

Kyueun Lee

Center for Health Policy/Primary Care and Outcome Research
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RESEARCH INTEREST

- Forecasting risk factors and the burden of disease
- Evaluating health and cost impact of new health technology in low- and middle-income countries
- Improving methodological practice in modeling disease and health policy

EDUCATION

2015 - 20	Ph.D., Health Policy Concentration: Decision Science Advisor: Jeremy Goldhaber-Fiebert Thesis: <i>Trends in Health Behaviors and Impact of New Health Technology in China: Modeling Approach</i>	Stanford University, United States
2014	M.S., Health Services Research, Policy and Administration	University of Minnesota, United States
2012	B.S., Life Science	Pohang University of Sci. & Tech., South Korea

HONORS, FELLOWSHIPS AND RESEARCH GRANTS

2020	Graduate Dissertation Fellowship <i>King Center for Global Development, Stanford University</i>
2019	Lee B. Lusted Student Award for Quantitative methods and Theoretical Development <i>2019 Annual Meeting of Society for Medical Decision Making, Portland</i>
2019	Fellowship in Medical Decision Making <i>Society of Medical decision making</i>
2019	SCP KU Pre-doctoral Fellowship <i>Stanford Center at Peking University, Stanford University</i>
2013	School of Public Health Scholars of Excellence Award <i>School of Public Health, University of Minnesota</i>
2012	Magna cum laude Summer Graduation <i>Life Science Department, Pohang University of Science Technology</i>
2010	Study Abroad Scholarship <i>Mirae Asset</i>
2009 - 12	Dean's List <i>Life Science Department, Pohang University of Science Technology</i>
2008 - 12	Jigok Undergraduate Scholarship <i>Pohang University of Science Technology</i>

RESEARCH EXPERIENCE

Forecasting risk factors and burden of disease

- 2018-20 *Temporal and age trend in harmful drinking behavior in China: a modeling approach*
- Advisor: Jeremy Goldhaber-Fiebert, Joshua Salomon
 - Constructed a Markov cohort model to forecast future trends in heavy drinking and quantify the potential benefit of interventions with Chinese men in a target age group
 - Presented at 2019 Annual Meeting of Society for Medical Decision Making in Portland
- 2018-20 *Empirical calibration of the natural history of Hepatitis C Virus Infection in Chinese population*
- Advisor: Jeremy Goldhaber-Fiebert, Joshua Salomon
 - Estimated model input parameters that generate model outcomes consistent with the observed HCV epidemiology in China
 - Presented at 2016 annual meeting of Society for Medical Decision Making in Vancouver and 2017 Asia Pacific ISPOR in Singapore

Optimizing health interventions in low- and middle-income countries

- 2018-20 *Health and cost impact of increased management for hepatitis C virus infection in China*
- Advisor: Jeremy Goldhaber-Fiebert, Joshua Salomon
 - Employed an empirically calibrated microsimulation model to quantify health benefits when new HCV treatment is offered to patients with low grade-fibrosis and identified a need for improvement in HCV screening coverage and accuracy in fibrosis diagnosis to amplify health benefits of new HCV treatment in China
- 2017-19 *Quality, Cost, and Value: Studying the Net Value of Diabetes Management*
- PI: Karen Eggleston
 - Quantified the change in health outcomes and medical expenses among diabetic patients at the Stanford hospital
 - Presented at Annual Meeting on Healthy Aging and Chronic Disease Management in China and India in International Comparison
- 2015 *When and how often to screen for cervical cancer in three low- and middle-income countries: A cost-effectiveness analysis*
- PI: Jane Kim
 - Evaluated the cost-effectiveness of screening for human papilloma virus (HPV) infection and pre-cancers at various start ages, intervals, and frequencies in India, Nicaragua, and Uganda
 - Published in *Papillomavirus Research 1* (<https://doi.org/10.1016/j.pvr.2015.05.003>)
- 2015 *Racial and ethnic disparities in HPV-associated cancer burden with first-generation and second-generation human papillomavirus vaccines*
- PI: Jane Kim
 - Used a decision-analytic model to quantify the impact of HPV vaccine on racial and ethnical disparity of HPV-associated cancers
 - Published in *Cancer 122(13)* (<https://doi.org/10.1002/cncr.30007>)
- 2015 *Expanded Program on Immunization Costing and Financing (EPIC2) studies in six countries*
- PI: Stephen Resch
 - Constructed harmonized data from EPIC phase 1 studies in six countries (Benin, Ghana, Uganda, Zambia, Moldova, and Honduras)
- 2014 *Modeling the Human Immunodeficiency Virus (HIV) Treatment Cascade*
- PI: Eva Enns
 - Conducted a literature review of the HIV treatment cascade and the different measures of retention in care among HIV+ patients seen at two medical centers in Minneapolis

and in Kingston, Jamaica

Evaluating cost-effectiveness and new health technology

2013-14 *Cost-effectiveness of Stereotactic Body Radiation Therapy versus Radiofrequency Ablation for Hepatocellular Carcinoma: A Markov Modeling Study*

- Advisor: Jeremy Goldhaber-Fiebert, Doug Owens
- Assessed the cost-effectiveness of an innovative radiation therapy for patients with inoperable localized hepatocellular carcinoma (HCC)
- Published in Radiology 283(2) (<https://doi.org/10.1148/radiol.2016161509>)

2013-17 *Cost-Effectiveness of Antibiotic Prophylaxis following prostate biopsy*

- Advisor: Eva Enns
- Evaluated cost-effectiveness of antibiotic prophylaxis strategies for transrectal prostate biopsy as a function of the prevalence of antibiotic resistance by using a decision-analytic model in TreeAge
- Published in Value in Health 21(3) (<https://doi.org/10.1016/j.jval.2017.08.3016>)

Developing a framework of cost-effectiveness and addressing challenges in mathematical modeling

2018-19 *A Decision-Analytic Framework for Economic Evaluation of Current Precision Health Approaches and Prioritization of Their Future Research and Development*

- PI: Jeremy Goldhaber-Fiebert
- Brainstormed methodological challenges in conducting economic evaluations of precision health approaches and developed a framework for it and conducted a systematic review of precision medicine and public health literature

2018-19 *Re-tooling cost-effectiveness analysis for global health policy relevance: toward a science of comparative strategy evaluation*

- PI: Joshua Salomon
- Conducted qualitative and quantitative review on cost calculation and constructed a typology of implementation factors to be included in the sample cost-effectiveness analysis studies

Other research

2014 *Profile of the Affordable Care Act (ACA) Population: Utilization and Cost*

- Identified patterns in health care utilization and diagnosis among newly insured population in a large insurance company's ACA policies

2011-12 *Overcoming TRAIL-resistance of Ovarian Cancer using TRAIL/HP*

- Conducted *in vitro* and *in vivo* experiments on a new combinatory anti-cancer drug against TRAIL-resistant ovarian cancer

PEER-REVIEWED PUBLICATIONS

1. **Lee K**, Enns EA, Drekonja D. Selecting appropriate antibiotic prophylaxis for trans-rectal prostate biopsy in an era of increasing antimicrobial resistance. *Value in Health*. 2018 Mar;21(3):310-317. doi: 10.1016/j.jval.2017.08.3016. Epub 2017 Oct 18
2. Pollom EL, **Lee K**, Durkee BY, Grade M1, Mokhtari DA, Wahl DR, Feng M, Kothary N, Koong AC, Owens DK, Goldhaber-Fiebert J, Chang DT. Cost-effectiveness of Stereotactic Body Radiation Therapy versus Radiofrequency Ablation for Hepatocellular Carcinoma: A Markov Modeling Study. *Radiology*. 2017 Jan 3:161509. doi: 10.1148/radiol.2016161509
3. Campos NG, Sharma M, Clark A, **Lee K**, Geng F, Regan C, Kim JJ, Resch S. The Health and Economic Impact of Scaling Cervical Cancer Prevention in 50 Low- and Lower-Middle Income Countries. *American Cancer Society report Int J Gynaecol Obstet*. 2017 Jul;138 Suppl 1:47-56. doi: 10.1002/ijgo.12184
4. Campos NG, Tsu V, Jeronimo J, Mvundura M, **Lee K**, Kim JJ. To Expand Coverage, or Increase Frequency: Quantifying the Tradeoffs between Equity and Efficiency Facing Cervical Cancer Screening Programs in Low-Resource Settings. *Int J Cancer*. 2016 Dec 7. doi: 10.1002/ijc.30551.
5. Campos NG, Sharma M, Clark A, **Lee K**, Geng F, Kim JJ, Stephen C. Resch Comprehensive Global Cervical Cancer Prevention Costs and Benefits of Scaling up within a Decade, *American Cancer Society, 2016*
6. Burger EA, **Lee K**, Saraiya M, Thompson TD, Chesson HW, Markowitz LE, Kim JJ. Racial and ethnic disparities in human papillomavirus-associated cancer burden with first-generation and second-generation human papillomavirus vaccines. *Cancer*. 2016 Jul 1;122(13):2057-66. doi: 10.1002/cncr.30007. Epub 2016 Apr 28.
7. Campos NG, Tsu V, Jeronimo J, Mvundura M, **Lee K**, Kim JJ. When and how often to screen for cervical cancer in three low- and middle-income countries: A cost-effectiveness analysis. *Papillomavirus Research.*, 2015 Dec. <https://doi.org/10.1016/j.pvr.2015.05.003>

TEACHING EXPERIENCE

Teaching Assistant

2018 *Analysis of Costs, Risks, and Benefits of Health Care, Stanford University*

- This graduate-level class aimed to introduce how to evaluate risks, costs and benefits of alternative health care technologies and services using a decision analytic framework to students in various backgrounds (medicine, business, health service research, public policy, and engineering)
- Lectured on model implementation in TreeAge software
- Guided student group projects in designing decision-analytic models and supported programming in TreeAge
- Managed class logistics

2017 *Health Care System around the World, Stanford University*

- This undergraduate-level class overviewed the role and structures of health care systems in different countries
- Led weekly TA sessions to review the key points from the lectures of the week and to discuss case studies to facilitate debate under the learning object of the week
- Managed class logistics

CONFERENCE PRESENTATIONS

“Calibration to Cross-sectional Data When Temporal Trends Exists as Exemplified with Heavy Drinking in China”

- 41th Annual North American Meeting of the Society for Medical Decision Making, Portland, OR 2019 (Top Rated Abstract Session)

“Calibration to Cross-sectional Data When Temporal Trends Exists as Exemplified with Heavy Drinking in China”

- 41th Annual North American Meeting of the Society for Medical Decision Making, Portland, OR 2019 (Poster for Student Prize Competition)

“Age- and Time-trend in Harmful Drinking Behavior Among Men in China”

- 41th Annual North American Meeting of the Society for Medical Decision Making, Portland, OR 2019 (Poster)
- Global Health Research Convening, Stanford, CA, 2019 (Poster)

“Net Value Analysis on Health Care Management of Type II Diabetes Patients”

- Annual Meeting on Healthy Aging and Chronic Disease Management in China and India in International Comparison, Beijing, China 2018

“Empirical calibration of a hepatitis C virus (HCV) natural history model in HCV-infected Chinese population”

- 38th Annual North American Meeting of the Society for Medical Decision Making, Vancouver, Canada, 2016 (Poster for Student Prize Competition)

“Comparative study in empirical calibration of a hepatitis C virus (HCV) natural history model in HCV-infected Chinese population with the United States population”

- 7th Asia-Pacific Meeting of International Society for Pharmaco-economics and Outcomes Research., Singapore, 2016 (Poster)

“ Selecting appropriate antibiotic prophylaxis for trans-rectal prostate biopsy in an era of increasing antimicrobial resistance”

- 36th Annual North American Meeting of the Society for Medical Decision Making, Miami, FL, 2014 (Poster)

INVITED TALKS

“Model Calibration and Example of Modeling Heavy Drinking in China”

- China Pharmacoeconomics Conference, Anhui, China, 2019

PROFESSIONAL AND SERVICE ACTIVITIES

Society of Medical Decision Making Annual North American Meeting

2020- Co-chair of Global Health Interest Group

2019 - present Early Career Development Fellow

2018 - present Abstract Reviewer

2015 - present Member

International Society for Pharmacoeconomics and Outcomes Research

2017 - present Manuscript reviewer (Value in Health regional issue)

REFERENCES

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