

JING HAO

100 North Academy Avenue M.C. 44-00

Danville, PA 17822

Email: jhao@geisinger.edu Office: (570)214-2543

EDUCATION

Ph.D. in Public Health Policy and Management with a Minor in Biostatistics and Economics, 2009 –2015

University of Massachusetts Amherst, MA

Quantitative Research Courses: Data Management and Statistical Computing; Advanced Statistical Computing; Intermediate Biostatistics; Principles of Epidemiology; Design and Analysis of Experiment; Health Economics and Reimbursement Methods; Economic Evaluation of Health Care Programs and Services; Mathematics in Economics; Macroeconomics; Econometrics

M.P.H. in Public Health Policy and Management, 2007 –2009

University of Massachusetts Amherst, MA

M.S. in Immunology, 2004 –2007

Shanghai Jiaotong University School of Medicine, Shanghai, China

M.D. in Clinical Medicine 1999 –2004

Shanxi Medical University, Taiyuan, Shanxi Province, China

EXPERTISE SUMMARY

Research Focus:

Health Services Research with a focus on economic evaluations of health services and programs which aim to improve patient outcomes through promoting personalized/precision healthcare. This includes risk-stratified cancer prevention and treatment approach, genome sequencing, and pharmacogenomics.

Research Methods:

Decision analysis modeling and simulation, biostatistics and econometrics methods, by utilizing electronic health records, claims data, both internal and national cost data sources and by systematic review/evidence synthesis

Software Skills:

SAS, TreeAge, Palisades DecisionTools Suite (@Risk), Microsoft Office, Dreamweaver

Datasets Used: Clinical EMR, TSI DSS Clinical Financial Billing Data, Health Insurance Claims, MEPS, Micromedex Red Book, FDA Orange Book, Drug@ FDA;

Dataset Trained: HCUP, TruvenHealth MarketScan

RESEARCH EXPERIENCE

Assistant Professor Department of Epidemiology and Health Services Research, Geisinger Health System, July 2016-present

Research focus: Economic Evaluation of Precision Healthcare

1. Risk-stratified disease prevention and treatment approaches, e.g. cancer
2. Genomic sequencing and pharmacogenomic applications

AcademyHealth Delivery System Science Fellow Health Economics Research and Evaluation (HERE) core, Center for Health Research, Geisinger Health System, Sep 2014-June 2016

Major project areas include:

1. Economic evaluation of risk-stratified cancer screening and treatment approach
 - Project 1: A cost-effectiveness analysis of a biomarker test that predicts risk of malignant progression in Barrett's Esophagus
2. Economic evaluation of genome sequencing and pharmacy innovation
 - Project 2: Economic evaluation of whole genome sequencing and genomic return of results (e.g. BRCA1/2 and Lynch Syndrome)
 - Project 3: Economic evaluation of HLA-B*1502 genotyping in carbamazepine induced Stevens–Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN)
 - Project 4: Impact of Pharmacist-Led Management of Diabetes Mellitus on Patient Outcomes and Cost of Care
3. Cost analysis of health services
 - Project 5: Endoscopic ultrasound and endoscopic retrograde cholangiopancreatography procedures: a comparative cost analysis of tandem and separate procedures

Dissertation School of Public Health and Health Sciences (SPHHS), University of Massachusetts Amherst, Nov, 2013-Feb, 2015

Projects: “Economics of fixed-dose combination drugs approved in the United States”

Research Assistant SPHHS, University of Massachusetts Amherst and Baystate Hospital, Jun 2010 – Sep 2010 & Jun 2011-Sep 2011

Project: “The effect of weight loss on change in mammographic breast density in postmenopausal women”

WORKING PAPERS

Jing Hao, Susan R. Snyder, Rebecca Critchley-Thorne. A Cost-Effectiveness Analysis of a Cancer Risk Prediction Test for Patients with Barrett’s Esophagus (Under revision for resubmission to Clinical Gastroenterology and Hepatology)

Susan R. Snyder, **Jing Hao**, Larisa H. Cavallari, et.al. Generic Economic Evaluation Models for Pharmacogenomics: A Tool to Inform Decision-making for Precision Medicine (Under revision for resubmission to Genetics in Medicine)

Rika Yuliwulandari, Erna Kristin, ... **Jing Hao** et.al. Cost-utility analysis of genotyping for HLA-B*15:02 in Indonesian epilepsy patients using a generic model (manuscript under finalization)

Jing Hao, Daniel D. Maeng, Jove Graham, Michael Bogart and Eric A. Wright. Impact of a Pharmacist-lead Diabetes Management on adherence (manuscript under preparation)

Daniel D. Maeng, Jove Graham, Michael Bogart, **Jing Hao** and Eric A. Wright. Impact of a Pharmacist-lead Diabetes Management on Outcomes, Utilization, and Cost (under preparation for submission to Ann Internal Med)

Daniel Maeng, **Jing Hao**, John Moran, et.al. Employer Selection of High-Deductible Health Plans and Implications for Estimating Healthcare Cost Savings (work in progress)

PUBLICATIONS

Jing Hao, James M. Pitcavage, Jove H. Graham, et.al. Measuring Adherence and Outcome in Treatment of Multiple Sclerosis in a Large Healthcare System. The Journal of the American Osteopathic Association. 2017 (In press)

Hao J, Maeng DD, Yan X, Stewart WF, Boscarino JA. Assessing Healthcare Utilization and Cost of Care Among Rheumatoid Arthritis Patients: A Comparison of Electronic Medical Records and Claims Data. Journal of Health Care Finance. 2017 Jul 10;43(4).

Maeng DD, **Hao J**, Bulger JB. Patterns of multiple Emergency Department visits: Do primary care physicians matter? Perm J. 2017;21. doi: 10.7812/TPP/16-063. Epub 2017 Mar 15. PubMed PMID: 28333606.

Chong HY, Mohamed Z, Tan LL, Wu DBC, Shabaruddin FH, Dahlui M, Apalasy YD, Snyder S, Williams MS, **Hao J**, Cavallari LH, Chaiyakunapruk N. (2017) Is Universal HLA-B*15:02 Screening a Cost-Effective Option in an Ethnically-Diverse Population? A Case Study of Malaysia. Br J Dermatol. 2017 Mar 27. doi:10.1111/bjd.15498. [Epub ahead of print] PubMed PMID: 28346659.

Gai, Y., Feng, L. and **Hao, J.**, 2017. Local Labor Market Condition and Influenza Vaccination. Atlantic Economic Journal, pp.1-19.

Hao J, Rodriguez-Monguio R, Seoane-Vazquez E. Fixed-dose combination and single active ingredient drugs: a comparative cost analysis. Expert Rev Pharmacoecon Outcomes Res. 2016;16(1):127-34. PubMed PMID: 26174631.

Hao J, Rodriguez-Monguio R, Seoane-Vazquez E. Fixed-Dose Combination Drug Approvals, Patents and Market Exclusivities Compared to Single Active Ingredient Pharmaceuticals. PLoS One. 2015 Oct 15;10(10):e0140708. PubMed PMID: 26469277.

Deng S, Xi Y, Wang H, **Hao J**, Niu X, Li W, Tao Y, Chen G. Regulatory effect of Vasoactive Intestinal Peptide on the balance of Treg and Th17 in collagen-induced arthritis. Cell Immunol. 2010; 265(2): 105-10.

Chen G, **Hao J**, Xi Y, Wang W, Wang Z, Li N, et.al. The therapeutic effect of Vasoactive Intestinal Peptide on experimental arthritis is associated with CD4+CD25+ T regulatory cells. *Scand J Immunol*. 2008; 68(6):572-8.

Wang W, Xi Y, Chen G, **Hao J**, Wang B, Shen T, et.al. Effect of Vasoactive Intestinal Peptide on immune privilege of the rat testis. *Journal of Reproduction and Contraception*. 2008; 19(1): 1-8.

Hao J, Chen G, Li W. New biologic therapies in rheumatoid arthritis. Review, *Chinese Journal of Rheumatology*. 2007; 11(2): 111-4. (Article in Chinese)

Wang W, Xi YB, Chen GJ, **Hao J**, Shen TW, Wang BG, et.al. Immunoregulation of Vasoactive Intestinal Peptide on rat Leydig cells. *Chinese Journal of Cellular and Molecular Immunology*. 2007; 23(8):696-700. (Article in Chinese)

Wang B, Wang W, Xi Y, Chen G, **Hao J**, Shen T, et. al. The regulation of FasL in rat Leydig cells expression and of their capacity to mediate Jurkat cell apoptosis by Vasocation Intestinal Peptide. *Chinese Journal of Immunology*. 2007; 23(4): 291-5. (Article in Chinese)

Hao J, Xi Y, Wang W, Wang B, Jiang L, Chen G, Li W. Vasoactive Intestinal Peptide inhibits the development of experimental arthritis. *Current Immunology*. 2007; 26(6): 483-7. (Article in Chinese)

CONFERENCE PRESENTATIONS (Presenters are underlined)

Jing Hao, Susan Snyder. Poster presentation. “Generic cost-effectiveness analysis models as a precision medicine decisionmaking tool: a case example”. ISPOR, May 23rd, 2017. Boston, MA

Dina Hassen, Susan Snyder, Steven Chang, **Jing Hao**, Michael Singer, Arti Bhan. Poster presentation. “Can Thyroid Cancer Overdiagnosis, Overtreatment and Costs be Reduced by Following Guidelines?” Health Care System Research Network (HCSRN) Annual Conference, March 22nd, 2017. San Diego, CA

Susan R. Snyder, **Jing Hao**, Zhi Geng and Marc S. Williams. Poster presentation. “Precision Medicine Decisionmaking Tool: Generic Cost-Effectiveness Analysis Models”. HCSRN, March 22nd, 2017. San Diego, CA

Jing Hao, Susan Snyder, Rebecca Critchley-Thorne. Poster presentation. “A cost-effectiveness analysis of a test that predicts risk of malignant progression in Barrett's Esophagus”. HCSRN, March 22nd, 2017. San Diego, CA

David Diehl, **Jing Hao**, Zhi Geng, Daniel Maeng, Susan Snyder. Poster presentation “Endoscopic Ultrasound and Endoscopic Retrograde Cholangiopancreatography on the Same Patient: A Comparative Cost Analysis of Tandem and Separate Procedures” American College of Gastroenterology 81st Annual Meeting, October 18th, 2016, Las Vegas, Nevada.

Snyder S, Leeming R, **Hao J**, Rahm A, Geng Z et.al. Poster presentation: “High Risk Breast Clinic –A New Evidence-Based Model for Cancer Risk Assessment and Screening”. Enhancing Patient- and Family-Centered Care through Learning, Discovery and Engagement:

A Symposium, June 14th, 2016, Danville, PA

Jing Hao, Susan Snyder, Rebecca Critchley-Thorne. Podium presentation: “A cost-effectiveness analysis of a test that predicts risk of malignant progression in Barrett's Esophagus” Research Podium Presentations-Session II: Cancer Outcomes Studies. ISPOR, May 23rd, 2016. Washington DC

Jing Hao, Susan Snyder, Rebecca Critchley-Thorne. Poster presentation: “A Cost-Effectiveness Analysis of a Cancer Risk Prediction Test for Patients with Barrett's Esophagus”. Digestive Disease Week (DDW) 2016, May 21, 2016, San Diego, CA

Jing Hao, Tullika Garg, Susan R. Snyder, Amanda J. Young, H. Lester Kirchner. Poster presentation: “Cost-Minimization Analysis of Risk-Stratified Hematuria Evaluation”. Health Care System Research Network (HCSRN) Annual Conference, April 14th, 2016, Atlanta, GA

Daniel Maeng, **Jing Hao**, John Bulger. Poster presentation: “Patterns of Multiple Emergency Department Visits: a Discretionary Care Seeking Behavior?” HCSRN Annual Conference, April 14th, 2016, Atlanta, GA

Snyder S, Leeming R, Rahm A, **Hao J**, et.al. Oral presentation: “High Risk Breast Cancer Clinic - A New Risk-Stratified, Evidence-Based and Efficient Patient Care Model”. HCSRN Annual Conference, April 14th, 2016, Atlanta, GA

Leeming R, Maney E, Fan A, Rocha H, Koenig J, Rahm A, Snyder S, **Hao J**, et.al. Poster presentation: “Evaluation and Risk Assessment for Breast Cancer: A Integrated Health System Approach”. America Society of Breast Surgeons (ASBS) Annual Meeting 2016. April 13-17th, 2016. Dallas, Texas

Jing Hao, Susan Snyder, Steve Chang, Farzan Siddiqui, Jonathan Bock, James Pitcavage et.al. Poster presentation: “Using systematic review and decision modeling to fill gaps in evidence: Application to Positron Emission Tomography (PET) scan use in post-treatment Squamous cell carcinoma of the oropharynx (SCOOP)”. HMO Research Network Annual Conference, March 11th, 2015, Long Beach, CA

Wayne Psek, **Jing Hao**, James Pitcavage. Oral presentation: “Comparison of organizational context across HMORN sites”, HMO Research Network Conference, March 12th, 2015, Long Beach, CA

Jing Hao, Jove H. Graham, James M. Pitcavage, Carl R. Hoegerl, J.B. Jones, Scott R. Taylor, Ashley M. Ryman. Poster presentation: “Measuring adherence and outcome in treatment of multiple sclerosis in the Geisinger Clinic”, ISPOR, May 20th, 2015, Philadelphia, PA

Jing Hao, Rosa Rodriguez-Monguio, Enrique Seoane-Vazquez. Poster presentation: “Analysis of combination drugs approved in the US from 1980 to 2010”. Public Health System Research Interest Group Meeting, AcademyHealth Annual Research Meeting. June 25th, 2013, Baltimore, MD

Jing Hao, Rosa Rodriguez-Monguio, Enrique Seoane-Vazquez. Accepted for Short-oral presentation (but didn't attend): “Analysis of combination drugs approved in the US from 1980 to 2010”. International Health Economics Association 9th World Congress. July, 2013, Sydney, Australia

Jing Hao, Rosa Rodriguez-Monguio, Enrique Seoane-Vazquez. Oral presentation: “Public Health and Economics of Combination drug- A review of literature”. American Public Health Association Annual Meeting. October 30, 2012, San Francisco, CA

Jing Hao, Rosa Rodriguez-Monguio, Enrique Seoane-Vazquez, Rongheng Lin. Oral presentation: “Exploring the Relationship between Drug Patent Life and Drug Approvals”. American Public Health Association Annual Meeting. October 31, 2011, Washington DC.

Jing Hao, Rosa Rodriguez-Monguio, Enrique Seoane-Vazquez. Poster Presentation: “Analysis of the generic drugs Approved by the US FDA between 1980 and 2009.” Westlake Forum III: Healthcare Reform in China and the US: Similarities, Differences and Challenges. April 10, 2011, Atlanta, GA

Jing Hao, Rosa Rodriguez-Monguio, Enrique Seoane-Vazquez. Poster Presentation: “Analysis of the generic drugs Approved by the US FDA between 1980 and 2009.” American Public Health Association Annual Meeting, November 8, 2010, Denver, CO

INVITED TALKS

Jing Hao. “A Cost-Effectiveness Analysis of an Adenocarcinoma Risk Prediction Biomarker Test for Patients with Barrett’s Esophagus”. Department of Epidemiology and Health Services Research, Geisinger Health System. May 8th, 2017. Danville, PA

Jing Hao. “Economic Evaluation of Precision Healthcare – Case Examples”. Geisinger Health System. July 18th, 2016. Danville, PA

Jing Hao. “Economic Evaluation of Risk Stratified Cancer Prevention Approach- Case Examples”. American Cancer Society. April 28th, 2016. Via webinar.

GRANTS

Current Projects

1. Project: Rational Integration of Clinical Sequencing (RISE)
Aims: To understand the impact of drivers of economic value in genomic screening, assess the impact of real-world use data on genomic screening policy implications, and identify key evidence gaps and research priorities in genomic screening.

Grant & amount: NIH R01

Time Period: August, 2017-July, 2021; Role: Co-Investigator (PI: Peterson, Josh)

2. Project: Implementing Universal Lynch Syndrome Screening Across Multiple Healthcare Systems: Identifying Strategies to Facilitate and Maintain Programs in Different Organization Contexts

Grant & Amount: NIH R01

Time Period: August, 2017-July, 2022; Role: Co-Investigator (PI: Rahm, Alanna)

3. Project: Economic Outcomes of Genomic Return of Results to MyCode® Participants.

Grant & Amount: Geisinger Large Internal Research Grant, \$95,867

Time period: April, 2015-March, 2018; Role: Co-Investigator (PI: Snyder, Susan)

4. Project: Economic and health outcomes associated with pre-eclampsia and benefits of a new diagnostic test

Grant & Amount: Progenity, Inc, \$258,512

Time period: April, 2017- October, 2018; Role: Co-Investigator (PI: Snyder, Susan)

Completed Projects

1. Project: Development of an Operational Decision Support Tool for Biologic Pharmaceutical Use in Chronic Disease Management

Grant and Amount: Georgia Tech-Geisinger Health System Seed Grant, \$99,932

Time period: September, 2016-June, 2017; Role: Co-Investigator (PI: Seth Hostetler)

2. Project: Impact of Pharmacist-Led Management of Diabetes Mellitus on Patient Outcomes and Cost of Care

Grant & Amount: GlaxoSmithKline, \$187,000

Time period: June, 2015-December, 2016; Role: Co-Investigator (PI: Maeng, Daniel)

3. Project: A cost-effectiveness analysis of a test that predicts risk of malignant progression in Barrett's Esophagus

Grant & Amount: Cernostics Inc, \$33,755

Time period: July, 2016-November, 2016; Role: Co-Investigator (PI: Snyder, Susan)

4. Project: Economic evaluation of HLA-B*1502 genotyping in carbamazepine induced Stevens–Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN)

Grant & Amount: NIH U01 GM007269

Time period: October, 2014-April, 2016; Role: Key Personnel (Site PI: Williams, Marc)

5. Project: Endoscopic ultrasound (EUS) and endoscopic retrograde cholangiopancreatography (ERCP) procedures: a comparative cost analysis of tandem and separate procedures

Grant & Amount: Geisinger Small Internal Research Grant, \$19,934

Time period: June, 2015-May, 2016; Role: PI

TEACHING EXPERIENCES

Guest Lecturer, Research Method Course, Clinical Research Program, Geisinger Health System. Lecture topic: “Cost Effectiveness / Decision Analysis” April 2017

Teaching Assistant, SPHHS. University of Massachusetts Amherst

Course: “Capstone course (PUBHLTH 490B)” Jan 2014 – May 2014

Course: “Human nutrition and performance (KIN110)” Sep 2010 – Dec 2010

Guest Lecturer, SPHHS. University of Massachusetts Amherst, March 2011

Course: “Introduction to Health Economics (PUBHLTH 490C)”

Teaching Assistant. School of Nursing, University of Massachusetts Amherst, Sep 2008 – Jan 2009. Course: “Maternal-newborn nursing” and “Nursing care of children” (NURSING325&326)

AWARDS AND HONORS

Early Career Investigator Award 2017, Health Care System Research Network (HCSRN)

Volunteer of the Year Award 2016, China Health Policy and Management Society (CHPAMS)

New Investigator Research Presentation Award finalist 2016, International Society of Pharmacoeconomics and Outcome Research (ISPOR) 21st Annual International Meeting

Public Health System Research (PHSR) Student Scholarship 2013 from AcademyHealth and the Robert Wood Johnson Foundation (Mentor: Dennis Ross-Degnan, Sc.D.)

American Public Health Association Medical Care Section Student Presentation Award 2012, American Public Health Association

Westlake Youth Forum Fellowship 2012, China Medical Board (CMB) and Zhejiang University

Westlake Forum III Travel Expenses Scholarship 2011

University Scholarship for Outstanding Student 2006, Shanghai Jiaotong University School of Medicine

University Scholarship for Outstanding Student 2000, 2001 & 2002, Shanxi Medical University

REFEREE SERVICES

Referee Service (*numbers in parentheses indicate the year and the number of manuscripts/abstracts reviewed):

Value in Health (2017)

Dove Medical Press:

ClinicoEconomics and Outcomes Research (2017:4)

Pharmacogenomics and Personalized Medicine (2017)

Patient Preference and Adherence (2017:1)

Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy (2017:1)

The Journal of Health Care Organization, Provision, and Financing (INQUIRY) (2017:1)

IEEE Journal of Biomedical and Health Informatics (2017:1)

BMC Health Services Research (2015:1; 2016:9)

Puerto Rico Health Sciences Journal (2017:1)

Research Abstract Review Committee, Health Care System Research Network (HCSRN) (2015: 10)

International Society of Pharmacoeconomics and Outcome Research (ISPOR) Annual International Meeting:

Issue Panel Review Committee (2016: 12)
Research Abstract Review Committee (2017:15)
Research Abstract Congress Review Committee, ISPOR Annual European Congress
(2016: 18; 2017:21)

PROFESSIONAL SERVICES

Delivery System Science Fellowship (DSSF) Applicant Review Committee,
AcademyHealth, 2017

Serve to Coordinate/Steer the Departmental “Work in Progress” Seminars, Department
of Epidemiology and Health Services Research, Geisinger Health System

Member, Health Care System Research Network (HCSRN) Head and Neck Cancer
Scientific Interest Group, 2014-present

Member of the Reviewer Group, Oncology Health Economic Modeling - Post-Progression
Working Group, ISPOR, 2016-present

Member of the Reviewer Group, Precision Medicine: Assessing the Value Working Group,
ISPOR, 2016-present

Moderator Health Services, Health Policy and Cost concurrent session, 2016 Health Care
System Research Network (HCSRN) Annual Conference

Planning Committee Member China Health Policy and Management Society (CHPAMS),
2010-present

Editor CHPAMS monthly newsletter, 2012-2016

Interviewer China Health Review, CHPAMS, 2012

Panelist SPHHS, Health Policy and Management Doctoral Seminar Series, Nov 2013

Session Discussant Westlake Youth Forum 2012, Hangzhou, China Aug 2012

Session Interpreter Westlake Forum III: Healthcare Reform in China and the US: Similarities,
Differences and Challenges. Atlanta, GA, April 2011

PROFESSIONAL AFFILIATIONS

International Society of Pharmacoeconomics and Outcome Research (ISPOR), 2015-Present

Health Care System Research Network (HCSRN), 2014-Present

AcademyHealth, 2010 – Present

China Health Policy and Management Society (CHPAMS), 2009 – Present

American Public Health Association (APHA), 2009 – 2014