

Rebecca Yates Coley, Ph.D.

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Education

- Ph.D., Biostatistics, University of Washington** 2014
Advisor: Elizabeth Brown
Dissertation: *Bayesian Hierarchical Frailty Models for Heterogeneity in Risk*
- M.S., Biostatistics, University of Washington** 2010
- A.B., Environmental Sciences and Policy, Duke University** 2006
Certificate: Documentary Studies

Research

- Postdoctoral Fellow, Johns Hopkins University** 2014- Present
Department of Biostatistics
Advisor: Scott Zeger
- Research Assistant, Fred Hutchinson Cancer Research Center** 2012 - 2014
Microbicide Trials Network
- Research Assistant, School of Dentistry, University of Washington** 2008 - 2012
Northwest Practice-Based Research Collaborative in Evidence-Based Dentistry
- Associate in Research, Nicholas School of the Environment, Duke University**
Children's Environmental Health Initiative 2006 - 2008

Teaching

- Instructor, Department of Public Health Studies, Johns Hopkins University**
Data Visualization for Individualized Health Spring 2016
- Co-Instructor, Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health**
Advanced Data Science (140.711) Fall 2015
- Teaching Assistant, Department of Biostatistics, University of Washington**
Applied Biostatistics (BIOS 514/7) 2013
Regression Methods for Dependent Data (BIOS 571) 2011
Regression Methods for Independent Data (BIOS 570) 2010
- Teaching Assistant, Department of Statistics, Duke University**
Introduction to Statistical Inference (STAT 101) 2005-2006

Honors and Awards

Top Performer, Prostate Cancer DREAM Challenge	2015
Led team of students and postdocs in development of ensemble learning algorithms for predicting survival of patients with metastatic castration-resistant prostate cancer	
Honorable Mention, Poster Award	2015
Patrick C. Walsh Prostate Research Day	
Travel Award	2014
Women in Statistics Conference	
Junior Researcher Travel Award	2013
Objective Bayes Workshop	
Faculty Selection for Best Student Poster	2013
Department of Biostatistics, University of Washington	
Winner, Oral Presentation, Student Paper Competition	2013
Western North American Region of the International Biometrics Society (WNAR) Conference	
Runner-up, Written Paper, Student Paper Competition	2013
WNAR Conference	
National Institutes of Health Trainee	2008 - 2012
Oral Health and Epidemiology Training Grant	
Dean's List, Duke University	2003, 2005

Grant Support

As co-investigator (50% effort): **Patient-Centered Outcomes Research Institute (PCORI)** methods development grant, “Bayesian Hierarchical Models for the Design and Analysis of Studies to Individualize Healthcare” (6/15-12/17). PI: Zeger.

As co-investigator (25% effort): **Johns Hopkins's Center for Educational Resources** grant for Narrative and Data Visualization, “Data Analysis and Visualization Practicum for Individualized Health” (8/15-5/16). PI: Zeger.

Postdoctoral Research Fellow: **Patrick C. Walsh Prostate Research Fund** grant for “Stochastic Models of Prostate Cancer Screening and Detection at Johns Hopkins” (8/14-8/16). PI: Zeger, Carter.

Publications

* indicates first author was a student supervised by Dr. Coley

1. **Coley RY**, Fisher AJ, Mamawala M, Carter HB, Pienta KJ, Zeger SL. (2016) “A Bayesian Hierarchical Model for Prediction of Latent Health States from Multiple Data Sources with Application to Active Surveillance of Prostate Cancer”. arxiv: 1508.07511. (Submitted for Initial Review.)
2. **Coley RY**, Brown ER. (2016) “Estimating effectiveness in HIV prevention trials with a Bayesian hierarchical compound Poisson frailty model”. *Statistics in Medicine*. (To appear.) doi: 10.1002/sim.6884.

- Active Surveillance Modeling and Decision-Making at Johns Hopkins**
Cancer Intervention and Surveillance Monitoring Network (CISNET) November 19, 2015
National Cancer Institute
- Optimizing Surveillance of Low Risk Prostate Cancer: An Application of Precision Medicine and Learning Health Systems at Johns Hopkins**
Data Science Interest Group November 18, 2015
Johns Hopkins Medicine
- Optimizing Surveillance of Low Risk Prostate Cancer**
Pacific Northwest Specialized Program of Research Excellence (SPORE)
Program in Prostate Cancer Research October 22, 2015
Fred Hutchinson Cancer Research Center
- Precision Medicine, Learning Health Systems, and Improving Surveillance of Low Risk Prostate Cancer**
Data Science Affinity Group October 19, 2015
Fred Hutchinson Cancer Research Center
- Statistical Methods for Individualized Health: Improving Surveillance of Low Risk Prostate Cancer**
Grand Rounds, Department of Biostatistics September 14, 2015
Johns Hopkins Bloomberg School of Public Health
- Electronic Medical Records Data for Individualized Health: Application to Low Risk Prostate Cancer**
Joint Statistical Meetings August 13, 2015
- Precision Medicine, Learning Health Systems, and Low Risk Prostate Cancer Care**
Guest lecture for Clinical and Translational Research Methods Class June 20, 2015
Johns Hopkins Summer Institute of Epidemiology and Biostatistics
- Optimizing Surveillance of Low Risk Prostate Cancer**
ENAR Conference March 17, 2015
- Stochastic Models of Prostate Cancer Screening and Detection at Johns Hopkins**
Patrick C. Walsh Prostate Cancer Research Day February 26, 2015
- Latent class approach to modeling frailty in HIV prevention trials**
WNAR Conference June 16, 2014
- Estimating effectiveness in HIV prevention trials with a Bayesian hierarchical compound Poisson frailty model**
Department of Biostatistics March 28, 2014
Johns Hopkins Bloomberg School of Public Health
- Parallel processing**
Guest lecture for Computing and Research (BIOS 563) June 20, 2013
University of Washington
- Heterogeneity in risk: Effects on randomized clinical trial data analysis**
Oral Health Sciences Seminar May 21, 2012
University of Washington

Contributed Talks

- Optimizing Surveillance of Low Risk Prostate Cancer**
International Conference of Health Policy Statistics October 8, 2015
- Latent class approach to survival analysis with a compound Poisson frailty model with an application to HIV prevention**
Joint Statistical Meetings August 4, 2014
- Review of “Marginal Structural Models and Causal Inference in Epidemiology”, Robins et al. (2000)**
January 31, 2014
Causal Inference Working Group, Department of Biostatistics, University of Washington
- Estimating effectiveness in HIV prevention trials with a compound Poisson frailty model**
WNAR Conference June 17, 2013
- Botulinum toxin: Effects on muscle strength and structure**
Biology Project, Department of Biostatistics, University of Washington March 14, 2012
- Geo-additive models and MESA Air**
Non-parametric Regression Course (BIOS 527), University of Washington June 1, 2011
- An examination of ‘Empirical Bayes and the Two-Group Model’, Bradley Effron (2008)**
Student Seminar, Department of Biostatistics, University of Washington November 18, 2010
Advanced Regression Methods Course (BIOS 572), University of Washington April 28, 2010

Posters

- Individualized medicine and informative missingness: a model for predicting latent prostate cancer state**
Atlantic Causal Inference Conference May 20, 2015
- Dynamic model of prostate disease: predicting reclassification in Johns Hopkins active surveillance cohort**
Patrick C. Walsh Prostate Cancer Research Day February 21, 2015
- Latent class approach to survival analysis with a compound Poisson mixture frailty model with application to HIV prevention trials**
Women in Statistics Conference May 16, 2014
- Estimating effectiveness with a compound Poisson frailty model**
Objective Bayes Workshop December 15, 2013
- Estimating effectiveness in HIV prevention trials with a compound Poisson frailty model**
Annual Retreat, Department of Biostatistics, University of Washington September 17, 2013
- Developing a tool for conducting assessments of the built environment**
American Public Health Association Conference November 5, 2007

Service and Affiliations

- Graduate Student Representative**, Educational Policy and Teaching Evaluation/
Curriculum Committee 2013-2014
Department of Biostatistics, University of Washington

Consultant, Lawry Research Associates International 2013
Puralytics Water Purification Project

Referee: *Envirometrics, Statistics in Medicine, Nature: Scientific Reports*

Reviwer: *Proceedings of the Fourth Seattle Symposium in Biostatistics: Clinical Trials*

Member: American Statistical Association, International Society of Bayesian Analysis, WNAR