar Preceptor (PharmD Program)

Class of 2025 — Eunice Herman, Christiana Kim

Class of 2024 — Katelyn Meyer, Lubana Nawaz

Class of 2023 — Emma Dittmar, Paige McGee

Class of 2022 — Chase Jabbori, Kelly Powell

Class of 2021 — David Farber, Ally Orzel

Class of 2020 — Yaxun Jing, Saeed Yousiff

Class of 2019 — Maryam George, Pooja Kumar

Class of 2018 — Angela Manzo, Lisa Pickmans

Class of 2017 — Emily Belarski, Michael Kwiatkowski

EXPERIENTIAL

Advanced Pharmacy Practice Experience

Co-Preceptor — Teaching Rotation (Ambulatory), 6-8 students/year. 2020-24.

Co-Preceptor — Adult Pain, Palliative Care, and Psychiatry (Ambulatory), 6-8 students/year. 2019-20.

Preceptor — Adult Pain and Palliative Care (Ambulatory), 6-8 students/year. 2015-19.

University of Michigan, Ann Arbor, MI

Academic Innovation Teach-Out Series — Massive Open Online Course (MOOC)

Lecturer — **Opioid Misuse**. Summer 2019.

Lecturer — **Solving the Opioid Crisis**. Winter 2018.

School of Social Work — Interprofessional Education
Death, Loss, and Grief

Lecturer — **Pharmacists in Palliative Care**. Fall 2017-20.

School of Nursing
Exploring Palliative Care

Lecturer — **Pharmacologic Symptom Management**. Winter 2019,2022,2023.

Adult Gerontology Acute Care Nurse Practitioner and Clinical Nurse Specialist Nursing Theory II

Lecturer — **Palliative Care Pharmacotherapy**. Summer 2018, 2019.

Hospice and Palliative Medicine Fellows Lecture Series

Lecturer — **Complex Pain Management Case Discussions**. Winter 2022.

University of the Sciences, Philadelphia College of Pharmacy, Philadelphia, PA

COORDINATOR

Problem-based Approach to Acute Care Medicine. 2015.

DIDACTIC

Introduction to Pharmacy and Healthcare

Lecturer — **Hospital Pharmacy**. Spring 2015.

Care for the Patient with Diabetes

Lecturer — **Inpatient Management of Diabetes**. Spring 2014, 2015, Fall 2015.

Technology in Healthcare, Patient Navigation Certificate Program

Simulation and Virtual Learning in Clinical Education Module

Clinical Pharmacokinetics and Individualized Drug Dosing

Lecturer — **Renal Dysfunction**. Fall 2014, 2015.

Lecturer — **Hepatic Dysfunction**. Fall 2014, 2015.

Recitation Facilitator — Fall 2014, 2015.

Remediation Facilitator — Individualized Drug Dosing in Pediatrics. Spring 2014.

Remediation Facilitator — Assay Methodologies for Therapeutic Drug Monitoring. Spring 2014.

Remediation Facilitator — Effects of Altered Renal Physiology on Drug Pharmacokinetics. Spring 2014.

Remediation Facilitator — Individualized Drug Dosing in Renal Replacement Therapy. Spring 2014.

Human Disease and Application of Therapeutics

Lecturer — **Liver Disease**. Spring 2015.

Lecturer — **Drug-Induced Disease**. Spring 2014, 2015.

Lecturer — **Drug Dosing in Renal Disease**. Spring 2014.

Principles in Pharmacotherapeutics and Human Disease

Lecturer — **Drug Dosing in Renal Disease**. Fall 2014, 2015.

Lecturer — **GERD**. Fall 2015.

Lecturer — **SRMD, PUD, GIB**. Fall 2015.

Lecturer — **Drug-Drug Interactions**. Fall 2015.

Practice Lab and Case Studies

Instructor — Case and Lab. 2013-2015.

Case Developer — **Drug Dosing in Renal Disease**. Spring 2014.

APPE Preparatory Enrichment

Journal Club — Content developer and facilitator. Spring 2014, 2015.

EXPERIENTIAL

Advanced Pharmacy Practice Experience

Co-Preceptor — Internal Medicine, 16 students/year

University of Pittsburgh, School of Pharmacy, Pittsburgh, PA

DIDACTIC

Advanced Pharmaceutical Care

Facilitator — Problem Based Learning Pedestrian vs. Car Case. Spring 2013.

Standardized Physician — Capstone Case. Spring 2012.

Facilitator — Problem Based Learning Chronic Kidney Disease Case. Spring 2012.

Facilitator — Problem Based Learning Assault Case. Spring 2012.

Facilitator — Problem Based Learning Asthma Case. Spring 2012.

Lecturer — **Asthma**. Spring 2012.

Drug Development II: Pharmacokinetics

Coordinator — **Clinical Application of Pharmacokinetics: Practicum**. Fall 2012.

Lecturer — **Clinical Application of Pharmacokinetics: Vancomycin**. Fall 2012.

Lecturer — **Clinical Application of Pharmacokinetics: Aminoglycosides**. Fall 2012.

Lecturer — **Clinical Application of Pharmacokinetics: Book to Bedside**. Fall 2012.

Profession of Pharmacy

Evaluator — Standardized Patient Interview Final. Fall 2012.

Facilitator — Standardized Patient Interviewing. Fall 2012.

Standardized Patient and Nurse — **Rash With a Twist**. Fall 2011.

Lecturer — **Minor Burns and Sunburn**. Fall 2011.

Facilitator — Blood Pressure Measurement. Spring 2012, 2013.

Evaluator — Patient Counseling Interview Final. Spring 2012.

Preceptor — Silver Scripts. Spring 2012.

Facilitator — Family and Friends Case Presentations. Spring 2012.

Pulmonology/Rheumatology

Coordinator — **Asthma Virtual Patient Simulation**. Fall 2012.

Facilitator — Respiratory Laboratory. Fall 2012.

Lecturer — **Asthma Therapeutics**. Fall 2012.

Endocrinology

Standardized Patient and Physician — Thyroid Disorders. Fall 2011.

Peter M. Winter Institute for Simulation Education and Research, Pittsburgh, PA

DIDACTIC

Pharmacotherapy of Cardiovascular Disease

Simulation Evaluator — Summative Clinical Examinations. Fall 2011, 2012.

Simulation Facilitator — Dysrhythmia, Myocardial Infarction, Stroke, and Heart Failure. Fall 2011.

Simulation Facilitator — Acute Coronary Syndrome. Fall 2011.

University of Pittsburgh, School of Dental Medicine, Pittsburgh, PA

DIDACTIC

Dental Hygienist Pharmacology

Lecturer — **Autonomic Pharmacology**. Fall 2011.

ACADEMIC SERVICE

University of Michigan and University of Michigan Health (UMH), Ann Arbor, MI

2019 — Present	National Comprehensive Cancer Center Guideline Panel (Member) Adult Cancer Pain Guidelines
2018 — Present	Rogel Comprehensive Cancer Center (Affiliate Member) Health Behavior and Outcomes Program
2018 — Present	Institute for Healthcare Policy and Innovation (Member)
October 2018 — Present	Resident Advisory Committee, Member (UMH)
August 2018 — Present	Council on Conduct, Member (COP)
June 2017 — December 2023	Ambulatory Care Controlled Substances QI Committee (UMH)
March 2017 — December 2023	Outpatient Palliative Care Operations Work Group, Member (UMH)
October 2016 — December 2023	Palliative Care Operations Work Group, Member (UMH)
August 2016 — Present	Clinical Skills Committee, Member (COP)
August 2016 — June 2017	PharmD Investigations Committee, Member (COP)
March 2016 — December 2023	Palliative Care Education Committee, Member (UMH)
January 2016 — December 2023	Pain Management Committee, Member (UMH)

University of the Sciences, Philadelphia College of Pharmacy, Philadelphia, PA

July 2014 — November 2015	Internal Grant Reviewer (University)
July 2014 — November 2015	Committee on Planning, Member (College)
July 2014 — November 2015	Education Committee, Member (Department)
May 2014 — November 2015	Institutional Review Board, Member (University)
January 2014 — October 2014	Research and Scholarly Activities Committee, Member (College)

PROFESSIONAL SERVICE

Reviewing and Editorial Activities

May 2023 — Present	Annals of Palliative Medicine, Editorial Board
December 2022 — Present	Journal of Pain and Symptom Management, Reviewer
April 2022 — Present	JAMA Network Open, Reviewer
January 2022 — Present	Pharmacotherapy, Reviewer
April 2020 — Present	Supportive Care in Cancer, Reviewer
April 2020 — Present	Mayo Clinic Proceedings, Reviewer
April 2019 — Present	American Society of Clinical Oncology Self-Evaluation Program, Reviewer
August 2018 — Present	Journal of Pain and Palliative Care Pharmacotherapy, Reviewer
August 2015 — December 2019	American Journal of Pharmaceutical Education, Reviewer
July 2015 — December 2019	The Journal of Pain, Reviewer
November 2014 — December 2018	Annals of Pharmacotherapy, Reviewer
September 2014 — December 2018	Currents in Pharmacy Teaching and Learning, Reviewer

Professional Organizations

2016 — Present	Society of Pain and Palliative Care Pharmacists (Founding Member) Development Committee Member (2016-18) Research Committee Chair (2020-22) Research Committee Member (2017 - Present)
2015 — Present	American Academy of Hospice and Palliative Medicine
2012 — Present	American Association of Colleges of Pharmacy
2011 — Present	American College of Clinical Pharmacy GI/Liver/Nutrition Practice and Research Network -Chair (2015-16), Chair-Elect (2014-15), Secretary/Treasurer (2013-14) Pain and Palliative Care Practice and Research Network National Resident Advisory Committee of ACCP (2012-13)
2008 — Present	American Society of Health-System Pharmacists Science and Research Advisory Group (2012-13)

Consulting

April 2019 — December 2023	Clinical Consultant Arbor Hospice/Hospice of Michigan
January 2015 — Present	Clinical Consultant Wolters Kluwer, Clinical Drug Information
October 2014 — November 2015	Consultant, Gastroenterology/Hepatology p-value communications, LLC

HONORS AND AWARDS

Professional

2024	Rho Chi Honorary Member, Alpha Chapter (Keynote Speaker)
2023	Fellowship, American Academy of Hospice and Palliative Medicine (FAAHPM)
2023	#Editor's Choice Award, Pharmacotherapy
2023 — 2024	RCCN Scholars Program in Multidisciplinary Research
2023	Preceptor of the Year, University of Michigan Health Pharmacy Residency
2022	Fellowship, American College of Clinical Pharmacy (FCCP)
2016 — 2018	Mentored Research Investigator Training (MeRIT) Program of ACCP RI
2015	Educational Bright Idea Award, Virtual Patient Implementation, University of the Sciences
2013	Resident of Distinction, University of Pittsburgh, School of Pharmacy
2013	ICAAC ID Fellows Grant
2012	Travel Award — GI, Liver, and Nutrition PRN of ACCP
2010	Samuel T. and Herbert S. Shear Family Scholarship for future impact on the profession
2009	Frank Miller Coad Memorial Scholarship
2009	Carl and Virginia Stoehr Scholarship for involvement and leadership
2008	JHF Patient Safety Fellow
2008	CTSI Research Fellow
2008	Ralph R. Kartub Scholarship for enthusiasm and commitment
2007	University of Pittsburgh, School of Pharmacy Alumni Board Scholarship

Leadership

2009	Hesselbein Global Academy Student Leadership Summit
2008	Phi Lambda Sigma
2007 — 2011	Class President, University of Pittsburgh, School of Pharmacy

REFERENCES

Available Upon Request