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Katie Paulson

krpaul@uw.edu • (781) 234-4124 • she/her/hers

Education

- University of Washington**, Doctor of Philosophy in Biostatistics Sep 2021 – Present
- Advisor: Dr. Jonathan Wakefield
- University of Washington**, Master of Public Health Sep 2016 – Aug 2019
- Concentrations: Global Health, Health Metrics and Evaluation
 - Committe: Dr. Haidong Wang (chair); Dr. Laura Dwyer-Lindgren
 - Thesis: *Estimating Age and Sex-Specific Mortality Under Five Years*
- Bates College**, Bachelor of Science in Mathematics Sep 2011 – May 2015
- Concentrations: Public Health, Chemistry
 - Honors Thesis: *Using Community Structure Networks to Model Heterogeneous Mixing in Epidemics, and a Potential Application to HIV in Washington, D.C.*

Academic Honors, Awards, & Fellowships

University of Washington

- NIH T32 Fellowship: Data Science and Demography, University of Washington Center for Studies in Demography and Ecology, 2024-2025

Bates College

- Graduated *Summa Cum Laude* with Honors in Mathematics
- Dana Scholar Award: For academic excellence, leadership, and service to the college and the community
- Academic Honors Societies: Phi Beta Kappa, Sigma Xi

Research Experience

Department of Biostatistics, University of Washington, Seattle, WA Sep 2021 – Present

Research Assistant (Sep 2021 – Present); Supervisor: Dr. Jonathan Wakefield

- Small area estimation of Neonatal and Under-5 Mortality Rate in partnership with the United Nations Inter-agency Group for Child Mortality Estimation.
- Evaluation of temporal models for prediction and forecasting of global health indicators, using simulations and Demographic and Health Surveys.
- Development of survival analysis framework for estimation of child mortality rates using multiple data types.

Research Assistant (Sep 2022 - Dec 2023); Supervisor: Dr. Thomas Fleming

- Conducted simulations and literature review to compare survival- and non-survival-based methods for recurrent events trails, such as asthma and COPD studies.

Independent Study (Sep 2021-March 2022); Supervisor: Dr. Lianne Sheppard

- Mobile monitoring study of air pollution in Seattle.

Institute for Health Metrics and Evaluation, University of Washington, Seattle, WA Sep 2016 – Sep 2021

Researcher (Sep 2019 - Sep 2021); Supervisor: Dr. Haidong Wang

- Estimated age- and sex-specific all-cause mortality on the Population, Fertility, and Mortality research team.
- As a leader on the team I guided strategic direction, mentored and trained new members, and managed best practices for engineering our analytic pipeline to be more efficient, reliable, and transparent.

Post-Bachelor Fellow (Sep 2016 - Sep 2019); Supervisor: Dr. Theo Vos

- Modeled chronic respiratory diseases, intimate partner violence, childhood sexual assault, unsafe sex, and violence Sustainable Development Goals indicators as a part of the Global Burden of Disease Study.

Mount Desert Island Biological Laboratory, Salisbury Cove, ME

Jun 2014 – Aug 2014

Research Fellow; Supervisor: Dr. Larissa Williams

- Recipient of the Maine IDEa Network for Biological Research Excellence (INBRE) Fellowship.
- Studied oxidative stress in zebrafish during development.

Teaching

Department of Biostatistics, University of Washington, Seattle, WA

Teaching Assistant

- BIOST 555 (Statistical Methods For Spatial Epidemiology); Supervisor: Dr. Jon Wakefield Winter 2024
- STAT 554 (Statistical Methods For Spatial Data); Supervisor: Dr. Jon Wakefield Winter 2023
- SISMIID Spatial Statistics in Epidemiology and Public Health; Supervisor: Dr. Jon Wakefield Summer 2022
- BIOST 515/518 (Applied Biostatistics II); Supervisor: Dr. Amy Willis Winter 2022
- BIOST 511 (Medical Biometry I); Supervisor: Dr. Jim Hughes Fall 2021

Bates College, Lewiston, ME

Peer Assisted Learning in the Sciences (PALS) Leader

- CHEM 108 (Chemical Reactivity) 2015

Teaching Assistant and Tutor

- MATH 301 (Real Analysis) 2014
- CHEM 217/218 (Organic Chemistry) 2013-2015
- BIO 117 (Plants and Human Affairs) 2013
- MATH 218 (Multivariable Calculus) 2012-2013

Other Professional Experience

World Health Organization

Mar 2023 – Apr 2024

Consultant

Rhode Island Free Clinic, Providence, RI

Jul 2015 – Jul 2016

AmeriCorps VISTA; Data Analyst

- Built capacity in data collection, analysis, and reporting to communicate the Clinic's successes and challenges in providing healthcare to nearly 2000 uninsured, low-income adults annually.
- Trained and supervised volunteers, collaborated on grant writing and reporting, and represented the Clinic at community meetings.

Harvard Center For Community Partnerships, Bates College, Lewiston, ME

May 2015

Short Term Action Research Team Fellow

- Led a team to plan and implement an Aspirations Day for students from Lewiston Middle School.
- Consulted on a variety of community-minded research and data analysis projects.

Bates College, Lewiston, ME

Sep 2011 – May 2015

- Volunteer at Saint Mary's Hospital and Trinity Jubilee Center Free Health Clinic in Lewiston, Maine.
- Bates Career Discovery in Practice: Engaged in field-experiences with alumni at the National Institutes of Health (Bethesda, MD), Mid Coast Hospital (Brunswick, ME), Martins Point Healthcare (Portland, ME).

Community Service

University of Washington, Department of Biostatistics

- Coordinator, Spacetime and Bayes research group Jun 2023 – Aug 2024

• Co-organizer of Student Seminar	Sep 2022 – Mar 2024
• Student Member, Educational Policy and Teaching Evaluation Committee (EPTEC)	Sep 2022 – Sep 2023
• Student Representative to the Faculty Meetings	Sep 2021 – Sep 2022
University of Washington, Other	
• Member of editorial team, Population Dynamics Lab	Nov 2024 – Present

Publications

Peer-Reviewed Journal Articles (Under Review & In Preparation)

- 2) **K.R. Paulson**, G. Fuglstad, Z.R. Li, J. Wakefield (Under Review), “Temporal models for estimation and short-term forecasting of neonatal mortality rates in sub-Saharan Africa.”
- 1) **K.R. Paulson**, C. Wang, J. Liu, T.M. Therneau, T.R. Fleming (Under Review), “Review and evaluation of statistical methods for recurrent events.”

Peer-Reviewed Journal Articles (Published & Accepted)

- 6) H. Wang, **K.R. Paulson**, S.A. Pease, S. Watson, H. Comfort, P. Zheng, A.Y. Aravkin ... C.J.L. Murray, “Estimating excess mortality due to the COVID-19 pandemic: a systematic analysis of COVID-19-related mortality, 2020–21,” *The Lancet*, Mar 2022.
- 5) **K.R. Paulson**, A. Kamath ... H. Wang, N. Kassebaum, “Global, regional, and national progress towards Sustainable Development Goal 3.2 for neonatal and child health: all-cause and cause-specific mortality findings from the Global Burden of Disease Study 2019,” *The Lancet*, vol. 398, no. 10303, pp. 870-905, Aug 2021.
- 4) J.B. Soriano, P.J. Kendrick, **K.R. Paulson**, V. Gupta ... T. Vos, “Prevalence and attributable health burden of chronic respiratory diseases, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017,” *The Lancet Respiratory Medicine*, vol. 8, no. 6, pp. 585-596, Jan 2020.
- 3) S. Salvi, ... **K.R. Paulson** ... D.J. Christopher, “India State-Level Disease Burden Initiative CRD Collaborators. The burden of chronic respiratory diseases and their heterogeneity across the states of India: the Global Burden of Disease Study 1990–2016,” *The Lancet Global Health*, vol. 6, no. 12, pp. e1363–e1374, Dec 2018.
- 2) J.B. Soriano, ... **K.R. Paulson** ... C.J.L. Murray, T. Vos, “Global, regional, and national deaths, prevalence, disability-adjusted life years, and years lived with disability for chronic obstructive pulmonary disease and asthma, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015,” *The Lancet Global Health*, vol. 5, no. 9, pp. 691–706, Sep 2017.
- 1) L.M. Williams, ... **K.R. Paulson** ..., “The transcription factor, Nuclear factor, erythroid 2 (Nfe2), is a regulator of the oxidative stress response during *Danio rerio* development,” *Aquatic Toxicology*, vol. 180, pp. 141–154, Nov 2016.

Global Burden of Disease Core Papers

Included as an author on the following publications as part of the [Global Burden of Disease Study](#). Performed literature reviews and statistical analyses to produce results for sub-topics of each of these papers.

- 10) GBD 2019 Demographics Collaborators, “Global age-sex-specific fertility, mortality, healthy life expectancy (HALE), and population estimates in 204 countries and territories, 1950–2019: a comprehensive demographic analysis for the Global Burden of Disease Study 2019,” *The Lancet*, vol. 396, no. 10258, pp.1160-1203, Oct 2020.
- 9) GBD 2017 Disease and Injury Incidence and Prevalence Collaborators, “Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017,” *The Lancet*, vol. 392, no. 10159, pp. 1789–1858, Nov 2018.
- 8) GBD 2017 Risk Factor Collaborators, “Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990–2017:

a systematic analysis for the Global Burden of Disease Study 2017,” *The Lancet*, vol. 392, no. 10159, pp. 1923–1994, Nov 2018.

- 7) GBD 2017 Causes of Death Collaborators, “Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980–2017: a systematic analysis for the Global Burden of Disease Study 2017,” *The Lancet*, vol. 392, no. 10159, pp. 1736–1788 Nov 2018.
- 6) GBD 2017 SDG Collaborators, “Measuring progress from 1990 to 2017 and projecting attainment to 2030 of the health-related Sustainable Development Goals for 195 countries and territories: a systematic analysis for the Global Burden of Disease Study 2017,” *The Lancet*, vol. 392, no. 10159, pp. 2091–2138 Nov 2018.
- 5) GBD 2017 DALYs and HALE Collaborators, “Global, regional, and national disability-adjusted life-years (DALYs) for 359 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017,” *The Lancet*, vol. 392, no. 10159, pp. 1859–1922 Nov 2018.
- 4) GBD 2016 Disease and Injury Incidence and Prevalence Collaborators, “Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016,” *The Lancet*, vol. 390, no. 10100, pp. 1211–1259 Sep 2017.
- 3) GBD 2016 Causes of Death Collaborators, “Global, regional, and national age-sex specific mortality for 264 causes of death, 1980–2016: a systematic analysis for the Global Burden of Disease Study 2016,” *The Lancet*, vol. 390, no. 10100, pp. 1151–1210 Sep 2017.
- 2) GBD 2016 SDG Collaborators, “Measuring progress and projecting attainment on the basis of past trends of the health-related Sustainable Development Goals in 188 countries: an analysis from the Global Burden of Disease Study 2016,” *The Lancet*, vol. 390, no. 10100, pp. 1423–1459 Sep 2017.
- 1) GBD 2016 DALYs and HALE Collaborators, “Global, regional, and national disability-adjusted life-years (DALYs) for 333 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016,” *The Lancet*, vol. 390, no. 10100, pp. 1260–1344 Sep 2017.

Conference Presentations

- 1) **K.R. Paulson**, T.R. Fleming, “Evaluation of Statistical Methods for Recurrent Events,” at the 2023 ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop, Rockville, Maryland. Oral. Sep 2023.

Skills

- **Statistical languages:** R, Stata, familiar with Python
- **Markdown:** \LaTeX , Rmarkdown, familiar with HTML
- **Other:** collaborative software development, Git, cluster computing, R package development, familiar with bash and SQL