

# Douglas Ezra Morrison

[demorrison@ucdavis.edu](mailto:demorrison@ucdavis.edu)  
<https://d-morrison.github.io>

**Methodological interests:** causal inference, incomplete data, time-to-event models, interval censoring, incidence estimation, transportability, data fusion, systems modeling, statistical process control, machine learning, Bayesian methods, computational statistics, interactive data visualization.

**Application interests:** infectious diseases, health services, biomarkers, mHealth, quality improvement.

## Education

- 2015 - 2021 **PhD, Biostatistics**, University of California, Los Angeles. Dissertation: *Statistical Challenges in Incidence Estimation using Cross-Sectional Data and Multi-Biomarker Assay Algorithms*. Advisor: Dr. Ron Brookmeyer. Conferred, September 10, 2021.
- 2009 – 2010 **MS, Statistics**, Stanford University.
- 2005 – 2009 **BS, Symbolic Systems** (neuroscience concentration), Stanford University.

## Research Experience

- 2022-present **Assistant Professor/Assistant Professor in Residence**, Division of Biostatistics, Department of Public Health Sciences, University of California, Davis, CA.
- 2021-2022 **Postdoctoral Scholar**, with Dr. Onyebuchi Arah, *Epidemiology*, and Dr. Moira Inkelas, *Health Policy & Management*, UCLA: COVID-19 surveillance and mitigation in the K-12 setting.
- 2020 – 2021 **Graduate Student Researcher**, with Dr. Moira Inkelas, *Health Policy & Management*, Dr. Onyebuchi Arah, *Epidemiology*, and Dr. Roch Nianogo, *Epidemiology*, UCLA: Agent-based models of school reopening strategies during the COVID-19 pandemic.
- 2016 - 2021 **Graduate Student Researcher**, with Dr. Tom Belin, *Biostatistics Department*, and Dr. Vivek Shetty, *School of Dentistry*, UCLA: Development and assessment of mobile health apps for monitoring and promoting oral health behaviors.
- 2015 - 2021 **Graduate Student Researcher**, with Dr. Ron Brookmeyer, *Biostatistics Department*, UCLA: Statistical methods for estimating HIV incidence from cross-sectional surveys of biomarker prevalence.
- 2012 - 2015 **Statistician**, *Surgery Department*, Stanford University School of Medicine: Served as shared statistical resource for department, focusing on health services research and effectiveness of new surgical imaging tools. Worked with large-scale state- and national-level AHRQ HCUP administrative data sets.
- 2010 - 2011 **Biostatistician/Bioinformatician**, *Aviir, Inc.*, Irvine, CA: Prediction of acute cardiovascular events using novel biomarkers; ELISA assay calibration.

## Publications: Statistical Methods

1. Brookmeyer R, Morrison D. **Estimating Vaccine Effectiveness from Linking Population-Based Health Registries: Some Sources of Bias**. *American Journal of Epidemiology* 2022. doi:10.1093/aje/kwac145
2. Morrison D, Laeyendecker O, Brookmeyer R. **Regression with Interval-Censored Covariates: Application to Cross-Sectional Incidence Estimation**. *Biometrics* 2021. doi:10.1111/biom.13472

3. Morrison D, Laeyendecker O, Brookmeyer R. **Cross-sectional HIV incidence estimation in an evolving epidemic**. *Stat Med*. 2019;38(19):3614–27. [doi:10.1002/sim.8196](https://doi.org/10.1002/sim.8196)
4. Morrison D, Laeyendecker O, Konikoff J, Brookmeyer R. **Cross-Sectional HIV Incidence Estimation with Missing Biomarkers**. *Stat Commun Infect Dis*. 2018;10(1). [doi:10.1515/scid-2017-0003](https://doi.org/10.1515/scid-2017-0003)

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### Publications: Statistical Applications

1. Essalat M, Morrison D, Kak S, Chang, E, Roig Penso I, Kulchar R, Madrid Padilla O, Shetty V. **A naturalistic study of brushing patterns using powered toothbrushes**. *PLoS One*. 2022 May 19;17(5):e0263638.
2. Elmore JG, Wang PC, Kerr KF, Schriger DL, Morrison DE, Brookmeyer R, Pfeffer MA, Payne TH, Currier JS. **Excess Patient Visits for Cough and Pulmonary Disease at a Large US Health System in the Months Prior to the COVID-19 Pandemic: Time-Series Analysis**. *J Med Internet Res* 2020;22(9): [doi:10.2196/21562](https://doi.org/10.2196/21562)
3. Shetty V, Morrison D, Belin T, Hnat T, Kumar S. **Development and feasibility testing of a scalable system for passively monitoring oral health behaviors in the home setting**. *JMIR Mhealth Uhealth*. 2020;8(6): [doi:10.2196/17347](https://doi.org/10.2196/17347)
4. Laeyendecker O, Konikoff J, Morrison D, Brookmeyer R, Wang J, Celum C, et al. **Identification and validation of a multi-assay algorithm for cross-sectional HIV incidence estimation in populations with subtype C infection**. *J Int AIDS Soc*. 2018;21(2): [doi:10.1002/jia2.25082](https://doi.org/10.1002/jia2.25082)
5. Hernandez-Boussard T, Morrison D, Tian L, Basu S. **Disparities in Healthcare Coverage and Utilization After Expanded Dependent Coverage**. *J Health Dispar Res Pract*. 2017;10(4):8.
6. Hernandez-Boussard TM, McDonald KM, Morrison D, Rhoads KF. **Risks of adverse events in colorectal patients: population-based study**. *J Surg Res*. 2016;202(2):328–34.
7. Hernandez-Boussard T, Morrison D, Goldstein BA, Hsia RY. **Relationship of Affordable Care Act Implementation to Emergency Department Utilization Among Young Adults**. *Ann Emerg Med*. 2016;67(6):714–20.
8. Hitchner E, Morrison D, Liao P, Rosen A, Zhou W. **Genetic polymorphisms influence cognition in patients undergoing carotid interventions**. *Int J Angiol*. 2016;25(03):168–73.
9. Pershing S, Morrison D, Hernandez-Boussard T. **Cataract surgery complications and revisit rates among three states**. *Am J Ophthalmol*. 2016;171:130–8.
10. DeClerck MP, Bailey Y, Craig D, Lin M, Auerbach LJ, Linney O, Morrison D, Patry W, Auerbach PS. **Efficacy of topical treatments for *Chrysaora chinensis* species: A human model in comparison with an in vitro model**. *Wilderness Environ Med*. 2016;27(1):25–38.
11. Yanamadala S, Morrison D, Curtin C, McDonald K, Hernandez-Boussard T. **Electronic health records and quality of care: an observational study modeling impact on mortality, readmissions, and complications**. *Med (United States)*. 2016;95(19):e3332.
12. Moghavem N, Morrison D, Ratliff JK, Hernandez-Boussard T. **Cranial neurosurgical 30-day readmissions by clinical indication**. *J Neurosurg*. 2015;123(1):189–97.
13. Mell MW, Wang NE, Morrison D, Hernandez-Boussard T. **Interfacility transfer and mortality for patients with ruptured abdominal aortic aneurysm**. *J Vasc Surg*. 2014; 60(3), 553-557.
14. Wapnir I, Dua M, Kieryn A, Paro J, Morrison D, Kahn D, et al. **Intraoperative Imaging of Nipple Perfusion Patterns and Ischemic Complications in Nipple-Sparing Mastectomies**. *Ann Surg Oncol*. 2014;21(1):100–6.
15. Hitchner E, Zayed MA, Lee G, Morrison D, Lane B, Zhou W. **Intravascular ultrasound as a clinical adjunct for carotid plaque characterization**. *J Vasc Surg*. 2014;59(3):774–s80.

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### Preprints: Statistical Applications

1. Morrison D. E., Nianogo R., Manuel V., Arah O. A., Anderson N., Kuo T., & Inkelas M. **Modeling infection dynamics and mitigation strategies to support K-6 in-person instruction during the COVID-19 pandemic**. medRxiv 2021; [doi:10.1101/2021.02.27.21252535](https://doi.org/10.1101/2021.02.27.21252535)

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## Conference Presentations (\*indicates presenting authors)

1. Morrison D\*, Kuo T, Nianogo R, Manuel V, Inkelas M, Arah O. **Modeling COVID-19 Dynamics and Program Interventions for K-12 School Re-Opening**, AcademyHealth Annual Research Meeting 2021, online.
2. O’Leary, M\*, Stockwell, R\*, Morrison, D. **Skills-based grading: a novel approach to teaching formal semantics**, Annual Meeting of the Linguistic Society of America 2021, online.
3. Morrison D\*, Laeyendecker O, Brookmeyer R. **Transporting Cross-Sectional Incidence Estimation Algorithms Between Populations**, Joint Statistical Meetings 2019, Denver, CO.
4. Morrison D\*, Brookmeyer R, Laeyendecker O. **Biomarker-Based Cross-Sectional Incidence Estimation with Incomplete Data**, Joint Statistical Meetings 2017, Baltimore, MD.
5. Hernandez-Boussard T\*, Morrison D, Tian L, Basu S. **Increased Racial Disparities in Healthcare Utilization after Expanded Dependent Insurance Coverage**. 2016 Annual Research Meeting of AcademyHealth, Boston, MA.
6. Morrison D\*, Desai M, Curtin C, Hernandez-Boussard, T. **A Comparison of Cross-Sectional and Longitudinal Analyses for Adverse Events Data**. Joint Statistical Meetings 2014, Boston, MA.

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## Conference Posters (\*indicates presenting authors)

1. Tobin J\*, Greer Z\*, Morrison D. eRecruitment Strategies for the COVID-19 Era. UCLA School of Dentistry Research Day, 2022, Los Angeles, CA.
2. Morrison D\*, Manuel V, Inkelas, M, Kuo, T, Arah, OA, Anderson, N, Nianogo, R. **Modeling COVID-19 infection dynamics and program interventions for K-12 school re-opening**, Translational Science 2021, online.
3. Desai A\*, Patton C\*, Le M\*, Lin N\*, Morrison D, Shetty V. **A Smartphone-based ePlatform for Passive Monitoring of Oral Health Behaviors**. UCLA Undergraduate Research Poster Day, 2019, Los Angeles, CA.

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## Statistical Software

1. Morrison D, Brookmeyer R. **rwicc** (“Regression With Interval-Censored Covariates”). R package: <https://CRAN.R-project.org/package=rwicc>

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## Research Funding, Honors, and Awards

- 2021 **Carolbeth Korn Prize** for most outstanding graduating student, UCLA Fielding School of Public Health: \$10,000.
- 2020 **Celia and Joseph Blann Fellowship** for academic excellence and commitment to public health, UCLA Fielding School of Public Health: \$10,000.
- 2017-2018 **Graduate Research Mentorship**, UCLA Graduate Education: \$36,000.  
*Measuring HIV Incidence Using Multi-Biomarker Assay Algorithms.*

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## Teaching Positions

- 2017 **Teaching Assistant**, Introduction to Biostatistics (Biostatistics 100B), University of California, Los Angeles, CA. Student Evaluations “Overall Rating”: Mean 8.5, Median 9, SD 0.9 (9-pt. scale).

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## Mentorship

- 2022 Mentored dental student analyzing recruitment strategies for dentistry research, culminating in a poster presentation at the UCLA School Of Dentistry Research Day (Tobin et al, 2022).
- 2021 Mentor to an undergraduate working on COVID-19 data dashboards.
- 2018 - 2019 Mentor to four undergraduates working on collecting usability and accuracy data for a mobile health app and system for recording oral health behaviors. This mentorship culminated in a poster presentation at the UCLA Undergraduate Research Poster Day (Desai et al, 2019).

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## Chaired Sessions

1. **Strategies and Implications for Establishing Biostatistics Entities in Medical Centers.** Invited Panel, Section on Statistical Consulting, Joint Statistical Meetings 2014, Boston, MA.

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## Academic Service

2022	<b>Reviewer</b> , Epidemiology	1x
2022	<b>Reviewer</b> , BMC Public Health	1x
2021-2022	<b>Reviewer</b> , Scientific Reports	2x
2021	<b>Reviewer</b> , Annals of Applied Statistics	2x

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## Professional Affiliations

- 2010 - present **Member**, American Statistical Association  
2021 – present **Member**, AcademyHealth