

Jeremy B **Provance**, PhD, MS *Curriculum Vitae*

CONTACT INFORMATION

Email: jeremy.provance@yale.edu
Personal Website: jeremyprovance.github.io
Institutional Profile: medicine.yale.edu/profile/jeremy__provance
Twitter: @jeremyprovance

Vascular Medicine Outcomes Research Group
Department of Internal Medicine, Section of Cardiovascular Medicine
Yale University School of Medicine
789 Howard Avenue
New Haven, Connecticut 06519

EDUCATION

PhD Bioinformatics (2021), University of Missouri-Kansas City School of Medicine
Dissertation: *Emerging Methods for Use of Real-World Clinical Data for Cardiovascular Outcomes Research*
MS Bioinformatics (2017), University of Missouri-Kansas City School of Medicine
Thesis: *Decisional Conflict in Peripheral Artery Disease: Association with Treatment Choice and Health Status*
BA Biology (2014), William Jewell College
Senior Project: *Fermentation Vessel Geometry Effects on Saccharomyces cerevisiae Metabolites with Gas Chromatograph-Mass Spectroscopy Analysis*

PROFESSIONAL EXPERIENCE

Postdoctoral Associate (2021-), Yale University School of Medicine (New Haven, Connecticut)
Graduate Research Assistant (2017-2021), Saint Luke's Mid America Heart Institute (Kansas City, Missouri)
Software Support Analyst (2015-2021), UMKC School of Medicine
Graduate Instructor (2020-2021), UMKC School of Medicine
Graduate Teaching Assistant (2019), UMKC School of Medicine
Microbiologist (2015), Boulevard Brewing Company (Kansas City, Missouri)
Production Brewer (2014), Tallgrass Brewing Company (Manhattan, Kansas)

PROGRAMMING

Expert: R, SAS, SQL, Stata, Markdown

Intermediate: MongoDB, Python, MySQL, PostgreSQL, SPSS

Working Knowledge: Tableau, PHP, HTML5, CSS, Oracle, Command Line

PEER-REVIEWED PUBLICATIONS

1. Brahmandam A, Lee M, Bellamkonda K, **Provance JB**, Sumpio B, Ochoa Chaa CI, Smolderen KG, Mena-Hurtado C, Guzman RJ. Variability in Antithrombotic Therapy After Infrainguinal Lower Extremity Bypass. *Journal of Vascular Surgery*. Under review.
2. **Provance JB**, Spertus JA, Jones PG, Hoffman MA, Bunte MC, Vogel TR, Mena-Hurtado CI, Smolderen KG. 2022. Factors Associated with 30-Day Major Amputation in Patients with Critical Limb Ischemia Undergoing Endovascular Peripheral Vascular Intervention. *Vascular Medicine*.
3. Scierka L, Mena-Hurtado C, Shishehbor M, Spertus JA, Nagpal S, Babrowski T, Bunte MC, Politano A, Humphries M, Kirksey L, Chung J, Alabi O, Soukas P, Parikh S, Faizer R, **Provance JB**, Stone N, Scott K, Fuss C, Pacheco C, Gosch K, Harper-Brooks A, Smolderen KG. The Shifting Care and Outcomes for Patients with Endangered Limbs - Critical Limb Ischemia (SCOPE-CLI) Registry: Overview of Study Design and Rationale. 2022. *IJC Heart & Vascular*.
4. Jelani QUA, Llanos-Chea F, Bogra P, Trejo-Paredes C, **Provance JB**, Huang J, Turner J, Anantha-Narayanan M, Sheikh AB, Smolderen KG, Mena-Hurtado C. 2021. Guideline-Directed Medical Therapy in Patients with Chronic Kidney Disease Undergoing Endovascular Procedures for Complex Critical Limb Ischemia. *American Journal of Nephrology*.
5. Pichert MD, Smolderen KG, Castro-Dominguez Y, Jelani QA, Nagpal S, **Provance JB**, Huang J, Malik AO, Secemsky EA, Derbas LA, Mena-Hurtado C. 2021. Trends in Drug Coated Device Use for Peripheral Arterial Disease: Insights from Vascular Quality Initiative. *Vascular Medicine*.
6. Smolderen KG, Pacheco C, **Provance JB**, Stone N, Fuss C, Decker C, Bunte M, Jelani Q, Safley DM, Secemsky E, Sepucha K, Spatz ES, Mena-Hurtado C, Spertus JA. 2020. Treatment Decisions for Patients with Peripheral Artery Disease and Symptoms of Claudication: Development Process and Alpha Testing of the SHOW-ME-PAD Decision-Aid. *Vascular Medicine*.
7. Malik AO, Peri-Okonny P, Gosch K, Thomas BT, Mena-Hurtado C, Hiatt W, Aronow HD, Jones PG, **Provance JB**, Labrosciano C, Jelani Q, Spertus JA, Smolderen KG. 2020. Association of Perceived Stress with Health Status in Patients with Peripheral Artery Disease. *Journal of Psychosomatic Research*.
8. Peri-Okonny P, Spertus JA, Malik AO, Jackson EA, Shishehbor MH, Mena-Hurtado C, **Provance JB**, Hejjaji V, Patel S, Gosch KL, Smolderen KG. 2020. Physical Activity after Treatment for Symptomatic Peripheral Artery Disease. *American Journal of Cardiology*.
9. Peri-Okonny P, Patel S, Heyligers JM, Spertus JA, Jackson EA, Malik AO, **Provance JB**, Mena-Hurtado C, Shishehbor MH, Hejjaji V, Gosch KL, Smolderen KG. 2020. Physical Activity in Patients with Symptomatic Peripheral Artery Disease: Insights from the PORTRAIT Registry. *European Journal of Vascular & Endovascular Surgery*.
10. Malik AO, Peri-Okonny P, Gosch K, Thomas M, Mena C, Hiatt WR, Jones PG, **Provance JB**, Labrosciano C, Jelani Q, Spertus JA, Smolderen KG. 2020. Association of Perceived Stress Levels with Long-Term Mortality in Patients with Peripheral Artery Disease. *Journal of the American Medical Association Network Open*.

11. **Provance JB**, Spertus JA, Decker C, Jones PG, Smolderen KG. 2019. Assessing Patient Preferences for Shared Decision-Making in Peripheral Artery Disease: Insights from the PORTRAIT Registry. *Circulation: Cardiovascular Quality and Outcomes*.
12. Ward-Smith P, Hawks JH, Quallich SA, **Provance JB**. 2018. Workplace incivility: Perceptions of urology nurses. *Urological Nursing*.
13. Hoffman MA, **Provance JB**. 2017. Visualization of Molecular Structures Using HoloLens-based Augmented Reality. *American Medical Informatics Association Joint Summits on Translational Science Meeting Proceedings*.

PUBLISHED ABSTRACTS

1. **Provance JB**, Spertus JA, Jones PG, Hoffman MA, Bunte MC, Vogel TR, Mena-Hurtado C, Smolderen KG. 2022. Rates of Guideline Directed Medical Therapy in Patients with Critical Limb Ischemia Undergoing Major Amputation: Insights from the National Cerner Health Facts Electronic Record Database. *American College of Cardiology*. Accepted.
2. Lee M, Smolderen KG, Harris K, Romain G, Scierka L, **Provance JB**, Mena-Hurtado C. 2022. Lower-Extremity Symptoms and Ankle-Brachial Index Screening as Predictors of Cardiovascular Outcomes in Black Adults: Insights from the Jackson Heart Study. *American College of Cardiology*. Submitted.
3. **Provance JB**, Smolderen KG, Mao J, Goodney PP, Henke PK, Sedrakyan A, Mena-Hurtado CI. 2021. Guideline Directed Medical Therapy After Peripheral Vascular Intervention And One-year Mortality In Patients With Peripheral Artery Disease In The Vascular Quality Initiative Medicare Linked Database. *American Heart Association*. Accepted.
4. Rajagopal G, **Provance JB**, Abu Kishk M, Drees B. 2021. Predictors of Non-Traumatic Lower Extremity Amputation in Patients with Diabetes and Peripheral Artery Disease. *American Diabetes Association*. Accepted.
5. **Provance JB**, Spertus JA, Jones PG, Bunte MC, Vogel TR, Hoffman MA, Mena-Hurtado CI, Anderson BS, Smolderen KG. 2020. Factors Associated with 30-Day Amputation in Patients with Critical Limb Ischemia Undergoing Endovascular Intervention. *American College of Cardiology*.
6. **Provance JB**, Spertus JA, Jones PG, Bunte MC, Vogel TR, Hoffman MA, Mena-Hurtado CI, Smolderen KG. 2020. Site Variability in 30-Day Amputation Rates Among Patients with Critical Limb Ischemia Undergoing Endovascular Intervention. *American College of Cardiology*.
7. **Provance JB**, Spertus JA, Decker C, Buchanan D, Jones P, Smolderen KG. 2019. Preferences and Patterns of Shared Decision-Making in Patients With Peripheral Artery Disease: Insights From the PORTRAIT Registry. *JACC*. 73(9): S1.
8. Peri-Okonny P, Malik A, **Provance JB**, Hejjaji V, Gosch K, Spertus JA, Smolderen KG. 2019. Cross Country Comparison of Leisure Time Physical Activity Trajectories in Patients With Symptomatic Peripheral Artery Disease: Insights From the PORTRAIT Registry. *JACC*. 73(9): S1.
9. Peri-Okonny P, Malik A, **Provance JB**, Hejjaji V, Gosch K, Spertus JA, Smolderen KG. 2019. Leisure Time Physical Activity After Invasive Treatment For Symptomatic Peripheral Artery Disease: Insights From the PORTRAIT Registry. *JACC*. 73(9): S1.
10. Malik AO, Peri-Okonny P, **Provance JB**, Gosch K, Thomas M, Labrosciano C, Spertus JA, Smolderen KG. 2019. The Association of Perceived Stress With Health Status Outcomes in Patients With Peripheral Artery Disease. *JACC*. 73(9): S1.

11. **Provance JB**, Spertus JA, Decker C, Smolderen KG. 2018. Examining Patients' Knowledge With Regards to Peripheral Artery Disease Treatments and Outcomes: Insights From the PORTRAIT Registry. *Circulation*. 138: A15970.
 12. **Provance JB**, Spertus JA, Decker C, Smolderen KG. 2018. How Patients Value Different Treatment Goals and Outcomes in Peripheral Artery Disease Outcomes: Insights From the PORTRAIT Registry. *Circulation*. 138: A16038.
 13. **Provance JB**, Spertus JA, Safley D, Jones PG, Sepucha K, Spatz E, Decker C, Smolderen KG. 2017. Decisional Conflict in Peripheral Artery Disease: Association with Treatment Choice and Health Status in the PORTRAIT Registry. *Circulation*. 136: A20550.
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PODIUM PRESENTATIONS

1. *Visualization of molecular structures using HoloLens-based augmented reality*, Midwest Bioinformatics Conference, 2017 [video, start at 28:35]
 2. *Visualization of molecular structures using HoloLens-based augmented reality*, American Medical Informatics Association Joint Summits for Translational Science, 2017
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MODERATED POSTER PRESENTATIONS

1. *Preferences and Patterns of Shared Decision-Making in Patients with Peripheral Artery Disease: Insights from the PORTRAIT Registry*, American College of Cardiology Scientific Sessions, 2019
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POSTER PRESENTATIONS

1. Rates of Guideline Directed Medical Therapy in Patients with Critical Limb Ischemia Undergoing Major Amputation: Insights from the Cerner Health Facts Electronic Health Record Database, American College of Cardiology Scientific Sessions, 2022
2. Guideline Directed Medical Therapy After Peripheral Vascular Intervention and One-Year Mortality in Patients with Peripheral Artery Disease in the Vascular Quality Initiative Medicare Linked Database, American Heart Association Scientific Sessions, 2021
3. Factors Associated with 30-Day Amputation in Patients with Critical Limb Ischemia Undergoing Endovascular Intervention, American College of Cardiology Scientific Sessions, 2021
4. Site Variability in 30-Day Amputation Rates Among Patients with Critical Limb Ischemia Undergoing Endovascular Intervention, American College of Cardiology Scientific Sessions, 2021
5. *Relationship between Catatonia Treatment and Diagnosis Code, Gender, and Location*, UMKC Medical Student Research Summit, 2020
6. *Comparing Types of Medications Prescribed and Type of Insurance Regarding Catatonia Diagnosis*, UMKC Medical Student Research Summit, 2020
7. *Association Between Insurance Provider and Psychoactive Drug Treatment for Catatonic Patients*, UMKC Medical Student Research Summit, 2020

8. *Patterns of Provider-type Encounters for Patients with Peripheral Artery Disease, Insights from the Cerner Health Facts Database*, UMKC Virtual Health Sciences Student Research Summit, 2020
9. *Catatonic patients given atypical antipsychotics have a significantly longer length of stay Catatonic patients treated early with a benzodiazepine have a significantly shorter length*, UMKC Medical Student Research Summit, 2019
10. *The Protective Effects of Smoking on Catatonia*, UMKC Medical Student Research Summit, 2019
11. *The Effects of Insurance Status on the Route Type of the Catatonia Medication Prescribed*, UMKC Medical Student Research Summit, 2019
12. *Preferences and Patterns of Shared Decision-Making in Patients with Peripheral Artery Disease: Insights from the PORTRAIT Registry*, Saint Luke's Hospital Annual Research Day, 2019
13. *Studying Non-Traumatic, Lower-Limb Amputations in the Cerner Health Facts EMR Database*, UMKC Health Sciences Student Research Summit, 2019
14. *Preferences and Patterns of Shared Decision-Making in Patients with Peripheral Artery Disease: Insights from the PORTRAIT Registry*, UMKC Health Sciences Student Research Summit, 2019
15. *Preferences and Patterns of Shared Decision-Making in Patients with Peripheral Artery Disease: Insights from the PORTRAIT Registry*, UMKC Community of Scholars Research Symposium, 2019
16. *Examining Patients' Knowledge with Regards to Peripheral Artery Disease Treatments and Outcomes: Insights from the PORTRAIT Registry*, American Heart Association Scientific Sessions, 2018
17. *How Patients Value Different Treatment Goals and Outcomes in Peripheral Artery Disease Outcomes: Insights from the PORTRAIT Registry*, American Heart Association Scientific Sessions, Chicago, 2018
18. *The Effect of Language Barrier on Prescribing of Pain Medication for Patients Diagnosed in the Emergency Department with Kidney Stones*, Truman Medical Center Emergency Medicine Resident Research Day, 2018
19. *Decisional Conflict in Peripheral Arterial Disease: Association with Treatment Choice and Health Status in the PORTRAIT Registry*, Saint Luke's Hospital Annual Research Day, 2018
20. *Comparison of a National and a Local Electronic Health Data Warehouse for Clinical Laboratory Quality Improvement Research*, Midwest Bioinformatics Conference, 2018
21. *Decisional Conflict in Peripheral Arterial Disease: Association with Treatment Choice and Health Status in the PORTRAIT Registry*, American Heart Association Scientific Sessions, 2017

HONORS & AWARDS

Ida Bamberger Memorial Research Award, 2021, UMKC School of Medicine
 Scientific Writing Program Selection, 2020, Genetics Society of America and BioKansas
 3rd Place (Poster), 2019, UMKC Community of Scholars Research Symposium
 Ida Bamberger Memorial Research Award, 2019, UMKC School of Medicine
 Travel Award, 2019, UMKC School of Graduate Studies
 Sarah Morrison Student Research Award, 2018, UMKC Office of Research Administration
 Travel Award, 2018, UMKC School of Graduate Studies
 Travel Award, 2017, UMKC School of Graduate Studies
 Omicron Delta Kappa Honor Society, 2016
 Golden Key International Honor Society, 2016

GRANT PARTICIPATION

2016-2018

Role: *Electronic Data Warehouse Analyst* (0.2 FTE)

Project: Practice-Based Evidence Using Local and National Data for Quality Improvement

Principal Investigators: Mark Hoffman, PhD; Kamani Lankachandra, MD

Funding Agency: Center for Disease Control (RFA-OE16-1602)

Grant amount: \$956,553 (3 years)

TEACHING EXPERIENCE

Graduate Instructor, Department of Biomedical & Health Informatics, UMKC School of Medicine

MEDB 5512: Clinical Trials (2020, 2021)

Teaching Assistant, Department of Biomedical & Health Informatics, UMKC School of Medicine

MEDB 5512: Clinical Trials (2019)

INVITED PRESENTATIONS & GUEST LECTURES

Guideline Directed Medical Therapy After Peripheral Vascular Intervention and One-Year Mortality in Patients with Peripheral Artery Disease in the Vascular Quality Initiative Medicare Linked Database, 2021, 38th Semi-Annual Meeting, Vascular Study Group of New England.

Guideline Directed Medical Therapy After Peripheral Vascular Intervention and One-Year Mortality in Patients with Peripheral Artery Disease in the Vascular Quality Initiative Medicare Linked Database, 2021, Yale Cardiology Imaging Conference, Yale School of Medicine.

Quality of Care and Outcomes in Patients with Critical Limb Ischemia: Derivation of a Nationwide Cerner Health Facts Vascular Datamart, 2021, Yale Internal Medicine Faculty Research Forum, Yale School of Medicine [slides]

Clinical Research Informatics: Information Needs and Systems in the Clinical Research Environment, 2021, Introduction to Medical Informatics course, UMKC School of Medicine [slides]

Preparing Next-generation Scientists for Biomedical Big Data: Artificial Intelligence Approaches, 2019, Multi-disciplinary Seminar, UMKC School of Medicine [slides]

Generalized Linear Mixed Models-Logistic Regression, 2018, Biostatistics III, UMKC School of Medicine

Introduction to Digital Open Science, 2018, Multi-disciplinary Seminar, UMKC School of Medicine [slides]

Using Cerner i2b2 and Health Facts for Clinical Trials and General Research, 2018, Clinical Trials, UMKC School of Medicine

Visualization of molecular structures using HoloLens-based augmented reality, 2017, Multi-disciplinary Seminar, UMKC School of Medicine

Using the De-identified Cerner i2b2 Database as a Research Resource, 2017, Medical Student Neuroscience Course, UMKC School of Medicine

RESEARCH MENTORSHIP

Sunny Ruggeri, UMKC School of Nursing, *Doctoral Committee Member* (2021-2023)

Geetha Rajagopal, Medical Student, UMKC School of Medicine (2020-2021)

Medical Student Neuroscience Course Statistical Mentorship, UMKC School of Medicine (2019, 2020)

Fahad Qureshi, Medical Student, UMKC School of Medicine (2019-2020)

PROFESSIONAL SERVICE

American Medical Informatics Association, *Clinical Informatics Conference* (Reviewer, 2021-)

American Medical Association, *Journal of the American Medical Association Network Open* (Reviewer, 2020-)

American Heart Association, *Quality of Care & Outcomes Research Scientific Sessions* (Abstract Reviewer, 2020-)

Saint Luke's Hospital Research Day (Poster Judge, 2019)

American Heart Association, *Circulation: Cardiovascular Quality and Outcomes* (Reviewer, 2017-)

American Medical Informatics Association, *Informatics Summits* (Abstract Reviewer, 2017-)

PROFESSIONAL MEMBERSHIP

American College of Cardiology (2019-Present)

American Heart Association (2017-Present)

American Medical Informatics Association (2017-Present)

PODCAST APPEARANCES

Role in implementing i2b2 software, how i2b2 facilitates research goals, and challenges within clinical trials, The Research Rundown Podcast Series, Episode 3, Cerner Corporation, 2018

SERVICE LEADERSHIP

UMKC Graduate Student Council, *President* (2019), *Vice President* (2018), *Secretary* (2016, 2017)

William Jewell College Presidential Mentorship Program, *Mentor* (2019-Present)

UMKC School of Graduate Studies Strategic Planning Committee, *Student Member* (2019)

UMKC School of Graduate Studies Assistantship and Tuition Task Force, *Student Member* (2019)

Golden Key International Honor Society, Inducted 2016, *Treasurer* (2016)

Omicron Delta Kappa Honor Society, Inducted 2016

UMKC Biomedical & Health Informatics Chair Search Committee, *Student Member* (2016-2017)

UMKC Biomedical & Health Informatics Curriculum Committee, *Student Member* (2016-2017)
Phi Gamma Delta-Zeta Phi, Board of Graduate Advisers (2014-Present)
William Jewell College Student Senate, *President* (2013), *Treasurer* (2014, 2012)
Phi Gamma Delta-Zeta Phi, *New Member Educator* (2014), *Treasurer* (2013), *Judicial Chair* (2012)
William Jewell College Cardinal Hosts (2011-2014)
Missouri Boys State Staff Counselor (2010)
Missouri Boys State, *Boys Nation Finalist* (2009)

PERSONAL ACHIEVEMENTS

Litchfield Hills Road Race *2022*
Providence Half Marathon *2022*
Hospital Hill Half Marathon *2017, 2018, 2019, 2021*
Kansas City Marathon *2010, 2011, 2016, 2019*
Kansas City Half Marathon *2012, 2013, 2018*
Kansas Half Marathon *2014*
Des Moines 5150 Triathlon *2012*

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