

CURRICULUM VITAE

Rebecca Yates Coley

Updated: November 28, 2022

1. Educational and Biographical Information

Rebecca Yates Coley, PhD

Associate Investigator (*Effective December 2022*)

Biostatistics Unit,

Kaiser Permanente Washington Health Research Institute (KPWHRI),

Kaiser Foundation Health Plan of Washington

1730 Minor Avenue, Suite 1600

Seattle, WA 98101-1448

Email: rebecca.y.coley@kp.org

A.B., Environmental Science and Policy, Duke University, Durham, NC, 2006

M.S., Biostatistics, University of Washington, Seattle, WA, 2010

Ph.D., Biostatistics, University of Washington, Seattle, WA, 2014

Dissertation: *Bayesian Hierarchical Frailty Models for Heterogeneity in Risk*

Advisor: Dr. Elizabeth R. Brown

2. Professional Positions

2022-present Associate Investigator, Biostatistics Unit, KPWHRI, Seattle, Washington
(*Effective December 2022*)

2018-present Affiliate Assistant Professor, Department of Biostatistics, University of
Washington, Seattle, Washington

2016-2022 Assistant Investigator, Biostatistics Unit, KPWHRI (Formerly Group Health
Research Institute), Seattle, Washington

2014-2016 Postdoctoral Research Fellow, Department of Biostatistics, Johns Hopkins
Bloomberg School of Public Health, Baltimore, MD

2012-2014 Research Assistant, Microbicide Trials Network, Fred Hutchinson Cancer
Research Center, Seattle, WA

2008-2012 Research Assistant, Northwest Practice-Based Research Collaborative in
Evidence-Based Dentistry, School of Dentistry, University of Washington,
Seattle, WA

2006-2008 Associate in Research, Children's Environmental Health Initiative, Nicholas School of the Environment, Duke University, Durham, NC

3. Professional Honors

2021 Faculty Mentoring Award, Nominee, KPWHRI
2021 Paper of the Year, Health Care Services Research Network
2017 Extraordinary Scientific Contributor, KPWHRI
2015 Top performing team, Prostate Cancer DREAM Challenge
2015 Honorable Mention, Poster Competition, Patrick C. Walsh Prostate Research Day, Baltimore, MD
2014 Travel Award, Women in Statistics Conference, Cary, NC
2013 Junior Researcher Travel Award, Objective Bayes Workshop, Durham, NC
2013 Best Student Poster, Faculty Selection, Department of Biostatistics, University of Washington, Seattle, WA
2013 Winner, Oral Presentation, Student Paper Competition, Western North American Region of the International Biometrics Society (WNAR) Annual Meeting, Los Angeles, CA
2013 Runner-up, Written Paper, Student Paper Competition, WNAR Annual Meeting, Los Angeles, CA
2008-2012 National Institutes of Health Predoctoral Trainee in Oral Health and Epidemiology, University of Washington, Seattle, WA
2003, 2005 Dean's List, Duke University, Durham, NC

4. Memberships

American Statistical Association (ASA)

Sections: Bayesian Statistical Science; Biometrics; Health Policy Statistics; Mental Health Statistics; Statistical Learning and Data Sciences; Statistics in Epidemiology

Justice, Equity, Diversity, and Inclusion Outreach Group

LGBTQ+ Advocacy Committee

International Biometric Society, Western North America Region (WNAR)

5. Organizational Service, KPWHRI

2020-present	Advanced Analytics Advisory Board, KPWA Business Intelligence
2020-2021	Project Lead, Improving Equity, Inclusion, and Diversity in Hiring
2020-2021	Equity Team
2018	Co-organizer, 3 rd Seattle Symposium in Health Care Data Analytics
2017-2020	Data and Informatics Strategy Committee
2017-2018	Co-chair, Faculty investigator search committee
2017-2018	Coordinator, Scientific seminars series
2017	Organizer, Junior Investigators Support Team
2017	Mentoring award selection committee
2017	Collaborative biostatistician search committee

6. Other Professional Service

a) National Committee Member:

2023-2025	Committee on Publications, ASA
2022-2023	Communications Committee Chair, ASA Justice, Equity, Diversity, and Inclusion Outreach Group

b) Conference session organizer

2022	“Equity in innovation: Should race and ethnicity be included in clinical prediction models?” Topic-contributed session, <i>Joint Statistical Meetings</i>
2020	“Promoting hiring practices that advance equity, diversity, and inclusion”, Panel session, <i>Women in Statistics and Data Science</i>
2020	“Fairness and equity in clinical risk prediction: healthcare data for the public good”, Invited session, <i>Joint Statistical Meetings</i>
2019	“Health disparities: Women in statistics making a difference”, Invited session, <i>Women in Statistics and Data Science</i>
2017	“Networking among junior statisticians: Peer mentoring and strategies to promote one another” and “Playing in everyone’s backyard: Stories of success, lessons learned, and advice for productive and enjoyable collaborations”, Invited panel sessions, <i>Women in Statistics and Data Science</i>
2017	“Towards a learning health system: methods and strategies for data-driven healthcare”, Invited session, Health Policy Section, <i>Joint Statistical Meetings</i>
2017	“Statistical methods in medicine”, Invited session, <i>International Society for Business and Industrial Statistics</i>
2016	“Learning health systems: from ideas to reality”, Roundtable, Health Policy Section, <i>Joint Statistical Meetings</i>

- 2016 “Innovative Bayesian methods for missing data”, Invited session, *International Society for Bayesian Analysis*
- 2014 “Statistical challenges in HIV prevention”, Invited session, *WNAR International Biometric Society annual meeting*

c) Local service and involvement, Department of Biostatistics, University of Washington

- 2020-2021 Member, Equity, Inclusion, and Diversity Committee
- 2016-2017 Faculty advisor Student seminar series (Fall 2016, Fall 2017)
- 2013-2014 Student representative, Educational Policy and Teaching Evaluation/Curriculum Committee

7. Special National Responsibilities

Ad hoc reviewer for research proposals from granting agencies:

PCORI Assessment of Diagnosis, Prevention, and Treatment Options: Spring 2019, Spring 2020, Summer 2020, Fall 2021, Fall 2022

PCORI Phased Large Awards in Comparative Effectiveness Research (PLACER): Spring 2021, Spring 2022

8. Editorial Responsibilities

Editorial activities

2021-present Editorial Board, Statistical Reviewer, *Journal of the American Medical Informatics Association*

Referee for: (past 10 years)

Journals: American Journal of Epidemiology
American Journal of Psychiatry
Archives of Suicide Research
Biostatistics
Biometrics
BJU International
BMJ Leader
BMJ Open
British Journal of Psychiatry
Cancer Epidemiology, Biomarkers and Prevention
Crisis: The Journal of Crisis Intervention and Suicide Prevention
Journal of the American Statistical Association

Journal of the American Medical Informatics Association
Journal of Clinical Psychiatry
Journal of Medical Economics
Journal of Psychiatric Research
Journal of the National Comprehensive Cancer Network
New England Journal of Medicine
Psychiatric Research
Scientific Reports
Statistics in Medicine
Statistics in Public Policy
Vaccine

Conferences:

- 2023 Program Committee Reviewer, Conference on Health, Inference, and Learning
- 2023 Program Committee Reviewer, Association for Computing Machinery's Conference on Fairness, Accountability, and Transparency (FAccT)
- 2022 Program Committee and Student Paper Committee reviewer, International Conference on Health Policy Statistics (for 2023 conference)
- 2022 Program Committee Reviewer, FAccT
- 2019 Program representative for ASA's Biometrics Section, Eastern North American Region of the International Biometrics Society (ENAR) Annual Meeting

9. Research Funding

1. Principal Investigator (0.25 FTE): *Innovative methods to reduce racial and ethnic disparities in suicide risk prediction*. R01 MH125831 (PI: Coley) NIMH; Direct costs: \$1,136,381. 1/1/2022-12/31/2025.
2. Co-Investigator (0.20 FTE): *Low-Cost Detection of Dementia Using Electronic Health Records Data: Validation and Testing of the eRADAR Algorithm in a Pragmatic, Patient-Centered Trial*. R01 AG069734 (MPIs: Dublin [contact PI], Barnes) NIA; Direct costs: \$4,136,047. 9/30/2020-5/31/2025.
3. Co-Investigator (0.15 FTE); *Identifying and Supporting Patients with Undiagnosed Dementia Using the EHR Risk of Alzheimer's and Dementia Assessment Rule (eRADAR): A Pilot Clinical Trial*. R01 AF067427 (MPIs: Dublin [contact PI], Barnes) NIA; Direct costs: \$3,098,307. 7/15/2020-4/30/2024.
4. Co-Investigator (0.15 FTE); *Leveraging Machine Learning to Improve Risk Prediction for Chemotherapy Induced Neuropathy*. R01 CA249127 (MPIs: Adams [contact PI], Chubak) NCI; Direct costs (KPWHRI subcontract): \$525,810. 6/1/2020-5/31/2024.

5. Co-Investigator (0.10 FTE); *Effects of Medical Products on Suicidal Ideation and Behavior—Real World Evidence*. HHSF 223201810201C (PI: Simon) FDA. Direct costs: \$2,024,297. 9/30/2018-5/31/2022.
6. Co-Investigator (0.15 FTE): *Risk-based Breast Cancer Screening and Surveillance in Community Practice- Statistical Coordinating Center*. P01 CA154292. (PI: Miglioretti) NCI; Direct costs: \$1,803,148; 7/1/2017-5/31/2022.
7. Co-Investigator (0.20 FTE); *Center for Accelerating Care Transformation (ACT Center)*, formerly Learning Health System Program; (MPIs: Coleman, Lozano, Westbrook) Kaiser Permanente Washington; Direct costs (2022 only): \$2,235,000; 6/1/2017-12/31/2022.
8. Co-Investigator (0.20 FTE): *PCORnet Bariatric Study*. OBS 1505-30683 (PI: Arterburn) PCORI; Direct costs: \$4,054,622; 2/1/2016-2/28/2022.
9. Co-Investigator (0.20 FTE): *A Targeted Approach to a Safer Use of Antipsychotics in Youth*. HHSN 271201600002C (PI: Penfold) NIMH; Direct costs: \$7,218,997. 4/25/2016-12/24/2021.
10. Co-Investigator (0.20 FTE): *Comparative Effectiveness of Breast Cancer Screening and Diagnostic Evaluation by Extent of Breast Density*. PCD 1504-30370 (PI: Miglioretti) PCORI; 9/1/2016-1/31/2021.
11. K12 Fellow (0.75 FTE): *Consortium for Applied Training to Advance the Learning Health System with Scholars/Trainees*. K12 HS026369 (MPIs: Buist [contact PI], Lozano) AHRQ; 1/1/2019-12/31/2020.
12. Co-Investigator (0.20 FTE): *Mental Health Research Network: Computation Modeling to Predict Suicide Behavior*. 3U19 MH092201-07S1 (PI: Simon) NIMH; 7/1/2017-6/30/2019.
13. Co-Investigator (0.20 FTE): *Feedback-Informed Care* (PI: Simon) Garfield Foundation; 2017-2018.
14. Co-Investigator (0.20 FTE): *Bayesian Hierarchical Models for the Design and Analysis of Studies to Individualize Healthcare* (PI: Zeger) PCORI; 6/1/2015-5/31/2018.
15. Instructor (0.20 FTE): *Data Analysis and Visualization Practicum for Individualized Health*. Johns Hopkins University Center for Educational Resources; 8/1/2015-5/13/2016.
16. Postdoctoral Research Fellow (0.50 FTE): *Stochastic Models of Prostate Cancer Screening and Treatment Decisions* (PI: Zeger) Patrick C. Walsh Prostate Cancer Research Fund; 8/18/2014-6/30/2016.
17. Graduate Student Research Assistant (0.50 FTE): *Microbicide Trials Network- Statistical and Data Management Center* (PI: Brown) NIAID; 9/16/2012-9/15/2014.

10. Teaching and Mentoring Responsibilities

a) Instructor

Statistics 599: Consulting, Department of Statistics, University of Washington, Spring 2021.

Public Health Studies AS.280.423: Data Visualization for Individualized Health, Department of Public Health Studies, Johns Hopkins University. Spring 2016.

b) Teaching assistant

Biostatistics 140.711: Advanced Data Science, Department of Biostatistics, Johns Hopkins University, Fall 2015.

Biostatistics 514/7: Applied Biostatistics, Department of Biostatistics, University of Washington, Fall 2013.

Biostatistics 571: Regression Methods for Dependent Data, Department of Biostatistics, University of Washington, Winter 2011.

Biostatistics 570: Regression Methods for Independent Data, Department of Biostatistics, University of Washington, Fall 2010.

Statistics 101: Introduction to Statistical Inference, Department of Statistics, Duke University, Fall 2005-Spring 2006.

c) Other teaching

Short courses

Statistical methods for electronic health record data. International Conference on Health Policy Statistics, Scottsdale, Arizona. January 2023.

Statistical methods for electronic health record data. 6th Seattle Symposium in Biostatistics, Virtual. Co-Instructor. November 2020.

How to make a picture worth a thousand words: Effectively communicating your research results using statistical graphics. Society for Epidemiologic Research Annual Meeting short course, Seattle, WA. Co-Instructor. June 2017.

Guest lecturer

Mental Health Research Network T32 Post-doctoral Fellowship Program, Henry Ford Health System. Virtual. Guest lecture on prediction modeling research in the Mental Health Research Network. November 17, 2022.

Health Services 525: Advanced Health Services Research Method 3, Department of Health Systems and Population Health, University of Washington, Virtual. Guest lecture on prediction modeling with electronic health records data. April 8, 2022.

Mental Health Research Network T32 Post-doctoral Fellowship Program, Henry Ford Health System. Virtual. Guest lecture on predictive analytics for EHR data. October 28, 2021.

Health Services 523: Advanced Health Services Research Methods 1- Large Public Databases and Big Data, Department of Health Systems and Population Health, University of Washington, Virtual. Guest lecture on clinical prediction models and health disparities, December 2, 2020.

Advanced Analytics training program, KPWA Insight, Virtual. Guest lecture on statistical methods for prediction. June 17, 2020.

Biostatistics 540: Analysis of Longitudinal Data, Department of Biostatistics, University of Washington, Seattle, WA. Guest lecture on joint modeling for latent class prediction, April 19, 2017.

Clinical and Translational Research Methods, Johns Hopkins Summer Institute of Epidemiology and Biostatistics, Baltimore, MD. Guest lecture on applications of individualized medicine and learning health systems to active surveillance of prostate cancer, June 20, 2015.

Biostatistics 563: Computing and Research, Department of Biostatistics, University of Washington, Seattle, WA. Guest lecture on parallel computing, June 30, 2013.

Reading courses

Statistical methods for clinical risk prediction. Reading and lecture series with University of Washington Department of Biostatistics MS students. Virtual. Winter-Spring quarter 2022.

d) Mentored junior faculty

2020-present Eric Johnson, Collaborative Biostatistician III, KPWHRI. (Primary mentor)

e) Masters theses, chair

2020 Qinqing Liao, MS Biostatistics, University of Washington, Seattle, WA

2023(co-chair) Emily Minus, MS Biostatistics, University of Washington, Seattle, WA (Anticipated)

f) Other mentoring and supervising

2022-Present Freddy Barragan, Graduate Research Assistantship Supervisor, Department of Biostatistics, University of Washington, Seattle, WA

2021-Present Runjia Zou, MS Capstone Research Internship Supervisor, Department of Biostatistics, University of Washington, Seattle, WA

2021-Present Ziyi Chen, MS Capstone Research Internship Co-Supervisor, Department of Biostatistics, University of Washington, Seattle, WA

2019-2021 Ernesto Ulloa de Perez, Graduate Research Assistantship Supervisor, Department of Biostatistics, University of Washington, Seattle, WA

2019-2020 Laura Ichikawa, Collaborative biostatistician, Supervisor, KPWHRI

2018-2019 Adam Elder, Graduate Research Assistantship Supervisor, Department of Biostatistics, University of Washington, Seattle, WA

2015-2017 Jay Bindman, Fellowship Mentor, Provost's Undergraduate Research Award, Johns Hopkins University, Baltimore, MD

2015-2016 Aaron Fisher, Graduate Research Assistantship Supervisor, Department of Biostatistics, Johns Hopkins University, Baltimore, MD

Senior biostatistician on projects supporting collaborative biostatisticians:

Current: Kara Haugen, KPWHRI; Abisola Idu, KPWHRI; Annie Piccorelli, KPWHRI; Rob Wellman, KPWHRI

Previous: Eric Johnson, KPWHRI; Julia Smith, KPWHRI; Rod Walker, KPWHRI

11. Publications

*Mentored work of student first-author

^Co-first author

†Contribution as lead statistician

‡Contribution as primary analyst

**Senior author

a) Peer-reviewed research articles

1. †**Coley RY**, Liao Q, Simon N, Shortreed SM. (2023) Empirical evaluation of internal validation methods for prediction in large-scale clinical data with rare-event outcomes: a case study in suicide risk prediction. *BMC Medical Research Methodology*. 23 (33). doi: 10.1186/s12874-023-01844-5.
2. Richard JE, Yarborough BH, Holden E, Schulman L, Stumbo SP, **Coley RY**, Simon GE. (2022) A Quality Improvement Evaluation of Suicide Risk Prediction Implementation to Support Mental Health Care Delivery. *JAMA Network Open*. 5(12). Doi:10.1001/jamanetworkopen.2022.47195.
3. Cruz M, Shortreed SM, Richards JE, **Coley RY**, Yarborough BL, Walker RL, Johnson E, Ahmedani BK, Rossom R, Coleman KJ, Boggs JM, Beck AL, Simon GE. (2022) Machine learning prediction of suicide risk does not identify patients without traditional risk factors. *Journal of Clinical Psychiatry*. 83(5). doi: 10.4088/JCP.21m14178.
4. †Coleman KJ, Wellman R, Fitzpatrick SL, Conroy MB, Hlavin C, Lewis KH, **Coley RY**, McTigue KM, Tobin JN, McBride CL, Desai JR, Clark JM, Toh S, Sturtevant JL, Horgan CE, Duke MC, Williams N, Anau J, Horberg MA, Michalsky MP, Cook AJ, Arterburn DE, Apovian CM, PCORnet Bariatric Study Collaborative. (2022) The comparative safety and effectiveness of Roux-en-Y gastric bypass and sleeve gastrectomy for weight loss and type 2 diabetes across race and ethnicity in the PCORnet Bariatric Study Cohort. *JAMA Surgery*. Published online ahead of print August 31, 2022. doi:10.1001/jamasurg.2022.3714.
5. Simon GE, Shortreed SM, Boggs JM, Clarke GN, Rossom RC, Richards JE, Beck A, Ahmedani BK, Coleman KJ, Bhakta B, Stewart CC, Sterling S, Schoenbaum M, **Coley RY**, Stone M, Mosholder AD, Yaseen ZS. (2022) Accuracy of ICD-10-CM encounter diagnoses from health records for identifying self-harm events. *Journal of the American Medical Informatics Association*. Published online ahead of print August 26, 2022. <https://doi.org/10.1093/jamia/ocac144>.
6. †**Coley RY**, Smith JJ, Karliner L, Idu AE, Lee SJ, Fuller S, Lam R, Barnes DE, Dublin S. (2022) External validation of the eRADAR risk score for detecting undiagnosed dementia in two real-world healthcare systems. *Journal of General Internal Medicine*. Published online ahead of print July 29, 2022. doi 10.1007/s11606-022-07736-6.

Media coverage: KPWHRI News, Medscape

7. *†**Ulloa-Pérez E, Blasi PR, Westbrook EO, Lozano P, Coleman KF, **Coley RY**. (2022) "Pragmatic randomized study of targeted text message reminders to reduce missed clinic visits." *The Permanente Journal*. 26(1):64-72. doi 10.7812/TPP/21.078.

Media coverage: KPWHRI Healthy Findings
8. †Coughlin JW, Elizabeth N, Wellman R, **Coley RY**, McTigue KM, Coleman KJ, Jones DB, Lewis KH, Tobin JN, Wee CC, Fitzpatrick SL, Desai JR, Murali S, Morrow EH, Rogers AM, Wood GC, Schlundt DG, Apovian CM, Duke MC, McClay James C, Soans R, Nemr R, Williams N, Courcoulas A, Holmes JH, Anau J, Toh S, Sturtevant JL, Horgan CE, Cook AJ, Arterburn DE. (2022) PCORnet Bariatric Study Collaborative. Preoperative depression status and 5 year metabolic bariatric surgery outcomes in the PCORnet Bariatric Study Cohort. *Annals of Surgery*. Published online ahead of print January 19, 2022. doi 10.1097/SLA.0000000000005364.
9. †‡**Coley RY**, Bogg JM, Beck A, Simon GE. (2021) Predicting outcomes of psychotherapy for depression with electronic health record data. *Journal of Affective Disorders Reports*. 6:100198. doi:10.1016/j.jadr.2021.100198.
10. †**Coley RY**, Walker RL, Cruz M, Simon GE, Shortreed SM. (2021) Clinical risk prediction models and informative cluster size: Assessing the performance of a suicide risk prediction algorithm. *Biometrical Journal*. 63(7):1375-1388. doi:10.1002/bimj/20200199.
11. Simon GE, Matarazzo BB, Walsh CG, Smoller JW, Boudreaux ED, Yarborough BJ, Shortreed SM, **Coley RY**, Ahmedani BK, Doshi RP, Harris LI, Schoenbaum M. (2021) Reconciling statistical and clinicians' predictions of suicide risk. *Psychiatric Services*. 72(5):555-562. doi:10.1176/appi.ps.202000214.
12. †**Coley RY**, Johnson E, Simon GE, Cruz M, Shortreed SM. (2021) Racial/ethnic disparities in the performance of prediction models for death by suicide following mental health visits. *JAMA Psychiatry*. 78(7):726-734. doi:10.1001/jamapsychiatry.2021.0493.

Media coverage: KPWHRI Press Release, Reuters Health, Psych News, APA Monitor, Medscape, Healio, MedPage Today, and Verywell Health

Award: 2021 Health Care Services Research Network Paper of the Year
13. Harry ML, **Coley RY**, Waring SC, Simon GE. (2021) Evaluating the cross-cultural measurement invariance of the PHQ-9 between American Indian/Alaskan Native adults and diverse racial and ethnic groups. *Journal of Affective Disorders Reports*. 4:100121. doi: 10.1016/j.jadr.2021.100121.
14. †Penfold RB, Thompson EE, Hilt RJ, Kelleher KJ, Schwartz N, Beck A, Clarke GN, Ralston JD, Hartzler AL, **Coley RY**, Akosile M, Vitiello B, Simon GE. (2020) Safer use of antipsychotics in youth (SUAY) pragmatic trial protocol. *Contemporary Clinical Trials*. 99:106184. doi: 10.1016/j.cct.2020.106184.
15. †‡Lowry KP, **Coley RY**, Miglioretti DM, Kerlikowske K, Henderson LM, Onega T, Sprague BL, Lee JM, Herschorn S, Tosteson ANA, Rauscher G, Lee CI. (2020) Screening performance of digital breast tomosynthesis vs digital mammography in community practice by patient age, screening round, and breast density. *JAMA Network Open*. 3(7):e2011792. doi:10.1001/jamanetworkopen.2020.11792.

Media coverage: University of Washington School of Medicine Press Release, Journal of Clinical Pathways, American Journal of Managed Care
16. †McTigue K, Wellman R, Nauman E, Anau J, **Coley RY**, Odo A, Tice J, Coleman K, Courcoulas A, Pardee R, Sengwee T, Janning C, Williams N, Cook A, Sturtevant J, Horgan

C, Arterburn D, PCORnet Bariatric Study Collaborative. (2020) Comparing the 5-year diabetes outcomes of sleeve gastrectomy and gastric bypass: the PCORnet Bariatric Study. *JAMA Surgery*. 155(5):e200087. doi:10.1001/jamasurg.2020.0087.

Media coverage: PCORI press release, NIDDK's Diabetes Discovery and Practice Blog

17. ††**Coley RY**, Boggs JM, Beck A, Hartzler AL, Simon GE. (2020) Defining success in measurement-based care for depression: A comparison of common metrics. *Psychiatric Services*. 71(4): 312-218. doi 10.1176/appi.ps.201900295.
 18. ††Sprague BL, **Coley RY**, Kerlikowske K, Rauscher GH, Henderson LM, Onega T, Lee CI, Herschorn SD, Tosteson AN, Miglioretti DL. (2020) Assessment of Radiologist Performance in Breast Cancer Screening Using Digital Breast Tomosynthesis vs Digital Mammography. *JAMA Network Open*. 3(3):e201759. doi 10.1001/jamanetworkopen.2020.1759.
 19. ††Courcoulous A, **Coley RY**, McTigue K, Tavakkoli A, Wellman R, Williams N, Coleman KJ, Anau J, Pardee R, Toh S, Janning C, Cook A, Arterburn D, PCORnet Bariatric Study Collaborative. (2020) Interventions and operations 5 years after bariatric surgery in a cohort from the US National Patient-Centered Clinical Research Network Bariatric Study. *JAMA Surg*. 155(3):194-204. doi:10.1001/jamasurg.2019.5470.
 20. Shortreed SM, Cook AJ, **Coley RY**, Bobb JF, Nelson JC. (2019) Challenges and opportunities for using big clinical data to advance medical science. *American Journal of Epidemiology*. 188(5):851-861. doi 10.1093/aje/kwy292.
 21. Simon GE, Shortreed SM, **Coley RY**, Penfold RB, Rossom RC, Waitzfelder B, Sanchez K, Lynch FL. (2019) Assessing and minimizing re-identification risk in research data derived from healthcare records. *eGEMS*. 7(1). doi10.5334/egems.270.
 22. †Huntley JH, **Coley RY**, Carter HB, Radhakrishnan A, Krakow M, Pollack CE. (2018) Clinical evaluation of an individualized risk prediction tool for men on active surveillance for prostate cancer. *Oncology*. 121:118-124. doi 10.1016/j.urology.2018.08.021.
 23. Toh S, Wellman RD, **Coley RY**, Horgan C, Sturtevant J, Moyneur E, Janning C, Pardee R, Coleman KJ, Arterburn D, McTigue K, Anau J, Cook AJ. (2018) Combining distributed regression and propensity scores. *Clinical Epidemiology*. 10: 1773-1786. doi 10.2147/clep.s178163.
 24. †Arterburn D, Wellman R, Emiliano A, Smith SR, Odegaard AO, Murali S, Williams N, Coleman KJ, Courcoulous A, **Coley RY**, Anau J, Pardee R, Toh S, Janning C, Cook A, Sturtevant J, Horgan C, McTigue K, PCORnet Bariatric Study Collaborative. (2018) Comparative effectiveness of bariatric procedures for weight loss: A retrospective cohort study. *Annals of Internal Medicine*. 169(11): 741-750. doi 10.7236/M17-2786.
- Media coverage: KPWHRI Press Release, Healio
25. ††Inge TH, **Coley RY**, Bazzano LA, Xanthakos SA, McTigue K, Arterburn D, Williams N, Wellman R, Coleman KJ, Courcoulous A, Desai NK, Anau, J, Pardee R, Toh SD, Hanning C, Cook A, Sturtevant SM, Horgan C, Zebrick A, Michalsky M, PCORnet Bariatric Study. (2018) Comparative effectiveness of bariatric procedures among adolescents: the PCORnet bariatric study. *Surgery for Obesity and Related Diseases*. 4(9): 1374-1386. doi 10.1016/j.soard.2018.04.002.
 26. Toh S, Rasmussen-Torvik LK, Harmata EE, Pardee R, Saizan R, Malanga E, Sturtevant JL, Horgan CE, Anau J, Janning CD, Wellman RD, **Coley RY**, Cook AH, Courcoulous AP, Coleman KJ, Williams NA, McTigue KM, Arterburn D, McClay J, PCORnet Bariatric Surgery Collaborative. (2017) The National Patient-Centered Clinical Research Network (PCORnet)

Bariatric Study cohort: Rationale, methods, and baseline characteristics. *JMIR Research Protocols*. 6(12):e222. doi 10.2196/resprot.8323.

27. ‡**Coley RY**, Zeger SL, Mamawala M, Fisher AJ, Pienta KJ, Carter HB. (2017) Prediction of the pathological Gleason Score (PGS) to inform a personalized management program for prostate cancer. *European Urology*. 72(1): 135-141. doi 10.1016/j.eururo.2016.08.005.
28. ‡**Coley RY**, Fisher AJ, Mamawala M, Carter HB, Pienta KJ, Zeger SL. (2017). A Bayesian Hierarchical Model for Prediction of Latent Health States from Multiple Data Sources with Application to Active Surveillance of Prostate Cancer. *Biometrics*. 73(2): 625-634. doi 10.1111/biom.12577.
29. *†††Deng D, Du Y, Zhicheng J, Rao K, Wu Z, Zhu Y, **Coley RY**. (2016) Predicting prostate cancer survival: A multiple imputation-assisted super learning approach. *F1000 Research*. 5:2672. doi10.12688/f1000research.8268.

Award: Top performing team, Prostate Cancer DREAM Challenge

30. ‡**Coley RY**, Brown ER. (2016) Estimating effectiveness in HIV prevention trials with a Bayesian hierarchical compound Poisson frailty model. *Statistics in Medicine*. 35: 2609-2634. doi 10.1002/sim.6884.

Award: WNAR 2013 student paper competition runner-up

31. Murnane PM, Brown ER, Donnell D, **Coley RY**, Mugo N, Mujugira A, Celum C, Baeten JM. (2015) Estimating efficacy in a randomized trial with product non-adherence: application of multiple methods to a trial of pre-exposure prophylaxis for HIV prevention. *American Journal of Epidemiology*. 82: 848-856. doi10.1093/aje/kwv202.
32. ††Farjo N, Turpin D, **Coley RY**, Feng J. (2015) Characteristics and fate of orthodontic articles submitted for publication: An exploratory study of the American Journal of Orthodontics and Dentofacial Orthopedics. *American Journal of Orthodontics and Dentofacial Orthopedics*. 147: 680-690. doi 10.1016/j.ajodo.2015.01.020.
33. ††Delaney S, **Coley RY**, Brown Z. (2015) 5- Anhydroglucitol: A new predictor of neonatal birth weight in diabetic pregnancies. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 189: 55-58. doi 10.1016/j.ejogrb.2015.03.021.

b) Accepted peer-reviewed papers in press

c) Other peer-reviewed scholarly publications

1. ^**Coley RY**, Duan KI, Hoopes AJ, Lapham GT, Liljenquist K, Marcotte LM, Ramirez M, Schuttner L. (2022) A call to integrate health equity into learning health system research training. (Commentary) *Learning Health Systems*. Published ahead of print July 24, 2022. doi 10.1002/lrh2.10330.
2. Courcoulas AP, **Coley RY**, Arterburn D. (2020) Evidence-based and patient-centered decisions regarding bariatric surgery—Reply. (Letter to the editor) *JAMA Surgery*. doi 10.1001/jamasurg.2020.1530.
3. **Coley RY**, Boggs JM, Simon GE. (2020) Measuring outcome of depression: it is complicated. (Letter to the editor) *Psychiatric Services*. 71(5): 528. doi 10.1176/appi.ps.71502.

4. Simon GE, Shortreed SM, **Coley RY** (2019). Positive predictive values and potential success of suicide prediction models. (Letter to the editor) *JAMA Psychiatry*. 76(8):868-869. doi 10.1001/jamapsychiatry.2019.1516.
5. Murnane PM, **Coley RY**, Baeten JM. (2015) Response to: Every good randomization deserves observation. (Letter to the editor) *American Journal of Epidemiology*. 182: 861-862. doi 10.1093/aje/kwv201.

d) Other non-peer-reviewed scholarly publications

1. *Fisher AJ, **Coley RY**, Zeger SL. (2015) Fast Out-of-Sample Predictions from Bayesian Hierarchical Models of Latent Health States. arxiv: 1510.08802.

e) Submitted manuscripts

1. Shortreed SM, Walker RL, Johnson E, Wellman R, Cruz M, Ziebell R, **Coley RY**, Yaseen ZS, Dharmarajan S, Penfold RB, Ahmedani BK, Rossom RC, Beck A, Boggs JM, Simon GE. Electronic health record-based suicide risk prediction: Incorporating detailed temporal predictors and complex modelling strategies does not substantially improve performance. *In revision*.
2. †‡Sprague BL, **Coley RY**, Lowry KP, Kerlikowske K, Henderson LM, Su Y, Lee CI, Onega T, Bowles EA, Herschorn SD, diFlorio-Alexander RM, Miglioretti DM. Digital breast tomosynthesis versus digital mammography screening performance on successive screening rounds.

12. Presentations (Like presentations grouped)

a) Invited presentations

Seminars

“Improving validity and fairness of EHR research for medically underserved population: assessing fairness of suicide prediction models.” African Diaspora Joint Mathematics Workshop (ADJOINT). Virtual. June 2022.

“Do clinical prediction models perpetuate health disparities?: Assessment of racial and ethnic disparities in suicide prediction models”

Biostatistics Branch, National Cancer Institute. Virtual. January 2023

Department of Biostatistics, The Ohio State University. Virtual. March 2022

Department of Biostatistics, University of Washington. Virtual. October 2021

University of Washington Surgical Outcomes Research Center. Virtual. March 2021

KPWHRI scientific seminar series. Virtual. March 2021

Kaiser Permanente Center for Safety and Effectiveness Research (CESR) Artificial Intelligence Seminar Series. Virtual. December 2020

“Fairness in clinical prediction: assessing racial and ethnic disparities in performance of a suicide risk prediction model” Mental Health Research Network Biostatistics Scientific Interest Group. Virtual. August 2020

“A data science framework for learning health systems.” Henry Ford Health System Cancer Grand Rounds. Detroit, MI. December 2018

“Lead with Statistics: A statistician’s role in learning health systems and the delivery of data-driven health care.” Association of Clinical and Translational Statisticians (ACTStat) annual meeting. Vancouver, BC, Canada. July 2018

“How to make a picture worth a thousand words: Effectively communicating your research results using statistical graphics”

Program in Health Economics and Outcomes Methodology seminar series.
Comparative Health Outcomes, Policy, Economics Institute. University of Washington. Seattle, WA. April 2018

Co-presentation with Jackson M. KPWHRI scientific seminar series, Seattle, WA. July 2017

“Precision Medicine, Learning Health Systems, and Improving Surveillance of Low-Risk Prostate Cancer”

Fred Hutchinson Cancer Research Center Biostatistics Seminar, Seattle, WA. October 2016

Department of Biostatistics, University of Washington, Seattle, WA. October 2016

Group Health Research Institute, Seattle, WA, February 2016

Center for Cancer Statistics, Mayo Clinic, Rochester, MN, February 2016

Department of Biomedical Data Science, Stanford University, Palo Alto, CA, February 2016

RAND Corporation, Santa Monica, CA, February 2016

Biostatistics Research Branch, NIAID, Rockville, MD, February 2016

Department of Biostatistics, Johns Hopkins University, Baltimore, MD, January 2016

Division of Biostatistics, Department of Healthcare Policy and Research, Cornell Weill School of Medicine, New York, NY, January 2016

Data Science Affinity Group, Fred Hutchinson Cancer Research Center, Seattle, WA, October 2015

“Prediction of the Cancer State to Inform a Personalized Management Program for Prostate Cancer.” Grand Rounds, Department of Urology, Johns Hopkins School of Medicine, Baltimore, MD. April 2016

“Optimizing Surveillance of Low-Risk Prostate Cancer: An Application of Precision Medicine and Learning Health Systems at Johns Hopkins.” Data Science Interest Group, Johns Hopkins Medicine, Baltimore, MD, November 2015

“Optimizing Surveillance of Low-Risk Prostate Cancer.” Pacific Northwest Specialized Program of Research Excellence (SPORE), Fred Hutchinson Cancer Research Center, Seattle, WA, October 2015

“Estimating effectiveness in HIV prevention trials with a compound Poisson frailty model.” Department of Biostatistics, Johns Hopkins University, Baltimore, MD, March 2014

International and national meetings

“Systemic racism and its population health impact” *Joint Statistical Meetings*. Washington, DC. August 2022.

“Empirical evaluation of internal validation methods for estimating optimism error in high-dimensional EHR data with rare-event outcomes.” *Joint Statistical Meetings*. Virtual. August 2021.

“Fairness in clinical prediction: assessing racial and ethnic disparities in performance of a suicide risk prediction model.” *Joint Statistical Meetings*. Virtual. August 2020.

“Racial and ethnic fairness in clinical prediction with application to suicide risk”
Women in Statistics and Data Sciences. Bellevue, WA. October 2019
Joint Statistical Meetings. Denver, CO. July 2019

“Biostatistical considerations for suicide risk prediction.” *Research Priorities for Risk Algorithm Applications in Healthcare Settings to Improve Suicide Prevention*. NIMH, Bethesda, MD. June 2019

“Racial and ethnic fairness in suicide risk prediction.” *Research Priorities for Risk Algorithm Applications in Healthcare Settings to Improve Suicide Prevention*. NIMH, Bethesda, MD. June 2019

“A data science framework for learning health systems.” 3rd *Seattle Symposium for Healthcare Data Analytics*. Seattle, WA. October 2018

“Predicting suicide risk: Statistical methods for using EHR data to inform mental health care.” *Joint Statistical Meetings*. Vancouver, BC, Canada. July 2018

“Individualized Decision Support for Men on Active Surveillance.” *CISNET Prostate Cancer Modeling Symposium*. National Cancer Institute, Rockville, MD. November 2017

“Development and implementation of a data-driven clinical support tool for low-risk prostate cancer.” *Johns Hopkins University Statistical Symposium*, Baltimore, MD. September 2017

“Statisticians leading the way: Advocating for learning health systems and collaborating effectively with clinical stakeholders.” *Joint Statistical Meetings*, Baltimore, MD. July 2017

“A data science framework for learning health systems.” *International Society for Business and Industrial Statistics Meeting*, Yorktown Heights, NY. June 2017

“Precision Medicine: Statistical Methods to Improve Patient Outcomes and Support Value-Based Care,” *Eastern North American Region of the International Biometrics Society (ENAR) Annual Meeting*, Washington, DC. March 2017

“Individualized Medicine and Informative Missingness: A Bayesian Approach to Personalized Prostate Cancer Care.” *International Society of Bayesian Analysis Annual Meeting*, Sardinia, Italy. June 2016

“Active Surveillance Modeling and Decision-Making at Johns Hopkins.” *Cancer Intervention and Surveillance Monitoring Network (CISNET) Prostate Cancer Meeting*, National Cancer Institute, Bethesda, MD, November 2015

“Electronic Medical Records for Individualized Health: Application to Low-Risk Prostate Cancer.” *Joint Statistical Meetings*, Seattle, WA, August 2015

“Optimizing Surveillance of Low-Risk Prostate Cancer.” *ENAR Annual Meeting*, Miami, FL, March 2015

“Latent class approach to modeling frailty in HIV prevention trials.” *Western North American Region of the International Biometrics Society (WNAR) Annual Meeting*, Honolulu, HI, June 2014

b) Contributed presentations

“eRADAR detects primary care patients at risk of having undiagnosed dementia in two real-world healthcare systems” *Alzheimer’s Association International Conference*. Virtual. July 2022.

“Informed health decisions through creating a learning ecosystem: Application to active surveillance of low-risk prostate cancer.” *Precision Medicine World Conference*. Mountain View, CA. January 2018

“Very low risk and low risk patients in active surveillance: Is the distinction relevant?” *American Urological Association Annual Meeting*, Boston, MA, May 2017

“Prediction of the cancer state to inform a personalized management program for prostate cancer” *American Urological Association Annual Meeting*, San Diego, CA, May 2016

“Optimizing surveillance of low-risk prostate cancer”

High-Value Research Symposium, Johns Hopkins School of Medicine, Baltimore, MD, February 2016.

International Conference of Health Policy Statistics. Providence, RI. October 2015.

“Stochastic models of prostate cancer screening and detection at Johns Hopkins.” *Patrick C. Walsh Prostate Cancer Research Day*, Department of Urology, Johns Hopkins University, Baltimore, MD, February 2015.

“Latent class approach to survival analysis with a compound Poisson frailty model with an application to HIV prevention.” *Joint Statistical Meetings*. Boston, MA, August 2014.

“Estimating effectiveness in HIV prevention trials with a compound Poisson frailty model.” *WNAR Annual Meeting*. Los Angeles, CA, June 2013. *Winner: Oral Presentation, Student Paper Competition

c) Other oral presentations

“Race and ethnicity in analysis of health care data: Reflections from KPWHRI researchers”. Co-presentation with Chubak J, Gray R, Zeibell R, Cruz M. KPWHRI scientific seminar series. Virtual. September 2021

“Standing on the shoulders of giants: Conducting research when you wish you didn’t have to stand on those guys’ shoulders.” Co-presented with Anau J, Grafton J, Wernli K. KPWHRI scientific seminar series. Seattle, WA. June 2018

“Effective Data Visualization in Practice: Examples from KPWHRI.” Co-presentation with Bobb J, Cahill C, Fuller S, Gray M, Ichikawa L. KPWHRI scientific seminar series, Seattle, WA. October 2017

“Statistical Methods for Individualized Health: Improving Surveillance of Low-Risk Prostate Cancer.” Grand Rounds, Department of Biostatistics, Johns Hopkins University, Baltimore, MD, September 2015

“Heterogeneity in risk: Effects on randomized clinical trial data analysis.” Oral Health Sciences Seminar, University of Washington, Seattle, WA, May 2012

d) Posters

“Individualized medicine and informative missingness: a model for predicting latent prostate cancer state” *Atlantic Causal Inference Conference*, Philadelphia, PA, May 2015

“Dynamic model of prostate disease: predicting reclassification in Johns Hopkins active surveillance cohort” *Patrick C Walsh Prostate Cancer Research Day*, Baltimore, MD, February 2015.

“Latent class approach to survival analysis with a compound Poisson mixture frailty model with application in HIV prevention trials” *Women in Statistics Conference*, Cary, NC, May 2014.

“Estimating effectiveness with a compound Poisson frailty model” *Objective Bayes workshop*, Durham, NC, December 2013.

“Estimating effectiveness in HIV prevention trials with a compound Poisson frailty model” *Annual Retreat*, Department of Biostatistics, University of Washington, September 2013.

13. Learning Health System Science

I provide statistical leadership on many health system projects to improve care delivery. While these projects may not result in traditional academic research produces, my contributions have a major impact on clinical care.

KPWA Center for Accelerating Care Transformation (ACT Center) Advanced Analytics Core:

Reducing rehospitalization risk (2022-): Currently collaborating on EHR data collection in forthcoming Virtual Hospital (Epic module) to validate, redesign rehospitalization risk stratification.

Avoiding Emergency Department visits (2022-): Currently designing randomized quality improvement trial with KPWA ambulance contractors to reduce emergency department visits by offering telephone consultation to low acuity patients.

Targeting COVID treatment (2022-): Currently developing prediction model for COVID hospitalization risk; Predictions will be used to guide prescribing decisions for Paxlovid (and emerging COVID treatments) among adults age 64 and younger.

Increasing patient access (2018-): Validated Epic’s no-show prediction model; Designed, conducted, and analyzed randomized quality improvement trial to compare effectiveness of additional text message reminders for Primary Care and Behavioral Health visits at high risk of no-show; Developed, validated, and implemented (ongoing) improved no-show prediction model.

Outcome: KPWA is using no-show risk scores to guide interventions that reduce missed visits.

Racial/Ethnic disparities in quality metrics (2022): Consulted with Washington Permanente Medical Group’s Equity Governance Council on quantifying racial and ethnic differences in Quality Focus Report Composite measures; Calculated confidence intervals on quality measures within groups.

Outcome: KPWA is using confidence intervals to contextualize between group difference in quality metrics and rules for triggering Governance Council action incorporate confidence intervals.

Sepsis management in urgent care (2021): Validated Epic sepsis risk prediction model, including design and analysis of chart review study to adjust for misclassified sepsis outcomes in the EHR.

Outcome: KPWA Urgent Care departments are using prediction model to prompt early detection and treatment of sepsis.

Outreach to close screening gaps (2021): Designed, conducted, and analyzed randomized quality improvement trial to compare reminders via physical mailing to online secure messaging for cancer, diabetes, and sexual health screening measures included in key quality measures.

Outcome: We recommended KPWA continue physical mailings. KPWA Quality Improvement is currently reviewing evidence and considering cost of outreach modalities.

Chronic opioid therapy registry (2020-2021): Validated Epic's risk score for opioid overdose, opioid use disorder diagnosis, and naloxone administration; advised on potential impact of using predictions for prioritizing patient referrals to consultative pain management specialty care.

Outcome: KPWA is not using the Epic tool due to poor performance in member population.

Flu vaccination outreach (2018-2020): Designed and analyzed quasi-experimental quality improvement study of phone call reminders for flu vaccination to members with high ACG® scores.

Outcome: KPWA delivery system used ACG to guide flu vaccination reminders prior to COVID-19 pandemic (and resulting shift in vaccination outreach strategy).

Avoiding ambulatory-care sensitive hospitalization (2018-2019): Validated ACG model for predicting unplanned hospitalizations. Consulted with service providers to understand how ACG scores are used and strategize approaches for targeting limited care management resources.

Outcome: KPWA declined to expand use of ACG for chronic care management due to competing demands. ACT's advanced analytics team are go-to experts for delivery system ACG inquiries.

Johns Hopkins inHealth Projects:

Prostate Cancer Active Surveillance (2014-2017): Developed statistical model to predict risk of developing higher grade cancer among patients originally diagnosed with low-grade disease. Collaborated with providers and patients to design decision support tool to explain predictions.

Outcome: Johns Hopkins Department of Urology began using our prediction model in 2016.