

Yizhi Liang

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EDUCATION

Alfred E. Mann School of Pharmacy and Pharmaceutical Sciences, Aug 2024 – Present
University of Southern California
PhD in Health Economics (GPA: 3.92/4.00) Los Angeles, CA USA

Harvard T.H. Chan School of Public Health, Harvard University Aug 2022 – May 2024
MS in Global Health and Population (GPA: 3.84/4.00) Boston, MA USA
Thesis: Evolving Trends in Racial and Ethnic Disparities in Syphilis Prevalence Among Pregnant Women in the United States from 2014 to 2022.

West China School of Public Health, Sichuan University Sep 2017 – Jun 2022
MBBS in Public Health (GPA: 3.71/4.00) · **BMgmt in Financial Management** Chengdu, Sichuan China
Thesis: Study on the Association Between Quality of Outpatient Care and Patient Satisfaction in Rural China: A Cross-Sectional Standardized Patient Study.

PUBLICATIONS

1. Chen J*, **Liang Y***, Hu M, Verguet S, Jiao B. Catastrophic Health Expenditure Underestimates Financial Hardship in Chronic Disease Households. *Am J Manag Care*. In press. (*Equal contribution.)
2. **Liang Y**, Jiao B. Evaluating Policy Options for New Treatments Under Uncertain External Evidence. *Value Health*. 2026 Apr 16. doi: 10.1016/j.jval.2026.03.2240. Online ahead of print. PMID: 42000135.
3. Rönn MM, Kourtis AP, **Liang Y**, Zheng L, Puente T, Huang YA, Zhu W, Patel RR, Wiener J, Hoover KW, Van Handel M, Menzies NA, Salomon JA. Quantifying the number of people who would benefit from HIV pre-exposure prophylaxis (PrEP) in the United States: a comparison of behavioral, acquisition-risk based, and economic metrics. *Ann Epidemiol*. 2026;118:110079. PMID: 41856300.
4. **Liang Y**, Menzies NA, Rönn MM. Trends in syphilis prevalence by race and ethnicity among people who are pregnant in the United States 2016-2023. *Sex Transm Dis*. 2025;52(9):535-541. doi: 10.1097/OLQ.0000000000002187. PMID: 40417976.
5. Rao M, Chen SY, **Liang Y**, Yu J. Underdiagnosis of Allergic Contact Dermatitis in Under-Represented Groups: An All of Us Database Analysis. *Dermatitis*. 2025 Mar-Apr;36(2):170-172. doi: 10.1089/derm.2023.0263. Epub 2023 Dec 29. PMID: 38156811.
6. Wu Y, **Liang Y**, Cai Z, Li L, Sun C, Sylvia S, Zhou H, Feng J, Rozelle S. Process quality, diagnosis quality, and patient satisfaction of primary care in Rural Western China: A study using standardized patients. *Patient Educ Couns*. 2024 Jun;123:108208. doi: 10.1016/j.pec.2024.108208. Epub 2024 Feb 15. PMID: 38377708.
7. **Liang Y**, Lin Y, Jiao B. Health Interventions May Have Divergent Impacts on Health and Economic Equity: A Case Study of the Community-Based Hypertension Improvement Project in Ghana. *Appl Health Econ Health Policy*. 2024 May;22(3):353-362. doi: 10.1007/s40258-024-00871-7. Epub 2024 Jan 24. PMID: 38267804.
8. Rao M, Chen SY, **Liang Y**, Yu J. Underdiagnosis of psoriasis in underrepresented groups: An “All of Us” database analysis. *J Am Acad Dermatol*. 2023 Dec;89(6):1279-1282. doi: 10.1016/j.jaad.2023.08.011. Epub 2023 Aug 12. PMID: 37579839.
9. Du Y, Zhou Q, Cheng W, Zhang Z, Hoelzer S, **Liang Y**, Xue H, Ma X, Sylvia S, Tian J, Tang W. Factors Influencing Adoption and Use of Telemedicine Services in Rural Areas of China: Mixed Methods Study. *JMIR Public Health Surveill*. 2022 Dec 23;8(12):e40771. doi: 10.2196/40771. PMID: 36563026; PMCID: PMC9823570.
10. Cheng W, Zhang Z, Hoelzer S, Tang W, **Liang Y**, Du Y, Xue H, Zhou Q, Yip W, Ma X, Tian J, Sylvia S. Evaluation of a village-based digital health kiosks program: A protocol for a cluster randomized clinical

trial. *Digit Health*. 2022 Oct 5;8:20552076221129100. doi: 10.1177/20552076221129100. PMID: 36211797; PMCID: PMC9537487.

11. He R, **Liang Y**, Lin C, Guo B. Association between Passive Smoking Exposure and Insomnia in a Tibetan Non-Smoking Population Based on the Propensity Score. *Chinese Journal of Disease Control & Prevention*. 2022;26(7):815-819. doi: 10.16462/j.cnki.zhjbkz.2022.07.012.
12. Lyu H, Tang H, **Liang Y**, Huang S, Wang Y, Huang W, Zhou Y. Alcohol Consumption and Risk of Liver Fibrosis in People Living With HIV: A Systematic Review and Meta-Analysis. *Front Immunol*. 2022 Mar 18;13:841314. doi: 10.3389/fimmu.2022.841314. PMID: 35371091; PMCID: PMC8971654.

PREPRINTS

1. Rönn MM, **Liang Y**, Bronsard M, et al. Racial and ethnic differences in congenital syphilis: mathematical modeling study analyzing the role of prenatal care. *medRxiv* 2026.01.30.26345236.

CONFERENCE PRESENTATIONS

1. Liang, Y., & Jiao, B. (2026). The Differential Impact of Family-Level Multimorbidity on Financial Hardship by Insurance Status: Evidence from MEPS 2018–2023. *ISPOR 2026*, May 17–20, 2026, Philadelphia, PA. Value in Health, 29(S6), Abstract HPR68.
2. Chen, J.*, Liang, Y.*, Hu, M., Verguet, S., & Jiao, B. (2026). Catastrophic Health Expenditure Substantially Underestimates Financial Hardship in Households with Chronic Conditions. *ISPOR 2026*, May 17–20, 2026, Philadelphia, PA. Value in Health, 29(S6), Abstract HPR153. (*Equal contribution.)
3. Liang, Y., Sheng, C., Luo, J., & Chen, B. (2025). Evaluating Fairness Across Machine Learning Algorithms in Health Models Incorporating Race/Ethnicity as Predictors. *ISPOR 2025*, May 13–16, 2025, Montréal, QC, Canada. Value in Health, 28(S1), Abstract P14.
4. Liang, Y., & Jiao, B. (2025). Private Insurance May Fail to Protect Against Healthcare Financial Hardship: Evidence from the 2018 and 2019 Medical Expenditure Panel Survey. *ISPOR 2025*, May 13–16, 2025, Montréal, QC, Canada. Value in Health, 28(S1), Abstract HPR170.
5. Liang, Y., Menzies, N., & Rönn, M. (2025). Evolving Trends in Racial and Ethnic Disparities in Syphilis Prevalence Among People Who Are Pregnant in the United States, 2016–2023. *ISPOR 2025*, May 13–16, 2025, Montréal, QC, Canada. Value in Health, 28(S1), Abstract PT30.
6. Liang, Y., & Jiao, B. (2025). Leveraging External Clinical Evidence vs. Awaiting Local Confirmatory Trial: A Value of Information Approach. *The 2025 Western PharmacoEconomics (WPEC) Conference*, March 31 – April 2, 2025.
7. Liang, Y., & Jiao, B. (2025). Private Insurance May Fail to Protect Against Healthcare Financial Hardship: Evidence from the 2018 and 2019 Medical Expenditure Panel Survey. *The 2025 Western PharmacoEconomics (WPEC) Conference*, March 31 – April 2, 2025.
8. Liang, Y., Menzies, N., & Rönn, M. (2025). Evolving Trends in Racial and Ethnic Disparities in Syphilis Prevalence Among People Who Are Pregnant in the United States, 2016–2023. *The 2025 Western PharmacoEconomics (WPEC) Conference*, March 31 – April 2, 2025.
9. Rönn, M., Liang, Y., Bronsard, M., Gift, T., Myles, R., Chesson, H., Menzies, N., Sabety, A., Hsu, K., & Salomon, J. (2024). Contribution of Inequalities in Access and Quality of Prenatal Care to Congenital Syphilis Burden. *The 2024 STI Prevention Conference*, September 16–19, 2024, Atlanta, GA.
10. Liang, Y., Sheng, C., & Chen, S. Y. (2024). Racial and Ethnic Fairness in Risk Prediction Models for Cardiovascular Diseases Among US Adults. *ISPOR 2024*. Value in Health, 27(6), S3.
11. Chen, P., & Liang, Y. (2024). Optimization in Universal Health Coverage Design in South Africa Considering Both Health Outcomes and Health-Induced Poverty Outcomes. *ISPOR 2024*. Value in Health, 27(6), S219.
12. Liang, Y., Lin, Y., & Jiao, B. (2023). Divergent Impacts on Health and Economic Equity: The Community-Based Hypertension Care Program in Ghana. *The 45th Annual North American Meeting of the Society for Medical Decision Making*, October 22–25, 2023.

RESEARCH EXPERIENCE

**Leonard D. Schaeffer Center for Health Policy & Economics,
University of Southern California
Research Assistant**

Project: Cost-Effectiveness and Budget Impact of IVIG versus Corticosteroids for Moderate-to-Severe Pediatric PANS/PANDAS Jan 2026 – Present

- Developed a Markov cohort model in R estimating ICERs and net monetary benefit for IVIG versus corticosteroids alone from Medicaid and societal perspectives, with probabilistic sensitivity and budget impact analyses.
- Built a renv-locked, fully reproducible analysis pipeline with automated validation and CHEERS 2022 reporting.
- Manuscript in preparation targeting Value in Health.

Project: Waiting for Future Trial or Using Real-World Evidence: Trade-offs for Coverage with Evidence Development Dec 2025 – Present

- Derived the policy-indifference bias threshold at which real-world-evidence-based coverage with evidence development equals RCT-based coverage in population expected net benefit.
- Characterized the threshold using quantitative bias analysis and sensitivity analyses on timing advantage and trial cost in Python simulation.
- Manuscript under review.

Project: The Differential Impact of Family-Level Multimorbidity on Financial Hardship by Insurance Status: Evidence from MEPS 2018–2023 Aug 2024 – Present

- Analyzed the 2018–2023 Medical Expenditure Panel Survey (about 67,000 family-years) to estimate how family-level multimorbidity relates to financial hardship, including high out-of-pocket burden, medical debt, and cost-related barriers to care, across private, public, and uninsured coverage.
- Built the primary analysis pipeline in Stata with R for publication-ready tables and figures, using survey-weighted probability models with year and panel fixed effects.
- Manuscript under revision.

Project: Evaluating Policy Options for New Treatments Under Uncertain External Evidence Aug 2024 – Apr 2026

- Designed a novel conceptual diagram to compare policy options on new treatment with external evidence, from never granted without a local trial, delayed access pending a local trial, immediate access without a local trial, and immediate access while awaiting a local trial.
- Developed a partitioned survival model to estimate the monetary values from the combination of sintilimab and chemotherapy or the chemotherapy only for treating first-line locally advanced or metastatic nonsquamous non-small-cell lung cancer to illustrate the conceptual diagram.
- Employed Python to compute the expected value of perfect information (EVPI), the expected value of sample information (EVSI), and the expected net benefit of sampling (ENBS) using a two-level double-loop Monte Carlo approach, comparing the expected monetary benefits of four policy options.
- Published in Value in Health (2026).

**Harvard T.H. Chan School of Public Health
Graduate Research Assistant**

Project: Evaluating Fairness Across Machine Learning Algorithms in Health Models Incorporating Race/Ethnicity as Predictors Aug 2023 – May 2024

- Employed Python to build machine learning models to predict the risk of cardiovascular disease in U.S. Adults based on NHANES data and the risk of adverse pregnancy outcomes through U.S. live birth certificate data.

- Deployed the nested resampling and cross-validation approach based on OPTUNA Bayesian framework to optimize hyperparameters for prediction models and ensure generalizability.
- Examined the racial and ethnic differences in model accuracy under different scenarios, such as including race/ethnicity as predictors, building race/ethnicity-specific models, preprocessing to balance race/ethnicity observations, and post-processing predictions.

Project: Evolving Trends in Racial and Ethnic Disparities in Syphilis Prevalence Among Pregnant Women in the United States

Sep 2023 – May 2024

- Built a Bayesian mathematical model in R to estimate trends in the prevalence of syphilis by race/ethnicity among pregnant women in the US between 2016 and 2023.
- Investigated the racial/ethnic disparities in the prevalence of syphilis among pregnant women over the study period, quantified by a set of disparity metrics.

Project: Estimating PrEP Need Among People Who Inject Drugs (PWID) in the US: An Incidence Estimation Study

May 2023 – May 2024

- Constructed a Bernoulli model in R to estimate state-level HIV risk among needle-sharing PWID in the U.S. with the multivariate sensitivity analyses conducted.

Project: Divergent Impacts on Health and Economic Equity: The Community-Based Hypertension Care Program in Ghana

Jan 2023 – May 2024

- Developed a microsimulation model in R using the extended cost-effectiveness analysis framework to examine the distributional impact of a community-based hypertension management program in Ghana.
- Simulated distributional health outcomes and financial outcomes by wealth quintiles with a concentration index to reveal health equity and economic equity to assist in multi-criteria decision-making.

Project: Inequalities in Access and Quality of Prenatal Care to Racial/Ethnic Disparities in Congenital Syphilis Burden

Nov 2022 – May 2024

- Conducted scoping literature reviews to parameterize the mathematical model used in this project.
- Led the data analysis in R on birth file data in the U.S., including data cleaning and computing prior distributions on key parameters, using bootstrapping techniques to obtain parameter values for categorical variables.

Rural Education Action Program, Stanford Center on China's Economy and Institutions Research Assistant

Project: Telemedicine Service Promotion in Rural China

Aug 2019 – Aug 2022

- Participated in a baseline survey of 167 rural townships enrolled in a telemedicine program.
- Developed questionnaires, trained investigators, and ensured data quality.
- Assisted in assessing online healthcare quality offered by Direct-to-Consumer telemedicine platforms in China.
- Conducted the difference-in-differences method in Stata to draft the evaluation report of the program.

Project: Quality of Primary Care in Rural China

Sep 2019 – Jun 2022

- Used the standardized patient method and the clinic vignettes to assess the quality of primary care in the field.
- Employed Stata to describe the relationship between outpatient satisfaction and received medical quality using quantile regression.

West China School of Public Health, Sichuan University Research Assistant

Project: An Investigation on the Quality of Care in Rural China

Aug 2019 – Jun 2022

- Assisted in a China Medical Board (CMB) project researching the quality of care for non-communicable diseases (NCDs) in rural China.
- Used standardized patient method and clinic vignettes to assess the quality of care.
- Wrote an undergraduate thesis on the study of satisfaction with rural health services.

Project: Southwest Regional Natural Population Cohort Study

Mar 2021 – Aug 2021

- Used propensity score method and marginal structure model to explore the association between passive smoking exposure and insomnia in a plateau Tibetan population.

Peking Union Medical College and Chinese Academy of Medical Sciences
Research Assistant

Project: Vaccine Delivery Quality Improvement Interventions in Elementary Schools

Aug 2020 – Sep 2020

- Conducted literature review about the social and behavioral theories on vaccine hesitancy.
- Co-wrote main sections in the Project Application for the CMB project that evaluated the cost-effectiveness analysis of Flu vaccine delivery in Beijing.

PROFESSIONAL EXPERIENCE

Merck

Health Economics Intern, 2026 Future Talent Program

Jun 2026 – Aug 2026

- Designed and built an AI-assisted quality-check workflow for Excel-based health economic models, integrating large-language-model review with a structured QC checklist grounded in ISPOR-SMDM good modeling practices.
- Developed a reusable stress-test catalog and validation protocol for systematic verification of model calculations, parameter traceability, and scenario logic.

Stratevi

Summer Intern

Jun 2025 – Aug 2025

- Drafted internal best practice guidelines deck for designing and implementing Delphi panel studies in health research.
- Drafted a proposal for a real-world evidence study utilizing indirect propensity score matching to compare treatment effects.
- Created internal reference materials on pharmaceutical market access in Germany, including detailed summaries of the healthcare system, regulatory pathways, health technology assessment procedures, and drug pricing and reimbursement mechanisms.
- Contributed to the development of an Anatomical Therapeutic Chemical (ATC) classification application to the World Health Organization by proposing strategic code assignments, analyzing relevant precedents, documenting meetings, drafting the dossier, and conducting quality assurance reviews.
- Built and maintained internal R and Python-based open-source model repositories to support cost-effectiveness modeling, integrate data and code sources, and validate model executability.
- Assessed and validated an Excel-based economic model evaluating the clinical benefits and cost savings of a novel one-time skin treatment for acute, nonthermal, full-thickness skin defects (FTSDs) requiring autografting, from a U.S. payer perspective.
- Reviewed and performed quality control on a statistical analysis plan for a longitudinal study investigating patterns of health status, drug utilization, and satisfaction among patients with COPD.

Harvard T.H. Chan School of Public Health
Teaching Assistant

Jan 2024 – May 2024

- Led the course lab for the courses GHP 501 Modeling for Health System Analysis & Priority Setting and GHP 201 Advanced Modeling for Health System Analysis & Priority Setting in 2024 Spring.

- Taught about R in data analysis and economic evaluation, especially the cost-effectiveness analysis and the extended cost-effectiveness analysis.

Dept. for HIV/AIDS Prevention and Control, Zhuhai Center for Disease Control and Prevention

Intern

Aug 2021 – Nov 2021

- Employed R/Stata to build an automatic system to generate local monthly HIV/AIDS epidemic reports based on surveillance data.
- Assisted in conducting HIV/AIDS research about social-network-based HIV self-testing promotion among men who have sex with men.

West China Hospital of Sichuan University

Medical Intern

Aug 2020 – Dec 2020

- Engaged in the daily screening and diagnosis of common diseases.
- Assisted in conducting health education.

LEADERSHIP

Global Health and Wellness Research Association of Sichuan University

President of the Association

Sep 2020 – Jun 2021

- Organized six expert lectures on statistical package applications, academic frontiers, etc.
- Assisted members in submitting Student-Led Research and Innovation Programs to Sichuan University on behalf of the association.

PEER REVIEW ACTIVITIES

Archives of Public Health	1 manuscript
BMC Health Services Research	3 manuscripts
BMC Public Health	1 manuscript
Epidemiologic Reviews	1 manuscript
Health Economics Review	1 manuscript
Health and Quality of Life Outcomes	1 manuscript
International Journal for Equity in Health	1 manuscript
The European Journal of Health Economics	1 manuscript
ISPOR Asia Pacific Summit 2026	abstract peer reviewer

AWARDS & HONORS

Outstanding Research Assistant, USC Alfred E. Mann School of Pharmacy and Pharmaceutical Sciences	May 2026
Best Student Poster Research Presentation, ISPOR 2025	May 2025
Top 5% Finalist for the ISPOR 2025 Research Presentation Awards	Mar 2025
Top 5% Finalist for the ISPOR 2024 Research Presentation Awards	Mar 2024
Lee B. Lusted Student Prize Finalist, The 45th Annual Meeting of the Society for Medical Decision Making	Oct 2023
Harvard T.H. Chan School of Public Health Professional Development Support Fund	Oct 2023
Outstanding Undergraduate Thesis, Sichuan University	Nov 2022
Outstanding Undergraduate Leader, Sichuan University	Oct 2021
The Comprehensive Scholarship of Sichuan University for Dual Degree Students	Mar 2021
Silver Award, 2020 “Internet +” College Students Innovation and Entrepreneurship Contest	Dec 2020
The Comprehensive Scholarship of Sichuan University for Undergraduates	Oct 2020

SKILLS

- **Programming Languages:** R, Python, Stata, SAS, SQL, Stan, Julia
- **Analytical Methods:** Cost-effectiveness Analysis, Value-of-Information Analysis, Causal Inference in Real-World Data, Bayesian Mathematical Modeling, Machine Learning
- **Software & Tools:** TreeAge, Excel-based health economic modeling, Git, AI-assisted research workflows (LLM-based model QC)