Tomás Martín León, PhD – Infectious Disease Modeler & Lecturer

California Department of Public Health
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Education

Ph.D. in Environmental Health Sciences, University of California, Berkeley 2018
Designated Emphasis in Development Engineering
Dissertation: Elucidating Liver Fluke Transmission Dynamics: Synthesizing Lab, Field, & Modeling Methods
     Advisor: Robert C. Spear

M.S. in Global Health and Environment, University of California, Berkeley 2014
Thesis: Environmental Factors Impacting Liver Fluke Transmission in Natural Waters and Aquaculture Systems

B.S. in Environmental Engineering, Georgia Institute of Technology 2012
Minor in Sociology

Academic & Research Positions

Infectious Disease Modeler/Statistician, California Department of Public Health 2020–
     (COVID Response): Focus on roles of vaccination and variants on epidemiological dynamics in California

Climate Sciences Consultant, Pacific Island Health Officers Association 2021–
     Project: Dengue Early Warning Systems in Micronesia and the Marshall Islands

Lecturer, School of Public Health, UC-Berkeley 2019–

Postdoctoral Researcher, School of Public Health, UC-Berkeley 2018–2020
     Marshall Lab, Biostatistics & Epidemiology

Teaching

University of California, Berkeley

Introduction to GIS for Public Health – instructor of record and lecturer (2020, 2021)
Environmental and Occupational Epidemiology – guest lecture, "WaSH and Helminth Disease Epidemiology" (2019, 2020)
CRISPR Genome Editing: From Biology to Technology – guest lecture, "Gene Drives" (2020)
Infectious Disease Modeling – guest lecture, "Introduction to Stochastic Modeling" (2019)
Intro to Environmental Health Sciences (for MPH students) – graduate student instructor (2017)
Intervention Trial Design – graduate student instructor and guest lectures (2016)
Intro to Environmental Health Sciences (for MPH students) – guest lecture, "Environmental Pathways for Infectious Disease" (2015)

Mount Tamalpais College/Patten University

Public Health – curriculum designer and lead instructor (2019)
Environmental Justice Workshop – research assistant and guest lecturer (2019)
Elementary Algebra – co-instructor (2017), study group coordinator (2014)
Developmental Math 50B – lead instructor (2016), co-instructor (2013, 2015)
Developmental Math 50A – co-instructor (2013)

Peer-Reviewed Publications

T.M. León, J. Vargo, E.S. Pan, S. Jain, P.B. Shete (2021, under review). Nonpharmaceutical Interventions Remain Essential to Reducing COVID-19 Burden Even in a Well-Vaccinated Society: A Modeling Study.

L.A.C. Chapman, P. Shukla, I. Rodríguez-Barraquer, P.B. Shete, **T.M. León**, K. Bibbins-Domingo, G.W. Rutherford, R. Schechter, N.C. Lo (2021, under review). Comparison of COVID-19 vaccine prioritization strategies in the United States.

X. Chen, X. Li, X. Li, J. Liang, A. Lin, J. Li, G. Chen, **T.M. León**, Z. Pei, G. Zeng (2021, under review). Vegetation Greening Would Increase Anthropogenic VOCs Emission Reduction Pressure for Mitigating Ozone Pollution in Megacity Clusters across China.

T.M. León, A. Cornel, K.K. Brisco, J.M. Marshall (2021, invited submission, *Ecology Letters*). Maximum likelihood method for analyzing mark-release-recapture data of *Aedes aegypti* using environmental and landscape data.

S.L. Wu, J.B. Bennett, H.M. Sánchez C., A.J. Dolgert, **T.M. León**, J.M. Marshall (2020, accepted, *PLoS CompBio*). MGDrivE 2: A simulation framework for gene drive systems incorporating seasonality and epidemiology dynamics. Preprint available on bioRxiv: https://www.biorxiv.org/content/10.1101/2020.10.16.343376v1.full.pdf

T. Ha, **T.M. León**, K. Lalangui, P. Ponce, J.M. Marshall, V. Cevallos (2020, under review, *Parasites & Vectors*). Household-Level Risk Factors for *Aedes aegypti* Pupal Density in Guayaquil Ecuador. Preprint available on bioRxiv: https://www.biorxiv.org/content/10.1101/2020.11.23.391938v1.full.pdf

T.M León, V. Plermkamon, K. Kuntiyawichai, B. Sripa, R.C. Spear (2020, under review, *Acta Tropica*). Hydrology-informed metapopulation modeling of liver fluke transmission in the Lawa Lake complex of northeast Thailand. Preprint available on bioRxiv: https://www.biorxiv.org/content/10.1101/569913v2.full.pdf

J.M. Marshall, R. Raban, N.P. Kandul, J.R. Edula, **T.M. León**, O. Akbari (2019). Winning the tug-of-war between effector gene design and pathogen evolution in vector population replacement strategies. *Frontiers in Genetics*.

J.C. Utazirubanda, **T.M. León**, P. Ngom (2019). Variable selection via Group LASSO Approach: Application to the Cox Regression and frailty model. *Communication in Statistics: Simulation and Computation*.

T.M. León, T.C. Porco, C.S. Kim, S. Kaewkes, W. Kaewkes, B. Sripa, R.C. Spear (2018). Modeling liver fluke transmission in northeast Thailand: impacts of development, hydrology, and control. *Acta Tropica*.

P. Echaubard, **T.M. León**, K. Suwanatrai, J. Chaiyos, C.S. Kim, F.F. Mallory, S. Kaewkes, R.C. Spear, B. Sripa (2017). Experimental and Modeling Investigations of *Opisthorchis viverrini* Miracidium Transmission Over Time and Across Temperatures: Implications for Control. *International Journal for Parasitology* 47(5): 257-270.

X. Li, X. Chen, X. Yuan, G. Zeng, **T.M. León**, J. Liang, G. Chen, X. Yuan (2017). Characteristics of Particulate Pollution ($PM_{2.5}$ and PM_{10}) and Their Spacescale-Dependent Relationships with Meteorological Elements in China. *Sustainability* 9(12): 2330.

X. Li, W. Liu, Z. Chen, G. Zeng, C. Hu, **T.M. León**, J. Liang et al. (2015). The application of semicircular-buffer-based land use regression models incorporating wind direction in predicting quarterly NO_2 and PM_{10} concentrations. *Atmospheric Environment* 103: 18-24.

W. Liu, X. Li, Z. Chen, G. Zeng, **T.M. León**, J. Liang, G. Huang et al. (2015). Land use regression models coupled with meteorology to model spatial and temporal variability of NO 2 and PM 10 in Changsha, China. *Atmospheric Environment* 116: 272-280.

Recent Presentations

T.M. León. Flight of the mosquito: modeling the influence of landscapes on movement. Contributed oral presentation at Virtual Asilomar 2021 [American Society of Naturalists]. Available to view at https://www.youtube.com/watch?v=Y9kiHmsEK-Q

T.M. León, H.M. Sánchez C., Y. Lee, J.M. Marshall. New methods for modeling *Anopheles gambiae s.l.* movement with environmental and genetic data. Contributed oral and poster presentations at 2020 Annual Meeting of American Society of Tropical Medicine and Hygiene (virtual).

T.M. León, H.M. Sánchez C., J.M. Marshall. Mosquitoes in paradise, but can malaria be driven out? Oral presentation given at Bay Area EEID 2020, Berkeley, CA.

T.M. León, J.B. Bennett, A.J. Cornel, J.M. Marshall. Incorporating environmental variables into mosquito gene drive modelling: fine-scale dispersal, temperature, and landscape-dependent connectivity. Poster presentation given at Epidemics7 International Conference on Infectious Disease Dynamics (2019), Charleston, SC.

T.M. León, A. Cornel, K.K. Brisco, J.M. Marshall. Maximum likelihood method for analyzing mark-release-recapture data of *Aedes aegypti* using environmental and landscape data. Contributed oral presentation given at 2019 Ecological Society of America Annual Meeting, Louisville, KY.

T.M. León, V. Plermkamon, K. Kuntiyawichai, B. Sripa, R.C. Spear. Liver fluke transmission in northeast Thailand: rain, reinfection, and reservoir hosts. Poster presentations given at Bay Area EEID 2019, Palo Alto, CA, and 11th Annual CEND Symposium (2019), Berkeley, CA.

Awards and Fellowships

Templeton Ideas Challenge Prize (https://www.templeton.org/models-winners)	2020
Presidential Management Fellowship (declined)	2018
National Science Foundation Graduate Research Fellowship	2012–2017
Foreign Language and Area Studies Fellowship	2015–2016
Fulbright Student Research Scholarship (Thailand)	2014–2015
CDC ORISE Fellowship	2011–2012
Georgia Tech President's Scholarship	2008–2012
Outstanding Senior in CEE (Georgia Tech)	2011

Mentoring

Students Supervised

Sindhu Ravuri, BS & BA, Bioengineering and Molecular & Cell Biology, UC-Berkeley	2021
Darpa Anireddy, BA(c), Public Health, UC-Berkeley	2020
Daniel Lopez, BA(c), Molecular & Cell Biology, UC-Berkeley	2020
Thien-An Ha, MPH, Epidemiology & Biostatistics, School of Public Health, UC-Berkeley	2019–2020
Cheyenne Butcher, MS, Environmental Health Sciences, School of Public Health, UC-Berkeley	2017–2018

Thesis Committees

Luis Rodrigo Careaga Sotomayor, MS Computer Science, Tecnológico de Monterrey, México   2019

Skills

Languages: English – native; Spanish – conversational; Thai – conversational
Programming/Software: R, QGIS, Git, Microsoft/Google tools – proficient; Python, SQL, MATLAB, C++,
Julia – basic
Hobbies: Hiking, puzzling, volunteering, world percussion