

Corey J Hayes, Pharm.D., Ph.D., M.P.H.

Education

Teaching Certificate Program, UAMS, Little Rock, AR	2016
Ph.D., Pharmaceutical Evaluation and Policy, UAMS, Little Rock, AR	2015-2018
M.P.H., Epidemiology, UAMS, Little Rock, AR	2011-2013
Pharm.D. (highest honors), UAMS, Little Rock, AR	2009-2013
B.S., Chemistry, SAU, Magnolia, AR	2005-2009

Current Position

Office of Alcohol and Drug Abuse Prevention (OADAP) Professorship Associate Professor with Tenure, Division of Pharmaceutical Evaluation Policy, Department of Pharmacy Practice University of Arkansas for Medical Sciences College of Pharmacy	July 2024-Present
Research Scientist, Center for Mental Healthcare and Outcomes Research Central Arkansas Veterans Healthcare System Little Rock, AR	2018-Present
Co-Director, South Central Mental Illness Research, Education and Clinical Center Advanced Fellowship Little Rock, AR	2025-Present

Professional Experience

Associate Professor with Tenure, Department of Biomedical Informatics University of Arkansas for Medical Sciences College of Medicine Little Rock, AR	July 2023-June 2024
Assistant Professor, Department of Biomedical Informatics University of Arkansas for Medical Sciences College of Medicine Little Rock, AR	July 2021-June 2023
Assistant Professor, Department of Psychiatry University of Arkansas for Medical Sciences Little Rock, AR	July 2018-June 2021
Post-Doctoral Fellowship NIDA-funded T32 Translational Training in Addiction	2016-2018
Clinical Pharmacist I Baptist Health Medical Center Little Rock, AR	2013-2016
Pharmacist Intern Kroger North Little Rock, AR	2012-2013
Research Assistant Pharmacy Practice Student Research Fellowship Mentor: Teresa Hudson, Pharm.D., Ph.D. University of Arkansas for Medical Sciences Little Rock, AR	2011-2013
Research Assistant Pharmaceutical Sciences Research Fellowship Mentor: Grazyna Nowak, Ph.D.	2010-2011

University of Arkansas for Medical Sciences
Little Rock, AR

Pharmacist Intern
The Medicine Shoppe
Maumelle, AR

2009-2010

Secondary Academic Appointments

Associate Professor with Tenure
Department of Biomedical Informatics
University of Arkansas for Medical Sciences
Little Rock, AR

2024-Present

Associate Professor with Tenure
Department of Psychiatry
University of Arkansas for Medical Sciences
Little Rock, AR

2023-Present

Assistant Professor
Department of Psychiatry
University of Arkansas for Medical Sciences
Little Rock, AR

2021-2023

Assistant Professor
Department of Pharmacy Practice
University of Arkansas for Medical Sciences
Little Rock, AR

2020-2024

Assistant Professor
Department of Biomedical Informatics
University of Arkansas for Medical Sciences
Little Rock, AR

2019-2021

Certification and Licensure

Pharmacist Licensure Arkansas #12414

2013-Present

Cardiopulmonary Resuscitation and Automated External Defibrillator

2010-2018

Immunization Certification

2013-2018

Professional Memberships and Activities

United States Association for the Study of Pain

2021-2023

American Pharmacists Association

2018-present

Academy Health

2017-2022

International Society for Pharmacoeconomics and Outcomes Research

2016-2022

Arkansas Pharmacists Association

2014-2022

Arkansas Association of Hospital Pharmacists

2014-2021

National Community Pharmacists Association

2009-2010

Honors and Awards

Manuscript chosen as Editor's Choice in *PAIN*

2020

Nomination, AAMC Curricular Innovation Award for AR IMPACT	2019
Nomination, Generation Rx Award of Excellence	2019
Rho Chi AFPE First Year Graduate Fellowship	2017
Dean's List, University of Arkansas for Medical Sciences	2009-2013
U.S. Public Health Service Excellence in Pharmacy Practice Award	2012
Student Leader, American Association of Colleges of Pharmacy/Teva Community Engaged Service Award	2011
Paul Ambrose Scholar Recipient, Association of Prevention Teaching and Research	2011
Jordin Scholarship Recipient, University of Arkansas for Medical Sciences	2011
College of Pharmacy State Funded Scholarship, University of Arkansas for Medical Sciences	2011
Member of the Beta Iota Chapter of Rho Chi Honor Society	2010
Committee Assignments and Administrative Services	
American Medical Informatics Association Symposium Reviewer	2021
UAMS Translational Research Institute (TRI) Team Science Voucher Award Reviewer	2021
Leadership Training	
Center for Creative Leadership Leadership Development Program	2025
<ul style="list-style-type: none">This week-long, intensive, leadership training is the longest-running program of its kind in the world. It is a world-renowned, research-based training created especially for individuals in mid- to senior-level leadership positions. This leadership development journey included intensive, personalized assessments, innovative exercises, peer feedback, and one-on-one leadership coaching to help reinforce learning and transformation. It builds the skills and confidence that leaders of managers need to build commitment and translate strategy into effective action.	
UAMS Executive Healthcare Leadership Institute	2022-2023
<ul style="list-style-type: none">This leadership training consists of one 8-hour long retreat monthly for a year with training from faculty at the University of Arkansas at Fayetteville Sam Walton College of Business. Training topics include Navigating Difficult Conversations and Effective Feedback, Delegation and Empowerment, Organizational Communication for Leaders and Strategic Planning and Thinking, Diversity Equity and Inclusion in Academic Health Centers, Communication and Innovation and Human Centered Design, Budgeting Basics and Organizational Finance, Business Plan Development, and Executive Presence and Meaning Making.	
Mentorship Training	
Trained Center for the Improvement of Mentored Experiences in Research (CIMER) Facilitator (Level 1)	2025

- This mentoring facilitator training consisted of a week-long training in facilitating mentoring training in research for faculty as established by the University of Wisconsin at Madison.

UAMS Translational Research Institute Facilitating Entering Mentoring Training 2023

- This mentoring training consisted of one 8-hour long retreat on February 25, 2023. This training was based on the Center for the Improvement of Mentored Experiences in Research from the University of Wisconsin at Madison and covered topics of Effective Communication, Aligning Expectations, Assessing Understanding, Fostering Independence, Assessing Equity, Promoting Professional Development, and Articulating Your Mentoring Philosophy.

Educational Activities

Didactic Instructor

<p>Trained Center for the Improvement of Mentored Experiences in Research (CIMER) Trainer (12 hours) Led CIMER training for UAMS faculty for mentorship in February and September 2025.</p>	2025
<p>BMIG 6110 Clinical Decision Support (9 hours) Department of Biomedical Informatics. College of Medicine, University of Arkansas for Medical Sciences <i>Lecture(s): Cost-Effectiveness and Decision Modeling, Clinical Decision Support and Health Disparities, Population Health Management</i></p>	2023
<p>BISD 5403 NIDA T32 (1 hour) T32 Postdoctoral and Predoctoral Program. College of Medicine, University of Arkansas for Medical Sciences <i>Lecture: Opioid Dose Escalation</i></p>	2021
<p>PHPR 7309 Addiction (1 hour) PharmD Professional Program. College of Pharmacy, University of Arkansas for Medical Sciences <i>Lecture: Epidemiology, terminology, social/professional factors associated with abuse/addiction</i></p>	2021
<p>PSGP 5116 Foundations of Pharmaceutical Evaluation and Policy Research Methods (1 hour) PhD Program. College of Pharmacy, University of Arkansas for Medical Sciences <i>Lecture: Introduction to Health Services Research</i></p>	2020-2024
<p>PHPR 5332 Special Problems Clinical Practice: Pain Elective (2 hours) PharmD Professional Program. College of Pharmacy, University of Arkansas for Medical Sciences <i>Lecture: Naloxone: Formulations, Cost, and When to Talk to the Patient and Opioid Tapering</i></p>	2019-2023
<p>PHPR 7353 Geriatric Therapeutics (1 hour) PharmD Professional Program. College of Pharmacy, University of Arkansas for Medical Sciences <i>Lecture: Opioid Therapy in the Elderly</i></p>	2018
<p>Practice of Medicine III (3 hours) MD Professional Program. College of Medicine, University of Arkansas for Medical Sciences <i>Lecture: Understanding and Combatting the Opioid Epidemic</i></p>	2018
<p>PHPR 7301 Pharmacy Law and Ethics (2 hours) PharmD Professional Program. College of Pharmacy, University of Arkansas for</p>	2018-2021

Medical Sciences
Lecture: Prescription Drug Monitoring Program and Naloxone

PHPR 5642 **Evidence-Based Medicine** (1 hour) 2017-2018
PharmD Professional Program. College of Pharmacy, University of Arkansas for
Medical Sciences
*Lecture: Sensitivity, Specificity, Positive Predictive Value, and Negative
Predictive Value*

Medical Resident Instructor

Naloxone: Formulations, Cost, and When to Talk to the Patient (1 hour) 2020
Family Medicine Residents, Family Medical Center, University of Arkansas for
Medical Sciences Magnolia, AR

Opioid Tapering (1 hour) 2020
Family Medicine Residents, Family Medical Center, University of Arkansas for
Medical Sciences Magnolia, AR

Community Instructor (Continuing Education)

Board of Pharmacotherapy Specialties Psycho-Pharmacotherapy Review 2015
(1 hour)
ACPE-Accredited Continuing Education for Pharmacists. Baptist Health Medical
Center, Little Rock, AR

**Arkansas Prescriber Feedback Reports: Why are these being issued and
how are they helpful to providers?** (1 hour) 2018
ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical
Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician
Assistants

Introduction to the CDC Guidelines for Pain Management (1 hour) 2018
ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical
Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician
Assistants

Opioid Tapering (1 hour) 2018
ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical
Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician
Assistants

Medications for Withdrawal during Tapering (1 hour) 2018
ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical
Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician
Assistants

Naloxone: Formulations, Availability, and When to Talk to the Patient (1
hour) 2018
ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical
Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician
Assistants

Topicals for Pain (1 hour) 2019
ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical
Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician

Assistants

The Impact of Opioid Dose Escalation on Pain Scores and Adverse Outcomes (1 hour) 2019

ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Opioid-Induced Hyperalgesia (1 hour) 2019

ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Abuse Deterrent Formulations of Opioids: Are They Working? (1 hour) 2019

ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Prescription Drug Monitoring Programs: How Effective Are They? (1 hour) 2019

ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Opioid Prescribing Trends in Arkansas (1 hour) 2019

ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Outgrowth of Acute to Chronic Opioid Use: How Quickly Does this Happen? (1 hour) 2019

ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Opioid Tapering (1 hour) 2021

ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
Project ECHO—MATRIAC Program
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Opioid Tapering (1 hour) 2021

ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
AGEC Program
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Opioid Tapering (1 hour) 2021

ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
AR-IMPACT Program
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Opioid Dose Escalation (1 hour) 2021

ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
AR-IMPACT Program
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Opioid Discontinuation: How Do We Do It Well? (1 hour) 2022
ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
AR-IMPACT Program
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Multidisciplinary Clinics: Are They Better at Improving Patient Outcomes? (1 hour) 2022
ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
AR-IMPACT Program
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Comparing the 2016 and 2022 CDC Opioid Prescribing Guidelines: What's New? (1 hour) 2023
ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
AR-IMPACT Program
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

What State Laws Are Improving Rates of Opioid Overdose? (1 hour) 2023
ACCME/ACPE/ANCC Accreditation. University of Arkansas for Medical Sciences, Little Rock, AR
AR-IMPACT Program
Attendees: Physicians, Pharmacists, Nurses, Social Workers, Physician Assistants

Pharmacy Residency Preceptor

Acute Care: Psychiatric Pharmacy Elective 2015-2016
PGY-1 Residency Program. Baptist Health Medical Center, Little Rock, AR
Developed an elective rotation for pharmacy residents in inpatient psychiatric pharmaceutical care
Residents: Sarah Volgas, PharmD, BCPS; Bethany Chandler, PharmD, BCPS

Advanced Pharmacy Practice Experience Preceptor

Acute Care Pharmacy Elective 2014-2016
Advanced Pharmacy Practice Experience Program. University of Arkansas for Medical Sciences, Little Rock, AR and Harding University, Searcy, AR
Preceptor for 2-3 fourth year pharmacy students each year

Graduate Student Committee Member

Ahmad Baghal, MD, MS Biomedical Informatics PhD Program
Graduation Date: December 2019
Thesis: *An Agile Research Data Repository of Acute Kidney Injury Using Property Graph Databases*
Rutgers School of Health Professions
Placement: Assistant Professor and Director of the Arkansas Clinical Data Repository, Department of Biomedical Informatics, University of Arkansas for Medical Sciences
Role: Dissertation Committee Member

Mahip Acharya, BS Pharmaceutical Evaluation and Policy PhD Program
Graduation Date: January 2022
Thesis: *Use Trajectories, Comparative Effectiveness, and Comparative Safety of Tramadol*
University of Arkansas for Medical Sciences College of Pharmacy
Placement: Assistant Professor, University of Arkansas for Medical Sciences
Department of Obstetrics and Gynecology
Role: Dissertation Committee Member

Catherine Shoults, MPH Biomedical Informatics PhD Program
Graduation Date: December 2023
Thesis: *Data Mining Drug Adverse Events in Reddit to Complement FDA Drug Safety Reporting*
University of Arkansas for Medical Sciences College of Medicine
Placement: Vice President of Artificial Intelligence, Symbiosis
Role: Chair of Dissertation Committee

Alan Smith, PharmD PEP PhD Program
Expected Graduation Date: December 2025
Thesis: *Constructing a Hyperparameter Tuning Workflow Combined with High Performance Computing to Optimize the Classification of Severely Imbalanced Big Healthcare Data while Minimizing Computational Demand*
University of Arkansas for Medical Sciences College of Pharmacy
Placement: TBD
Role: Dissertation Committee Member

Ruston Koonce, PharmD PEP PhD Program
Expected Graduation Date: December 2025
Thesis: *Development of Algorithmically Fair Diagnostic Models to Detect Underdiagnosed Alcohol and Cannabis Use Disorders Using Routine Electronic Health Records Enhanced with Consumer and Lifestyle Data*
University of Arkansas for Medical Sciences College of Pharmacy
Placement: TBD
Role: Dissertation Committee Member

Filmon Wolde, BS PEP PhD Program
Expected Graduation Date: December 2025
Thesis: *Evaluating Policy-Level Structures Impacting Buprenorphine Access and Utilization Among Commercially Insured Individuals with Opioid Use Disorder*
University of Arkansas for Medical Sciences College of Pharmacy
Placement: TBD
Role: Chair of Dissertation Committee

Nahed El-Hassan, MD, MPH PEP PhD Program
Expected Graduation Date: May 2026
Thesis: *Evaluating Opioid and Medical Marijuana Use among Pregnant Women in Arkansas*
University of Arkansas for Medical Sciences College of Pharmacy
Placement: Professor, Department of Pediatrics, University of Arkansas for Medical Sciences
Role: Dissertation Committee Member

Jacob Baylis, MPH University of Utah PhD Program
Expected Graduation Date: May 2026
Thesis: *Telehealth Prescribing for Opioids and Stimulants: A Retrospective Analysis of Veteran Health Outcomes*
University of Utah College of Public Health
Placement: TBD
Role: Dissertation Committee Member

Additional Mentoring

Alasiah Bledsoe

Department of Diversity, Equity, and Inclusion Summer Research Internship Program 2023
Research Project: *Pharmacovigilance with Social Media Data*
Role: Primary Mentor

Matthew Nowak, BS M2 Intern

NIDA T32 Translational Training in Addiction Program and College of Medicine Honors in Research 2023-2024
Research Project: *Towards Personalized Medicine for Persons on Medication Treatment for Opioid Use Disorder*
Role: Primary Mentor NIDA T32 and Honors in Research Programs

Dana S. Abulez, MSE M2 Intern

NIDA T32 Translational Training in Addiction Program and College of Medicine Honors in Research 2022-2024
Research Project: *The Effect of Age of First Use on Positive Treatment Response among Persons with Stimulant Use Disorders*
Role: Primary Mentor NIDA T32 and Honors in Research Programs

Yasir Rahmatallah, PhD Assistant Professor, Department of Biomedical Informatics, University of Arkansas for Medical Sciences

Data Scholars Program 2020-2021
University of Arkansas for Medical Sciences Translational Research Institute
Research Proposal: *Harnessing Large-Scale Clinical Data to Identify Disease-Medication Trajectories Leading to Opioid-Related Adverse Outcomes*
Role: Primary Mentor for Data Scholars Program

Heather R. Morgan, BS M2 Intern

NIDA T32 Translational Training in Addiction Program and College of Medicine Honors in Research 2019-2021
Research Project: *A Program Evaluation of Arkansas Improving Multidisciplinary Pain Care and Treatment (AR-IMPACT)*
Role: Primary Mentor NIDA T32 and Honors in Research Programs

Kristina Kennedy, BS M2 Intern

NIDA T32 Translational Training in Addiction Program and College of Medicine Honors in Research 2019
Research Project: *A Program Evaluation of Arkansas Improving Multidisciplinary Pain Care and Treatment (AR-IMPACT)*
Role: Primary Mentor NIDA T32 and Honors in Research Programs

Samina Dhuliawala, BS PhD Student in Pharmaceutical Evaluation and Policy

Mentoring through weekly meetings in secondary data analysis and cohort study design through my TRI funded project 2019
Research Project: *Linking the Arkansas Prescription Drug Monitoring Program Data with the Arkansas All-Payer Claims Database*
Role: Secondary Mentor

Mriga Shrikhande, BS MS Student in Pharmaceutical Evaluation and Policy

Mentoring through weekly meetings in secondary data analysis and cohort study design through my TRI funded project 2019-2021
Research Project: *Linking the Arkansas Prescription Drug Monitoring Program Data with the Arkansas All-Payer Claims Database*
Role: Secondary Mentor

Ruchira Mahashabde, B.Pharm, MS PhD Student in Pharmaceutical Evaluation and Policy 2019-2023
Mentoring through weekly meetings in secondary data analysis and cohort study design through my TRI funded project
Research Project: *Linking the Arkansas Prescription Drug Monitoring Program Data with the Arkansas All-Payer Claims Database*
Role: Secondary Mentor

Ambrish Pandit, B.Pharm, MS PhD Student in Pharmaceutical Evaluation and Policy 2021-2024
Mentoring through biweekly meetings in secondary data analysis and cohort study design through my role as Deputy PI on the Rural Telehealth Evaluation Center
Research Project: *Evaluating Remote Patient Monitoring*
Role: Secondary Mentor

Maysam Q Rabbani, Ph.D. Post-Doctoral Fellow 2021-2023
Mentoring through weekly meetings in secondary data analysis and willingness to pay evaluations through my role as Deputy PI on the Rural Telehealth Evaluation Center
Research Project: *Evaluating Remote Patient Monitoring and Broadband Pilot Program Evaluation*
Role: Primary Mentor

Media

Let's Talk about Drugs in the Intermountain West 2025
Podcast from the Program of Addiction Research, Clinical Care, Knowledge, and Advocacy and the Greater Intermountain Node of the NIDA Clinical Trials Network. Discussion of my overall work.

US Department of Veterans Affairs Office of Research and Development 2020
Study Feature: <https://www.research.va.gov/currents/0220-Higher-opioid-doses-fail-to-lessen-pain.cfm>

STAT News. 2017
Special Report: STAT forecast: Opioids could kill nearly 500,000 Americans in the next decade. Blau, Max. Contributed time series models.
<https://www.statnews.com/2017/06/27/opioid-deaths-forecast/>

Grants and Contract Awards

Current Grants

GTC A2408-075-036-067098 9/01/2024—8/31/2026 2.4 calendar
FDA \$1,148,619

“SafeRx: Post-Market Medical Product Surveillance: FDA—Buprenorphine Dosing for OUD Outcomes and Studying Treatment Episodes”

This study evaluates the benefits and risk of high-dose buprenorphine therapy for treatment of opioid use disorder.

Role: **Multiple Principal Investigator**

UM1TR004909 7/01/2024—6/30/2031 1.2 calendar
NCATS \$27,145,629

“Expanding Translational Science in Arkansas”

The Translational Research Institute supports research that drives new discoveries from laboratories, clinics, and communities to the development of new treatment approaches, medications, or disease prevention strategies that will improve the health of individuals and communities.

Role: **Co-Investigator**

R21DA059630 9/30/2024—8/31/2026 1.2 calendar
NIDA \$420,750

“Validation of a Survey Tool to Evaluate Patient-Reported Outcomes for New

Medications to Treat Methamphetamine Use Disorder: The PROMT Survey.”

Since no validated PRO instrument for MUD treatment exists, the proposed study will develop and validate a PRO survey (PROMT, Patient-Reported Outcomes for Methamphetamine Treatment) intended to capture a fuller picture of the therapeutic benefits of medications for MUD and promote the continued development of new treatment products.

Role: **Co-Investigator**

IK2HX003358 (Hayes) 4/1/2022—3/31/2027 6 calendar
VA HSR&D \$1,002,627

“Data to Clinical Action: Using Predictive Analytics to Improve Care of Veterans with Opioid Use Disorder.”

This grant will (1) develop a valid predictive model for discontinuation of buprenorphine for treatment of opioid use disorder, (2) create a clinical decision support tool based on the predictive model, and (3) pilot the clinical decision support tool with waived providers to test the acceptability of the tool and feasibility of conducting a large-scale randomized controlled trial.

Role: **Principal Investigator**

U3GRH40001 (Eswaran/Hayes) 9/1/2020—8/31/2026 2.5 calendar
HRSA \$5,049,992

“RTEC—Rural Telehealth Evaluation Center.”

RTEC is one of only two rural telehealth research centers in the country. RTEC aims to evaluate telehealth services and show how they affect patient outcomes and rural hospitals. RTEC provides for 4-5 research projects annually. Research findings will be used to inform policymakers and provider decisions and thus potentially bring needed telehealth support to rural hospitals and improve healthcare access and population health for rural America.

Role: **Deputy Principal Investigator; Became Principal Investigator May 2025**

CIN 13-411 (Owen) 10/1/2018—9/30/2028 0.4 calendar
VA HSR&D \$5,500,000

“Center for Mental Healthcare and Outcomes Research (CeMHOR).”

CeMHOR is one of eighteen Centers of Innovation (COINs). CeMHOR’s mission is to optimize the health and well-being of Veterans through innovative research to improve access to and engagement in evidence-based mental health/substance use disorder care and prevent suicide.

Role: **Co-Investigator**

Past Grants

5UG1DA013732 (Winhusen) 3/1/2021—2/28/2025 0.6 calendar
NIDA \$40,000

“Ohio Valley Node of the Clinical Trials Network.”

The Ohio Valley Node (OVN) joined the Clinical Trials Network in September 2000. The OVN includes successful partnerships with four healthcare systems, two pharmacy networks, and six addiction specialty/infectious disease programs. These collaborating sites span a seven-state region including some states most heavily impacted by opioid use. The OVN has an outstanding history of successful participation in CTN clinical trials: 15 OVN sites, located in seven different states, have served in >30 CTN trials. I collaborate with the OVN to conduct studies that use VA data.

Role: **Site Principal Investigator**

CTN-0142 (Hayes; Winhusen) 7/1/2022—2/28/2025 2.4 calendar
NIDA \$498,360

“Towards Personalized Medicine in Medication for Opioid Use Disorder (MOUD): Analyses of Veterans Health Administration Data to Delineate Patient Characteristics with Treatment Outcomes and Successful MOUD Discontinuation.”

This study seeks to rapidly and cost-effectively provide insight into how MOUD retention could be improved by personalizing care at the individual level based on patient characteristics. The output of this project will be the identification of those patient

characteristics associated with improved MOUD retention for different types of MOUD. We will also identify which patient characteristics are associated with successful MOUD discontinuation without relapse.

Role: **Principal Investigator**

GA6RH40184 (Eswaran) 9/1/2020—12/31/2024
HRSA \$1,500,000 2.5 calendar

“Telehealth COVID-19 Broadband Pilot Evaluation.”

This grant was awarded to RTEC to evaluate the Broadband Pilot Program being conducted by the Alaska Native Tribal Health Consortium. Specifically, this project will evaluate the needs of broadband, and lack thereof, in rural areas within four U.S. states: Alaska, Texas, West Virginia, and Michigan.

Role: **Deputy Principal Investigator**

BJA PM-BX-0012 (Ortiz) 9/1/2018—8/31/2021
U.S. Department of Justice \$775,182 2.4 calendar

“Creating an Innovative Structured Data Repository.”

The goals of this project are to further enhance the Arkansas Prescription Drug Monitoring Program (PDMP) by creating an innovatively structured data repository to support current and future initiatives to improve safety of prescription drug prescribing in Arkansas. This will be achieved by 1) creating a data repository that links PDMP data, ED/hospitalization data, and death certificates using semantic integration, 2) developing a risk prediction tool for identifying individuals at risk of opioid overdose using the linked datasets, 3) creating a graphical user interface for the linked databases and risk prediction tool and 4) collaborating with the PDMP Advisory Committee and other stakeholders to implement a state-wide campaign to increase awareness of opioid overdose risk in Arkansas.

Role: **Co-Investigator**

UL1TR003107 (Hayes) 7/1/2020—6/30/2021
NCATS \$17,354 0.0 calendar

“Developing and Validating PREMMOUD, a PREdictive Model for Medication for Opioid Use Disorder Discontinuation, among Veterans with an Opioid Use Disorder.”

This project was funded under the UAMS TRI Team Science Voucher Award to provide preliminary results on model development for my VA HSR&D Career Development Award application.

Role: **Principal Investigator**

UL1TR003107 (Larson-Prior) 7/1/2020—6/30/2021
NCATS \$20,543 0.6 calendar

“A Trans-Disciplinary Approach to Reducing Caregiver Burden in Arkansas.”

This project was funded under the UAMS TRI Team Science Voucher Award to assess the burden caregivers experience when caring for loved ones.

Role: **Co-Investigator**

No Grant Number (Hayes) 7/1/2020—6/30/2021
Blue&You Foundation \$147,002 2.4 calendar

“Arkansas Provider Education Program for Improving Pain Management: Telemedicine for Chronic Pain.”

This grant funded a pilot of a multidisciplinary team of providers who offered telemedicine visits with patients diagnosed with chronic pain and opioid use disorder who are underserved and living in rural areas of Arkansas. The goal of the pilot was to assess implementation outcomes (e.g., feasibility) to evaluate the potential of a larger randomized trial.

Role: **Principal Investigator**

UL1TR003107 (Goree) 7/1/2019—6/30/2020
NCATS \$25,000 0.6 calendar

“Video-based, Patient-focused Opioid Education in the Perioperative Period: A Feasibility Study.”

This study was funded under the UAMS Translational Research Institute Pain Management Award mechanism. The purpose of this study was to assess whether

receipt of a short opioid education video during the perioperative period would influence post-operative opioid use.

Role: **Co-Investigator**

No Grant Number (Hayes) 7/1/2019—6/30/2020 2.4 calendar
Blue&You Foundation \$133,247
“Arkansas Provider Education Program for Improving Pain Management.”
This grant was funded to continue to develop a curriculum for providers on appropriate use of opioid therapy for chronic pain.
Role: **Principal Investigator**

UL1TR003107 (Hayes) 7/1/2019—6/30/2020 1.2 calendar
NCATS \$24,843
“Linking the Arkansas Prescription Drug Monitoring Program Data with the Arkansas All-Payer Claims Database.”
This grant was funded under the UAMS Translational Research Institute Pain Management Award mechanism. The purpose of the grant was to link two datasets to assess the concordance of opioid prescriptions between claims data and prescription drug monitoring program data.
Role: **Principal Investigator**

No Grant Number (Hayes) 7/1/2018—6/30/2019 2.4 calendar
Blue&You Foundation \$104,125
“Arkansas Provider Education Program for Improving Pain Management.”
This grant was funded to develop a curriculum for providers on appropriate use of opioid therapy for chronic pain.
Role: **Principal Investigator.**

1R36DA046717 10/1/2018—9/30/2020 1.2 calendar
NIDA \$54,000
“Impact of Opioid Dosing Strategies on Pain Scores and Adverse or Unintended Clinical Outcomes.”
This study evaluated the impact of opioid dosing changes (i.e., opioid dose escalation and opioid discontinuation) on potentially opioid-related adverse outcomes.
Role: **Principal Investigator**

1T32DA022981 6/1/2016—6/30/2018 12 calendar
NIDA
“Translational Training in Addiction.”
This grant is a T32 program for pre and post-doctoral fellows to receive training in all translational aspects of addiction research.
Role: **Post-Doctoral Fellow**

Current Contracts

None

Past Contracts

1H79SM081313 5/1/2023—4/30/2024 0.6 calendar
SAMSHA \$70,385
“Arkansas Improving Pain Care and Treatment Speaker’s Bureau.”
This project is funded under the State Opioid Response Grant to Division of Adult, Aging, and Behavioral Health Services and MidSOUTH. The purpose of this contract is to continue the Arkansas Improving Pain Care and Treatment Speaker’s Bureau, which is designed to provide continuing medical education to providers in Arkansas and across the country on opioid-related topics.
Role: **Principal Investigator**

1H79SM081313 5/1/2022—4/30/2023 0.6 calendar

SAMSHA \$73,510

“Arkansas Improving Pain Care and Treatment Speaker’s Bureau.”

This project is funded under the State Opioid Response Grant to Division of Adult, Aging, and Behavioral Health Services and MidSOUTH. The purpose of this contract is to continue the Arkansas Improving Pain Care and Treatment Speaker’s Bureau, which is designed to provide continuing medical education to providers in Arkansas and across the country on opioid-related topics.

Role: **Principal Investigator**

1H79SM081313 5/1/2021—4/30/2022
SAMSHA \$71,635

0.6 calendar

“Arkansas Improving Pain Care and Treatment Speaker’s Bureau.”

This project was funded under the State Opioid Response Grant to Division of Adult, Aging, and Behavioral Health Services and MidSOUTH. The purpose of this contract is to continue the Arkansas Improving Pain Care and Treatment Speaker’s Bureau, which is designed to provide continuing medical education to providers in Arkansas and across the country on opioid-related topics.

Role: **Principal Investigator.**

1H79SM081313 5/1/2020—4/30/2021
SAMSHA \$40,276

0.6 calendar

“Arkansas Improving Pain Care and Treatment Speaker’s Bureau.”

This project was funded under the State Opioid Response Grant to Division of Adult, Aging, and Behavioral Health Services and MidSOUTH. The purpose of this contract is to continue the Arkansas Improving Pain Care and Treatment Speaker’s Bureau, which is designed to provide continuing medical education to providers in Arkansas and across the country on opioid-related topics.

Role: **Principal Investigator**

1H79SM081313 5/1/2019—4/30/2020
SAMSHA \$92,716

0.6 calendar

“Arkansas Improving Pain Care and Treatment Speaker’s Bureau and Online Forum.”

This project was funded under the State Opioid Response Grant to Division of Adult, Aging, and Behavioral Health Services and MidSOUTH. The purpose of this contract is to continue the Arkansas Improving Pain Care and Treatment Speaker’s Bureau, which is designed to provide continuing medical education to providers in Arkansas and across the country on opioid-related topics. The project also maintained the online forum for MidSOUTH that was designed as a place providers could receive resources on opioid prescribing and ask our experts clinically relevant questions related to opioid prescribing and opioid use disorder.

Role: **Principal Investigator.**

1H79SM081313 5/1/2018—4/30/2019
SAMSHA \$90,000

0.6 calendar

“Arkansas Improving Pain Care and Treatment Online Educational Portal.”

This project was funded under the State Opioid Response Grant to Division of Adult, Aging, and Behavioral Health Services and MidSOUTH. The purpose of this contract was to place the lectures the Arkansas Improving Pain Care Treatment team had completed onto the UAMS LearnOnDemand portal.

Role: **Principal Investigator**

1H79SM081313 5/1/2018—4/30/2019
SAMSHA \$49,000

1.2 calendar

“Arkansas Improving Pain Care and Treatment.”

This project was funded under the State Opioid Response Grant to Division of Adult, Aging, and Behavioral Health Services and MidSOUTH. The purpose of this contract is to continue the Arkansas Improving Pain Care and Treatment Speaker’s Bureau, which is designed to provide continuing medical education to providers in Arkansas and across the country on opioid-related topics. The project also maintained the online forum for MidSOUTH that was designed as a place providers could receive resources on opioid prescribing and ask our experts clinically relevant questions related to opioid prescribing

and opioid use disorder.
Role: **Principal Investigator**

Reviewer

Peer-Reviewed Journals

<i>Substance Use & Addiction Journal – 1 Review</i>	2025
<i>Journal of Rural Health – 1 Review</i>	2024
<i>Computers in Biology and Medicine -- 1 Review</i>	2023
<i>Journal of Substance Use and Addiction Treatment – 5 Reviews</i>	2023-2025
<i>Clinical Journal of Pain – 1 Review</i>	2023
<i>Drug and Alcohol Dependence – 1 Review</i>	2023
<i>Health Affairs – 1 Review</i>	2023
<i>Medical Care – 1 Review</i>	2023
<i>Pain Medicine – 2 Reviews</i>	2023
<i>NPJ Digital Medicine – 1 Review</i>	2022
<i>Journal of Clinical Medicine – 1 Review</i>	2021
<i>BMC Geriatrics – 1 Review</i>	2021
<i>Drug and Alcohol Dependence – 2 Reviews</i>	2021-2022
<i>BMC Anesthesiology – 1 Review</i>	2021
<i>Scientific Reports – 1 Review</i>	2021
<i>Substance Abuse Treatment, Prevention, and Policy – 1 Review</i>	2021
<i>Journal of Pain and Symptom Management – 2 Reviews (1 Initial Review and 1 R1 Review)</i>	2021
<i>PLOS ONE – 3 Reviews (1 Initial Review and 2 R1 Review)</i>	2020-2022
<i>Quality of Life Research – 1 Review</i>	2019

Service

Public

Co-Chair, National Institute on Drug Abuse Clinical Trials Network Secondary Data Analysis Workgroup	2023-present
Reviewer, National Institutes of Health/National Institute on Drug Abuse HEAL Data2Action Innovation and Acceleration Projects, Phased Awards	2023
Reviewer, National Institutes of Health/National Institute on Drug Abuse HEAL Data2Action Program	2022-2024
Reviewer, United States Department of Agriculture National Institute of Food and Agriculture Small Business Innovation Research	2022
Member, VA Health Services Research & Development Medication Treatment for Opioid Use Disorder (MOUD) Synergy Workgroup	2021-2023
SEARCH 2021: The National Telehealth Research Symposium Moderator and Judge	2021-2023
American Medical Informatics Association Annual Symposium Poster and Paper Reviewer	2021
Member, VA Health Services Research & Development Pain/Opioid Core Career Development Workgroup	2020-2023
Consultant, Arkansas Prescription Drug Monitoring Program and Branch of Substance Misuse and Injury Prevention, Arkansas Department of Health	2016-2019
Lead, Development of opioid prescribing metrics for evaluating opioid prescribing practices among Arkansas prescribers using Arkansas Prescription Drug Monitoring Program Data, Arkansas Department of Health	2018-2019
Pharmacist, Medical Mission Team, Puerto Cabezas, Nicaragua	2017

Home Church Leader, Fellowship Bible Church 2016-Present
Kids Ministry Volunteer, Fellowship Bible Church 2010-2011
Livestock Volunteer, Heifer International Ranch 2006

University

Chair, Management Oversight Committee, Translational Research Institute 2024-Present
Co-Director, Translational Research Innovations and Partnerships (TRIP) Program 2024-Present
Translational Research Institute Leadership Council Member 2024-Present
Academic Senate Research Committee Member 2021-Present
Lead, Development of opioid prescribing metrics for evaluating opioid prescribing practices at the University of Arkansas for Medical Sciences based on EPIC data, University of Arkansas for Medical Sciences Opioid Stewardship Committee 2019

College

Student Leader, Health Screening Services, Mexican Consulate, University of Arkansas for Medical Sciences College of Pharmacy 2012-2013
Student Member, University of Arkansas for Medical Sciences College of Pharmacy Assessment Committee 2012

Department

Department of Biomedical Informatics Promotion and Tenure Committee 2023-2024
Member, Graduate Admissions Committee, Department of Biomedical Informatics, University of Arkansas for Medical Sciences 2021-2024
Mentor, NIDA T32 Addiction Research Training Program, Department of Psychiatry, University of Arkansas for Medical Sciences 2019-Present

Division

Member, Substance Use Disorder Workgroup, Center for Health Services Research, Department of Psychiatry, College of Medicine, University of Arkansas for Medical Sciences 2019-2022
Member, Pharmaceutical Evaluation and Policy Division Director Search Committee, College of Pharmacy, University of Arkansas for Medical Sciences 2020

Publications

**Denotes mentee*

Peer-Reviewed

1. ElHassan NO, Farnam C, Thompson JW, Stanley N, **Hayes CJ**, Li C, Mourani PM, Hudson TJ, McGehee R, Martin BC. "From Card to Cradle: Examining Medical Cannabis Purchasing Among Pregnant Women in Arkansas." *American Journal of Obstetrics & Gynecology MFM*. 2025 Nov 27. Online ahead of print.
2. Rabbani M, Bogulski CA, **Hayes CJ**. Health Measures and Willingness to Pay for Internet Services. *Telemedicine and e-Health*. 2025 Sep 26. Online ahead of print.
3. Pro G, **Hayes C**, Gu M, Bravo R, Baloh J. Geographic and Policy Factors Influence Telehealth Availability for Substance Use Disorder Treatment." *Journal of Behavioral Health Services Research*. 2025 Sep 9. Online ahead of print.
4. Mahashabde R, Pandit AA, Acharya M, Ali MM, Bogulski CA, Eswaran H, **Hayes CJ**. Trends in Remote Patient Monitoring Before and After the COVID-19 Public Health Emergency Declaration in the United

States: A Comparison Between Rural/Urban and Racial/Ethnic Group. *Telemedicine and e-Health*. 2025 Jul 2. Online ahead of print.

5. Karim SA, Tilford JM, Bogulski CA, **Hayes CJ**, Eswaran H. Exploring Telehealth Adoption and Financial Outcomes for Rural Hospitals during the COVID-19 Public Health Emergency. *Journal of Rural Health*. 2025 Mar; 41(2):e70038.
6. **Hayes CJ**, Raciborski RA, Nowak M*, Acharya M, Nunes EV, Winhusen TJ. Medications for Opioid Use Disorder: Predictors of Early Discontinuation and Reduction of Overdose Risk in US Military Veterans by Medication Type. *Addiction*. 2025 Jan; 120(1): 138-151.
7. Hoggatt KJ, Harris AHS, **Hayes CJ**, Washington D, Williams EC. Improving diagnosis-based quality measures: an application of machine learning to the prediction of substance use disorder among outpatients. *BMJ Open Qual*. 2025 Mar 22;14(1).
8. Allison MK, Bogulski CA, McCoy HC, Silva R, **Hayes CJ**, Andersen JA, Eswaran H. Facilitators and Barriers to Implementing the Project ECHO Model: Perspectives of 8 ECHO Implementation Teams. *Medical Education Online*. 2025; 30(1).
9. Karim SA, Bogulski CA, Tilford JM, **Hayes CJ**, Eswaran H. Financial Performance of Hospital Telehealth Adopters, Nonadopters, and Switchers: A Rural-Urban Comparison. *Journal of Healthcare Management*. 2025 Mar-Apr; 70(2): 93-107.
10. Noor N*, Pro G, Acharya M, Eswaran H, **Hayes CJ**. Association between Different Modalities of Opioid Use Disorder-Related Care Delivery and Opioid Use Disorder-Related Patient Outcomes: A Retrospective Cohort Study. *Addictive Behaviors Reports*. 2025 Feb 2. Online ahead of print.
11. Acharya M, **Hayes CJ**, Bogulski CA, Ali MM, Eswaran H. Attrition of Remote Patient Monitoring Use for Hypertension Management in Medicare Fee-for-Service Beneficiaries (2018-2021). *Journal of the American Geriatrics Society*. 2024 Nov 10. Online ahead of print.
12. Cengil AB, Eksioglu S, Eksioglu B, Eswaran H, **Hayes CJ**, Bogulski CA. Statistical Analysis of Telehealth Use and Pre- and Postpandemic Insurance Coverage in Selected Health Care Specialties in a Large Health Care System in Arkansas: Comparative Cross-Sectional Study. *Journal of Medical Internet Research*. 2024 Oct 18. Online ahead of print.
13. Bogulski CA, Rabbani M, **Hayes CJ**, Cengil AB, Shoultz CC, Eswaran H. Poor Representation of Rural Counties of the United States in Some Measures of Consumer Broadband. *Telemedicine Reports*. 2024 Oct 8;5(1):290-303.
14. Abulez D*, Brown CC, Cucciare MA, **Hayes CJ**. Association Between Patient-Level Factors and Positive Treatment Response Among Individuals with a Psychostimulant Use Disorder: A Cross-Sectional Study. *Substance Use: Research and Treatment*. 2024 Oct 7. Online ahead of print.
15. Rabbani M*, Bogulski CA, Eswaran H, **Hayes CJ**. Willingness to Pay for Internet Speed and Quality. *Telematics and Informatics*. 2024 Sep 9. Online ahead of print.
16. Bogulski CA, Rabbani M, **Hayes CJ**, Cengil AB, Shoultz CC, Eswaran H. Rural Counties of the United States are Underrepresented in Measures of Consumer Broadband. *Telemedicine Reports*. Online ahead of print.
17. Pro G, **Hayes C**, Mancino M. Worsening Trends in the Frequency of Methamphetamine and Other Stimulant Use between Treatment Admission and Discharge. *Drug and Alcohol Dependence*. 2024 Jul 26. Online ahead of print.
18. **Hayes CJ**, Raciborski RA, Martin BC, Gordon AJ, Hudson TJ, Brown CC, Pro G, Cucciare MA. Are Gaps in Rates of Retention on Buprenorphine for Treatment of Opioid Use Disorder Closing among Veterans across Different Races and Ethnicities? A Retrospective Cohort Study. *Journal of Substance Use & Addiction Treatment*. 2024 Jul 25. Online ahead of print.
19. **Hayes CJ**, Noor NB, Raciborski RA, Martin BC, Gordon AJ, Hoggatt KJ, Hudson TJ, Cucciare MA. Development and Validation of Machine-Learning Algorithms Predicting Retention, Overdoses, and All-

Cause Mortality among U.S. Military Veterans Treated with Buprenorphine for Opioid Use Disorder. *Journal of Addictive Diseases*. 2024 June 30. Online ahead of print.

20. **Hayes CJ**, Martin BC, Hoggatt KJ, Cucciare MA, Hudson TJ, Gordon AJ. Average Daily Dose Trajectories for Episodes of Buprenorphine Treatment for Opioid Use Disorder. *Substance Use & Addiction Journal*. 2024 July. Online ahead of print.
21. Lewis KN, Zhang D, Corrales G, Eswaran H, **Hayes CJ**, Gressler LE. Telehealth Utilization for Opioid Use Disorder: A Nationwide Analysis Before and After the COVID-19 Public Health Emergency Declaration. *Telemedicine and e-Health*. 2024 Apr 15. Online ahead of print.
22. Rabbani M*, Bogulski CA, Allison MK, Eswaran H, **Hayes C**. Telehealth and Willingness to Pay for Internet Services. *Telemedicine and e-Health*. 2024 Jun;30(7):1880-1891.
23. Bogulski CA, Pro G, Acharya M, Ali MM, Brown CC, **Hayes CJ**, Eswaran H. The Association between Rurality, Dual Medicare/Medicaid Eligibility and Chronic Conditions with Telehealth Utilization: An Analysis of 2019-2020 National Medicare Claims. *Journal of Telemedicine and Telecare*. 2024 Feb 5. Online ahead of print.
24. Pro G, **Hayes C**, Bona J, Gu M, Richoux C, Zaller N. HCV Medication Receipt among Individuals with Methamphetamine, Opioid, and Alcohol Use Disorders in Arkansas, 2018-2022: A Long Road Ahead for HCV Elimination in the US South. *Journal of Drug Issues*. 2024 Feb 5. Online ahead of print.
25. Acharya M*, **Hayes CJ**, Li C, Painter JT, Dayer L, Martin BC. Opioid Therapy Trajectories of Patients with Chronic Non-Cancer Pain over One Year of Follow-up after Initiating Short-Acting Opioid Formulations. *Pain Medicine*. 2024 Jan 18;pnad169. Online ahead of print.
26. Acharya M*, Ali MM, Bogulski CA, Pandit AA, Mahashabde RV, Eswaran H, **Hayes CJ**. Association of Remote Patient Monitoring with Mortality and Healthcare Utilization in Hypertensive Patients: A Medicare Claims-Based Study. *Journal of General Internal Medicine*. 2023 Nov 16. Online ahead of print.
27. Wang L, Hong PJ, Jiang W, Rehman Y, Hong BY, Couban RJ, Wang C, **Hayes CJ**, Juurlink DN, Busse JW. Predictors of Fatal and Non-Fatal Overdose after Prescription of Opioids for Chronic Pain: A Systematic Review and Meta-Analysis of Observational Studies. *CMAJ*. 2023 Oct 23; 195(41):E1399-E1411.
28. Karim SA, Tilford JM, Bogulski CA, Rabbani M, **Hayes CJ**, Eswaran H. Financial Performance of Rural Hospitals Persistently Lacking or Having Telehealth Technology. *Journal of Hospital Management and Health Policy*. 2023 Aug 7(9).
29. Shoults CC*, Dawson L, **Hayes C**, Eswaran H. Comparing the Discussion of Telehealth in Two Social Media Platforms: Social Listening Analysis. *Telemedicine Reports*. 2023 Aug 3;4(1):236-248.
30. Bogulski CA, Acharya M, Pro G, Ali MM, Rabbani M, **Hayes CJ**, Eswaran H. A State Profile of Disparities in Telehealth Utilization among Medicare Beneficiaries: An Intersection between Race/Ethnicity, Rurality, and Chronic Conditions—Arkansas, 2019. *Telemedicine and e-Health*. 2023 Apr 19. Online ahead of print.
31. Pandit AA*, Mahashabde RV, Brown CC, Acharya M, Shoults CC, Eswaran H, **Hayes CJ**. Association Between Broadband Capacity and Telehealth Utilization among Medicare Fee-for-Service Beneficiaries during the COVID-19 Pandemic. *Journal of Telemedicine and Telecare*. 2023 Apr 5; 1357633X231166026.
32. Najarian M*, Goudie A, Bona JP, Rezaeiahari M, Young SG, Bogulski CA, **Hayes CJ**. Socioeconomic Determinants of Remote Patient Monitoring Implementation among Rural and Urban Hospitals. *Telemedicine and e-Health*. 2023 Apr 3. Online ahead of print.
33. Acharya M, Ali MM, **Hayes CJ**, Bogulski CA, Magann EF, Eswaran H. Trends in Telehealth Visits during Pregnancy, 2018 to 2021. *JAMA Network Open*. 2023 Apr 3;6(4):e236630.
34. Cengil AB, Eksioglu B, Eksioglu S, Eswaran H, **Hayes CJ**, Bogulski CA. Using Data Analytics for Telehealth Utilization: A Case Study in Arkansas. *Journal of Telemedicine and Telecare*. 2023 Mar 7; 1357633X231160039.

35. Shoults CC*, Rutherford MW, Kemp AS, Addicott MA, Brown A, Greene CJ, **Hayes CJ**, Gan JM, Larson-Prior LJ, Bona JP. Analysis of Caregiver Burden Expressed in Social Media Discussions. *International Journal of Environmental Research and Public Health*. 2023 Jan 20;20(3):1933.
36. **Hayes CJ**, Gannon MA, Woodward EN, Long CR, George M, Ray-Griffith S, Tobey LR, Goree J. Implementation and Preliminary Effectiveness of a Multidisciplinary Telemedicine Pilot Initiative for Patients with Chronic Non-Cancer Pain in Rural and Underserved Areas at a Major Academic Medical Center. *Journal of Pain Research*. 2023 Jan 5; 16:55-69.
37. Acharya M*, **Hayes CJ**, Li C, Painter JT, Dayer L, Martin BC. Comparative Study of Opioid Initiation with Tramadol, Short-Acting Hydrocodone, or Short-Acting Oxycodone on Opioid-related Adverse Outcomes Among Chronic Non-Cancer Pain Subjects. *Clinical Journal of Pain*. 2023 Mar 1;39(3):107-118.
38. Mahashabde RV*, Shrikhande MA, Han X, Martin BC, ElHassan NO, Hayes CJ. Concordance of Opioid Exposure in All Payers Claims Database with Prescription Drug Monitoring Program Database Using Arkansas as a Case Example. *Health Services Research*. 2022 Dec 15. Online ahead of print.
39. Pandit AA*, Eswaran H, Bogulski CA, Rabbani Allison M, Dawson L, **Hayes CJ**. Factors Associated with Remote Patient Monitoring Services Provision by Hospitals and Health Care Systems in the United States. *Telemedicine Journal and e-Health*. 2022 Nov 30. Online ahead of print.
40. Acharya M*, Shoults CC, **Hayes CJ**, Brown CC. Association between Broadband Capacity and Social Vulnerability Factors in the United States: A County-Level Spatial Analysis. *Population Health Management*. 2022 Nov 25. Online ahead of print.
41. Acharya M*, **Hayes CJ**, Li C, Painter JT, Dayer L, Martin BC. Development of a Potential Opioid Misuse Measure from Administrative Dispensing Data and Contrasting Opioid Misuse among Individuals on Long-term Tramadol, Long-term Short-acting Hydrocodone or Long-term Short-acting Oxycodone Therapy in Arkansas. *Current Medical Research and Opinion*. 2022 Aug 24:1-19.
42. Pro G, **Hayes C**, Montgomery BEE, Zaller N. Demographic and Geographics Shifts in the Preferred Route of Methamphetamine Administration among Treatment Cases in the US, 2010-2019. *Drug and Alcohol Dependence*. 2022 Aug 1; 237:109535. Epub 2022 Jun 9.
43. Narcisse MR, Andersen JA, Felix HC, **Hayes CJ**, Eswaran H, McElfish PA. Factors Associated with Telehealth Use among Adults in the United States: Findings from the 2020 National Health Interview Survey. *Journal of Telemedicine and Telecare*. 2022 Jul 26. Online ahead of print.
44. **Hayes CJ**, Dawson L, McCoy H, Hernandez M, Andersen J, Ali MM, Bogulski CA, Eswaran H. Utilization of Remote Patient Monitoring Within the United States Health Care System: A Scoping Review. *Telemedicine Journal and e-Health*. 2022 Jul 11. Online ahead of print.
45. **Hayes CJ**, Cucciare MA, Martin BC, Hudson TJ, Bush K, Lo-Ciganic W, Yu H, Charron E, Gordon AJ. Using Data Science to Improve Outcomes for Persons with Opioid Use Disorder. *Substance Abuse*. 2022; 43(1): 956-963.
46. **Hayes CJ**, Koonce RM, Gressler LE, Hu B, Williams JS, Martin BC. Association between Opioid Therapy Trajectories and Potential Opioid-Related Adverse Health Events. *Pharmacoepidemiology and Drug Safety*. 2022 June 13. Online ahead of print.
47. Goree JH, **Hayes C**, Petersen E, Curran G. Lack of Neuromodulation Knowledge among Rural Family Medicine Residents: A Call for Implementation Research. *Journal of Pain Research*. 2022 Apr 21; 15: 1183-1189.
48. **Hayes CJ**, Krebs EE, Li C, Brown J, Hudson T, Martin BC. Association between Discontinuing Chronic Opioid Therapy and Newly Diagnosed Substance Use Disorders, Accidents, Self-Inflicted Injuries and Drug Overdoses within the Prescribers' Health Care System: A Retrospective Cohort Study. *Addiction*. 2022 Apr; 117(4): 946-968.
49. Pro G, **Hayes C**, Brown CC, Goree J, Zaller N. Individual and Health Policy Factors Associated with Positive Heroin and Opioid Treatment Response: United States, 2018. *American Journal of Public Health*. 2022 Feb; 112(S1): S66-S76.

50. Pro G, **Hayes CJ**, Brown C, Goree JH, Zaller N. From Chronic Pain Medicine to Heroin and Opioid Treatment: Racial/Ethnic Differences in Individual, Treatment, and Health Policy Factors Associated with Positive Treatment Response. *American Journal of Public Health*. 2022 Feb; 112(S1):S66-S76.
51. **Hayes CJ**, Goree JH, Turpin J, Ortiz H, Smith GR, Gokarakonda SB, Hyde C, Cucciare MA. Leveraging the Prescription Drug Monitoring Program to Curb Opioid Prescribing in Arkansas. *Journal of Primary Prevention*. 2022 Jun;43(3):337-357.
52. **Hayes CJ**, Krebs EE, Brown J, Li C, Hudson TJ, Martin BC. Impact of Transitioning from Long-Term to Intermittent Opioid Therapy on the Development of Potentially Opioid-Related Adverse Outcomes: A Retrospective Cohort Study. *Drug and Alcohol Dependence*. 2022 Feb 1;231:109236.
53. Goree JH, Srinivasan N, Cucciare MA, Zaller N, Byers L, Boateng B, **Hayes CJ**. Video-Based, Patient-Focused Opioid Education in the Perioperative Period Increases Self-Perceived Opioid-Related Knowledge: A Pilot Study. *Journal of Pain Research*. 2021 Aug 24;14:2583-2592.
54. **Hayes CJ**, Gressler LE, Hu B, Jones BL, Williams JS, Martin BC. Trajectories of Opioid Use after Long-Term Opioid Therapy Initiation among a National Cohort of U.S. Veterans. *Journal of Pain Research*. 2021 Jun 14;14:1745-1762.
55. **Hayes CJ**, Krebs EE, Hudson T, Brown JB, Li C, Martin BC. Association between Pain Intensity and Discontinuing Opioid Therapy or Transitioning to Intermittent Opioid Therapy after Initial Long-Term Opioid Therapy: A Retrospective Cohort Study." *Journal of Pain*. 2021 Jun 26;S1526-5900(21)00248-0.
56. **Hayes CJ**, Morgan HR, Cucciare MA, George M, Goree J, Hudson TJ, Ray-Griffith S, Tobey L, Bollinger M, Winston K, Praseuth A, Smith GR. A Program Evaluation of Arkansas Improving Multidisciplinary Pain Care and Treatment (AR-IMPACT). *Journal of Opioid Management*. 2021 May-Jun; 17(3):227-239.
57. **Hayes CJ**, Krebs EE, Hudson T, Brown JB, Li C, Martin BC. Impact of opioid dose escalation on pain intensity: a retrospective cohort study. *Pain*. 2020 May;161(5):979-988. doi: 10.1097/j.pain.0000000000001784.
58. Acharya M, Chopra D, **Hayes CJ**, Teeter B, Martin BC. Cost-Effectiveness of Intranasal Naloxone Distribution to High-Risk Prescription Opioid Users. *Value in Health*. 2020 Apr;23(4):451-460. doi: 10.1016/j.jval.2019.12.002. Epub 2020 Feb 10
59. **Hayes CJ**, Krebs EE, Hudson T, Brown JB, Li C, Martin BC. Impact of opioid dose escalation on the development of substance use disorders, accidents, self-inflicted injuries, opioid overdoses and alcohol and non-opioid drug-related overdoses: a retrospective cohort study. *Addiction*. 2020 Jun;115(6):1098-1112. doi: 10.1111/add.14940. Epub 2020 Jan 15.
60. Young SG, **Hayes CJ**, Aram J, Tait MA Doctor hopping and doctor shopping for prescription opioids associated with increased odds of high-risk use. *Pharmacoepidemiology and Drug Safety*. 2019 Aug;28(8):1117-1124. doi: 10.1002/pds.4838. Epub 2019 Jun 5.
61. Shah A, **Hayes CJ**, Lakkad M, Martin BC. Impact of Medical Marijuana Legalization on Opioid Use, Chronic Opioid Use, and High-Risk Opioid Use. *Journal of General Internal Medicine*. 2019 Aug;34(8):1419. doi: 10.1007/s11606-018-4782-2. Epub 2019 Jan 25.
62. Bona JP, Utecht J, Bost S, **Hayes CJ**, Brochhausen M. Building a Shared Ontology Use Patterns Repository. *International Conference on Biomedical Ontology (ICBO) 2019*, Buffalo, NY, July 30 - August 2, 2019. [Forthcoming in Conference Proceedings].
63. **Hayes CJ**, Payakachat N, Li C. Evaluation of opioid use among patients with back disorders and arthritis. *Quality of Life Research*. 2018 Nov;27(11):3021-3035. doi: 10.1007/s11136-018-1941-1.
64. **Hayes CJ**, Li X, Li C, Shah A, Bhandari NR, Kathe N, Payakachat N. Health-Related Quality of Life among Chronic Opioid Users, Non-Chronic Opioid Users, and Non-Opioid Users with Chronic Non-Cancer Pain. *Health Services Research*. 2018 Oct;53(5):3329-3349. doi: 10.1111/1475-6773.12836.

65. **Hayes CJ**, Bona JP, Brochhausen M. Towards the Development of an Opioid Misuse Ontology. *Proceedings of the 9th International Conference on Biological Ontology*, Aug. 7-10, 2018. Available at http://ceur-ws.org/Vol-2285/ICBO_2018_paper_56.pdf
66. Bhandari NR, Kathe N, **Hayes C**, Payakachat N. Reliability and Validity of SF- 12v2 among Adults with Self-Reported Cancer. *Research in Social and Administrative Pharmacy*. 2018 Nov;14(11):1080-1084. doi: 10.1016/j.sapharm.2018.01.007.
67. Kathe N, **Hayes CJ**, Bhandari NR, Payakachat N. Assessment of Reliability and Validity of SF12v2 among a Diabetic Population. *Value in Health*. 2018 Apr;21(4):432-440. doi: 10.1016/j.jval.2017.09.007. Epub 2017 Nov 10.
68. Shah A, **Hayes CJ**, Martin BC. Factors Influencing Long-Term Opioid Use among Opioid Naïve Patients: An Examination of Initial Prescription Characteristics and Pain Etiologies. *The Journal of Pain*. 2017 November; 18(11):1374–1383. doi:10.1016/j.jpain.2017.06.010.
69. **Hayes CJ**, Bhandari NR, Kathe N, Payakachat N. Reliability and Validity of the Medical Outcomes Study Short Form-12 Version 2 (SF-12v2) in Adults with Non-Cancer Pain. *Healthcare (Basel)*. 2017 Apr 26;5(2).
70. **Hayes CJ**, Painter JT. A comprehensive clinical review of opioid-induced allodynia: Discussion of the current evidence and clinical implications. *Journal of Opioid Management*. 2017 Mar/Apr;13(2):95-103.
71. Shah A, **Hayes CJ**, Martin BC. Characteristics of Initial Prescription Episodes and Likelihood of Long-Term Opioid Use—United States, 2006-2015. *MMWR Morbidity and Mortality Weekly Report*. 2017 Mar 17;66(10):265-269. DOI: <http://dx.doi.org/10.15585/mmwr.mm6610a1>
72. Shah A, Shewale A, **Hayes CJ**, Martin BC. Cost Effectiveness of Oral Anticoagulants for Ischemic Stroke Prophylaxis Among Nonvalvular Atrial Fibrillation Patients. *Stroke*. 2016 Jun;47(6):1555-61.
73. **Hayes CJ**, Hudson TJ, Phillips MM, Bursac Z, Williams JS, Austin MA, Edlund MJ, Martin BC. The Influence of Propoxyphene Withdrawal on Opioid Use in Veterans. *Pharmacoepidemiology and Drug Safety*. 2015 Nov; 24(11):1180-8.
74. Hudson TJ, Fortney JC, Williams JS, Austen MA, Pope SK, **Hayes CJ**. Effect of Rural Residence on Use of VHA Mental Health Care among OEF/OIF Veterans. *Psychiatric Services*. 2014 Dec 1; 65(12):1420-5.
75. Palombi, L, Kading M, **Hayes CJ**. The public health pharmacist and the role of the pharmacy curriculum: A call to action. *Currents in Pharmacy Teaching and Learning*. 2013 Sept-Oct; 5(5): 477-482
76. **Hayes C**, Hutchison L. Development and Evaluation of a Student-Led Medicare Part D Planning Clinic. *The Consultant Pharmacist*. 2013 Apr;28(4):237-42.
77. Nowak G, Bakajsova D, **Hayes C**, Hauer-Jensen M, Compadre C. Gamma-Tocotrienol Protects Against Mitochondrial Dysfunction and Renal Cell Death. *Journal of Pharmacology and Experimental Therapeutics*. 2012 Feb; 340(2): 330-338.

Non Peer-Reviewed

1. Hayes CJ, Cucciare MA. "Using Artificial Intelligence to Improve Buprenorphine Retention for Veterans with Opioid Use Disorder." HSR Forum Winter 2025. <https://www.hsrp.research.va.gov/publications/forum/winter25/default.cfm?ForumMenu=winter25-6>
2. Bogulski, C. A., Allison, M. K., Charlton, C., **Hayes, CJ**, McCoy, H. C., Silva, R., Thakur, D., & Eswaran, H. (2024). An evaluation of the Telehealth Broadband Pilot Program (2021 – 2024). Health Resources and Services Administration (HRSA) Office for the Advancement of Telehealth (OAT). Available at <https://telehealthbroadbandproject.com/findings/>.
3. Bogulski, C. A., Rabbani, M., Hayes, C. J., Cengil, A. B., & Eswaran, H. (2024). Publicly-available data sets containing consumer-generated internet speed test data may leave rural communities behind. Health Resources and Services Administration (HRSA) Office for the Advancement of Telehealth (OAT). Available at <https://telehealthbroadbandproject.com/findings/evaluation-results/>.

4. Shouts CC, Abulez D, Nowak M, Bledsoe A, Dormer N, Garza M, Bona J, Powell T, Hayes CJ. Comparative Analysis of Adverse Event Reporting on Reddit and the FDA Adverse Event Reporting System (FAERS). medRxiv 2024.08.13.24311929; doi: <https://doi.org/10.1101/2024.08.13.24311929>
5. Hayes CJ, Ortiz H, Martin BC, Hudson TJ, Robertson D, Aram J, Smith GR. Opioid Prescribing in Arkansas and Next Steps. *Journal of the Arkansas Medical Society*. Vol 114, No9. Mar 2018. P 200-202.
6. Martin BC, Hayes CJ, Austen M, Hudson T. Author Response to impact of survival bias on opioid-related outcomes when using death as an exclusion criterion. *Journal of Pharmacoepidemiology and Drug Safety*. 2016 Apr; 25(4):477-8.
7. Watkins KE, Hudson TJ, Hayes CJ. The Link between Quality Measures and Mortality in Individuals with Co-Occurring Issues. *Counselor*. 2017 Aug; 18(4): 49-52

Presentations

Oral Presentations

Invited National/International Meetings

Are Rates of Retention on Buprenorphine Improving Equitably among Veterans? Oral presentation to a national virtual audience for the Veterans Aging Cohort Study Opioids Core. 38 participants. May 2025. New Haven, CT.

Are Rates of Retention on Buprenorphine Improving Equitably among Veterans? Oral presentation to a national virtual audience for the Stepped Care for Opioid Use Train the Trainer (SCOUTT) Initiative. 92 participants. August 2024. Salt Lake City, UT.

Are Rates of Retention on Buprenorphine for Treatment of Opioid Use Disorder Improving among Veterans over Time by Race/Ethnicity? Presentation to the Health Services Research & Development IDEAS Center/University of Utah. May 2023. Salt Lake City, UT.

Association Between Opioid Therapy Trajectories and Potential Opioid-Related Adverse Health Events. Presentation to the National Academies of Sciences, Engineering, and Medicine (NASEM) panel on Evaluating the Effects of Opioids and Benzodiazepines on All-Cause Mortality in Veterans. March 2023. Washington, DC.

Are Rates of Retention on Buprenorphine for Treatment of Opioid Use Disorder Improving among Veterans over Time? Presentation to the Health Services Research & Development National Conference. February 2023. Baltimore, MD.

Objective Program Examination and Gap Analysis of Telehealth Resource Centers (OPAL-TRC). Presentation to the Health Resources and Services Administration Office for the Advancement of Telehealth. September 2022. Virtual Conference

Rural Telehealth Evaluation Center. Presentation at the Office for the Advancement of Telehealth All Grantee Meeting. May 2022. Virtual Conference

Objective Program Examination and Gap Analysis of Telehealth Resource Centers (OPAL-TRC). Presentation at the National Consortium of Telehealth Resource Centers Annual Meeting. April 2022. Virtual Conference

Data to Clinical Action: Using Predictive Analytics to Improve Care of Veterans with Opioid Use Disorder. Presentation to the VA HSR&D Pain/Opioid Core Career Development Workgroup. September 2021. Virtual Conference

Opioid Tapering. Presentation to Woman's Foundation Inc. Presentation Title: "Opioid Tapering." May 2021. Virtual Conference

Prescription Drug Monitoring Program Data for Systems Dynamics Models. Presentation to Duke Margolis Center for Health Policy. Duke University. Conference title: "Assessing and Incorporating Intervention Effectiveness in Systems Models of the Opioid Crisis." October 2020. Virtual Conference

Impact of Opioid Dose Escalation on the Development of Substance Use Disorders, Accidents, Self-Inflicted Injuries, Opioid Overdoses, and Alcohol and Non-Opioid Drug-Related Overdoses: A Retrospective Cohort Study. Presentation to Medication Addiction Treatment Initiative in the VA (MAT-VA), National MAT-VA/SUD Journal Club. University of Utah. August 2020. Virtual Conference.

Invited Local/Regional Meetings

Are Gaps in Rates of Retention on Buprenorphine for Treatment of Opioid Use Disorder Closing among Veterans Across Different Races and Ethnicities? A Retrospective Cohort Study Presentation to the Geriatric Research, Education and Clinical Center at the Central Arkansas Veterans Healthcare System. November 2025.

Towards Personalized Medicine for Opioid Use Disorder: Analyses of Data from the Veterans Health Administration Presentation to the UAMS College of Pharmacy Seminar Series. October 2025.

Opioid Use in the Elderly Presentation to Geriatrics Update 2024 from the UAMS Department of Geriatrics. September 2024.

Developing and Validating PREMMAT, a PREDictive Model for MAT dropout, among Veterans with an Opioid Use Disorder. Presentation to UAMS Translational Research Institute Innovation Seminar, Little Rock, AR. December 2021

Developing and Validating PREMMAT, a PREDictive Model for MAT dropout, among Veterans with an Opioid Use Disorder. Presentation to UAMS Translational Research Institute Innovation Seminar, Little Rock, AR. May 2021

Is There Benefit to Opioid Dose Escalation in Patients with Chronic Pain? Presentation to Rheumatology Grand Rounds, Little Rock, AR. April 2021

Naloxone and Buprenorphine Prescribing in Arkansas. Presentation to Arkansas Prescription Drug Monitoring Program Advisory Committee, Little Rock, AR. March 2020

Naloxone: Formulations, Cost, and When to Talk to the Patient. Presentation to Geriatrics Grand Rounds, Little Rock, AR. 2020

Creating Meaningful Opioid Metrics in Arkansas. Presentation to Arkansas Board of Health, Little Rock, AR. 2020

Prescription Drug Monitoring Program: Opioid Prescribing in Arkansas. Presentation to Arkansas Public Health Association Annual Meeting. Little Rock, AR. 2019

Linking the Arkansas All Payer Claims Database with the Arkansas Prescription Drug Monitoring Program. Presentation to National Center for Advancing Translational Sciences. Little Rock, AR. 2019

Analysis of Buprenorphine Prescriber Specialties/Patient Load and Naloxone Dispensing in Arkansas. Presentation to PDMP Advisory Committee. Little Rock, AR. 2019

Implementing Opioid Prescribing Metrics in Arkansas. Presentation to Arkansas Medical Board—Pain Subcommittee. Little Rock, AR. 2018

Combating the Opioid Epidemic: What does the data say for the US and Arkansas? Presentation to County Health Officers Symposium. Winthrop Rockefeller Center. Morrilton, AR. 2018

Treating Chronic Pain According to the Guidelines: What Resources are Available to Help? Presentation to Federally Qualified Health Centers of Arkansas. FQHC Conference. Little Rock, AR. 2018

Appropriate Opioid Prescribing in the Outpatient Setting. Presentation to University of Arkansas for Medical Sciences Geriatrics Update Conference. Little Rock, AR. 2018

Combating the Opioid Epidemic: What does the data say for the US and Arkansas? Presentation to North Arkansas Partnership for Health Education. Big Cedar Lodge, Branson, MO. 2018

Opioid Prescribing in Arkansas and Potential Next Steps. Presentation to Arkansas Medical Society. Little Rock, AR. 2017

Opioid Prescribing in Arkansas and Potential Next Steps. Presentation to Centers of Disease Control. Arkansas Department of Health, Little Rock, AR. 2017

Opioid Prescribing in Arkansas and Potential Next Steps. Presentation to Arkansas Prescription Drug Monitoring Program Advisory Committee, Little Rock, AR. 2017

Opioid Prescribing in Arkansas and Potential Next Steps. Presentation to Arkansas Department of Health Science Advisory Committee, Little Rock, AR. 2017

Posters and Published Abstracts

National/International Meetings

**Denotes mentee*

Pro G, Baloh J, **Hayes C**. "Telehealth Availability in Substance Use Treatment Settings: Multilevel and Geospatial Analysis of Neighborhood, County, and State Policy Environments, 2023." Presented at the American Public Health Association Annual Meeting and Expo, Washington, DC. November 2025.

Smith AM*, Gomez-Acevedo H, **Hayes CJ**, Greer M, Martin BC. "Developing a Feature Selection Workflow for Variable-Rich Data: A Case Study Utilizing Claims Data to Build Classifiers for the Prediction of Opioid Use Disorder Among Persons Authorized to Purchase Medical Cannabis." Presented at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) International Meeting, Montreal, Quebec, Canada, May 2025.

Smith AM*, Gomez-Acevedo H, **Hayes CJ**, Greer M, Martin BC. "Development of a Novel Approach to Improve Binary Classification Prediction Tasks When Encountering Time-To-Event Data: Performance Comparison of Three Alternative Approaches to Predict Stimulant Use Disorder Among Persons Authorized to Purchase Medical Marijuana." Presented at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) International Meeting, Montreal, Quebec, Canada, May 2025.

Smith AM*, Gomez-Acevedo H, **Hayes CJ**, Greer M, Martin BC. "Development of a Discrete-Time-Updating Algorithm to Predict Cannabis Use Disorder Among Arkansas Medical Marijuana Cardholders." Presented at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) International Meeting, Montreal, Quebec, Canada, May 2025.

Wolde F*, Martin BC, Gressler L, Li C, Acharya M, **Hayes CJ**. "Impact of the X-Waiver Elimination on Buprenorphine Prescribing by Non-Physician Clinicians: An Interrupted Time Series Analysis." Presented at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) International Meeting, Montreal, Quebec, Canada, May 2025.

Hayes CJ, Raciborski RA, Nowak M, Acharya M, Nunes EV, Winhusen TJ. "Medications for Opioid Use Disorder: Predictors of Early Discontinuation and Reduction of Early Discontinuation and Reduction of Overdose Risk in U.S. Military Veterans by Medication Type." Presented at the Addiction Health Services Research (AHSR) International Meeting, San Francisco, CA, October 2024. Abstract Publication forthcoming in Journal of Substance Use and Treatment.

Gressler L, Ali M, Zhang D, Denduluri A, Eswaran H, **Hayes CJ**, Lewis K. "Neonatal Abstinence Syndrome Prevalence during COVID-19 by Punitive Law Status." Presented at the Addiction Health Services Research (AHSR) International Meeting, San Francisco, CA, October 2024. Abstract Publication forthcoming in Journal of Substance Use and Treatment.

Hayes CJ, Noor NB, Raciborski RA, Martin BC, Gordon AJ, Hoggatt KJ, Hudson TJ, Cucciare MA. "Development and Validation of Machine-Learning Algorithms Predicting Retention, Overdoses, and All-Cause Mortality among U.S. Military Veterans Treated with Buprenorphine for Opioid Use Disorder." Presented at the College on Problems of Drug Dependence International Meeting, Montreal, CA, June 2024. Abstract Publication forthcoming in Drug and Alcohol Dependence.

Hayes CJ, Noor NB, Raciborski RA, Martin BC, Gordon AJ, Hoggatt KJ, Hudson TJ, Cucciare MA. "Are Rates of Retention on Buprenorphine for Treatment of Opioid Use Disorder Improving Among Veterans Over Time?" Presented at the Addiction Health Services Research (AHSR) International Meeting, New York, NY, October 2023. Abstract Publication forthcoming in Journal of Substance Use and Treatment.

Wolde F,* **Hayes CJ**, Gressler L, Martin BC. "The Impact of COVID-19 Preventive Restrictions on the Development of Diseases of Despair: A Multi-Group Time Series Analysis." Presented at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) International Meeting, Copenhagen, Denmark, November 2023. Published in Value in Health, 2023, Vol. 26(12), p. S205.

Corrales G, Lewis KN, Zhang D, **Hayes CJ**, Eswaran H, Gressler L. Telehealth Utilization for Opioid Use Disorder Analysis Before and After the COVID-19 Public Health Emergency Declaration. Society of Teachers of Family Medicine Annual Conference. Los Angeles, CA. May 2024.

Shoultz C*, Bogulski CA, Cengil, B, Eswaran H, **Hayes, CJ**. (2023). Mapping Broadband Infrastructure over Time in the United States. Poster presented at the 2023 Society for Education and the Advancement of Research in Connected Health (SEARCH) National Telehealth Research Symposium, Philadelphia, PA.

Bogulski, CA, Allison, MK, **Hayes, CJ**, & Eswaran, H. (2023). Interstate Compacts for Healthcare Licensure: A Systematic Analysis of State Legislation. Paper presented at the 2023 Society for Education and the Advancement of Research in Connected Health (SEARCH) National Telehealth Research Symposium, Philadelphia, PA.

Hernandez M, Dawson LC, Bogulski CA, Shoultz CC, Allison MK, Andersen JA, Bledsoe A, **Hayes, CJ**, & Eswaran, H. (2023). A Scoping Review of Telehealth Definitions. Paper presented at the 2023 Society for Education and the Advancement of Research in Connected Health (SEARCH) National Telehealth Research Symposium, Philadelphia, PA.

Rabbani M, Bogulski CA, Eswaran H, **Hayes, CJ**. (2023). Willingness to Pay for Internet Services. Paper presented at the 2023 Society for Education and the Advancement of Research in Connected Health (SEARCH) National Telehealth Research Symposium, Philadelphia, PA.

Acharya M, Shoultz C, **Hayes CJ**, Brown C. Association between Broadband Capacity and Social Vulnerability Factors in the United States: A County-Level Spatial Analysis. Society for Education and the Advancement of Research in Connected Health Abstracts SEARCH 2022 – The National Telehealth Research Symposium November 16-18, 2022 Virtual Meeting. Telemedicine and e-Health.

Pandit A, Mahashabde R, Brown C, Acharya M, Shoultz C, Eswaran H, **Hayes CJ**. Association between Broadband Capacity and Telehealth Utilization among Medicare Fee-for-Service Beneficiaries During the COVID-19 Pandemic. Society for Education and the Advancement of Research in Connected Health Abstracts SEARCH 2022 – The National Telehealth Research Symposium November 16-18, 2022 Virtual Meeting. Telemedicine and e-Health.

Bogulski C, Acharya M, Pro G, Ali M, Rabbani M, **Hayes CJ**, Eswaran H. Factors Associated with Telehealth Utilization among 2019 Arkansas Medicare Beneficiaries. Society for Education and the Advancement of Research in Connected Health Abstracts SEARCH 2022 – The National Telehealth Research Symposium November 16-18, 2022 Virtual Meeting. Telemedicine and e-Health.

Pandit A, Eswaran H, Bogulski CA, Rabbani MR, Allison MK, Dawson L, **Hayes CJ**. Factors Associated with Remote Patient Monitoring (RPM) Services Provision by Hospitals and Healthcare Systems in the United States. A Poster Presented at the International Society for Pharmacoeconomics and Outcomes Research Meeting. May 16, 2022. National Harbor, MD.

Mahashabde R, Shrikhande M, Han X, Martin BC, **Hayes CJ**. Added Value of Prescription Drug Monitoring Program Data to Pharmacy Insurance Claims Data: A Cross-Sectional Case Study with

Opioids. A Poster Presented at the virtual Addiction Health Services Research Meeting. October 13, 2021.

Martin BC, Acharya M, **Hayes CJ** Porter A, Turpin J, Bona JP, Utecht J, Hudson TJ. Predicting Fatal and Non-Fatal Opioid Overdoses with Prescription Drug Monitoring Plan (PDMP) Data Derived Features. A Poster Presented at the virtual Addiction Health Services Research Meeting. October 13, 2021.

Smith A, Acharya M, Hudson T, **Hayes C**, Porter A, Turpin J, Bona J, Utecht J, Martin BC. Evaluating the Temporal Association between the Recency of Prescribed Controlled Substance Acquisition and Fatal and Non-Fatal Opioid Overdose. A Poster Presented at the virtual International Society for Pharmacoeconomics and Outcomes Research International Meeting. June 1, 2021. (Value in Health, 2021. 24 S94)

Tobey L, McAtee R, **Hayes C**. A Rural Tele-Video Model: Results from Educating Practitioners About Opioids & Alternative Pain Management. The Gerontological Society of America, Annual Scientific Meeting. Philadelphia, PA. Innovation in Aging 4 (Suppl 1), 191. Dec 2020.

McAtee R, Tobey L, **Hayes C** Spradley L, Kumpuris S. Older Adults and Opioid Education: Lessons Learned from Experiences in Rural Arkansas. The Gerontological Society of America, Annual Scientific Meeting. Philadelphia, PA. Innovation in Aging 4 (Suppl 1), 54. Dec 2020.

Hayes CJ, Bona JP, Brochhausen M. Using Semantic Representations for Urine Drug Tests in the Veterans Health Administration. American Medical Informatics Association 2019 (AMIA) Annual Symposium, poster session, Washington, DC, November 16–20, 2019.

Acharya M, Chopra D, **Hayes CJ**, Teeter B, Martin BC. Cost Effectiveness of Intranasal Naloxone Distribution to High-Risk Prescription Opioid Users. A poster presented at the International Society for Pharmacoeconomics and Outcomes Research International Meeting. New Orleans, LA, USA. May 21, 2019

Hayes CJ, Krebs EE, Hudson TJ, Brown J, Li C, Martin BC. Impact of Opioid Dose Escalation on the Development of Substance Use Disorders and Other Adverse Outcomes: A Retrospective Cohort Study. A poster presented at the International Society for Pharmacoeconomics and Outcomes Research International Meeting. New Orleans, LA, USA. May 21, 2019.

George M, **Hayes CJ**, Delongchamp R, Balamurugan, A. Substitution or Restitution? Trends in Opioid Use among Adults in Arkansas, 2014-2017. A poster presented at the American Geriatrics Society Annual Scientific Meeting. May 3, 2019.

Hayes CJ, Bona J, Brochhausen M. Towards the Development of an Opioid Misuse Ontology. A poster presented at the International Conference on Biological Ontology Meeting. Corvallis, OR, USA. August 9, 2018.

Shah AB, **Hayes CJ**, Lakkad M, Martin BC. Impact of Medical Marijuana Legalization on Opioid Use, Chronic Opioid Use and High-risk Opioid Use. A poster presented at the International Society for Pharmacoeconomics and Outcomes Research International Meeting. Baltimore, MD, USA. May 23, 2018. (Poster Code: PSY16)

International Society for Pharmacoeconomics and Outcomes Research 23rd Annual International Meeting. **Hayes, CJ**; Payakachat, N; Li, C. Evaluation of Opioid Use among Patients with Back Disorders and Arthritis. Value in Health, 2018-05-01, Volume 21, Pages S247-S247

International Society for Pharmacoeconomics and Outcomes Research 22nd Annual International Meeting. Shah, A; **Hayes, CJ**; Martin BC. Factors Influencing Long-Term Opioid Use among Opioid Naïve Patients: An Examination of Initial Prescription Characteristics and Pain Etiologies. May 2017, Boston, Massachusetts

International Society for Pharmacoeconomics and Outcomes Research, 19th Annual European Congress. Shah, A; **Hayes, CJ**; Martin, BC. Choice of First Opioid Prescription and the Transitions from Acute to Long Term Opioid Use—Findings from Big Data. October 2016, Vienna, Austria

International Society for Pharmacoeconomics and Outcomes Research, 19th Annual European Congress. **Hayes, CJ**; Chopra, D; Shah, A; Martin, BC. Impact of State Mandated Queries of the Prescription Drug Monitoring Programs on Opioid and Non-Opioid Drug Related Adverse Effects: A Difference in Difference Approach. October 2016, Vienna, Austria

37th Annual Meeting of the Society for Medical Decision Making. Shah, A; Shawale, A; **Hayes, CJ**; Martin, BC. Cost effectiveness of Dabigatran, Apixaban, Rivaroxaban, Edoxaban and Warfarin for ischemic stroke prophylaxis among patients with Atrial Fibrillation: US private payer's perspective. October 2015, St. Louis, Missouri

37th Annual Meeting of the Society for Medical Decision Making. Kathe, N; **Hayes, CJ**; Shawale, A; Martin, BC. Cost Effectiveness of Therapies for Castration Resistant Metastatic Prostate Cancer. October 2015, St. Louis, Missouri

American Society of Nephrology Kidney Week. **Hayes, CJ**; Nowak, G. Gamma-Tocotrienol Protects Against Mitochondrial Dysfunction and Renal Cell Death. November 2011, Philadelphia, Pennsylvania

Local/Regional Meetings

University of Arkansas for Medical Sciences Showcase of Medical Discoveries: Health Services Research. Shah, A; **Hayes, CJ**; Martin BC. Factors Influencing Long-Term Opioid Use among Opioid Naïve Patients: An Examination of Initial Prescription Characteristics and Pain Etiologies. September 2017, Little Rock, Arkansas

University of Arkansas for Medical Sciences Student Research Day. **Hayes, CJ**; Nowak, G. Gamma-Tocotrienol Protection against Ischemic Injury in Rabbit Renal Proximal Tubule Cells. March 2011, Little Rock, Arkansas

Arkansas Association of Public Universities Conference. **Hayes, CJ**; Prather, P. Do Cannabinoid Receptors Play a Role in Sepsis-Induced Kidney Injury? August 2008, Little Rock, Arkansas