

Corey A Lester, PhD, PharmD

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Current Position

Research Assistant Professor

University of Michigan
College of Pharmacy
Start date: January 2018

Education

September 2013 -
December 2017

Doctor of Philosophy (*Minor: Industrial and Systems Engineering*)

University of Wisconsin - Madison
School of Pharmacy, Social & Administrative Sciences - Madison, WI
Dissertation: Learning about Medication Errors in Community Pharmacy Using
Topic Modeling
Advisor: Michelle A Chui, PhD, PharmD

September 2013 -
August 2015

Master of Science

University of Wisconsin - Madison
School of Pharmacy, Social & Administrative Sciences - Madison, WI
Thesis: Examining the Role of an Automatic Prescription Refill program on
Medication Adherence and Medicare Part D Star Rating Metrics

July 2012 -
June 2013

PGY-1 Community Practice Residency

Virginia Commonwealth University
School of Pharmacy - Richmond, VA

September 2006 -
May 2012

Doctor of Pharmacy

University of Rhode Island
College of Pharmacy - Kingston, RI

Licenses

September 2013-
Present

State of Wisconsin - Pharmacist License

August 2012 –
June 2019

State of Rhode Island – Pharmacist License

August 2012 –
June 2013

Commonwealth of Virginia – Pharmacist License

Research and Scholarly Activities

Peer Review Manuscripts (*corresponding author)

[in press]

1. **Lester CA***, Li J, Ding YT, Yang XJ, Al Kontar R. Performance of an image classification algorithm to predict the medication filled inside a prescription vial. *npj Digital Medicine*. April 2021.

[published]

2. **Lester CA***, Ding YT, Li J, Jiang Y, Vydiswaran VGV. Human versus Machine Editing of Electronic Prescription Directions. *J Am Pharm Assoc*. February 2021.
3. Compagner C, **Lester CA***, Dorsch MD. Sentiment Analysis of Online Reviews for Selective Serotonin Reuptake Inhibitors and Serotonin-Norepinephrine Reuptake Inhibitors. *Pharmacy*. January 2021.9(1);27.
4. Leino AD, Dorsch MD, **Lester CA**. Changes in Statin Use Among U.S. Adults with Diabetes: A Population-Based Analysis of NHANES 2011-2018. *Diabetes Care*. November 2020.
5. **Lester CA***, Coe AB, Dorsch MD, Farris KB, Flynn AJ. A learning pharmacy practice enabled by the pharmacists patient care process. *J Am Pharm Assoc*. April 2020
6. Zheng Y, Jiang Y, Dorsch MD, Ding YT, Vydiswaran VGV, **Lester CA***. Work effort, readability, and quality of pharmacy transcription of patient directions from electronic prescriptions: a retrospective observational cohort analysis. *BMJ Qual Saf*. April 2020.
7. **Lester CA***, Tu L, Ding Y, Flynn AJ. Detecting Potential Medication Selection Errors during Outpatient Pharmacy Processing of Electronic Prescriptions with the RxNorm Application Programming Interface. *JMIR Med Inform*. February 2020. doi:10.2196/16073.
8. Dorsch MP, **Lester CA**, Ding Y, Joseph M, Brook RD. Effects of Race on Statin Prescribing for Primary Prevention With High Atherosclerotic Cardiovascular Disease Risk in a Large Healthcare System. *J Am Heart Assoc*. 2019;8(22):e014709. doi:10.1161/JAHA.119.014709.
9. **Lester CA***, Wang M, Vydiswaran VGV. Describing the patient experience from Yelp reviews of community pharmacies. *J Am Pharm Assoc*. 2019;59(3):349-355. doi:10.1016/j.japh.2019.02.004.
10. Ashfaq HA, **Lester CA**, Ballouz D, Errickson J, Woodward MA. Medication Accuracy in Electronic Health Records for Microbial Keratitis. *JAMA Ophthalmol*. May 2019. doi:10.1001/jamaophthalmol.2019.1444.
11. **Lester CA***, Kessler JM, Modisett T, Chui MA. A text mining analysis of medication quality related event reports from community pharmacies. *Res Social Adm Pharm*. 2019;15(7):845-851. doi:10.1016/j.sapharm.2018.09.013.
12. Reddy A, **Lester CA**, Stone JA, Holden RJ, Phelan CH, Chui MA. Applying participatory design to a pharmacy system intervention. *Res Social Adm Pharm*. November 2018. doi:10.1016/j.sapharm.2018.11.012.
13. Abebe E, Stone JA, **Lester CA**, Chui MA. Quality of Handoffs in Community Pharmacies. *J Patient Saf*. April 2017. doi:10.1097/PTS.0000000000000382.
14. Stone JA, **Lester CA**, Aboneh EA, Phelan CH, Welch LL, Chui MA. A preliminary examination of over-the-counter medication misuse rates in older adults. *Res Social Adm Pharm*. 2017;13(1):187-192. doi:10.1016/j.sapharm.2016.01.004.
15. **Lester CA***, Look KA, Chui MA. Is the Currently Used Prescription Adjudication Date a Good Proxy for Calculating Medication Refill Adherence? *J Manag Care Spec Pharm*. 2016;22(11):1311-1317. doi:10.18553/jmcp.2016.22.11.1311.
16. **Lester CA***, Mott DA, Chui MA. The Influence of a Community Pharmacy Automatic Prescription Refill Program on Medicare Part D Adherence Metrics. *J Manag Care Spec Pharm*. 2016;22(7):801-807. doi:10.18553/jmcp.2016.22.7.801.
17. **Lester CA***, Chui MA. The prescription pickup lag, an automatic prescription refill program, and community pharmacy operations. *J Am Pharm Assoc*. 2016;56(4):427-432. doi:10.1016/j.japh.2016.03.010.
18. Aboneh EA, Look KA, Stone JA, **Lester CA**, Chui MA. Psychometric properties of the AHRQ Community Pharmacy Survey on Patient Safety Culture: a factor analysis. *BMJ Qual Saf*. 2016;25(5):355-363. doi:10.1136/bmjqs-2015-004001.

19. **Lester CA***, Chui MA. Using link analysis to explore the impact of the physical environment on pharmacist tasks. *Res Social Adm Pharm.* 2016;12(4):627-632. doi:10.1016/j.sapharm.2015.09.011.
20. **Lester CA***, Helmke JL, Kaefer TN, Moczygemba LR, Goode J-VR. Integrating Components of Medication Therapy Management Services into Community Pharmacy Workflow. *1.* 2014;5(2). doi:10.24926/iip.v5i2.340.

Peer-review Proceedings

21. Li J, **Lester CA**, Zhao X, Ding YT, Jiang Y, Vydiswaran VGV. PharmMT: A Neural Machine Translation Approach to Simplify Prescription directions. *Findings of the 2020 Conference on Empirical Methods in Natural Language Processing.* Association for Computational Linguistics. 2020:2785:96.

Research grants

[under review]

1. Preventing medication dispensing errors in pharmacy practice with interpretable machine intelligence
Project sponsor: NIH National Library of Medicine [R01]
Dates: 2021 – 2025
Amount: \$1,460,444
Role: Contact PI (20% salary support)
MPIs: Raed Al Kontar, Jessie Xi Yang
Impact: 23
Percentile: 6%
2. Improving Patient Safety of Electronic Prescription Directions with Human-Artificial Intelligence Collaboration
Project sponsor: NIH National Library of Medicine [R01]
Dates: 2021 – 2025
Amount: \$1,491,701
Role: Contact PI (23.5% salary support)
MPI: Vinod Vydiswaran
Impact: 21
Percentile: 5%

[funded]

3. Evaluating Medication Descriptions and Directions for Quality Issues on Electronic Prescription
Project sponsor: Surescripts, Inc.
Dates: 2021
Amount: \$72,208
Role: PI (10% salary support)
Co-I: Allen Flynn, Vinod Vydiswaran
4. Enhancing Mental Healthcare through Mobile Technology
Project sponsor: Precision Health Initiative, University of Michigan
Dates: 2019 – 2021
Amount: \$300,000
Role: co-I (10% salary support)
PI: Bohnert / Sen

5. Development of an algorithm to automatically transcribe electronic prescription directions in the pharmacy.
Project sponsor: U-M MCubed 3.0
Dates: 2019 – 2021
Amount: \$60,000
Role: Contact PI
Co-PI: Vinod Vydiswaran, Yun Jiang
6. Identification of Patients with Familial Hypercholesterolemia in the University of Michigan Electronic Medical Records System.
Project sponsor: Amgen, Inc.
Dates: 2018 – 2019
Amount: \$187,037
Role: co-PI (15% salary support)
Co-PI: Michael Dorsch

[not funded]

7. Individual Answers to Drug Therapy Questions at Scale with a Medication Knowledge Engine
Project sponsor: New Innovator Award, NIH Office of the Director
Dates: 2021 - 2026
Amount: \$2,340,000
Role: PI
8. Precision Feedback to Recover from Dispensing Errors at Outpatient Pharmacies.
Project sponsor: Agency for Healthcare Research and Quality [R01]
Dates: 2021 - 2026
Amount: \$1,943,162
Role: Contact PI
Co-PI: Zach Landis-Lewis
9. Getting the Meds Right: Human-Machine Learning Teams to Improve Medication Safety.
Project sponsor: NIH / U-M MICHR [KL2]
Dates: 2020 - 2022
Amount: \$271,074
Role: PI
10. Human-in-the-loop Anomaly Detection to Prevent Incorrect Prescription Medication Dispensing
Project sponsor: Michigan Institute for Data Science, University of Michigan
Dates: 2019 - 2020
Amount: \$87,883
Role: Contact PI
Co-PI: Raed Al Kontar
11. Improving Medication Safety and Decreasing Pharmacist Workload through a Pill Recognition Algorithm for Prescription Verification.
Project Sponsor: Microsoft, Inc.
Dates: 2019 - 2020
Amount: \$100,000

Role: PI

12. The Financial and Therapeutic Impact of Generic Drug Shortages on Patients and Retail Pharmacies.

Project sponsor: Bruce Kutinsky

Dates: 2019 - 2020

Amount: \$100,000

Role: PI

13. FIX-MEDS: Finding Implementation Strategies to Improve Comprehensive Medication Review after Critical Illness.

Project sponsor: NIH National Institute of Aging [R21]

Dates: 2018 - 2021

Amount: \$433,062

Role: co-I

PI: Antoinette B Coe

14. Patient Self-Reporting and Clinical Management of Adverse Effects of Oral Anticancer Agents

Project sponsor: NIH National Cancer Institute [R21]

Dates: 2018 - 2021

Amount: \$429,000

Role: co-I

PI: Yun Jiang

Invited presentations

1. **Lester CA.** Technology audit to identify potential medication dispensing errors using the RxNorm API. Lunch and Learn Seminar Series. University of Michigan, Department of Industrial and Operations Engineering, College of Engineering. October 2019.
2. **Lester CA.** Retooling medication use systems with computable knowledge in mind. Microsoft Corporation. March 2019.
3. **Lester CA.** Human Factors and Cognitive Engineering: A Pharmacist's Perspective on Medication Use. Center for Healthcare Engineering and Patient Safety, College of Engineering, University of Michigan, Ann Arbor, MI. November 2018.
4. **Lester CA.** Evaluating the Patient Experience at Community Pharmacies using Yelp! Reviews. TED Talk, American Pharmacists Association Annual Meeting, San Francisco, CA. March 2017.
5. **Lester CA.** Taken with a Grain of Salt: Adherence Metrics in Managed Care. Invited Speaker, Academy of Managed Care Pharmacy Student Chapter, UW-Madison. November 2016.
6. **Lester CA.** Using Yelp! Reviews to Mine the Patient Experience at Community Pharmacies. 2016 Midwest Social and Administrative Pharmacy Conference – University of Michigan, Ann Arbor, MI. August 2016.
7. **Lester CA.** Exploring the Effect of an Automatic Prescription Refill Program on Medication Adherence and Medicare Part D Star Ratings. 2014 Midwest Social and Administrative Sciences Conference – Purdue University, West Lafayette, IN. July 2014.
8. **Lester, CA.** Integrating Components of Medication Therapy Management Services into Community Pharmacy Workflow. 2013 Eastern States Pharmacy Conference – Hershey, PA. May 2013.
9. **Lester, CA.** Patient-Centered Communication through Motivational Interviewing. Richmond Pharmacists Association and Virginia Health Quality Center meetings – Richmond, VA. November 2012 and April 2013.

Talking Poster

1. **Lester CA.** Evaluating Medication Error Reports from Retail Pharmacies using Topic Modeling. Academy of Computational Linguistics, Doctoral Consortium – Austin, TX. November 2016
2. **Lester CA,** Chui MA. Using Link Analysis to Explore the Impact of the Physical Environment on Pharmacist Tasks. 2015 American Pharmacists Association Annual Meeting – San Diego, CA. March 2015

Oral Poster

1. **Lester CA,** Ateya M, Ding YT, Marshall V. An Investigation of the medication indication on outpatient prescriptions at an academic medical center. American Pharmacists Association Annual Meeting. Seattle, WA. March 2019.
2. **Lester CA,** Stone JA, Reddy A, Chui MA. Participatory Design: An Effective Approach to Designing a Patient-Centered Intervention to Improve Over-the-Counter Medication Safety for Older Adults. Academy Health Annual Research Meeting. June 2017.
3. Scott CP, Shah MN, Batt R, **Lester CA,** Patterson B. Opioid Prescriptions at Emergency Department Discharge for Back Pain are Associated with Lower Revisit Rates at 3,9, and 30 Days. Society for Academic Emergency Medicine - Orlando, FL. May 2017
4. **Lester CA,** Look KA, Chui MA. Is the Currently Used Prescription Adjudication Date a Good Proxy for Calculating Medication Refill Adherence? Academy Health Annual Research Meeting – Boston, MA. June 2016
5. **Lester CA,** Mott DA, Chui MA. The Influence of a Community Pharmacy Automatic Prescription Refill Program on Medicare Part D Adherence Metrics. Academy of Managed Care Pharmacy Annual Meeting – San Francisco, CA. April 2016. *Silver Medal*
6. Chui MA, **Lester CA,** Stone JA, Aboneh EA. Systems Approach to Medication Safety (SAMS). Human Factors and Ergonomics Annual Meeting - Chicago, IL. November 2014.
7. **Lester CA,** Chui MA, Helmke JL, Kaefer TN, Moczygemba TR, Goode JR. Implementing Work System Re-design to Improve Patient-Provider Communication. Human Factors and Ergonomics Healthcare Symposium - Chicago, IL. April 2014.
8. **Lester CA,** McLaurin E, Enos H, Freitag A, Carayon, P. Job Analysis and Re-Design of the Registered Nurse Position at a Pediatric Neurology Clinic. I-Practise Industrial Engineering Conference - Madison, WI. March 2014.
9. **Lester CA,** Helmke JL, Kaefer TN, Moczygemba LR, Goode JR. Integrating Components of Medication Therapy Management into Community Pharmacy Workflow. American Pharmacists Association Annual Meeting - Los Angeles, CA. March 2014.

Teaching Experience

Course Coordinator. Pharmacy Informatics Research. CPTS 832. Clinical Pharmacy and Translational Sciences Doctoral Curriculum. University of Michigan, College of Pharmacy. Winter 2019, Winter 2020, Winter 2021.

Course Coordinator. Research Seminar. CPTS 850. Clinical Pharmacy and Translational Sciences Doctoral Curriculum. University of Michigan, College of Pharmacy. Winter 2021

Dissertation Committee Member. Doctoral student: Chinwe Eze. Clinical Pharmacy and Translational Sciences Doctoral Curriculum. University of Michigan, College of Pharmacy. Fall 2019-current

Faculty Advisor. Independent Study. P470. Clinical Pharmacy and Translational Sciences Doctoral Curriculum. University of Michigan, College of Pharmacy. Fall 2019.

Student: Liyun Tu, BS EECS [*accepted to Carnegie Mellon University MS in Data Science*]

Faculty Advisor. PharmD Student Seminar. P730. Doctor of Pharmacy Curriculum. University of Michigan, College of Pharmacy. Fall 2018, Fall 2019. [6 students]

Faculty Advisor. PharmD Investigation. Doctor of Pharmacy Curriculum. Winter 2021
Student: Kimberly Bottenberg, Class of 2023.

Lecturer. Introduction to Pharmacy Research Seminar. P212. Bachelor of Science in Pharmaceutical Sciences Curriculum. Winter 2019.

Professional Employment Experience

1. **Clinical Data Scientist** – Hometown Pharmacy; Rio, WI (August 2017-November 2018)
2. **Research Project Assistant** - Systems Approach to Medication Safety Lab, University of Wisconsin-Madison, School of Pharmacy; Madison, WI (January 2015 –Present)
3. **Graduate Teaching Assistant** - Social and Administrative Sciences, University of Wisconsin Madison, School of Pharmacy (September 2013 – Present)
4. **Pharmacist** - Hometown Pharmacy; Cottage Grove, WI (December 2013 – Present)
5. **Pharmacist** - Rhode Island Village Specialty Pharmacy; Lincoln, RI (June 2013 – August 2013)
6. **Pharmacist** – Bremo Pharmacy; Richmond, VA (July 2012 – June 2013)
7. **Clinical Instructor** - Virginia Commonwealth University, School of Pharmacy; Richmond, VA (January 2013 – May 2013)

Professional Service

1. Medication safety response team member, Ontario College of Pharmacists (2019-2020)
2. Peer Reviewer, American Medical Informatics Association, Clinical Informatics (January 2019-present)
3. Peer Reviewer, Academy for Computational Linguistics Doctoral Consortium (May 2017-present)
4. Peer Reviewer, Research in Social and Administrative Pharmacy (2018 – present)
5. Peer Reviewer, Journal of the American Pharmacists Association (May 2016 – present)
6. UW-Madison School of Pharmacy, Climate Change Committee (September 2015 – May 2016)
7. Post-graduate Committee Member, American Pharmacists Association (March 2014 – March 2016)

Honors and Awards

1. Top paper, 2020 in BMJ Quality and Safety
2. Joseph Wiederholt Wisconsin Distinguished Graduate Student Fellowship (2016-17) - \$24,810
3. National Science Foundation Travel Grant, Academy for Computational Linguistics, Empirical Methods on Natural Language Processing Conference – Doctoral Consortium. Austin, TX (November 2016) - \$1,200
4. Best Graduate Student Research, 2016 Mid-West Social and Administrative Pharmacy, C.R.A.P. Award – *Finalist*
5. Student Research Travel Grant - Conference Presentation, UW-Madison Graduate School (Spring 2016) - \$600
6. Joseph Wiederholt Research Travel Award, UW-Madison School of Pharmacy (Spring 2014, Spring 2015, Spring 2016, Spring 2017) - \$1,000 each
7. 1st place – Robert A. Ratner Senior Design Project Competition, UW-Madison Industrial and Systems Engineering Department (December 2013) - \$1,600
8. NCPA Pruitt-Schutte Community Pharmacy Business Plan Competition Participant (Spring 2011)
9. Norman A. Campbell Pharmacy Scholarship, University of Rhode Island (Fall 2010)
10. 2nd place – Dean’s Professional Challenge, Team Covenant (May 2009)
11. University of Rhode Island Dean’s List (Fall 2006, Spring 2008, Fall 2012, Spring 2012)
12. University of Rhode Island Centennial Scholar (September 2006 – May 2011) - \$16,000
13. Phi Eta Sigma Freshman Honors Society (January 2007)

Professional Memberships

1. American Pharmacists Association (September 2012 – Present)
2. American Medical Informatics Association (October 2018 – October 2019)
3. Academy Health (March 2016 – March 2019)
4. Association for Computational Linguistics (October 2016 – October 2017)
5. Academy of Managed Care Pharmacy (January 2016 – January 2017)
6. Human Factors and Ergonomics Society (August 2014 – August 2015)