

Maricela Cruz
Curriculum Vitae
(Updated January 2024)

1. EDUCATIONAL AND BIOGRAPHICAL INFORMATION

Maricela Cruz, PhD
Assistant Investigator
Biostatistics Unit, Kaiser Permanente Washington Health Research Institute (KPWHRI)
1730 Minor Ave, Ste. 1600
Seattle, WA 98101
Phone: 206-287-2878
E-mail: Maricela.F.Cruz@kp.org

Ph.D., Statistics, University of California Irvine, CA, 2019
M.S., Statistics, University of California Irvine, CA, 2017
B.A., Mathematics, Pomona College, Claremont, CA, 2014

2. PROFESSIONAL POSITIONS

Current

Affiliate Assistant Investigator, Department of Biostatistics, University of Washington, Seattle, WA, 2021 – Present
Assistant Investigator, Biostatistics Unit, KPWHRI, Seattle, WA, 2019 – Present

Prior

Summer Associate, RAND Corporation, Santa Monica, CA, Summer 2018

3. PROFESSIONAL HONORS

Featured, Latinxs and Hispanics in the Mathematical Sciences (Lathisms) Hispanic Heritage Month Calendar, 2022 and 2023 (kids-friendly edition)
Student Travel Award, 13th International Conference on Health Policy and Statistics (ICHPS), 2019
PhD Enhancement Award for the Donald Bren School of Information and Computer Sciences, University of California Irvine, 2019
Latino Excellence Award for the Donald Bren School of Information and Computer Sciences, University of California Irvine, 2018
Student Paper Competition winner for the Survey Research Methodology Section/Government Statistics Section/Social Statistics Section (*travel award for JSM*), American Statistical Association, 2017
Graduate Conference Presentation Grant, University of California Irvine Donald Bren School of Information and Computer Sciences, 2017
Graduate Research Fellowship Program awardee, National Science Foundation, 2015 –2019
Eugene Cota-Robles Fellowship, University of California Irvine, 2014 – 2019
Pat Kelly Prize, Pomona College, 2014
QuestBridge Scholarship, Pomona College, 2010 – 2014

4. MEMBERSHIPS

American Statistical Association

Sections: Biometrics; Health Policy Statistics; Mental Health Statistics; Social Statistics;
Statistics in Epidemiology; Statistical Learning and Data Science
Justice, Equity, Diversity, and Inclusion Outreach Group
Caucus for Women in Statistics
Western North American Region, International Biometric Society

5. ORGANIZATIONAL SERVICE

KPWHRI Seminar Co-organizer, December 2023 – Present
KPWHRI All Scientific Division's Culture Club, September 2023 – Present
KPWHRI Biostatistics Computing Workgroup, May 2022 – October 2023
KPWHRI Institute Steering Committee, 2021
KPWHRI Faculty Equity Team Subcommittee member, 2020 – 2021
KPWHRI Equity Team Steering Committee member, 2020 – 2021

6. OTHER PROFESSIONAL SERVICE

National Service

Session Organizer
Western North American Region, 2021, 2023, & 2024
Joint Statistical Meetings, 2022
Session Discussant, Western North American Region, 2023
Student Paper Award Reviewer, International Conference on Health Policy Statistics, 2023
Session Chair, Joint Statistical Meetings, 2020

Local Service

Member, Search Committee for Assistant Teaching Professor, University of Washington
Department of Biostatistics, 2021-2022

Local Service, Prior Institutions

Poster Judge, AP Statistics Poster Competition, Chapman University, Orange, CA, 2018
Co-organizer, R-Ladies Irvine, 2018 – 2019
Abstract Session Reviewer, Workshop for the Philosophy of Machine Learning: Knowledge
and Causality, Irvine, CA, 2018

7. SPECIAL NATIONAL SERVICE

Ad hoc reviewer for research proposals from granting agencies:
PCORI Achieve Health Equity: Fall 2023
PCORI Adolescent Alcohol Use and Broad Pragmatic Studies on Children and Youth:
Summer 2023
Committee Member
American Statistical Association's Committee on Membership Retention and
Recruitment, January 2024 – Present
Justice, Equity, Diversity, and Inclusion Liaison Committee, American Statistical
Association, 2022
Western North American Region's Justice, Equity, Diversity, and Inclusion Committee,
2021 – 2022
ASA section on Statistics in Epidemiology Mentoring Committee, 2020

8. EDITORIAL RESPONSIBILITIES

Journal Referee

Alzheimer's & Dementia: The Journal of the Alzheimer's Association
Brain and Behavior
Observational Studies
Research in Health Services & Regions
Statistics in Medicine
Vaccine

9. RESEARCH FUNDING

Current

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|---|---|
| NIMH 1R34MH132829-01 (Richards) Pilot Testing Implementation of Suicide Risk Prediction Algorithms to Support Suicide Prevention in Primary Care Role: Co-Investigator (10% FTE) | 07/07/2023 – 04/30/2026 \$751,682 (total direct) |
| CDC 1R01CE003460-01-00 (Richards) Optimizing Firearm Suicide Prevention in Healthcare Role: Co-Investigator (10% FTE) | 09/30/2022 – 09/29/2025 \$1,949,538 (total direct) |
| American Foundation for Suicide Prevention SRG-0-109-21 (Richards) Encouraging Firearm Access Disclosure: Suicide Prevention in Healthcare Role: Co-Investigator (1% FTE) | 10/15/2022 – 10/14/2024 \$99,840 (total direct) |
| NIDA 1P50DA054072 (McGovern) Center for Dissemination and Implementation At Stanford (C-DIAS) Role: Co-Investigator (9% FTE) | 08/01/2022 – 05/31/2027 \$2,270,077 (total direct) |
| NIA R01AG077628 (Gillen, Grill) Recruiting and Retaining Participants from Disadvantaged Neighborhoods in Registries Role: Co-Investigator (20% FTE) | 04/01/22 – 03/31/27 \$2,462,080 (total direct) |
| NIMH R01MH125831 (Coley) Innovative Methods to Reduce Racial and Ethnic Disparities in Suicide Risk Prediction Role: Co-Investigator (20% FTE) | 01/01/22 – 12/31/25 \$1,136,381 (total direct) |
| AHRQ R01HS027181 (Bender) Organizing Nursing to Improve Care Quality and Safety: A Hybrid Implementation-Effectiveness Study Role: Co-Investigator (20% FTE) | 09/30/2020 – 09/29/2023 \$826,480 (total direct) |

Pending Review

N/A

Past Funded Projects

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| Donaghue Foundation | 09/30/2020 – 09/29/2023 |
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| [No Grant Number] (Yeung) | \$366,739 (total direct) |
| Value-based Formulary-Essentials: Testing and Expanding on Value in Prescription Drug Benefit Design | |
| Role: Co-Investigator (15% FTE) | |
| FDA | 09/30/2018 – 06/30/2022 |
| HHSF223201810201C (Simon) | \$4,899,783 (total direct) |
| Effects of Medical Products on Suicidal Ideation and Behavior - Real World Evidence | |
| Role: Co-Investigator (25% FTE) | |
| NIMH | 08/03/2017 – 05/31/2022 |
| 5U01MH114087-05 (Simon, Ahmedani) | \$1,222,633 (total direct year4) |
| An Evaluation of the National Zero Suicide Model Across Learning Healthcare Systems | |
| Role: Co-Investigator (5% FTE) | |
| NIDDK | 09/15/2017 – 06/30/2022 |
| R01DK114196 (Arterburn, Drewnowski) | \$2,840,745 (total direct) |
| Moving to Health: How Changing Built Environments Impact Weight and Glycemic Control | |
| Role: Co-investigator (25% FTE) | |

10. TEACHING AND MENTORING RESPONSIBILITIES

Teaching

Instructor

Health Services 525: Advanced Health Services Methods III – Causal Inference Using Observational Data (~30 students, 4hrs/week), Department of Health Services and Population Health, University of Washington, Spring 2022

Biostat 582: Student Seminar (~15 students, 2hrs/week), Department of Biostatistics, University of Washington, Winter 2020 and Winter 2021

Teaching Assistant

Statistics 67: Introduction to Probability and Statistics for Computer Science Major, Department of Statistics, University of California Irvine, Summer II 2016 and Summer II 2017

Statistics 08: Introduction to Biostatistics, Department of Statistics, University of California Irvine, Summer II 2015

Guest Lectures

Electronic Health Record Considerations, Epidemiology 515: Advanced Epidemiologic Methods 1, University of Washington, Seattle, WA, November 2022 & November 2023

Interrupted Time Series Models, Health Services 525: Advanced Health Services Methods III – Causal Inference Using Observational Data, University of Washington, Seattle, WA, April 2022

Mentoring

Dissertation Committee Member

Thuy Lu, University of California Irvine, Expected Graduation (PhD in Statistics): Summer 2025

Mentored students

Shantell Missouri, University of California Los Angeles, Expected Graduation (PhD in Human Development and Psychology): Summer 2025

Summer interns

Lydia Woldemichael, Fred Hutchinson Cancer Research Center Seattle Stat Summer, 2023

11. PUBLICATIONS

Published Papers in Refereed Journals

1. Simon GE, **Cruz M**, Boggs JM, Beck A, Shortreed SM, Coley RY. (2023). Predicting Outcomes of Antidepressant Treatment in Community Practice Settings. *Psychiatric Services*. 2023 Dec. <https://doi.org/10.1176/appi.ps.20230380>
2. Yeung L, **Cruz M**, Tsiao E, Watkins JB, Sullivan SD. (2023). Drug Use and spending under a formulary informed by cost effectiveness. *Journal of Managed Care & Specialty Pharmacy*. 2023 Nov;29(11):1175-1183. <https://doi.org/10.18553/jmcp.2023.29.11.1175>
3. Simon GE, **Cruz M**, Shortreed SM, Sterling SA, Coleman KJ, Ahmedani BK, Yaseem ZS, Mosholder AD. (2023). Stability of suicide risk prediction models during changes in health care delivery. *Psychiatric Services Decision*. 2023 Aug 17:0. <https://doi.org/10.1176/appi.ps.20230172>
4. Shortreed SM, Walker RL, Johnson E, Wellman R, **Cruz M**, Ziebell R, Coley RY, Yaseen ZS, Dharmarajan S, Penfold RB, Ahmedani BK, Rossom RC, Beck A, Boggs JM, Simon GE. (2023). Electronic health record-based suicide risk prediction: Incorporating detailed temporal predictors and complex modeling strategies does not substantially improve performance. *NPJ Digital Medicine*. 6(1):47. <https://doi.org/10.1038/s41746-023-00772-4>
5. **Cruz M**, Shortreed SM, Richards JE, Coley RY, Yarborough BJ, Walker RL, Johnson E, Ahmedani BK, Rossom R, Coleman KJ, Boggs JM, Beck AL, Simon GE. (2022). Machine Learning Prediction of Suicide Risk Does Not Identify Patients Without Traditional Risk Factors. *The Journal of clinical psychiatry*, 83(5), 42525. <https://doi.org/10.4088/jcp.21m14178>
6. **Cruz M**, Drewnowski A, Bobb JF, Hurvitz PM, Moudon AV, Cook A, Mooney SJ, Buszkiewicz JH, Lozano P, Rosenberg DE, Kapos F, Theis MK, Anau J, Arterburn D. (2022). Differences in weight gain following residential relocation in the Moving to Health (M2H) Study. *Epidemiology*. 33(5):747-755. <https://doi.org/10.1097/ede.0000000000001505>
7. **Cruz M**, Ombao H, Gillen DL. (2022). A Generalized Interrupted Time Series Model for Assessing Complex Health Care Interventions. *Statistics in Biosciences*. <https://doi.org/10.1007/s12561-022-09346-6>
8. Bobb JF, **Cruz MF**, Mooney SJ, Drewnowski A, Arterburn D, Cook AJ. (2022). Accounting for spatial confounding in epidemiological studies of individual-level exposures: an exposure penalized spline approach. *Journal of the Royal Statistical Society, Series A*. <http://doi.org/10.1111/rssa.12831>
9. **Cruz M**, Pinto-Orellana MA, Gillen DL, Ombao H. (2021). RITS: a toolbox for assessing complex interventions via interrupted time series models. *BMC Med Res Methodology*, 21(1):143. <https://doi.org/10.1186/s12874-021-01322-w>
10. Buszkiewicz JH, Bobb JF, Kapos F, Hurvitz PM, Arterburn D, Moudon AV, Cook A, Mooney SJ, **Cruz M**, Gupta S, Lozano P, Rosenberg DE, Theis MK, Anau J, Drewnowski A. (2021). Differential associations of the built environment on weight gain by sex and race/ethnicity but not age. *International Journal of Obesity*. <https://doi.org/10.1038/s41366-021-00937-9>
11. Buszkiewicz JH, Bobb JF, Hurvitz PM, Arterburn D, Moudon AV, Cook A, Mooney SJ, **Cruz M**, Gupta S, Lozano P, Rosenberg DE, Theis MK, Anau J, Drewnowski A. Buszkiewicz, J. H., Bobb, J. F., Hurvitz, P. M., Arterburn, D., Moudon, A. V., Cook, A., ... & Drewnowski, A. (2021). Does the built environment have independent obesogenic power? Urban form and trajectories of weight gain. *International Journal of Obesity*, 1-11. <https://doi.org/10.1038/s41366-021-00836-z>

12. Coley RY, Walker RL, **Cruz M**, Simon GE, Shortreed SM. (2021). Clinical risk prediction models and informative cluster size: assessing the performance of a suicide risk prediction algorithm. *Biometrical Journal*. <https://doi.org/10.1002/bimj.202000199>
13. Bender M, Williams M, **Cruz MF**, Rubinson C. (2021). A study protocol to evaluate the implementation and effectiveness of the Clinical Nurse Leader Care Model in improving quality and safety outcomes. *Nursing Open*. <https://doi.org/10.1002/nop2.910>
14. Coley RY, Johnson E, Simon GE, **Cruz M**, Shortreed SM. (2021). Racial/Ethnic Disparities in the Performance of Prediction Models for Death by Suicide After Mental Health Visits. *JAMA Psychiatry*. <https://doi.org/10.1001/jamapsychiatry.2021.0493>.
15. Bender M, Murphy EA, **Cruz M**, Ombao H. (2019). System and unit-level care quality outcomes after reorganizing frontline care delivery to integrate Clinical Nurse Leaders: a quasi-experimental time series study. *Journal of Nursing Administration*, 49(6), p. 315-322. <https://doi.org/10.1097/NNA.0000000000000759>
16. **Cruz M**, Osilla KC, Paddock SM. (2019). Group cohesion and climate in cognitive behavioral therapy for first-time DUI offenders. *Alcoholism Treatment Quarterly*, 1-19. <https://doi.org/10.1080/07347324.2019.1613941>
17. **Cruz M**, Gillen DL, Bender M, & Ombao H. (2019). Assessing health care interventions via an interrupted time series model: study power and design considerations. *Statistics in Medicine*, 38(10), 1734-1752. <https://doi.org/10.1002/sim.8067>
18. **Cruz M**, Bender M, & Ombao H. (2017). A robust interrupted time series model for analyzing complex health care intervention data. *Statistics in Medicine*, 36(29), 4660–4676. <https://doi.org/10.1002/sim.7443>

Accepted Peer-Reviewed Papers in Press

N/A

Non-Refereed Papers / Articles

1. Ye S, **Cruz M**, Hu Y, Yu Y. (2022). A marginalized three-part interrupted time series regression model for proportional data. *ArXiv*. <https://doi.org/10.48550/arXiv.2212.09996>
2. **Cruz M**, Wei A, Hardin J, Radunskaya A. (2022). Long-term Averages of the Stochastic Logistic Map. *ArXiv*. <https://doi.org/10.48550/arXiv.2206.03849>

Book Chapters

Not applicable

Published Technical Reports

Not applicable

Published Abstracts from Professional Conferences

Not applicable

Digital and Other Novel Forms of Scholarship

1. **Cruz M**, Pinto M, Gillen DL, Ombao H. (2021). Robust Interrupted Time Series (RITS) Toolbox. https://biostatistics-kaust.github.io/robust_time_series_toolbox/

Submitted Manuscripts

Not applicable

12. INVITED PRESENTATIONS (Like Presentations Grouped)

Seminars

Cruz M, Shortreed SM, Coley Y. Assessing the Impact of Risk-stratified Interventions with Difference-in-Differences. Mental Health Research Network Methods Scientific Interest Group, Virtual, September 2023

Cruz M, Ombao H, Bender M, Gillen DL. Interrupted Time Series Models for Observational Health Care Interventions. University of Colorado Denver Anschutz Medical Campus, Department of Biostatistics & Informatics Seminar, Virtual, September 2023

Cruz M, Holbrook A. A Mixed-Effects Interrupted Time Series Model for Assessing Complex Healthcare Interventions Across Multiple Units. Mental Health Research Network Methods Scientific Interest Group, Virtual, October 2022

Cruz M. My Statistically Significant Journey. Loyola Marymount University Mathematics Department, Los Angeles, CA, April 2022

Cruz M, Ombao H, Bender M, Gillen DL. Interrupted Time Series Models for Analyzing Complex Health Care Interventions.

University of Washington Developing Data Driven Cancer Researchers Training Program, WA, February 2022

Claremont Center for the Mathematical Sciences, Claremont, CA, Virtual, October 2021

University of Washington Department of Biostatistics, Seattle, WA, January 2020

Enhancing Diversity in Graduate Education (EDGE) Program, Claremont, CA, June 2019

KPWHRI, Seattle, WA, January 2019

RAND Corporation, Santa Monica, CA, January 2019

University of Texas Austin Department of Statistics and Data, Austin, TX, January 2019

Loyola Marymount University Mathematics Department, Los Angeles, CA, January 2019

Harvard Department of Biostatistics, Boston, MA, January 2019

Chubak J, Ziebell R, **Cruz M**, Coley RY, Gray R. Racial and Ethnicity in Analyses of Health Care Data: Reflections from KPWHRI Researchers. KPWHRI Seminar, Seattle, WA, Virtual. September 2021

Cruz M. Doing it All with R Markdown – A Tutorial. R-Ladies Irvine, Irvine, CA, November 2018

Cruz M, Osilla KC, Paddock SM. Examining Group Cohesion and Climate in an Intervention for First Time DUI Offenders. RAND Corporation, Santa Monica, CA, August 2018

Cruz M. My Higher Education Journey. Pomona Scholars of Math, Claremont, CA, February 2017

Panels

What I Know Now That I Wish I Knew Then. Women in Statistics and Data Science, Bellevue, WA, October 2023

Seattle Stat Summer Research Careers in Biostatistics and Public Health Panel. Fred Hutchinson Cancer Research Center, Seattle, WA, July 2023

The Alternative Hypothesis: Underrepresented (Bio)Statisticians Share Graduate School Experiences. Western North American Region (WNAR), Virtual, June 2022

Life Outside Millikan – Alumni Panel. Pomona College, Claremont, CA, May 2019

Graduate School Panel Discussion. StatFest, American Statistical Association Committee on Minorities in Statistics, Claremont, CA, September 2018

Questbridge Alumni Panel for First-Generation/Low-Income Students. Pomona College, Claremont, CA, April 2018

Conferences and Symposiums

Cruz M, Shortreed SM, Coley Y. Assessing the Impact of Risk-stratified Interventions with Difference-in-Differences. Association for Women in Mathematics Research Symposium, Atlanta, GA, September 2023

Cruz M. My Statistically Significant Journey. Enhancing Diversity in Graduate Education Summer Symposium, Atlanta, GA, Keynote, July 2022

Cruz M, Ombao H, Bender M, Gillen DL. A Formal Test for The Existence of a Change Point in Interrupted Time Series. Western North American Region (WNAR), Virtual, June 2021

13. OTHER PRESENTATIONS

Conferences and Symposiums

International

Cruz M, Gillen DL, & Holbrook A. A Mixed-Effects Interrupted Time Series Model for Assessing Complex Healthcare Interventions Across Multiple Units. Joint Statistical Meetings, Washington DC, Topic-contributed, August 2022

Cruz M, Ombao H, & Gillen DL. A Generalized Interrupted Time Series Model for Assessing Complex Health Care Interventions.

International Conference on Health Policy and Statistics, San Diego, CA, Contributed, January 2020

Joint Statistical Meetings, Denver, CO, Contributed, July 2019

Western North American Region, Portland, OR, Student Session, June 2019

Cruz M, Gillen DL, Bender M, & Ombao H. Assessing Health Care Interventions via an Interrupted Time Series Model: Study Power and Design Considerations.

Joint Statistical Meetings, Vancouver, British Columbia, Canada, Contributed, July 2018

Western North American Region, Edmonton, Alberta, Canada, Student Session, June 2018

Eastern North American Region, Atlanta, GA, Contributed, March 2018

Cruz M, Bender M, & Ombao H. A Robust Interrupted Time Series Model for Analyzing Complex Health Care Intervention Data. Joint Statistical Meetings, Baltimore, MD, Topic-contributed. August 2017.

National

Cruz M, Ombao H, & Gillen DL. A Generalized Interrupted Time Series Model for Assessing Complex Health Care Interventions. Women in Statistics and Data Science Conference, Bellevue, WA, Poster, October 2019

Cruz M, Bender M, & Ombao H. A Robust Interrupted Time Series Model for Analyzing Complex Health Care Intervention Data.

Academy Health Annual Research Meeting, New Orleans, LA, Poster, June 2017

Association for Women in Mathematics Research Symposium, Los Angeles, CA, Poster, April 2017

Cruz M. Completing Partial Matrices to Satisfy the Anticommutativity Equation.

Nebraska Conference for Undergraduate Women in Mathematics, Lincoln, NE, Poster, January 2013

Society for Advancement of Chicanos and Native Americans in Science, Seattle, WA, Poster, October 2012

Local

Cruz M, Hardin J, Radunskaya A. Averages in the Period 2 Region of the Logistic Map

Claremont Center for the Mathematical Sciences, Claremont, CA, Poster, September 2013

Annual Summer Research Poster Conference, Claremont, CA, Poster, September 2013