

LAUREN ELIZABETH EYLER DANG, MD, MPH

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EDUCATION AND TRAINING

University of California, Berkeley, School of Public Health, PhD in Biostatistics	2019-Present
University of California, San Francisco, General Surgery Residency Program	2016–2021
University of California, San Francisco, School of Medicine, MD	2011–2016
University of California, Berkeley, School of Public Health, MPH	2014-2015
Yale University, BS, Molecular, Cellular, and Developmental Biology	2007-2011

RESEARCH EXPERIENCE

Joint Initiative for Causal Inference (UC Berkeley, U. Copenhagen, Novo Nordisk) 2020-Present
Working Group Leader - Integration of Observational and RCT Data

Project: Augmentation of RCT control arms with Observational Data

Mentors: Mark van der Laan, PhD; Maya Petersen, MD, PhD

- Developed cross-validated targeted maximum likelihood estimator for data-adaptive selection of the optimal experiment among different potential combinations of data sources
- Evaluated estimator performance compared to alternate methods for augmenting RCT control arms with observational data through simulations
- Working with Novo Nordisk collaborators on real data applications
- Funded through the Joint Initiative for Causal Inference

University of California, San Francisco 2020-Present
Global Cancer Fellow

Project: Estimated Impact of the STRAT4 Assay on Breast Cancer Biomarker-Directed Therapy in Tanzania

Mentors: Katherine Van Loon, MD, MPH; Dianna Ng, MD; Elia Mmbaga, MD, PhD

- Developing a realistic simulation of breast cancer care trajectories at Ocean Road Cancer Institute
- Simulating patient care trajectories under a hypothetical scale-up of the STRAT4 assay for point-of-care breast cancer biomarker testing based on expert opinion obtained through focus groups
- Modeling impact of STRAT4 versus immunohistochemistry on cost and patient care in Tanzania
- Awarded an NIH F32 fellowship (F32CA257350)

University of California, Berkeley 2020-Present
Graduate Student Research Assistant

Project: A constrained highly adaptive lasso estimator optimized via canonical steepest descent to respect a nonparametric statistical model

Mentors: Mark van der Laan, PhD; Alan Hubbard, PhD

- Developed canonical gradient descent algorithm for constrained optimization of highly adaptive lasso

- Demonstrated efficiency gains of a simple substitution estimator and targeted maximum likelihood estimator for the average treatment effect based on the constrained compared to unconstrained algorithm in the context of practical positivity violations using simulated and real data examples

University of California, San Francisco

2021-Present

Data Science Consultant: Surgery and Anesthesia Projects

Projects: Multiple

Collaborators: Doruk Ozgediz, MD, MSc; Romain Pirracchio, MD, PhD; Rym El Khoury, MD

- Developed and evaluated Super Learner ensemble machine learning prediction algorithm for post-operative mortality based on pediatric surgery records data from KidsOR project
- Contributed to evaluation of Vascular Quality Initiative mortality model in a tertiary care facility
- Contributed code to *tlverse* software for implementing re-calibration methods in Super Learner pipelines
- Contributed to cluster analysis of COVID-19 patients and evaluation of outcomes by cluster

UCSF Center for Global Surgical Studies

2014-2019

Student/Resident Researcher

Projects: Development of an EconomicClusters algorithm; Musculoskeletal injury in Uganda; Essential surgery as a component of the right to health

Mentors: Catherine Juillard, MD, MPH; Alan Hubbard, PhD; Rochelle Dicker, MD

- Developed a k-medoids clustering-based algorithm and R Shiny app for defining simple models of economic status to facilitate health disparities research in low- and middle-income countries
 - This EconomicClusters model is currently used for health equity surveillance in the Cameroonian National Trauma Registry with plans for implementation in Uganda and South Africa
- Conducted data analysis for Ugandan collaborators' musculoskeletal injury registry projects
- Advocated for consideration of essential surgery as a component of the right to health

PUBLICATIONS

Data Science Collaborative Group. Difference in clinical deterioration among three sub-phenotypes of COVID-19 patients at the time of first positive test: results from a clustering analysis. *Intensive Care Medicine*, 2021; 47,113-115. <https://doi.org/10.1007/s00134-020-06236-7>

Dang LE, Hubbard A, Dissak-Delon F, Chichom A, Juillard C. Right population, right resources, right algorithm: Using machine learning efficiently and effectively in surgical systems where data are a limited resource. *Surgery*, 2020; <https://doi.org/10.1016/j.surg.2020.11.043>

Eyler L, Hubbard A, Juillard C. Optimization and validation of the EconomicClusters model for facilitating global health disparities research: Examples from Cameroon and Ghana. *PLoS ONE*, 2019; 14(5): e0217197. <https://doi.org/10.1371/journal.pone.0217197>

Eyler L, Hubbard A, Juillard C. Assessment of economic status in trauma registries: A new algorithm for generating population-specific clustering-based models of economic status for time-constrained low-resource settings. *International Journal of Medical Informatics*, 2016; 94:49-58, doi:10.1016/j.ijmedinf.2016.05.004

Eyler LE, Mohamed S, Feldhaus I, Dicker R, Juillard C. Essential surgery as a component of the right to health: A call to action. *Human Rights Quarterly*, 2018; 40(3):641-662, doi: 10.1353/hrq.2018.0035

Kisitu DK, Eyley LE, Kajja I, Waiswa G, Beyeza T, Feldhaus I, Juillard C, Dicker RA. A pilot orthopedic trauma registry in Ugandan district hospitals. *Journal of Surgical Research*, 2016;202(2):481-8. doi: 10.1016/j.jss.2015.12.028.

Kisitu DK, Eyley LE, Kajja I, et al. The role of Ugandan district hospital orthopedic units in the care of vulnerable road users: a cross-sectional study. *Injury Epidemiology*. 2016;3:27. doi:10.1186/s40621-016-0092-5.

PRESENTATIONS

Joint Initiative for Causal Inference Meetings. “A cross-validated targeted maximum likelihood estimator for data-adaptive experiment selection applied to the augmentation of RCT control arms with observational data.” Oxford, Copenhagen. October 2021.

Joint Initiative for Causal Inference Webinar Series. “Augmentation of RCT control arms with observational data.” Virtual. May 2021.

11th Academic Surgical Congress. “A pilot orthopedic trauma registry to assess needs and disparities in Ugandan district hospitals.” Jacksonville, Florida. February 2016.

FUNDING

NCI Ruth L. Kirschstein F32 Award	2021-2022
UC Berkeley/NIH Biomedical Big Data Training Program Fellowship	2019-2020
UCSF Global Health Research Grant, \$2000 for trauma registry research in Cameroon	2015
Sherwood E. Silliman Research Fellowship, \$1000 for Leishmania research, Yale University	2010

HONORS AND AWARDS

Alpha Omega Alpha Honor Medical Society, UCSF Chapter	2015
Summa Cum Laude, Yale University	2011
Departmental Honors, Molecular, Cellular, & Developmental Biology, Yale University	2011
Yale Science and Engineering Association Senior High Scholarship Award, Yale University	2011
Phi Beta Kappa, Alpha of Connecticut Chapter	2010

TEACHING AND MENTORSHIP EXPERIENCE

<i>UC Berkeley</i> . Peer Mentorship in Biostatistics Program. Mentor.	2021-Present
<i>UCSF Department of Surgery</i> . Surgery Mentor Match Program. Mentor.	2017-2020
<i>Canal Alliance</i> . English as a Second Language Course. Teaching Aide.	6-8/2021
<i>Teach for Health, Nicaragua</i> . Community Health Promoter Program. CPR/First Aid Instructor.	6-7/2012
<i>Emergency Care & Safety Institute</i> . CPR/First Aid Instructor.	2010-2011

PUBLIC HEALTH EXPERIENCE

Student Non-Profit Consultant, UC Berkeley Haas School of Business, Berkeley, CA 2015

- Developed strategy for distribution of free prosthetics by Ellen Meadows Prosthetic Hand Foundation

President and Co-Founder, Flu Crew at UCSF, San Francisco, CA 2011–2012

- Co-founded student organization dedicated to providing influenza vaccines to underserved communities
- Organization provided 800 free influenza vaccines in first two years

Medical Student Volunteer, Clínica Martín-Baró, San Francisco, CA 2011-2012

- Coordinated free healthcare for low-income Spanish-speaking patients

Spanish Interpreter, Haven Free Clinic, Fair Haven, CT 2009–2011

- Translated for patients and clinic personnel during medical and social services appointments

SERVICE TO PROFESSIONAL PUBLICATIONS

- **Ad-Hoc Reviewer, Traffic Injury Prevention** 2020-Present

LANGUAGE SKILLS

- Certificate of bilingual proficiency for Spanish. UCSF, San Francisco Department of Public Health. 2016
- Basic knowledge of French.