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CURRICULUM VITAE

Rebecca A. Hubbard, PhD

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Address: Department of Biostatistics, Epidemiology & Informatics
Perelman School of Medicine, University of Pennsylvania
604 Blockley Hall
423 Guardian Dr
Philadelphia, PA 19104

Phone: 215-898-3311

E-mail: rhubb@pennmedicine.upenn.edu

Web page: https://www.med.upenn.edu/ehr-stats/

EDUCATION

1999	BS, Ecology & Evolution, Summa Cum Laude, University of Pittsburgh, Pittsburgh, PA
2001	MSc, Epidemiology, University of Edinburgh, Edinburgh, UK
2002	MSc, Applied Statistics, with Honors, Oxford University, Oxford, UK
2007	PhD, Biostatistics, University of Washington, Seattle, WA

ACADEMIC APPOINTMENTS

2009 – 2014	Affiliate Assistant Professor, Department of Biostatistics, University of Washington
2014 – 2017	Affiliate Associate Professor, Department of Biostatistics, University of Washington
2014 – 2020	Associate Professor, Department of Biostatistics, Epidemiology & Informatics, Perelman School of Medicine, University of Pennsylvania
2014 – Present	Senior Scholar, Center for Clinical Epidemiology & Biostatistics, Perelman School of Medicine, University of Pennsylvania
2018 – Present	Senior Fellow, Institute for Biomedical Informatics, Perelman School of Medicine, University of Pennsylvania
2020 – Present	Professor, Department of Biostatistics, Epidemiology & Informatics, Perelman School of Medicine, University of Pennsylvania
2020 – Present	Deputy Director, Division of Biostatistics, Department of Biostatistics, Epidemiology & Informatics, Perelman School of Medicine, University of Pennsylvania
2020 – Present	Member, Abramson Cancer Center, Perelman School of Medicine, University of Pennsylvania

EMPLOYMENT

2002 – 2007	Graduate Research Assistant, Department of Biostatistics, University of Washington
2007 – 2008	Senior Fellow, National Alzheimer's Coordinating Center, University of Washington
2008 – 2013	Assistant Investigator, Group Health Research Institute
2013 – 2014	Associate Investigator, Group Health Research Institute

AWARDS AND HONORS

1999	Phi Beta Kappa
2000 – 2002	Marshall Scholar
2004	Donovan J. Thompson Award, University of Washington Department of Biostatistics
2006 – 2007	Magnuson Scholar, University of Washington School of Public Health
2007	Outstanding Student Award, University of Washington Department of Biostatistics
2007	Best Oral Presentation, Western North American Region (WNAR) of the International Biometric Society Student Paper Competition, Irvine, CA
2007	Best Paper, Western North American Region (WNAR) of the International Biometric Society Student Paper Competition, Irvine, CA
2008	David P. Byar Young Investigator Award, Biometrics Section of the American Statistical Association, Joint Statistical Meetings, Denver, CO
2011	NCI Epidemiology and Genomics Research Program Top Publication for Hubbard RA, et al. 2011. The cumulative risk of a false-positive recall or biopsy recommendation after 10 years of screening mammography: a cohort study. *Annals of Internal Medicine.* 155: 481-492.
2019	Penn Fellow, University of Pennsylvania
2019	Fellow, American Statistical Association
2019	Excellence in Teaching Award, Master of Science in Health Policy Research Program, University of Pennsylvania
2019	Samuel L Martin Health Evaluation Sciences Award, University of Pennsylvania
2020	American Statistical Association Health Policy Statistics Section Mid-Career Award
2021	Jane Glick Graduate Student Teaching Award, Perelman School of Medicine, University of Pennsylvania

PROFESSIONAL ORGANIZATIONS

2005 – Present	Member, American Statistical Association
2005 – Present	Member, International Biometric Society

PROFESSIONAL ACTIVITIES

International

Reviewer	Dutch Cancer Society, 2012, 2015
	Netherlands Organisation for Scientific Research, 2015, 2019
	Canadian Institute for Health Research SPOR Innovative Clinical Trials, 2017, 2019
	French National Cancer Institute, 2018
Conferences	Scientific Organizing Committee, International Conference on Health Policy Statistics, 2018
Editorial	Editorial Advisory Committee, International Biometric Society, 2018 – Present

National

Leadership	Chair-elect (2017), Chair (2018), Past Chair (2019), American Statistical Association Biometrics Section
	Council of Sections Representative to the Board of Directors, American Statistical Association, 2020 – 2022
	Chair, Elizabeth L. Scott Award Selection Committee, Committee of Presidents of Statistical Societies, 2021 – Present
Reviewer	NIH Resource Centers for Minority Aging Research Special Emphasis Panel, 2012
	Cancer Research Network Research Scholars Program, 2014
	PCORI Assessment of Prevention, Treatment, and Diagnosis Options panel, 2014
	NIH Health Services Organization and Delivery Study Section Ad Hoc Reviewer, 2014, 2016, 2018
	NIH Healthcare Delivery and Methodologies Member Conflicts Special Emphasis Panel, 2015 – 2017
	NIH Health Services Research on Minority Health and Health Disparities Special Emphasis Panel, 2016
	PCORI Improving Methods for Conducting PCOR Review Panel, 2018
	NCI Clinical and Translational Exploratory/Developmental Studies Special Emphasis Panel, 2018
	NCI Biostatistics Branch Site Visit Team, 2018
	NIH Biomedical Computing and Health Informatics Member Conflicts Special Emphasis Panel, 2019
	NIH Community Influences on Health Behavior Study Section, Ad Hoc Reviewer, 2020
	NIH Interdisciplinary Clinical Care in Specialty Care Settings Study Section, Standing Panel Member, 2021 - Present
Conferences	Program committee, JSM (WNAR representative), 2010 – 2011
	Program committee, JSM (Biometrics section representative), 2013 – 2015

	Program committee, ENAR (ASA Health Policy Statistics Section Representative), 2018
Committees	Panelist, NIH Pathways to Prevention: Total Worker Health, 2015
	Byar Award Selection Committee, American Statistical Association Biometrics Section 2015 – 2019
	Committee on Care Interventions for Individuals with Dementia and Their Caregivers, National Academies of Science, Engineering, and Medicine, 2018
	Elizabeth L. Scott Award Selection Committee, Committee of Presidents of Statistical Societies, 2019 – 2021
	Committee on Scientific Freedom and Human Rights, American Statistical Association, 2019 – Present
	Committee on Applied and Theoretical Statistics, National Academies of Science, Engineering, and Medicine, 2020 – Present
	Executive Committee for Oncology Quality Characteristics and Assessment of Real-world Data (QCARD) Initiative, FDA, 2021 - Present
DSMB	Systematic Multidomain Alzheimer's Risk Reduction Trial, 2018 – 2021
Editorial	Associate Editor, Pharmacoepidemiology & Drug Safety, 2017 – 2021
	Editorial Board, Journal of Clinical Oncology 2020 – Present
	Associate Editor, Observational Studies, 2021 – Present
	Statistical Editor, New England Journal of Medicine, 2021 – Present
	Associate Editor, Statistics in Medicine, 2021 – Present
Ad hoc reviewer	Academic Radiology (2011 – 2014); Alzheimer's & Dementia (2016); American Journal of Epidemiology (2012 – Present); American Journal of Managed Care (2014 – Present); Annals of Applied Statistics (2016 – Present); Annals of Internal Medicine (2013 – Present); Biometrics (2019 - Present); BMC Health Services Research (2015 – Present); BMC Medical Research Methodology (2014 – Present); BMJ (2012 – Present); BMJopen (2016 – Present); Bayesian Analysis (2017 – Present); Cancer Epidemiology (2011 – Present); Cancer Epidemiology, Biomarkers & Prevention (2011 – Present); Clinical Trials (2015 – Present); Communications in Statistics - Simulation and Computation (2015 – Present); Computational Statistics & Data Analysis (2015 – Present); Health Services Outcomes and Research Methodology (2014 – Present); JAMA (2013 – Present); JAMA Oncology (2019 – Present); Journal of the American Statistical Association (2011 – Present); Journal of Applied Statistics (2013 – Present); Journal of Clinical Oncology (2013 – Present); Journal of Dental Research (2009 – Present); Journal of General Internal Medicine (2012 – Present); Journal of Medical Screening (2016 – Present); Journal of the National Cancer Institute (2013 – Present); Journal of the Royal Statistical Society, Series C (2018); Nature (2021 – Present); Nature Medicine (2019 – Present); New England Journal of Medicine (2013); Pharmacoepidemiology & Drug Safety (2014 – Present); PLOS One (2013 – Present); Preventive Medicine (2017 – Present); Statistics in Medicine (2009 – Present); Statistical Methods in Medical Research (2009)

University of Pennsylvania

Leadership	Chair, Academic Advising & Review Committee, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, 2017-2020

	Executive Committee, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, 2018-Present
	Leadership Advisory Council, Department of Biostatistics, Epidemiology & Informatics, 2019-2020
	Chair, Faculty Recruitment Committee, Biostatistics Division, Department of Biostatistics, Epidemiology & Informatics, 2019-Present
	Executive Committee, Center for Pharmacoepidemiology Research & Training, Department of Biostatistics, Epidemiology & Informatics, 2021-Present
	Chair, Health Evaluation Sciences Awards Committee, Perelman School of Medicine, 2021
Committees	Admissions Committee, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, 2015-2017
	Examinations Committee, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, 2016-2018
	Awards Committee, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, 2016-2018
	Faculty Recruitment Committee, Biostatistics Division, Department of Biostatistics, Epidemiology & Informatics, 2016-2019
	Biostatistics Division Director Recruitment Committee, Biostatistics Division, Department of Biostatistics & Epidemiology, 2017-2019
	Vice Provost for Education's Fellowship Selection Committee, 2018-Present
	Health Evaluation Sciences Awards Committee, Perelman School of Medicine, 2020
	Faculty Senate Committee on Academic Freedom and Responsibility, 2021-Present
	Epidemiology Division Director Recruitment Committee, Epidemiology Division, Department of Biostatistics & Epidemiology, 2021-Present
	Curriculum Committee, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, 2021-Present
	IT Council, Perelman School of Medicine, 2021 – Present
	Institute for Biomedical Informatics, Director Search Committee, Perelman School of Medicine, 2021 – Present
	Department of Medical Ethics and Health Policy Chair Search Committee, Perelman School of Medicine, 2021 – Present

University of Washington

Leadership	Chair, Affiliate and Adjunct Faculty Committee, Department of Biostatistics, 2009-2012
	Chair, Applied Statistics Qualifying Exam Committee, Department of Biostatistics, 2013-2014
Committees	Applied Statistics Qualifying Exam Committee, Department of Biostatistics, 2012
	Distinguished Alumni Selection Committee, School of Public Health, 2012-2014

Admissions Committee, Department of Biostatistics, 2013

Group Health Research Institute

Leadership   Chair, Scientific Policy Committee, 2010-2012

Committees   New faculty Orientation Committee, 2009

                    Data Governance Council, 2012-2014

                    Scientific Policy Committee, 2013-2014

DIVERSITY, EQUITY AND INCLUSION ACTIVITIES

Chair and Head Judge, Section on Physical and Quantitative Sciences, Annual Biomedical Research Conference for Minority Students, 2010 – 2012.

Diversity Search Advisor, Biostatistics Division, Department of Biostatistics, Epidemiology & Informatics, 2016 – Present.

Mentor, JSM Diversity Mentoring Program, American Statistical Association, 2018 – Present.

Member, Combatting Racial Inequities Committee, Biomedical Graduate Studies, Perelman School of Medicine, University of Pennsylvania, 2020-2021.

Presenter, Memorial Sloan Kettering Cancer Center, Bridge2Biostat, July 2021.

Chair, ASA Board of Director's Task Force on Increasing Diversity in Editorial Positions, 2021.

Presenter, Quantitative Approaches to Understand Diseases with Electronic Health Record Data, Society for Advancement of Chicanos/Hispanics and Native Americans in Science, October 2021.

TEACHING ACTIVITIES

Courses   BIOST 571: Statistical Methodology: Regression Models for Dependent Data, Department of Biostatistics, University of Washington, Graduate Teaching Assistant, Winter 2005.

                    BIOST 511: Medical Biometry I, Department of Biostatistics, University of Washington, Graduate Teaching Assistant, Summer 2006, Summer 2007.

                    Linear Regression and ANOVA, Summer Institute in Statistical Genetics. Department of Biostatistics, University of Washington, Course Director, Summer 2009 – Summer 2021.

                    BIOST 579: Data Analysis and Report Writing, Department of Biostatistics, University of Washington, Course Director, Spring 2011, Summer 2013.

                    HPR 608: Applied Regression Analysis for Health Policy Research, Division of General Internal Medicine, Perelman School of Medicine, University of Pennsylvania, Course Director, Spring 2016, Spring 2018, Spring 2019.

                    EPID 600: Data Science for Biomedical Informatics, Department of Biostatistics & Epidemiology, Perelman School of Medicine, University of Pennsylvania, Guest Lecturer, Fall 2016, Fall 2017, Fall 2018.

                    Introduction to Grant Writing, Graduate Group in Epidemiology & Biostatistics, Perelman School of Medicine, University of Pennsylvania, Course Director, Summer 2017, Summer 2018, Fall 2019.

                    Bayesian Methods for Clinical Research - Introduction, Summer Institute in

Statistics for Clinical Research. Department of Biostatistics, University of Washington, Course Director, July 2017.

Bayesian Methods for Clinical Research - Computation and Applications, Summer Institute in Statistics for Clinical Research. Department of Biostatistics, University of Washington, Course Director, July 2017.

Biostatistical Concepts in Pharmacoepidemiology: Linear and Logistic Regression, Food and Drug Administration, Instructor, December 2016, December 2018, December 2019, December 2020.

Practical Solutions for Working with Electronic Health Records Data, ENAR Short Course, March 2020.

Analysis of Big Healthcare Databases, ASA Council of Chapters Traveling Short Course, Instructor, ASA Nebraska Chapter April 2019, ASA Princeton/Trenton Chapter September 2019, ASA Connecticut Chapter October 2019, ASA Twin Cities Chapter October 2019, ASA San Francisco Chapter November 2019, University of California Davis November 2019, ASA Kentucky Chapter October 2020, ASA Cincinnati Chapter October 2020, ASA Philadelphia Chapter November 2020, ASA Houston Area Chapter December 2020.

BSTA 660: Design of Observational Studies, Department of Biostatistics, Epidemiology & Informatics, Perelman School of Medicine, University of Pennsylvania, Course Director, Spring 2018, Fall 2019, Fall 2020, Fall 2021.

Case Studies in Generating Real World Evidence from Real World Data, ENAR Short Course, March 2021.

MS Students	Victoria Ding, 2011 – 2012, Chair, Department of Biostatistics, University of Washington.
	Jian Hu, 2017 – 2018, Chair, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
	Joanna Harton, 2017 – 2018, Chair, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
PhD Students	Amy Laird, 2010 – 2013, Member PhD committee, Department of Biostatistics, University of Washington.
	Jane Lange, 2011 – 2014, Member PhD committee, Department of Biostatistics, University of Washington.
	Greg Calip, 2013 – 2014, Member PhD committee, Department of Epidemiology, University of Washington.
	Willa Brenowitz, 2013 – 2016, Member PhD committee, Department of Epidemiology, University of Washington.
	Lu Chen, 2015, Member PhD committee, Department of Biostatistics & Epidemiology, University of Pennsylvania
	Lu Wang, 2016 – 2019, Chair PhD committee, Department of Biostatistics & Epidemiology, University of Pennsylvania
	Darcy Ellis, 2016 – 2021, Chair PhD committee, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania
	Marzieh Golmakani, 2017 – 2019, Member PhD committee, Department of Public Health Sciences, UC Davis
	Lingjiao Zhang, 2018 – 2020, Member PhD committee, Graduate Group in

Epidemiology & Biostatistics, University of Pennsylvania

Sondra Lavigne, 2018 – 2020, Chair PhD committee, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Sherrie Xie, 2018 – 2021, Member PhD committee, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Joanna Harton, 2018 – Present, PhD Co-Supervisor (with Nandita Mitra), Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Arielle Anglin, 2020 – 2021, Chair PhD committee, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Jiayi Tong, 2021 – Present, Chair PhD committee, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Post-doctoral	Yue Zhang, 2012 – 2013, Post-doctoral fellowship supervisor, Group Health Research Institute

Jane Lange, 2014, Post-doctoral fellowship supervisor, Group Health Research Institute

Noah Hoffman, 2015 – 2016, MSHP Biostatistics advisor, Department of Biostatistics & Epidemiology, University of Pennsylvania

Therese Bittermann, 2015 – 2017, MSCE Biostatistics advisor, Department of Biostatistics & Epidemiology, University of Pennsylvania

Gary Weissman, 2016 – 2017, MSHP Biostatistics advisor, Department of Biostatistics & Epidemiology, University of Pennsylvania

Juan Lado, 2016 – 2017, MSHP Biostatistics advisor, Department of Biostatistics & Epidemiology, University of Pennsylvania

Krisda Chaiyachati, 2016 – 2018, MSHP Biostatistics advisor, Department of Biostatistics & Epidemiology, University of Pennsylvania

Megan Noe, 2015 – 2018, MSCE Biostatistics advisor, Department of Biostatistics & Epidemiology, University of Pennsylvania

Sherif Elhanafi, 2016 – 2018, MSCE Biostatistics advisor, Department of Biostatistics & Epidemiology, University of Pennsylvania

Whitney Cabey, 2016 – 2018, MSHP Biostatistics advisor, Department of Biostatistics & Epidemiology, University of Pennsylvania

Joanna Rhodes, 2018 – 2019, MSCE Biostatistics advisor, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

Nadim Mahmud, 2018 – 2019, MSCE Biostatistics advisor, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

Natasha Vedage, 2018 – 2020, MSCE Biostatistics advisor, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

Lova Sun, 2019 – Present, MSCE Biostatistics advisor, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

Shun Yu, 2019 – Present, MSCE Biostatistics advisor, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

Mohsin Shah, 2019 – Present, MSCE Biostatistics advisor, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

Daniel Vader, 2020 – Present, Post-doctoral fellowship supervisor, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

Hilary Whitworth, 2020 – Present, MSCE Biostatistics advisor, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

Nicole Ferrante, 2021 – Present, MSCE Biostatistics advisor, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

Jeffrey Shevach, 2021 – Present, MSCE Biostatistics advisor, Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania

Other advising | Elisa Sheng, 2009 – 2013, Academic advisor, Department of Biostatistics, University of Washington.

Dana Canfield, 2010, Summer undergraduate internship supervisor, Group Health Research Institute.

Willa Brenowitz, 2011, Summer MPH practicum supervisor, Department of Health Services, University of Washington.

David Benkeser, 2014, Graduate research assistantship supervisor, Department of Biostatistics, University of Washington.

LaNae Schaal, 2014, Sumer independent study supervisor, Department of Biostatistics, University of Washington.

Le Wang, 2015, Biostatistics in Practice II supervisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Carrie Caswell, Fall 2015, Lab rotation supervisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Carrie Caswell, 2015 – 2016, Academic advisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Rui Duan, 2016, Biostatistics in Practice II supervisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Grace Choi, Fall 2016, Lab rotation supervisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Joanna Milton, Fall 2016, Lab rotation supervisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Arman Oganisian, Spring 2016, Lab rotation supervisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Victoria Arthur, 2016 – 2017, Academic advisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Grace Choi, Summer 2017, Lab rotation supervisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Carolyn Lou, Spring 2018, Lab rotation supervisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Lanair Lett, Spring 2019, Fall 2019, Lab rotation supervisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Emily Getzen, 2019 – Present, Academic advisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Kylie Getz, Spring 2020 - Spring 2021, Lab rotation supervisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

Jevaughn Henry, Summer 2020, Mentor, American Physician Scientist Association Virtual Summer Research Program

Melissa Martin, Fall 2021, Lab rotation supervisor, Biostatistics Program, Graduate Group in Epidemiology & Biostatistics, University of Pennsylvania

PUBLICATIONS and PRESENTATIONS

Publications

Peer-Reviewed Papers

Denotes trainee mentored by Dr. Hubbard
†*Denotes equal contribution*

1. Cagle AJ and **Hubbard RA**. 2005. Cold-related cardiac mortality in King County, WA, USA, 1980-2001. *Annals of Human Biology*, 32(4): 525 - 537.
2. Sullivan J, **Hubbard RA**, Shepherd K, Trenga C, Liu L-JS, Koenig JQ, Chandler WL, Kaufman J. 2007. Effect of particulate matter on blood measures of inflammation and thrombosis in an elderly population. *BMC Environmental Health*. 6:3.
3. **Hubbard RA**, Inoue LYT, Fann JR. 2008. Modeling non-homogeneous Markov processes via time transformation. *Biometrics*. 64(3): 843 - 850.
4. **Hubbard RA**, Inoue LYT, Diehr P. 2009. Joint modeling of self-rated health and functional status. *Journal of the American Statistical Association*. 104(487): 873-885. PMCID:PMC2819480
5. **Hubbard RA**, Miglioretti DL, Smith RA. 2010. Modelling the cumulative risk of a false-positive screening test. *Statistical Methods in Medical Research*. 19: 429-449. PMCID: PMC2916076
6. Burn A, Herring S, **Hubbard RA**, Rafferty K, Duncan K, Lieberman D. 2010. Dietary consistency and midline sutures: A study in growing pigs. *Orthodontics & Craniofacial Research*. 13: 106 - 113.
7. Horne DJ, **Hubbard RA**, Narita M, Exarchos A, Park DR, Goss CH. 2010. Factors associated with mortality in patients with tuberculosis. *BMC Infectious Diseases*. 10:258.
8. Gill DP, Koepsell TD, **Hubbard RA**, Kukull WA. 2011. Risk of decline in functional activities in dementia with Lewy bodies and Alzheimer disease. *Alzheimer's Disease and Associated Disorders*. 25(1):17-23.
9. Fann JR, **Hubbard RA**, Alfano C, Roth-Roemer, S, Katon WJ, Syrjala KL. 2011. Pre - and post-transplantation risk factors for delirium onset and severity in patients undergoing hematopoietic stem cell transplantation. *Journal of Clinical Oncology*. 29(7): 895-901. PMCID: PMC3068062.
10. **Hubbard RA** and Zhou XH. 2011. A non-homogeneous Markov regression model for mild cognitive impairment and Alzheimer's disease progression. *Journal of Applied Statistics*. 38(10): 2313-2326. PMCID: PMC3299197.
11. Scholes D, **Hubbard RA**, Ichikawa L, LaCroix A, Spangler L, Beasley J, Reed S, Ott S. 2011. Oral contraceptive use and bone density change in adolescent and young adult women: a prospective study of age, hormone dose, and discontinuation. *Journal of Clinical Endocrinology & Metabolism*. 96(9):E1380-E1387.
12. Simon GE, Ding V, **Hubbard RA**, Fishman P, Ludman E, Morales L, Operskalski B, Savarino J. 2011. Early dropout from psychotherapy for depression with group- and network-model therapists. *Administration and Policy in Mental Health and Mental Health Services Research*. 39(6): 440-447. PMCID: PMC3708590

13. **Hubbard RA**, Kerlikowske K, Flowers C, Yankaskas B, Zhu W, Miglioretti DL. 2011. The cumulative risk of a false-positive recall or biopsy recommendation after 10 years of screening mammography: a cohort study. *Annals of Internal Medicine.* 155: 481-492.

14. Kerlikowske K, **Hubbard RA**, Miglioretti D, Geller BM, Yankaskas BC, Lehman C, Taplin S, Sickles EA. 2011. Comparative effectiveness of digital versus film-screen mammography in community practice in the United States: a cohort study. *Annals of Internal Medicine.* 155: 493-502.

15. Fishman P, Ding V, **Hubbard RA**, Ludman E, Morales L, Operskalski B, Pabiniak C, Stewart C, Savarino J, Simon GE. 2012. Impact of cost sharing on initiation and continuation of psychotherapy for treatment of depression. *Health Services Research.* 47(4): 1561-1579. PMCID: PMC3371095.

16. Chubak J, Anderson ML, Saunders KW, **Hubbard RA**, Tuzzio L, Liss D, Morales LS, Reid RJ. 2012. Predictors of one-year change in patient activation among older adults with diabetes and heart disease. *Journal of the American Geriatric* Society. 60(7):1316-21.

17. Chaudhari M, **Hubbard RA**, Inge R, Reid RJ, Newton KM, Spangler L, Barlow WE. 2012. Evaluating components of dental utilization among adults with diabetes and matched controls via hurdle models. *BMC Oral Health.* 12: 20.

18. Fenton JJ, Zhu W, Balch S, Smith-Bindman R, Lindfors K, **Hubbard RA**. 2012. External validation of Medicare claims codes for digital mammography and computer-aided detection. *Cancer Epidemiology, Biomarkers & Prevention.* 21(8): 1344-1347.

19. Yasmeen S, **Hubbard RA**, Miglioretti DM, Zhu W, Kerlikowske K, Geller BM, Onega T, Yankaskas BC, Romano P. 2012. Mammography use and breast cancer rates among older women with comorbidities. *Cancer Epidemiology, Biomarkers & Prevention.* 12(9):1510-1519.

20. **Hubbard RA**, Zhu W, Onega T, Fishman P, Henderson LM, Tosteson ANA, Buist D. 2012. Effects of digital mammography uptake on downstream breast-related care among older women. *Medical Care.* 50(12): 1053-1059.

21. Henderson LM, **Hubbard RA**, Onega T, Zhu W, Buist D, Fishman P, Tosteson ANA. 2012. Assessing healthcare use and cost consequences of a new screening modality: the case of digital mammography. *Medical Care.* 50(12): 1045-1052.

22. Imel ZE, **Hubbard RA**, Rutter C, Simon GE. 2012. Patient rated alliance as a measure of therapist performance in two clinical settings. *Journal of Consulting and Clinical Psychology.* 81(1):154-165.

23. Simon G, Peterson D, **Hubbard RA**. 2013. Is treatment adherence consistent across time, across treatments, and across diagnoses? *General Hospital Psychiatry.* 35(2):195-201. PMCID: PMC3594411

24. *Ding VY, **Hubbard RA**, Rutter CM, Simon GE. 2013. Assessing the accuracy of profiling methods for identifying top providers: performance of mental health care providers. *Health Services and Outcomes Research Methodology.* 13(1): 1-17.

25. **Hubbard RA,** Miglioretti DL. 2013. A semi-parametric censoring bias model for estimating the cumulative risk of a false-positive screening test under dependent censoring. *Biometrics.* 69(1):245-53.

26. Goldman LE, Walker R, **Hubbard RA**, and Kerlikowske K. 2013. Timeliness of evaluation and loss to follow-up after abnormal mammography at mammography facilities serving vulnerable women. *Medical Care.* 51(4): 307-314.

27. Braithwaite D, Zhu W, **Hubbard RA**, O'Meara ES, Miglioretti DL, Geller B, Dittus K, Moore D, Wernli K, Mandelblatt J, Kerlikowske K for the BCSC. 2013. Screening outcomes in older U.S. women undergoing multiple mammograms in community practice: does interval, age or comorbidity score affect tumor characteristics or false positive rates? *Journal of the National Cancer Institute.* 105(5): 334-341.

28. Kerlikowske K, Zhu W, **Hubbard RA**, Geller B, Dittus K, Braithwaite D, Wernli K, Miglioretti DL, O'Meara ES. 2013. Outcomes of screening mammography by frequency, breast density, and postmenopausal hormone therapy. *JAMA Internal Medicine.* 173(9): 807-816.

29. **Hubbard RA**, Zhu W, Horbyluk R, Karliner L, Sprague B, Henderson L, Lee D, Onega T, Buist DSM, Sweet A. 2013. Timeliness and use of diagnostic imaging and biopsy following

abnormal digital and film screening mammography. *Breast Cancer Research and Treatment.* 138(3):879-87.

30. Crane PK, Walker R, **Hubbard RA**, Li G, Nathan DM, Zheng H, Haneuse S, Craft S, Montine TJ, Kahn S, McCormick W, McCurry S, Bowen JD, Larson EB. 2013. Elevated glucose levels among those with and without diabetes as a risk factor for dementia: the Adult Changes in Thought Study. *New England Journal of Medicine.* 369(6):540-548.

31. Gray SL, Anderson ML, **Hubbard RA**, LaCroix A, Crane PK, Teri L, Bowen JD, McCormick W, McCurry SM, Larson, EB. 2013. Frailty and incident dementia in an older cohort. *Journal of Gerontology.* 68(9):1083-1090.

32. **Hubbard RA**, Johnson E, Hsia R, Rutter C. 2013. The cumulative risk of false-positive fecal occult blood test after 10 years of screening. *Cancer Epidemiology, Biomarkers & Prevention.* 22(9):1612-9.

33. Dittus K, Geller B, Weaver D, Kerlikowske K, Zhu W, **Hubbard RA**, Braithwaite D, O'Meara ES, Miglioretti DL. 2013. Impact of mammography screening interval on breast cancer characteristics of women with different body mass index. *Journal of General Internal Medicine.* 28(11):1454-62.

34. O'Meara ES, Zhu W, **Hubbard RA**, Braithwaite D, Kerlikowske K, Dittus K, Geller B, Wernli K, and Miglioretti D. 2013. Mammographic screening interval in relation to tumor characteristics and false-positive risk by race/ethnicity and age. *Cancer.* 119(22): 3959-3967.

35. Gill DP, **Hubbard RA**, Koepsell TD, Borrie MJ, Petrella RJ, Knopman DS, Kukull WA. 2013. Differences in rate of functional decline across three dementia types. *Alzheimer's & Dementia.* 9(5): S63-S71.

36. Roman M, **Hubbard RA**, Sebuodegard S, Miglioretti DL, Castells X, Hofvind S. 2013. The cumulative risk of false positive results in the Norwegian Breast Cancer Screening Program: updated results. *Cancer.* 119(22), 3952-3958.

37. Dublin S, Anderson ML, Heckbert SR, **Hubbard RA**, Sonnen JA, Crane PK, Montine TJ, Larson EB. 2014. Neuropathologic changes associated with atrial fibrillation in a population-based autopsy cohort. *Journal of Gerontology, Series A: Biological Sciences/Medical Sciences.* 69(5):609-15.

38. Fenton J, Zhu W, Balch S, Smith-Bindman R, Lindfors K, Fishman P, **Hubbard RA**. 2014. Distinguishing screening from diagnostic mammograms using Medicare claims data. *Medical Care.* 52(7):e44-e51.

39. Stout NK, Lee SJ, Schechter CB, Alagoz O, Berry D, Buist DSM, Cevik M, Chisholm G, de Koning HJ, Huang H, **Hubbard RA**, Kerlikowske K, Munsell M, Tosteson ANA, Trentham-Dietz A, van Ravesteyn NT, Miglioretti DL, Mandelblatt JS. 2014. Benefits, harms, and costs for breast cancer screening after US implementation of digital mammography. *Journal of the National Cancer Institute.* 106(6): dju092.

40. Henrikson NB, Anderson ML, **Hubbard RA**, Fishman P, Grossman D. 2014. Employee knowledge of value-based insurance design benefits. *American Journal of Preventive Medicine.* .47(2): 115-122.

41. Onega T, Weiss J, Goodrich M, Alford-Teaster J, Kerlikowske K, Buist DSM, Henderson LM, Wernli K, Virnig B, Tosteson ANA, DeMartini W, **Hubbard RA**. 2014. The influence of race/ethnicity and place of service on breast reconstruction for Medicare beneficiaries with mastectomy. *SpringerPlus.* 3(1): 1-9.

42. *Brenowitz WD, **Hubbard RA**, Crane PK, Gray SL, Zaslavsky O, Larson EB. 2014 Relationships between self-rated health and performance-based physical functioning in older adults: A population-based cohort study. *PLOS One.* 9(11):e111761.

43. Calip GS, Malone KE, Gralow JR, Stergachis A, **Hubbard RA**, Boudreau DM. 2014. Metabolic syndrome and outcomes in early stage breast cancer. *Breast Cancer Research & Treatment.* 148:363-377.

44. **Hubbard RA**, Chubak J, Rutter CM. 2014. Estimating screening test utilization using electronic health records data. *eGEMs (Generating Evidence & Methods to improve patient outcomes).* 2(1):14. PMCID: PMC4346157

45. Etzioni R, Xia J, **Hubbard RA**, Weiss N, Gulati R. 2014. A reality check for overdiagnosis estimates associated with breast cancer screening. *Journal of the National Cancer Institute*. 106(12): dju315.
46. Onega T, **Hubbard RA**, Hill D, Lee C, Haas J, Carlos HA, Alford-Teaster J, Bogart A, DeMartini W, Kerlikowske K, Virnig B, Buist D, Henderson L, Tosteson A. 2014. Geographic access to breast imaging for U.S. women. *Journal of the American College of Radiology*. 11(9): 874-882.
47. Wernli K, **Hubbard RA**, Johnson E, Chubak J, Kamineni A, Green BB, Rutter CM. 2014. Patterns of colorectal cancer screening uptake in newly-eligible men and women. *Cancer Epidemiology, Biomarkers & Prevention*. 23(7): 1230-1237.
48. Chubak J, **Hubbard RA**, Johnson E, Kamineni A, Rutter C. 2015. Assessing the effectiveness of a cancer screening test in the presence of another screening modality. *Journal of Medical Screening*. 22(2): 69-75.
49. **Hubbard RA**, Benjamin-Johnson R, Onega, T, Smith-Bindman R, Zhu W, Fenton JJ. 2015. Classification accuracy of Medicare claims-based methods for identifying providers failing to meet performance targets. *Statistics in Medicine*. 34(1):93-105.
50. Spangler L, Ichikawa L, **Hubbard RA**, Operskalski B, Ott S, Scholes D. 2015. Self-reported oral contraceptive use compared to automated pharmacy data in peri and early postmenopausal women. *Annals of Epidemiology*. 25(1): 55-59.
51. Calip GS, **Hubbard RA**, Stergachis A, Malone, KE, Gralow JR, Boudreau DM. 2015. Adherence to oral diabetes medications and glycemic control during and following breast cancer treatment. *Pharmacoepidemiology and Drug Safety*. 24(1): 75-85.
52. **Hubbard RA**, Zhu W, Balch S, Onega T, Fenton J. 2015. Identification of abnormal screening mammogram interpretation using Medicare claims data. *Health Services Research*. 50(1): 290-304.
53. Gray SL, Anderson ML, Dublin S, Hanlon JT, **Hubbard R**, Walker R, Yu O, Crane P, Larson EB. 2015. Cumulative use of strong anticholinergics and incident dementia: a prospective cohort study. *JAMA Internal Medicine*. 175(3): 401-407.
54. Tom SE, **Hubbard RA**, Crane PK, Haneuse SJ, Bowen J, McCormick WC, McCurry S, Larson EB. 2015. Characterization of dementia and Alzheimer disease in an older population: Updated incidence and life expectancy with and without dementia. *American Journal of Public Health*. 105(2): 408-413. PMCID: PMC4318311
55. *Lange JM, **Hubbard RA**, Inoue LYT, Minin VN. 2015. A joint model for multistate disease processes and random informative observation times, with applications to electronic medical records data. *Biometrics*. 71(1): 90-101.
56. Dublin S, Walker RL, Gray SL, **Hubbard RA**, Anderson ML, Yu O, Crane PK, Larson EB. 2015. Prescription opioids and risk of dementia or cognitive decline: a prospective cohort study. *Journal of the American Geriatric Society*. 63(8): 1519-1526.
57. Lee JM, Buist DSM, Houssami N, Lehman CD, Dowling E, Halpern EF, Gazelle GS, Henderson L, **Hubbard RA**. 2015. Five-year risk of interval invasive second breast cancer. *Journal of the National Cancer Institute*. 107(7): djv109.
58. Henderson LM, **Hubbard RA**, Sprague B, Zhu W, Kerlikowske K. 2015. Increased risk of developing breast cancer after a false positive screening mammogram. *Cancer Epidemiology, Biomarkers, and Prevention*. 24(12):1882-1889.
59. Lee CI, Bogart A, **Hubbard RA**, Obadina ET, Hill DA, Haas JS, Tosteson ANA, Alford-Teaster JA, Sprague BL, DeMartini WB, Lehman CD, Onega TL. 2015. Advanced breast imaging availability by screening facility characteristics. *Academic Radiology*. 22(7):846-52.
60. Jacobsen KK, Abraham L, O'Meara E, Buist DSM, **Hubbard RA**, Sprague B, Kerlikowske K, Euler-Chelpin MV, Njor S. 2015. Comparison of the cumulative false-positive risk of screening mammography in the United States and Denmark. *Cancer Epidemiology*. 39(4): 656-663.
61. **Hubbard RA**, Ripping TM, Chubak J, Broeders MJM, Miglioretti DL. 2015. Statistical methods for estimating the cumulative risk of screening mammography outcomes. *Cancer Epidemiology, Biomarkers & Prevention*. 25(3): 513-520. PMCID: PMC4779749
62. Ripping TM, **Hubbard RA**, Otten JDM, den Heeten GJ, Verbeek ALM, Broeders MJM. 2016. Towards personalized screening: cumulative risk of breast cancer screening outcomes in women

with and without a first-degree relative with a history of breast cancer. *International Journal of Cancer.* 138: 1619-1625.

63. Scholes D, LaCroix A, **Hubbard RA**, Ichikawa L, Spangler L, Operskalski B, Gell N, Ott SM. 2016. Oral contraceptive use and fracture risk around the menopausal transition. *Menopause.* 23(2): 166-174.

64. Henderson LM, Weiss J, **Hubbard RA**, O'Donoghue C, DeMartini WB, Buist DSM, Kerlikowske K, Goodrich M, Virnig B, Tosteson ANA, Lehman CD, Onega TL. 2016. Factors associated with preoperative magnetic resonance imaging use among Medicare beneficiaries with nonmetastatic breast cancer. *The Breast Journal.* 22(1): 24-34.

65. Miglioretti DL, Lange J, van Ravesteyn N, van den Broek JJ, Lee CI, Melnikow J, Fenton JJ, Kerlikowske K, Ritley D, de Koning HJ, **Hubbard RA**. 2016. Radiation-induced breast cancer and breast cancer death from mammography screening. *Annals of Internal Medicine.* 164(4):205-214.

66. Fenton JJ, Onega T, Zhu W, Balch S, Smith-Bindman R, Henderson L, Sprague BL, Kerlikowske K, **Hubbard RA**. 2016. Validation of a Medicare claims-based algorithm for identifying breast cancers detected at screening mammography. *Medical Care.* 54(3):e15-e22. PMCID: PMC4779749

67. Haas JS, Hill DA, Wellman RD, **Hubbard RA**, Lee CI, Wernli KJ, Stout NK, Tosteson AN, Henderson LM, Alford-Teaster JA, Onega TL. 2016. Disparities in the use of screening magnetic resonance imaging of the breast in community practice by race, ethnicity, and socioeconomic status. *Cancer.* 122(4): 611-617. PMCID: PMC4742376

68. Onega T, Tosteson AN, Weiss J, Alford-Teaster J, **Hubbard RA**, Henderson LM, Kerlikowske K, Goodrich ME, O'Donoghue C, Wernli KJ, DeMartini WB, Virnig BA. 2016. Costs of diagnostic and preoperative workup with and without breast MRI in older women with a breast cancer diagnosis. *BMC Health Services Research.* 16(1): 76. PMCID: PMC4769533

69. Lee CI, Bogart A, Germino J, Goldman LE, **Hubbard RA**, Haas JS, Hill DA, Tosteson ANA, Alford-Teaster JA, DeMartini WB, Lehman CD, Onega TL. 2016. Availability of advanced breast imaging at screening facilities serving vulnerable populations. *Journal of Medical Screening.* 23(1): 24-30. PMCID: PMC4679713

70. Onega T, Lee CI, Alford-Teaster JA, Haas JS, Benkeser D Tosteson ANA, Hill D, Shi X, Henderson L, Lange JM, **Hubbard RA**. 2016. Travel burden to breast MRI and utilization: are risk and sociodemographics related? *Journal of the American College of Radiology.* 13(6): 611-619.

71. Alford-Teaster JA, Lange J, **Hubbard RA**, Lee CI, Haas JS, Shi X, Carlos HA, Henderson L, Hill D, Tosteson ANA, Onega T. 2016. Is the closest facility the one actually used? An assessment of travel time estimation based on mammography facilities. *International Journal of Health Geographics.* 15:8.

72. Domingo L, Hofvind S, **Hubbard RA**, Roman M, Benkeser D, Sala M, Castells X. 2016. Cross-national comparison of screening mammography accuracy measures in U.S., Norway, and Spain. *European Radiology.* 26(8): 2520-2528.

73. Onega T, Weiss JE, Buist DSM, Tosteson ANA, Henderson LM, Kerlikowske K, Goodrich ME, O'Donoghue C, Wernli KJ, DeMartini WB, Virnig BA, Bennett C, **Hubbard RA**. 2016. Breast MRI in the diagnostic and preoperative workup among Medicare beneficiaries with breast cancer. *Medical Care.* 54(7):719-724.

74. Gray SL, Dublin S, Yu O, Walker R, Anderson ML, **Hubbard RA**, Crane P, Larson EB. 2016. Benzodiazepine use and risk of incident dementia or cognitive decline. *BMJ.* 352:i90.

75. **Hubbard RA**, O'Meara E, Henderson L, Hill D, Lee CI, Wernli K, Tosteson ANA, Alford-Teaster J, Haas J, Sprague BL, Braithwaite D, Onega T. 2016. Multilevel factors associated with long-term adherence to screening mammography guidelines in older women. *Preventive Medicine.* 89:169-177.

76. **Hubbard RA**, Lange J, Zhang Y, Salim BA, Stroud JR, Inoue LYT. 2016. Using semi-Markov processes to study timeliness and tests used in the diagnostic evaluation of suspected breast cancer. *Statistics in Medicine.* 35(27): 4980-4993. PMCID: PMC5096962

77. Marcus PM, Pashayan N, Church TR, Doria-Rose VP, Gould MK, **Hubbard RA**, Marrone M, Miglioretti DL, Pharoah PD, Pinsky PF, Rendle K, Robbins HA, Roberts MC, Rolland B,

Schiffman M, Tiro JA, Zauber AG, Winn DM, Khoury MJ. 2016. Population-based precision cancer screening: a symposium on evidence, epidemiology, and next steps. *Cancer Epidemiology, Biomarkers & Prevention.* 25(11):1449-1455.

78. Goodrich ME, Weiss J, Onega T, Balch S, Buist SMB, Kerlikowske K, Henderson LM, **Hubbard RA**. 2016. The role of preoperative magnetic resonance imaging in the assessment and surgical treatment of interval and screen-detected breast cancer in older women. *The Breast Journal.* 22(6): 616-622.

79. Chubak J and **Hubbard RA**. 2016. Defining and measuring adherence to cancer screening. *Journal of Medical Screening.* 23(4):179-185.

80. Ozanne EM, Weiss J, Onega T, DeMartini W, Kerlikowske K, Buist DSM, Henderson L, **Hubbard RA**, Goodrich M, Tosteson ANA, Virnig B, O'Donoghue C. 2017. Locoregional treatment of breast cancer in women with and without preoperative MRI. *American Journal of Surgery.* 213(1):132-139.

81. Brenowitz W, Keene CD, Hawes SE, **Hubbard RA**, Longstreth W, Woltjer RL, Crane PK, Larson EB, Kukull W. 2017. Alzheimer's disease neuropathologic change, Lewy body disease, and vascular brain injury in clinic and community-based samples. *Neurobiology of Aging.* 53:83-92.

82. **Hubbard RA**, Johnson E, Chubak J, Wernli K, Kamineni A, Bogart T, Rutter CM. 2017. Accounting for misclassification in electronic health records-derived exposures using generalized linear finite mixture models. *Health Services and Outcomes Research Methodology.* 17(2):101-112. PMCID:NIHMS792861.

83. Brenowitz W, **Hubbard RA**, Keene CD, Hawes SE, Longstreth W, Kukull W. 2017. Mixed neuropathologies and estimated rates of clinical progression in a large autopsy sample. *Alzheimer's & Dementia.* 13(6):654-662.

84. Wernli KJ, Arao RF, **Hubbard RA**, Sprague B, Alford-Teaster JA, Haas JS, Henderson L, Hill D, Lee CI, Tosteson A, Onega T. 2017. Change in breast cancer screening intervals since the 2009 USPSTF guideline. *Journal of Women's Health.* 26(8):820-827.

85. Weissman GE, **Hubbard RA**, Kohn RA, Anesi GL, Manaker S, Prasad Kerlin M, Halpern SD. 2017. Validation of an administrative definition of ICU admission using revenue center codes. *Critical Care Medicine.* 45(8):e758-e762.

86. Dublin S, Walker RL, Gray SL, **Hubbard RA**, Anderson ML, Yu O, Montine TJ, Crane PK, Sonnen JA, Larson EB. 2017. Use of analgesics (opioids and nonsteroidal anti-inflammatory drugs) and dementia related neuropathology in a community-based autopsy cohort. *Journal of Alzheimer's Disease.* 58(2):435-448.

87. LaCroix AZ, **Hubbard RA**, Gray SL, Anderson ML, Crane PK, Sonnen J, Zaslavksky O, Larson EB. 2017. Trajectories of physical function prior to death and brain neuropathology in a community-based cohort: The ACT study. *BMC Geriatrics.* 17(1):258.

88. Brenowitz W, **Hubbard RA**, Keene CD, Hawes SE, Longstreth W, Kukull W. 2017. Mixed neuropathologies and associations with domain specific cognitive decline. *Neurology.* 89(17):1773-1781.

89. *Wang L, **Hubbard RA**, Walker R, Lee EB, Crane PK, Larson E. 2017. Assessing robustness of hazard ratio estimates to outcome misclassification in longitudinal panel studies with application to Alzheimer's disease. *PLOS One.* 12(12): e0190107.

90. Onega T, Weiss JE, Goodrich ME, Zhu W, DeMartini WB, Kerlikowske K, Ozanne E, Tosteson ANA, Henderson LM, Buist DSM, Wernli KJ, Herschorn SD, Hotaling E, O'Donoghue C, **Hubbard RA**. 2017. Relationship between preoperative breast MRI and surgical treatment of non-metastatic breast cancer. *Journal of Surgical Oncology.* 116(8):1008-1015.

91. Chubak J, **Hubbard RA**, Zhu W, Buist DSM, Onega T. 2017. An electronic health record-based algorithm to ascertain the date of second breast cancer events using automated data. *Medical Care.* 55(12):e81–e87.

92. Hill D, Haas JS, **Hubbard RA**, Wellman R, Lee CI, Alford-Teaster JA, Wernli K, Henderson L, Stout N, Tosteson ANA, Onega T. 2018. Breast cancer screening with magnetic resonance imaging in community practice. *Journal of General Internal Medicine.* 33(3):275-283.

93. Wan MT, Shin DB, **Hubbard RA**, Noe MH, Mehta NN, Gelfand JM. 2018. Psoriasis and risk of diabetes: A prospective population-based cohort study. *Journal of the American Academy of Dermatology.* 78(2):315-322.

94. †Huang J, †Duan R, **Hubbard RA**, Wu Y, Moore JH, Xu H, Chen Y. 2018. PIE: A prior knowledge guided integrated likelihood estimation method for bias reduction in association studies using electronic health records data. *Journal of the American Medical Informatics Association.* 25(3):345-352.

95. Catino A, **Hubbard RA**, Chirinos JA, Townsend R, Keefe S, Haas NB, Puznov I, Fang JC, Agarwal N, Hyman D, Smith AM, Gordon M, Plappert T, Englefield V, Narayan V, Ewer S, ElAmm C, Lenihan D, Ky B. 2018. Longitudinal assessment of vascular function with sunitinib in patients with metastatic renal cell carcinoma. *Circulation.*11:e004408.

96. *Chaiyachati K, Hom JK, **Hubbard RA**, Wong C, Grande D. 2018. Evaluating the association between the built environment and primary care access for new Medicaid enrollees in an urban environment using Walk and Transit Scores. *Preventive Medicine Reports.* 9:24-28.

97. Mehta NN, Shin DB, Joshi AA, Dey AK, Armstrong AW, Duffin KC, Fuxench ZC, Harrington CL, **Hubbard RA**, Kalbg RE, Mentere A, Rader DJ, Reilly MP, Simpson EL, Takeshita J, Torigian DA, Werner TJ, Troxel AB, Tyring SK, Vanderbeek SB, Van Voorhees AS, Playford MP, Ahlman MA, Alavi A, Gelfand JM. 2018. Effect of 2 psoriasis treatments on vascular inflammation and novel inflammatory cardiovascular biomarkers: A randomized placebo-controlled trial. *Circulation: Cardiovascular Imaging.* 11(6):e007394.

98. *Chaiyachati KH, **Hubbard RA**, Yeager A, Mugo B, Lopez S, Asch E, Shi C, Shea JA, Rosin R, Grande D. 2018. Association of rideshare-based transportation services and missed primary care appointments. *JAMA Internal Medicine.* 178(3):383-389.

99. Sobrin L, Pan W, Stanwyck LK, **Hubbard RA**, Kempen J, VanderBeek BL. 2018. Association of hypovitaminosis D with increased risk of uveitis in a large health care claims database. *JAMA Opthalmology.* 36(5):548-552.

100. *Bittermann T, **Hubbard RA**, Serper M, Lewis JD, Hohmann SF, VanWagner LB, Goldberg DS. 2018. Healthcare utilization after liver transplantation is highly variable both among centers and recipients. *American Journal of Transplantation.*18(5):1197-1205.

101. *Chaiyachati K, **Hubbard RA**, Yeager A, Mugo B, Shea JA, Rosin R, Grande D. 2018. Rideshare-based medical transportation for Medicaid patients and primary care show rates: a difference-in-difference analysis of a pilot program. *Journal of General Internal Medicine.* 33(6):863-868.

102. Lee JM, Abraham L, Lam DL, Buist DSM, Kerlikowske K, Miglioretti DL, Houssami N, Lehman CD, Henderson LM, **Hubbard RA**. 2018. Cumulative risk distribution for interval invasive second breast cancers after negative surveillance mammography. *Journal of Clinical Oncology.* 36(20):2070-2077.

103. Onega T, Zhu W, Weiss JE, Goodrich M, Tosteson ANA, DeMartini W, Virnig B, Henderson L, Buist DSM, Wernli K, Kerlikowske K, **Hubbard RA**. 2018. Preoperative breast MRI and mortality among older women with breast cancer. *Breast Cancer Research and Treatment.* 170(1):149-157.

104. Weissman GE, **Hubbard RA**, Ungar LH, Harhay MO, Greene CS, Himes BE, Halpern SD. 2018. Inclusion of unstructured clinical text improves early prediction of death or prolonged ICU stay. *Critical Care Medicine.* 46(7):1125-1132.

105. Henderson LM, **Hubbard RA**, Zhu W, Weiss J, Wernli K, Goodrich M, Kerlikowske K, DeMartini W, Ozanne E, Onega T. 2018. Pre-operative breast magnetic resonance imaging use by breast density and family history of breast cancer. *Journal of Women's Health.* 27(8):987-993.

106. Chubak J, Yu O, Ziebell R, Aiello Bowles EJ, Sterrett A, Fujii MM, Boggs J, Burnett-Hartman A, Boudreau DM, Chen L, Floyd J, Ritzwoller DP, **Hubbard RA**. 2018. Risk of colon cancer recurrence in relation to diabetes. *Cancer, Causes & Control.* 29:1093-1103.

107. Gray SL, Anderson ML, Hanlon JT, Dublin S, Walker R, **Hubbard RA**, Yu O, Montine TJ, Crane P, Sonnen JA, Larson EB. 2018. Exposure to strong anticholinergic medications and

dementia-related neuropathology in a community-based autopsy cohort. *Journal of Alzheimer's Disease.* 65:607-616.

108. Mantri S, Fullard M, Gray SL, Weintraub D, **Hubbard RA**, Hennessy S, Willis AW. 2019. Patterns of dementia treatment and frank prescribing errors in Parkinson disease. *JAMA Neurology.* 76(1):41-49.

109. Schapira MM, **Hubbard RA**, Seitz H, Conant E, Schnall M, Cappella J, Harrington T, Inge CA, Armstrong K. 2019. The impact of a risk-based breast cancer screening decision aid on initiation of screening among younger women: Report of a randomized trial. *Medical Decision Making Policy & Practice.* 4(1):1-13.

110. *Noe M, Shin DB, **Hubbard RA**, Hennessy S, Gelfand JM. 2019. Influenza vaccination rates in adults with psoriasis compared to adults with other chronic diseases. *Journal of Investigative Dermatology.* 139(2):473-475.

111. **Hubbard RA**, Huang J, Harton J, Oganisian A, Choi G, Utidjian L, Eneli I, Bailey LC, Chen Y. 2019. A Bayesian latent class approach for EHR-based phenotyping. *Statistics in Medicine.* 38: 74-87.

112. Greenblatt R, Zhao E, Henrickson S, Apter A, **Hubbard RA**, Himes BE. 2019. Factors associated with exacerbations among adults with asthma according to EHR data. *Asthma Research and Practice.* 5(1).

113. Chen Y, Wang J, Chubak J, **Hubbard RA**. 2019. Inflation of type I error rates due to differential misclassification in EHR-derived outcomes: Empirical illustration using breast cancer recurrence. *Pharmacoepidemiology & Drug Safety.* 28(2): 264-268.

114. Borkar DS, Sobrin L, **Hubbard RA**, Kempen JH, VanderBeek BL. 2019. Techniques for improving ophthalmic studies performed on administrative databases. *Ophthalmic Epidemiology.* 26(3):47-149.

115. *Noe MH, Rosenbach M, **Hubbard RA**, Cardones ARG, Chen JK, Cotliar J, Davis MDP, Dominguez A, Fox LP, Hughey LC, Kaffenberger BH, Kroshinsky D, Kwong BY, Miller DD, Mostaghimi A, Musiek A, Ortega Loayza AG, Sharon VR, Shinkai K, Summers EM, Wanat KA, Wetter DA, Worswick S, Margolis DJ, Gelfand JM, Micheletti RG. 2019. Development and validation of a risk prediction model for in-hospital mortality among patients with Stevens-Johnson Syndrome/Toxic Epidermal Necrolysis-ABCD-10. *JAMA Dermatology.* 155(4):448-454.

116. Bowles EJA, Yu O, Ziebell R, Chen L, Boudreau D, Ritzwoller DP, **Hubbard RA**, Boggs J, Burnett-Hartman A, Sterrett A, Fujii M, Chubak J. 2019. Cardiovascular medication use and risks of colon cancer recurrences and additional cancer events: a cohort study. *BMC Cancer.* 19(1):270.

117. Pocobelli G, Yu O, Ziebell RA, Bowles EJA, Fujii MM, Sterret AT, Boggs JM, Chen L, Boudreau DM, Ritzwoller DP, **Hubbard RA**, Chubak JC. 2019. Use of antidepressants after colon cancer diagnosis and risk of recurrence. *Psycho-Oncology.* 28(4):750-758.

118. Demissei BG, Finkelman B, **Hubbard RA**, Smith AM, Narayan HK, Narayan V, Shah P, Waxman AJ, Domchek SM, Ky B. 2019. Cardiovascular function phenotypes in response to cardiotoxic breast cancer therapy. *Journal of the American College of Cardiology.*73(2):248-249.

119. Feld E, Harton J, Meropol NJ, Adamson B, Cohen A, Parikh RB, Galsky MD, Narayan VK, Christodouleas J, Vaughn D, †**Hubbard RA**, †Mamtani R. 2019. Effectiveness of first-line immune checkpoint blockade versus carboplatin-based chemotherapy for metastatic urothelial cancer. *European Urology.* 76(4):524-532.

120. Demissei BG, Finkelman B, **Hubbard RA**, Zhang L, Smith AM, Sheline K, McDonald C, Narayan HK, Narayan V, Waxman AJ, Domchek SM, DeMichele A, Shah P, Clark AS, Bradbury A, Carver JR, Upshaw J, Armenian SH, Liu P, Ky B. 2019. Detailed phenotyping reveals distinct trajectories of cardiovascular function and symptoms with exposure to modern breast cancer therapy. *Cancer.* 125(16):2762-2771.

121. Chen L, Chubak J, Yu O, Pocobelli GP, Ziebell RA, Bowles EA, Fujii MM, Sterrett AT, Boggs JM, Ritzwoller DP, **Hubbard RA**, Boudreau DM. 2019. Changes in use of opioid therapy after colon cancer diagnosis: a population-based study. *Cancer Causes & Control.* 30(12):1341-1350.

122. *Chaiyachati KH, Liao JM, Weissman GE, **Hubbard RA**, Morgan AU, Buehler A, Shea JA, Armstrong KA. 2019. Gender differences in retention and promotion among generalists who graduated from research-intensive fellowships. *Journal of Graduate Medical Education.* 11(5):535-542.

123. Ibáñez-Sanz G, Garcia M, Milà N, **Hubbard RA**, Vidal C, Binefa G, Benito L, Moreno V on behalf of the 'Adverse Effects on Colorectal Cancer Screening in Catalonia (EACC) Study' working group. 2019. False-positive results in a population-based colorectal screening programme: cumulative risk over seven biennial FOBT screening rounds. *Cancer Epidemiology, Biomarkers & Prevention.* 28(11):1909-1916.

124. *Bittermann T, **Hubbard RA**, Lewis JD, Goldberg DS. 2019. The use of induction therapy in liver transplantation is highly variable and is associated with post-transplant outcomes. *American Journal of Transplantation.* 19(12):3319-3327.

125. Hong C, Duan R, Zeng L, **Hubbard RA**, Lumley T, Riley R, Chu H, Kimmel S, Chen Y. 2020. Galaxy plot: a new visualization tool of bivariate meta-analysis studies. *American Journal of Epidemiology.* 189(8):861-869.

126. Upshaw JN, Finkelman B, **Hubbard RA**, Smith AM, Narayan H, Arndt L, Domchek S, DeMichele A, Fox K, Shah P, Clark A, Bradbury A, Matro J, Adusumalli S, Carver JR, Ky B. 2020. Comprehensive assessment of changes in left ventricular diastolic function with contemporary breast cancer therapy. *Journal of the American College of Cardiology: Cardiovascular Imaging.* 13(1):198-210.

127. Tong J, Huang J, Chubak J, Wang X, **Hubbard RA**, Chen Y. 2020. An augmented estimation procedure for EHR-based association studies accounting for differential misclassification. *Journal of the American Medical Informatics Association.* 27(2):244-253.

128. Demissei BG, **Hubbard RA**, Zhang L, Smith AM, Sheline K, McDonald C, Narayan V, Domchek SM, DeMichele A, Shah P, Clark AS, Fox K, Matro J, Bradbury A, Knollman H, Getz K, Armenian S, Januzzi J, Tang WH, Liu P, Ky B. 2020. Changes in cardiovascular biomarkers with breast cancer therapy and associations with cardiac dysfunction. *Journal of the American Heart Association.* 9:e014708.

129. *Bittermann T, **Hubbard RA**, Goldberg D. 2020. The proportion of Model for End-stage Liver Disease Sodium score attributable to creatinine independently predicts post-transplant survival and renal complications. *Clinical Transplantation.* 34: e13817.

130. Schapira MM, Williams M, Balch A, Baron RJ, Barrett P, Beveridge R, Collins T, Day SC, Fernandopulle R, Gilberg AM, Henley DE, Nguyen Howell A, Christine Laine C, Miller M, Ryu J, Schapira E, Schwarz DF, Schwarz M, Stevens J, Teisberg E, Yamaguchi K, **Hubbard RA**. 2020. Seeking consensus on the terminology of value-based transformation through use of a Delphi process. *Population Health Management.* 23(3):243-255.

131. **Hubbard RA**, Tong J, Duan R, Chen Y. 2020. Reducing bias due to outcome misclassification for epidemiologic studies using EHR-derived probabilistic phenotypes. *Epidemiology.* 31(4): 542-550.

132. *Mahmud N, **Hubbard RA**, Kaplan DE, Taddei TH, Goldberg DS. 2020. Risk prediction scores for acute on chronic liver failure development and mortality. *Liver International.* 40(5):1159-1167.

133. Conant EF, Zuckerman S, McDonald ES, Weinstein SP, Korhonen K, Synnestvedt MB, Schnall MD, **Hubbard RA**. 2020. Five consecutive years of screening with digital breast tomosynthesis: Outcomes by screening year and round. *Radiology.* 295(2):285-293.

134. Xie S, †**Hubbard RA**, †Himes BE. 2020. Neighborhood-level measures of socioeconomic status are more correlated with individual-level measures in urban areas compared to less urban areas. *Annals of Epidemiology.* 43:37-43.

135. Kenyon CC, Maltenfort MG, **Hubbard RA**, Schinazi L, de Roos A, Henrickson S, Forrest CB. 2020. Variability in diagnosed asthma in young children in a large pediatric primary care network. *Academic Pediatrics.* 20(7):958-966.

136. Schinasi LH, Kenyon C, Melly S, Moore K, Zhao Y, **Hubbard RA**, Maltenfort M, De Roos A, Forrest C, Diez Roux A. 2020. Heavy precipitation and asthma exacerbation risk among children: A case-crossover study using electronic health records linked with geospatial data. *Environmental Research.* 188:109714.

137. Harrigan J, **Hubbard RA**, Thomas S, Riello RJ, Bange E, Mamtani M, Mamtani R. 2020. Association between US administration endorsement of hydroxychloroquine for COVID-19 and outpatient prescribing. *Journal of General Internal Medicine.* 35:2826-2828.

138. Xiao KY, **Hubbard RA**, Kaplan DE, Taddei TT, Goldberg DS, Mahmud N. 2020. Models for acute on chronic liver failure development and mortality in a Veterans Affairs cohort. *Hepatology International.* 14:587-596.

139. Tom SE, Phadke M, Crane PL, **Hubbard RA**, Stern Y, Larson EB. 2020. Association of demographic and early-life socioeconomic factors by firth cohort with dementia incidence among US adults born between 1893 and 1949. *JAMA Network Open.* 3(7):e2011094.

140. Demissei BG, Adusumalli S, **Hubbard RA**, Denduluri S, Narayan V, Clark AS, Shah P, Knollman H, Getz KD, Aplenc R, Carver JR, Ky B. 2020. Cardiology involvement in patients with breast cancer treated with trastuzumab. *JACC: CardioOncology.* 2(2):179-189.

141. *Mahmud N, **Hubbard RA**, Kaplan DE, Serper M. 2020. Declining cirrhosis hospitalizations in the wake of the COVID-19 pandemic: A national cohort study. *Gastroenterology.* 159(3):1134-1136.

142. Upshaw JN, **Hubbard RA**, Hu J, Brown J, Schmitz K, Ky B. 2020. Physical activity during and after breast cancer therapy and associations of baseline physical activity with changes in cardiac function by echocardiography. *Cancer Medicine.* 9(17):6122-6131.

143. De Roos A, Kenyon C, Zhao Y, **Hubbard RA**, Moore K, Melly S, Henrickson S, Maltenfort M, Schinasi LH, De Roos A, Forrest C, Diez Roux A. 2020. Ambient daily pollen levels in association with asthma exacerbation among children in Philadelphia, Pennsylvania. *Environment International.* 145:106138.

144. Sobrin L, Yu Y, Susarla G, Chan W, Xia T, Kempen JH, **Hubbard RA**, VanderBeek BL. 2020. Risk of non-infectious uveitis with female hormonal therapy in a large healthcare claims database. *Ophthalmology.* 127(11):1558-1566.

145. Huang W, Schinasi LH, Kenyon C, Moore K, Melly S, **Hubbard RA**, Zhao Y, Diez Roux AV, Forrest CB, Maltenfort M, J De Roos AJ. 2021. Effects of ambient air pollution on childhood asthma exacerbation in the Philadelphia metropolitan region, 2011 – 2014. *Environmental Research.* 197:110955.

146. *Courts KA, **Hubbard RA**, Kersten HB, Klusaritz H. 2021. Stability of food insecurity status in paediatric primary care. *Public Health Nutrition.* 24(5):845-850.

147. Wang L, Schnall J, Small A, **Hubbard RA**, Moore J, Damrauer S, Chen J. 2021. Case contamination in electronic health records-based case-control studies. *Biometrics.* 77(1):67-77.

148. *Sun L, Parikh RB, **Hubbard RA**, Cashy J, Takvorian SU, Vaughn DJ, Robinson KW, Narayan V, Ky B. 2021. Assessment and management of cardiovascular risk factors among US Veterans with prostate cancer initiating androgen deprivation therapy. *JAMA Network Open.* 4(2):e210070.

149. **Hubbard RA**, Xu J, Chen Y, Siegel R, Eneli I. 2021. Studying pediatric health outcomes with electronic health records using Bayesian clustering and trajectory analysis. *Journal of Biomedical Informatics.* 113:103654.

150. *Mahmud N, Fricker Z, **Hubbard RA**, Ioannou G, Lewis JD, Taddei TH, Rothstein KD, Serper M, Goldberg D, Kaplan DE. 2021. Risk prediction models for post-operative mortality in patients with cirrhosis: A retrospective cohort study. *Hepatology.* 73(1):204-218.

151. Doshi SD, Stotts MJ, **Hubbard RA**, Goldberg DS. 2021. The changing burden of alcoholic hepatitis: Rising incidence and associations with age, gender, race, and geography. *Digestive Diseases & Sciences.* 66:1707-1714.

152. *Harton J, Mamtani R, †Mitra N, †**Hubbard RA**. 2021. Bias reduction methods for propensity scores estimated from error-prone EHR-derived covariates. *Health Services and Outcomes Research Methodology.* 21(2):169-187.

153. Ellis DE, **Hubbard RA**, Willis AW, Zuppa AF, Zaoutis TE, Hennessy S. Comparative neurological safety of fluoroquinolones vs. therapeutic alternatives. 2021. *Pharmacoepidemiology & Drug Safety.* 30(6):797-805.

154. **Hubbard RA,** Lett E, Ho G, Chubak J. 2021. Characterizing bias due to differential exposure ascertainment in electronic health record data. *Health Services and Outcomes Research Methodology.*

21:309-323.

155. Zhu Y, **Hubbard RA**, Chubak J, Mitra N, Roy J. 2021. Violations of the positivity assumption in the causal analysis of observational data: consequences and statistical approaches. *Pharmacoepidemiology & Drug Safety.* 30 (11): 1471-1485.

156. Sobrin L, Yu Y, Han S, Susarla G, Kempen JH, **Hubbard RA,** VanderBeek BL. 2021. Risk of non-infectious uveitis with metformin therapy in a large healthcare claims database. *Occular Immunology and Inflammation. In press.*

157. Sobrin L, Yu Y, Han S, Susarla G, Kempen JH, **Hubbard RA,** VanderBeek BL. 2021. Angiotensin converting enzyme-inhibitors and incidence of non-infectious uveitis in a large healthcare claims database. *Ophthalmic Epidemiology. In press.*

158. Golmakani MK, **Hubbard RA**, Miglioretti DL. 2021. Non-homogeneous Markov chain for estimating the cumulative risk of multiple false-positive screening tests. *Biometrics. In press.*

159. Weissman GE, Teeple S, Eneanya ND, **Hubbard RA**, Kangovi S. 2021. Effects of neighborhood-level data on performance and algorithmic equity of a model that predicts 30-day heart failure readmissions at an urban academic medical center. *Journal of Cardiac Failure. In press.*

160. Sobrin L, Yu Y, Han S, Susarla G, Kempen JH, **Hubbard RA,** VanderBeek BL. 2021. Decreased risk of non-infectious anterior uveitis with statin therapy in a large healthcare claims database. *Graefe's Archive for Clinical and Experimental Ophthalmology. In press.*

161. Holmes J, Beinlich J, Boland M, Bowles K, Chen Y, Cook T, Demiris G, Draugelis M, Fluharty L, Gabriel P, Grundmeier R, Hanson C, Herman D, Himes B, **Hubbard RA**, Kahn C, Kim D, Koppel R, Long Q, Mirkovic N, Morris J, Mowery D, Ritchie M, Urbanowicz R, Moore J. 2021. Why is the electronic health record so challenging for research and clinical care? *Methods of Information in Medicine. In press.*

162. Aysola J, Rewley J, **Hubbard RA**, Xu C, Schapira M. 2021. Primary care patient social networks and tobacco use: An observational study. *Journal of Primary Care and Community Health. In press.*

163. Parikh RB, Min EJ, Wileyto EP, Riaz F, Gross CP, Cohen RB, †**Hubbard RA**, †Long Q, †Mamtani R. 2021. Uptake and effectiveness of checkpoint inhibitor therapy among trial-ineligible patients with newly diagnosed advanced solid malignancies. *JAMA Oncology. In press.*

164. Xu J, Pratt K, Chaudhari M, Rohan H, **Hubbard RA**, Siegel R, Ihuoma E. 2021. On a different page! Perceptions on the onset, diagnosis, and management of type 2 diabetes among adolescent patients, parents, and physicians. *Global Pediatric Health. In press.*

165. Yin Z, Tong J, Chen Y, **Hubbard RA**, Tang CY. 2021. A cost-effective chart review sampling design to account for phenotyping error in EHR data. *Journal of the American Medical Informatics Association. In press.*

166. *Getz K, Mamtani R, **Hubbard RA**. 2021. Integrating real world data and clinical trial results using survival data reconstruction and marginal moment-balancing weights. *Journal of Biopharmaceutical Statistics. In press.*

167. Martin JA, Crane-Droesch A, Lapite FC, Puhl JC, Kmiec T, Silvestri JA, Ungar LH, Kinosian BP, Himes BE, **Hubbard RA**, Diamond JM, Ahya V, Sims MW, Halpern SD, Weissman GE. 2021. Identifying actionable aspects of frailty in the text of encounter notes. *Journal of the American Medical Informatics Association. In press.*

168. Ellis DE, **Hubbard RA**, Willis AW, Zuppa AF, Zaoutis TE, Hennessy S. Comparing LASSO vs. random forest for risk prediction. *Pharmacoepidemiology & Drug Safety. In press.*

169. Liu X, **Hubbard RA**, Chubak J, Chen Y. 2021. SAT: a Surrogate Assisted two-wave case boosting sampling method, with application to EHR-based association studies. *Journal of the American Medical Informatics Association. In press.*

170. Parikh RB, Takvorian SU, Vader D, Wileyto EP, Clark AS, Lee DJ, Goyal G, Rocque GB, Dotan E, Geynisman DM, Phull P, Spiess PE, Kim RY, Davidoff AJ, Gross CP, Miksad RA, Calip GS, Ferrell W, Shulman LN, †Mamtani R, †**Hubbard RA**. 2021. Impact of the COVID-19 pandemic on treatment patterns for patients with metastatic solid cancer in the United States. *JNCI. In press.*

Book Chapters

1. Laird AE, **Hubbard RA**, Inoue LYT. 2015. Multi-state models for disease natural history. In: *Current Trends in Bayesian Methodology with Applications.* Chapman & Hall.
2. Broeders MJM, Ripping TM, **Hubbard RA**. 2016. Weighing the benefits and harms: Screening mammography in the balance. In: *Breast Cancer Screening.* Elsevier.
3. **Hubbard RA**, Harton J, Zhu W, Wang L, Chubak J. 2017. Accounting for differential error in time-to-event analyses using imperfect electronic health record-derived endpoints. In: *New Advances in Statistics and Data Science.* Springer.
4. **Hubbard RA**, Lou C, Himes B. 2021. The effective sample size of EHR-derived cohorts under biased sampling. In: *Modern Statistical Methods for Health Research.* Springer.

Other non-peer-reviewed scholarly publications

1. **Hubbard RA**. 2011. [Letter] RE: Modelling the cumulative risk of a false-positive screening test. *Statistical Methods in Medical Research.* 20(3):293-5
2. **Hubbard RA**, Kerlikowske K, Buist D, Yankaskas BC, for the Breast Cancer Surveillance Consortium. 2011. [Letter] Evaluation of breast cancer screening strategies must be based on comparisons of harms and benefits. *American Journal of Roentgenology.* 197:W793.
3. Kerlikowske K, **Hubbard RA**. 2011. [Letter] Comparative effectiveness of digital versus film-screen mammography. *Annals of Internal Medicine.* 156: 251.
4. Kerlikowske K, **Hubbard RA**, Tosteson ANA. 2014. [Letter] Higher mammography screening costs without appreciable clinical benefit: the case of digital mammography. *Journal of the National Cancer Institute.* 106(4): dju191.
5. **Hubbard RA**. 2015. [Invited commentary] US counties with higher rates of breast cancer screening have higher rates of breast cancer incidence with no concomitant decrease in breast cancer mortality. *BMJ Evidence Based Medicine.* 20(6): 201.
6. Miglioretti DL, Lange J, van Ravesteyn N, van den Broek JJ, Lee CI, Melnikow J, Kerlikowske K, Ritley D, de Koning HJ, **Hubbard RA**. 2015. [Report] Radiation-induced breast cancer and breast cancer death from mammography screening. Rockville, MD: Agency for Healthcare Research and Quality. AHRQ Publication No. 14-05201-EF-5. Available at: http://www.uspreventiveservicestaskforce.org/Page/Document/modeling-report-radiation-induced-breast-cancer-and-breast-c/breast-cancer-screening1
7. Gray SL, Anderson M, **Hubbard R**. 2015. [Letter] Anticholinergic use with incident dementia-reply. *JAMA Intern Med.* 175(9):1577. doi: 10.1001/jamainternmed.2015.2574.
8. Bradley CJ, Grossman DC, **Hubbard RA**, Ortega AN, Curry SJ. 2016. [Invited commentary] National Institutes of Health Pathways to Prevention Workshop: Integrated Interventions for Improving Total Worker Health®. *Annals of Internal Medicine.* 165(4):279-83.
9. Moore JH, Barnett I, Boland MR, Chen Y, Demiris G, Gonzalez-Hernandez G, Herman DS, Himes BE, **Hubbard RA**, Kim D, Mowery DL, Ritchie MD, Shen L, Urbanowicz R, Holmes JH. 2020. [Editorial] Ideas for how informaticians can get involved with COVID-19 research. *BioData Mining.* 13:1-16.
10. **Hubbard RA**. 2021. [Invited commentary] Commentary on Professor Austin Bradford Hill's Alfred Watson Memorial Lecture. *Statistics in Medicine.* 40(1):29-31.
11. VanderBeek BL, **Hubbard RA**, Ying GS. 2020. [Letter] Survival analysis vs. longitudinal modeling with multiple imputation, a false dichotomy. *JAMA Ophthalmology. In press.*
12. Mamtani R, Lund J, **Hubbard RA**. 2021. [Editorial] Considering the totality of evidence: Combining real-world data with clinical trial results to better inform decision-making. *Pharmacoepidemiology & Drug Safety.* 30:814-816.

Invited Presentations (last five years)

1. ENAR International Biometric Society, Austin, TX. March 2016. Methods for Misclassified Time to Event Outcomes in Studies Using EHR-Derived Endpoints.
2. Department of Statistics and Actuarial Science, University of Waterloo, Waterloo, Ontario, Canada. May 2016. Statistical Considerations for Studying the Cancer Care Continuum Using EHR Data.
3. International Chinese Statistical Association Applied Statistics Symposium, Atlanta, GA. June 2016. Accounting for Error and Misclassification in Time to Event Analyses Using EHR-derived Endpoints.
4. Department of Biostatistics, University of Pittsburgh, Pittsburgh, PA. March 2017. Lessons Learned in the Study of Cancer Care Using EHR Data.
5. ENAR International Biometric Society, Washington, DC. March 2017. A Bayesian Latent Variables Approach to EHR-based Phenotyping.
6. Joint Statistical Meetings, Baltimore, MD. August 2017. Harnessing Diverse Data from a Healthcare Systems Network for Early Identification of Pediatric Diabetes.
7. ACT Research Symposium, Kaiser Permanente Washington Health Research Institute, Seattle, WA. August 2017. Realizing the Potential (and Avoiding the Pitfalls) of EHR Data Linked to Longitudinal Cohort Data on Aging.
8. Department of Biostatistics, University of Michigan, Ann Arbor, MI. October 2017. Development and Analysis of EHR-derived Phenotypes.
9. Center for Cancer Biostatistics, University of Michigan Cancer Center, Ann Arbor, MI. October 2017. Challenges and Opportunities for Research on the Cancer Care Continuum Using EHR Data.
10. Memorial Sloan Kettering Cancer Center, New York, NY. November 2017. Statistical Approaches to the Study of Cancer Screening and Diagnosis Using EHR Data.
11. ENAR International Biometric Society, Atlanta, GA. March 2018. Accounting for Informative Presence Bias and Lack of Portability in EHR-derived Phenotypes.
12. Joint Statistical Meetings, Vancouver, BC, August 2018. Perils and Possibilities of EHR Data Linked to Population Disease Registries: The Example of Cancer Registry Linkage.
13. Seattle Symposium for Healthcare Data Analytics, Seattle, WA. October 2018. EHR-based Phenotyping in the Presence of Patient-Driven Observation Processes.
14. Deming Conference on Applied Statistics, Atlantic City, NJ. December 2018. Risk Factor Identification and Comparative Effectiveness Research Using Electronic Health Records: Challenges, Analytical Strategies and Recent Developments.
15. Department of Biostatistics, Johns Hopkins University, Baltimore, MD. February 2019. Estimation and Analysis of EHR-derived Phenotypes: A Presentation in Three Acts.
16. ENAR International Biometric Society, Philadelphia, PA. March 2019. Accounting for Differential Misclassification in EHR-Derived Phenotypes.
17. Great Plans IDEA-CTR, Omaha, NE. April 2019. Considering Data Provenance in the Analysis of EHR Data.
18. Atlanta Workshop on Biostatistics and Bioinformatics, Atlanta, GA. May 2019. Real World Data, Real World Problems: Accounting for Data Provenance in EHR-based Analyses.
19. Vanderbilt University Department of Biostatistics, Nashville, TN. May 2019. A Statistical Perspective on Challenges and Opportunities in Research Using Real World Data.
20. ASA Princeton-Trenton Chapter Spring 2019 Symposium, New Brunswick, NJ. May 2019. Fit for Use? A Statistical Perspective on Opportunities and Challenges in Research Using Real World Data.
21. International Chinese Statistical Association China Meeting, Tianjin, China. July 2019. An Unsupervised Approach to the Development and Analysis of Electronic Medical Records-based Phenotypes.
22. ASA Biopharmaceutical Statistics Section Regulatory-Industry Statistics Workshop. Washington, DC. September 2019. Fit for Use? The Role of Statistics in Transforming Electronic Health Records into Clinical Evidence.

23. iBRIGHT, Houston, TX. November 2019. Bias Reduction Approaches for Cancer Outcomes Research Conducted Using Electronic Health Records.
24. International Conference on Health Policy Statistics, San Diego, CA. January 2020. Challenges and Opportunities in Statistical Methods for Studies of Aging and Dementia.
25. Biostatistics Division, Department of Pharmacology and Experimental Therapeutics, Thomas Jefferson University, Philadelphia, PA. January 2020. A Statistician's Perspective on Transforming Real World Data into Real World Evidence.
26. Department of Health Outcomes and Biomedical Informatics, University of Florida, Gainesville, FL. January 2020. Statistical Tools to Overcome the Challenges in Transforming Real World Data into Evidence.
27. Center for Bioinformatics and Computational Biology, University of Delaware, Newark, DE. February 2020. An Introduction to Extraction and Analysis of EHR-derived Phenotypes.
28. WebENAR, June 2020, *virtual presentation*. The Role of Statistics in Transforming EHR Data into Knowledge.
29. Value Institute, Christiana Care Health System, *virtual presentation*, October 2020. Bias and Error in Research Using EHR-derived Phenotypes.
30. Center for Health Incentives and Behavioral Economics, University of Pennsylvania, *virtual presentation*, October 2020. Phenotyping and Analysis of EHR data Using Bayesian Clustering.
31. Open Insights in Data Science Seminar Series, University of Pennsylvania, *virtual presentation*, October 2020. The Role of Data Provenance in EHR Phenotyping and Analysis.
32. Department of Biostatistics & Bioinformatics and Department of Statistics Joint Seminar, Duke University, *virtual presentation*, November 2020. The Role of the Statistician in Extracting Knowledge from Healthcare Data
33. Sixth Seattle Symposium in Biostatistics, *virtual presentation*, November 2020. Grappling with Bias and Error in the Analysis of EHR-derived Phenotypes.
34. 13th International Conference of the European Research Consortium for Informatics and Mathematics Working Group on Computational and Methodological Statistics 2020 (CMStatistics 2020), *virtual presentation*, December 2020. Accelerating Health Research with Electronic Health Records Data.
35. Real World Evidence in Gastrointestinal and Liver Disease Conference, University of Pennsylvania, *virtual presentation*, January 2021. Methods to Address the Complexity of Real World Data.
36. Quantitative Sciences Grand Rounds, Moffitt Cancer Center, *virtual presentation*, January 2021. Tackling Real-World Challenges in the Analysis of EHR Data.
37. Department of Biostatistics, Columbia University, *virtual presentation*, February 2021. Accounting for Data Provenance in EHR-based Phenotyping.
38. ENAR International Biometric Society, *virtual presentation*. March 2021. Using EHR to Quantify the Gap Between Effectiveness of a Treatment in a Trial and Routine Clinical Practice.
39. Department of Mathematics & Statistics, Villanova University, *virtual presentation*. April 2021. Harnessing the Power of Real World Data to Study Pediatric Health.
40. Keynote presentation, Ohio Joint Biostatistics Symposium, *virtual presentation*. April 2021. Using Statistical Science to Transform Real World Data into Real World Evidence.
41. CANSI-NISS Health Data Science Workshop, *virtual presentation*. May 2021. Expediting Longitudinal Cohort Studies Using Electronic Health Records with Bayesian Clustering and Trajectory Analysis.
42. Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, *virtual presentation*. May 2021. Using EHR to Extend Understanding of Treatment Effectiveness Beyond Clinical Trials.
43. WNAR International Biometric Society, *virtual presentation*. June 2021. Meeting the Mandate of the 21st Century Cures Act: Overcoming the Challenges of Real World Data to Improve Cancer Care and Outcomes.
44. Sub-Saharan African Network International Biometric Society, *virtual presentation*. September 2021. An Introduction to Extraction and Analysis of EHR-derived Phenotypes.

45. Weill Cornell Medicine - Qatar, Population Health and Well-being Seminar Series, *virtual presentation*. September 2021. Considering the Totality of Evidence: Integrating Real World Data with Clinical Trial Data to Improve Decision Making.
46. NYU Ethics and Real-World Evidence Working Group, *virtual presentation*. September 2021. Using EHR to Extend Understanding of Treatment Effectiveness Beyond Clinical Trials.
47. ASA Biopharmaceutical Statistics Section, Regulatory Industry Statistics Workshop, *virtual presentation*. September 2021. Principled Approaches to the Practical Challenges of Real-World Data.
48. University of Tennessee Health Science Center, Department of Preventive Medicine, *virtual presentation*. October 2021. Principled Approaches to the Practical Challenges of Real-World Data.
49. National Institute of Allergy and Infectious Diseases, Biostatistics Research Branch, *virtual presentation*. November 2021. Principled Approaches to the Practical Challenges of Real-World Data.