

Kai Yeung

PharmD, PhD

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Kai.Yeung@kp.org

ACADEMIC POSITIONS

Assistant Scientific Investigator Kaiser Permanente Washington Health Research Institute (Formerly Group Health Research Institute)	Sept 2016- Present Seattle, WA
Affiliate Assistant Professor School of Pharmacy, University Washington	June 2017- Present Seattle, WA

EDUCATION & LICENSURE

Doctor of Philosophy in Pharmaceutical Outcomes Research & Policy University Washington Dissertation title: Does Cost-Effectiveness Analysis Have a Role in US Managed Care Drug Formularies? Empirical Study of Utilization, Costs, Outcomes and Elasticity in a Value-Based Formulary Dissertation Committee: Sean Sullivan (chair), Anirban Basu, Ryan Hansen and John Watkins	Dec 2015 Seattle, WA
Doctor of Pharmacy University of Southern California	May 2011 Los Angeles, CA
Masters of Science in Biology University of California, San Diego	Feb 2005 La Jolla, CA
Bachelors of Science in Biology University of California, San Diego	Jun 2003 La Jolla, CA
Pharmacist License California Lic.#: RPH 66494 Washington Lic.#: PH 60231957	

HONORS & AWARDS

Best Paper of the Year Journal of Managed Care & Specialty Pharmacy	April 2018
Best Paper Challenge Prize: First Place American Journal of Managed Care and Patient Access Network Challenge	Jan 2017
Best Student Paper of the Year Vancouver Health Economics Methodology (VanHEM) Annual Meeting	June 2016

Honorable Mention Best Paper of the Year Journal of Managed Care & Specialty Pharmacy	April 2016
Best Student Podium Presentation International Society for Pharmacoeconomics and Outcomes Research	May 2015
Best Student Podium Presentation International Society for Pharmacoeconomics and Outcomes Research	June 2014
Bayer Endowed Academic Scholarship University of Washington	Sept 2011-June 2013
Best Student Poster Presentation Academy of Managed Care Pharmacists National Conference	Apr 2011
Jack Logan Converse Pharmacy Scholarship University of California School of Pharmacy	Oct 2010
Best Pharmaceutical Industry Marketing & Development Plan University of California School of Pharmacy	May 2010
University of Southern California Scholar University of California School of Pharmacy	Sept 2008- May 2010
USA Funds Access to Education Scholarship University of California School of Pharmacy	Sept 2007- May 2009
Rho Chi Academic Honor Society University of California School of Pharmacy	Mar 2009
Who's Who Among Young Professionals Cambridge, UK	May 2008
Phi Kappa Phi Honor Society University of Southern California	Jan 2008
Charles W. Patrick Scholarship San Diego City College Awarded in recognition of service to the community	May 2007
Richard and Eloise Johnston Health Services Scholarship San Diego Mesa College Awarded in recognition of interest and potential as a Pharmacist	May 2007
Provost's Honors University of California, San Diego Awarded in recognition for nine quarters of GPA of 3.5 or higher	Jan 2000 –June 2003

PUBLICATIONS

1. **Yeung K**, Suh K, Garrison LP Jr, Carlson JJ. Defining and Managing High-Priced Cures: Healthcare Payers' Opinions. [In press].
2. Khilfeh I, Guyette E, Watkins J, Danielson D, Gross D, **Yeung K**. Adherence, Persistence, and Expenditures for High Cost Anti-Inflammatory Drugs in Rheumatoid Arthritis: An Exploratory Study. JMCP. [In press].
3. **Yeung K**, Basu A, Hansen RN, Sullivan SD. Price elasticities of pharmaceuticals in a value-based-formulary setting. Health Econ. [In press] 2018.
(Best Paper-Vancouver Health Economics Methodology Annual Meeting)
4. **Yeung K**, Meng L, Carlson JJ Performance-Based Risk Sharing Schemes to Address Indication-Specific Uncertainty in Value Based. J Manag Care Spec Pharm. 2017 Oct; 23(10):1010-1015.
(Best Paper of the Year)
5. **Yeung K**, Suh K, Basu A, Garrison LP, Bansal A, Carlson JJ. Paying for Cures: How Can We Afford It? Managed Care Pharmacy Stakeholders' Perceptions of Policy Options to Address Affordability of Prescription Drugs. J Manag Care Spec Pharm. 2017 Oct;23(10):1084-1090.
6. **Yeung K**, Basu A, Marcum Z, Watkins JB, Sullivan SD. Impact of a Value-Based Formulary in Three Chronic Disease Cohorts. Am J Manag Care. 2017 March; 23(3 Suppl):S46-S53.
(Challenge Prize Winner)
7. Jelačić S, Craddick K, **Yeung K**, Bounthavong M, Nair B, Kusolos D, Bowdle A. Relative Costs of Anesthesiologist Prepared, Hospital Pharmacy Prepared and Outsourced Anesthesia Drugs. J Clin Anesth. 2017 Feb;36:178-183.
8. **Yeung K**, Basu A, Hansen RN, Watkins JB, Sullivan SD. Impact of a value-based formulary on medication utilization, health services utilization, and expenditures. Med Care. 2017 Feb;55(2):191-198.
9. Sullivan SD, **Yeung K**, Vogeler C, Ramsey SD, Wong E, Murphy CO, Danielson D, Veenstra DL, Garrison LP, Burke W, Watkins JB. Design, implementation, and first-year outcomes of a value-based drug formulary. JMCP. 2015 Apr;21(4):269-75.
(Honorable Mention Best Paper of the Year)
10. Carlson JJ, Gries KS, **Yeung K**, Sullivan SD, Garrison LP Jr. Current status and trends in performance-based risk-sharing arrangements between healthcare payers and medical product manufacturers. Appl Health Econ Health Policy. 2014 Jun;12(3):231-8.
11. Gold LS, **Yeung K**, Smith N, Allen-Ramey FC, Nathan RA, Sullivan SD. Asthma control, cost and race: results from a national survey. J Asthma. 2013 Sep;50(7):783-90.
12. Vo AA, Petrozzino J, **Yeung K**, Sinha A, Kahwaji J, Peng A, Villicana R, Mackowiak J, Jordan SC. Efficacy, outcomes, and cost-effectiveness of desensitization using IVIG and rituximab. Transplantation. 2013 Mar 27;95(6):852-8.
13. Littlejohns P, **Yeung K**, Clark S, Weale A. A proposal for a new social values research program and policy network. J Health Organ Manag. 2012;26(3):407-21.
14. **Yeung K**, Carlson JJ. Clinical and economic review of erlotinib in non-small-cell lung cancer. Expert Rev Pharmacoecon Outcomes Res. 2012 Aug;12(4):411-23.

15. **Yeung K.** Using AHRQ's evidence-based reports to improve managed care pharmacy practice: oral antidiabetic agents. *J Manag Care Pharm.* 2011 Oct;17(8):641-9.
16. **Yeung K,** Miller JS, Savage AE, Husband BC, Igit B, Kohn JR. Association of Ploidy and Sexual System in *Lycium californicum*. *Evolution.* 2005; 59(9):2048-2055.

MANUSCRIPTS UNDER REVIEW

Yeung K, Morgan S. Should National Pharmacare Apply a Value-based Insurance Design?

Banegas MP, Rivera DR, O'Keeffe-Rosetti MC, Carroll NM, Pawloski PA, Tabano DC, Epstein MM, **Yeung K,** Hornbrook MC, Lu C, Ritzwoller DP. Long-term patterns of oral anti-cancer agent adoption, duration and switching in patients with CML

GRANTS

Funder: The Donaghue Medical Research Foundation

PI: Kai Yeung, PharmD, PhD

Role: Principal Investigator

Dates: 07/1/19-6/30/21

Title: Value-based Formulary-Essentials: Testing and Expanding on Value in Prescription Drug Benefit Design

Goal: To test a promising drug formulary that aligns patient out-of-pocket costs for drugs with the drugs' estimated value. We aim to evaluate the impact of the formulary on medication use, spending and other healthcare utilization.

Funding: \$400,000

Funder: Kaiser Permanente Washington Health Research Institute Development Fund

PI: Kai Yeung, PharmD, PhD

Role: Principal Investigator

Dates: 01/15/18-12/31/18

Title: Impact of Medicare Transitions in the WA-All Payer Claims Dataset

Goal: To generate preliminary evidence that targets the gaps in our understanding about the benefits and harms of Medicare transitions by characterizing the direction and magnitude of changes in medical and pharmacy benefits and provider networks that occur as a result of Medicare eligibility

Funding: \$100,000

Funder: Laura and John Arnold Foundation

PI: Kai Yeung, PharmD, PhD

Role: Principal Investigator

Dates: 07/1/18-07/31/20

Title: Aligning Patient and Health Plan Incentives to Improve Value in Pharmaceutical Care: a Patient Shared Savings Model

Goal: To evaluate the impact of the real-world implementation of a patient shared savings program and its ability to address the use of higher value medications

Funding: \$511,000

Funder: Robert Wood Johnson Foundation

PI: Kai Yeung, PharmD, PhD; Anirban Basu PhD

Role: Co-Principal Investigator

Dates: 01/15/18-1/14/19

Title: Improving Access and Reducing Financial Burden for Patients on Specialty Drugs

- Goal: To investigate the economic impact of state-mandated limits on out-of-pocket cost sharing for specialty drugs
 Funding: \$150,000
- Funder: Biologics & Biosimilars Collective Intelligence Consortium
 PI: Jeffrey Brown, PhD
 Role: Site Principal Investigator
 Dates: 09/1/17-08/1/19
 Title: Biologics & Biosimilars Collective Intelligence Consortium Infrastructure and Task Orders
 Goal: To develop data infrastructure for comparative effectiveness and safety research on biologics and biosimilars using a multi-center distributed data model
 Funding: \$60,000
- Funder: Group Health Research Institute Development Fund
 PI: Kai Yeung, PharmD, PhD
 Role: Principal Investigator
 Dates: 01/1/17-12/31/17
 Title: Building a Cost Effectiveness Analysis and Modelling Resource for Group Health Research Institute
 Goal: Develop a Group Health biostatistician in cost-effectiveness and modelling methods to increase capacity for health economic research
 Funding: \$50,000
- Funder: Group Health Research Institute Development Fund
 PI: Beverly Green, MD, MPH
 Role: Co-investigator
 Dates: 04/1/17-12/31/17
 Title: BP-CHECK Automated Office BP Measurements 2017 Development Fund Proposal
 Goal: To compare the cost- effectiveness of usual clinic BP, home BP, kiosk BP, automated office BPs, and 24 hour automated BP for diagnosis of hypertension
 Funding: \$30,000
- Funder: University of Washington, Program in Policy Research for Health Technologies
 PI: Louis Garrison, PhD
 Role: Post-doctoral Fellow
 Dates: 07/1/15-8/30/16
 Title: Paying for Cures and Other High-Cost, Breakthrough Treatments: Value, Affordability, Financing, and Policy Challenges
 Goal: To evaluate policy options to address the challenges of financing high cost, breakthrough interventions within health systems oriented to paying for chronic and low cost acute treatments
 Funding: \$450,000
- Funder: Agency for Healthcare Research and Quality
 PI: Kai Yeung, PharmD
 Role: Principal Investigator
 Dates: 07/1/14-6/30/15
 Title: R36 HS23346-01A1: Incentivizing Value in Managed Care Plans: Impact of a Value-Based Formulary
 Goal: To evaluate the impact of a Value-Based Formulary on medication utilization, health services utilization, and expenditures.
 Funding: \$40,000
- Funder: NIH, National Center for Advancing Translational Sciences
 PI: Mary L. (Nora) Disis, MD
 Role: Trainee

Dates: 07/1/13-6/30/14
 Title: TL1TR000422: Institute of Translational Sciences Pre-doctoral Training Program
 Goal: Intensive didactic coursework and mentored training in health economic methods.
 Role: Trainee
 Funding: \$69,000

Funder: The Merck Foundation
 PI: Sean Sullivan, PhD
 Role: Trainee
 Dates: 06/12/12-6/21/13
 Title: Association of asthma control, cost and race
 Goal: To investigate whether partly and uncontrolled asthmas are associated with increased costs for asthma-related healthcare utilization compared to well-controlled asthma and to determine whether these associations differed across racial groups.
 Funding: \$200,000

Funder: University of Washington
 PI: Sean Sullivan, PhD
 Role: Trainee
 Dates: 09/12/11-6/21/12
 Title: Performance-Based Risk-Sharing Arrangements between Healthcare Payers and Medical Product Manufacturers
 Goal: To identify and characterize publicly available cases and related trends for performance-based arrangements.
 Funding: \$72,000

Funder: University of California Graduate Student Research Grant
 PI: Kai Yeung, BS
 Role: Principal Investigator
 Dates: 01/01/2004-12/31/2004
 Title: Gender and Ploidy in Lycium
 Goal: To evaluate the association of chromosome number on self-incompatibility mechanisms in Lycium californicum
 Funding: \$1,500

Funder: National Science Foundation Undergraduate Research Grant
 PI: Joshua Kohn, PhD
 Role: Trainee
 Dates: 05/15/2002-9/15/2002
 Title: Evolution of self-incompatibility in Solanaceae
 Goal: To assess the evolutionary diversity of the self-incompatibility gene in the Solanaceae family
 Funding: \$6,500

PODIUM PRESENTATIONS

- Yeung K.** Impact of a Value-Based Formulary in Three Chronic Disease Cohorts
 American Journal of Managed Care Cost-Sharing Roundtable-Washington DC
(PAN Challenge Prize Winner) Feb 2017
- Yeung K.** Implications of a Value-Based-Formulary for Healthcare Policy Makers
 Washington State Prescription Drug Price and Purchasing Summit June 2016
- Yeung K, Basu A, Hansen RN, Sullivan SD.** Price Elasticities of Pharmaceuticals
 in a Value-Based-Formulary Setting June 2016
 Vancouver Health Economics Methodology (VanHEM) Annual Meeting

(Best student paper award)

Yeung K, McElwee N, Watkins J, Drummond M. Paying for Cures—How We Can Afford It? April 2016
Academy of Managed Care Pharmacy Annual Meeting

Yeung K, Basu A, Hansen RN, Watkins J, Sullivan SD. Application of Cost-Effectiveness Logic May 2015
to US Managed Care Drug Formularies: Long Term Outcomes of a Value-Based Formulary.

International Society for Pharmacoeconomics and Outcomes Research Annual Meeting

(Best student podium presentation award)

Yeung K. Pharmacoeconomic Modeling: Applying Value to Formulary Management. April 2015
Academy of Managed Care Pharmacy Annual Meeting

Yeung K, Sullivan SD, Vogeler C, Ramsey SD, Wong E, Murphy CO, Danielson D, June 2014
Veenstra DL, Garrison LP, Burke W, Watkins JB. Incentivizing value in managed care
drug formularies: design, implementation, and first-year outcomes of a value-based formulary.

International Society for Pharmacoeconomics and Outcomes Research Annual Meeting

(Best student podium presentation award)**POSTERS**

Suh K, Basu A, **Yeung K**, Bansal A, Garrison LP, Carson JJ. May 2017
Health impact framework for cures and high impact medical technologies
International Society for Pharmacoeconomics and Outcomes Research Annual Meeting

Carlson JJ, Bansal A, Suh K, **Yeung K**, Garrison LP, Basu A. May 2017
Health impact framework for cures and high impact medical technologies
International Society for Pharmacoeconomics and Outcomes Research Annual Meeting

Yeung K, Kho T, Watkins JB. April 2016
Systematic review of economic evidence grading systems: a payers' perspective.
Academy of Managed Care Pharmacy 28th Annual Meeting

Pistoresi RH, **Yeung K**, Danielson D, Watkins JB, Sullivan SD. April 2015
An Analysis of the Decisions for a Value-based Formulary against its ICER Threshold Guidelines
Academy of Managed Care Pharmacy 27th Annual Meeting

Yeung K, Sullivan SD, Vogeler C, Ramsey SD, Wong E, Murphy CO, Danielson D April 2014
Veenstra DL, Garrison LP, Burke W, Watkins JB.
Improving the Value of Prescription Drug Insurance.
Translational Science 2014 Annual Meeting

Yeung K, Gong C. Cost-utility analysis of enzalutamide vs. abiraterone for May 2013
the treatment of docetaxel refractory metastatic castrate resistant prostate cancer.
International Society for Pharmacoeconomics and Outcomes Research Annual Meeting

Yeung K, Hay J. Cost-utility analysis of romiplostim versus splenectomy in the treatment April 2011
of chronic refractory immune thrombocytopenic purpura. **(Best student poster award)**
Academy of Managed Care Pharmacy 23rd Annual Meeting

Yeung K, Robinson M, Kowalski J. April 2009
The Impact of Geographic Atrophy on Managed Care Organizations.
Academy of Managed Care Pharmacy Educational Conference

Yeung K.
 NP/PA Clinics: Opportunity or Obstacle to the Future of Pharmacy?
 California Society of Health System Pharmacy Annual Conference

May 2008

POLICY BRIEFS

Yeung K, Basu A.
 Health Policy Options for Washington State: Value-Based Insurance Design.
 Washington State Office of the Insurance Commissioner

June 2017

Past Professional Positions

Post-doctoral Research Fellow
Pharmaceutical Outcomes Research & Policy, University Washington

Sept 2015- Sept 2016
 Seattle, WA

Predocloral Research Associate
Pharmaceutical Outcomes Research & Policy, University Washington

Sept 2011- Aug 2015
 Seattle, WA

Cost-Effectiveness Registry Reader
Tufts Medical Center Institute for Clinical Research and Health Policy Studies

Mar 2010- June 2013
 Boston, MA

Visiting Researcher
National Institute for Health and Clinical Excellence

May 2011- Aug 2011
 London, UK

Research Intern
The Food and Drug Administration

Mar 2011- May 2011
 Silver Spring, MD

Program Analyst
Agency for Healthcare Research and Quality

June 2010- Aug 2010
 Rockville, MD

AMCP/FMCP/Allergan Specialized Health Outcomes Summer Intern
Allergan Global Health Outcomes Strategy and Research
Wellpoint Clinical Analytic Strategies

June 2009- Aug 2009
 Irvine, CA
 West Hills, CA

Marketing Research Consultant
OrthoAlign Inc.

Oct 2009- July 2010
 Aliso Viejo, CA

Drug Information/Pharmacy Outcomes Research Intern
Kaiser Permanente

Jan 2008- July 2010
 Downey, CA

Volunteer Consultation Pharmacy Intern
Weingart Medical Clinic/ LA County Hospital Liver Clinic

Dec 2008- May 2008
 Los Angeles, CA

Research Assistant
Broad Center for Regenerative Medicine

May 2008- Aug 2008
 Los Angeles, CA

Research Associate
University of California San Diego

Jul 2003- Feb 2005
 La Jolla, CA

TEACHING EXPERIENCE

Course Instructor for PhD Independent Study (Elizabeth Brouwer) University of Washington, Seattle	June 2018- Dec 2018
Guest Lecturer for Special Studies in Managed Care Pharmacy University of Washington, Seattle	Oct 2018
Guest Lecturer for Special Studies in Managed Care Pharmacy University of Washington, Seattle	Oct 2018
Guest Lecturer for Special Studies in Managed Care Pharmacy University of Washington, Seattle	Oct 2017
Guest Lecturer for Clinical and Economic Evaluation in Managed Care Pharmacy University of Washington, Seattle	Jan 2015
Guest Lecturer for Special Studies in Managed Care Pharmacy University of Washington, Seattle	Oct 2014
Teaching Assistant for Health Economics & Outcomes Research Program University of Washington, Seattle	Jan 2013-June 2013
Teaching Assistant for Upper Division Biology University of California, San Diego	Feb 2004- Jun 2004 La Jolla, CA
Mentor University of Washington - Ryan Pistorisi (PharmD/MS student) - Tania Kho (PharmD student) - Ibrahim Khilfeh (PharmD student) - Elizabeth Brouwer (PhD student-dissertation committee member)	Sept 2013- Present Seattle, WA
Kaiser Permanente Washington Health Research Institute - Katrina Zywiec (PharmD resident)	Nov 2017- July 2018 Seattle, WA

ACADEMIC SERVICE

Peer reviewer- Annals of Internal Medicine	2018– Present
Peer reviewer- Health Affairs	2018– Present
Research advisory board member- Academy of Managed Care & Specialty Pharmacy	2018– Present
Faculty search committee Kaiser Permanente Washington Health Research Institute	2017– 2018
Editorial advisory board member- Journal of Managed Care & Specialty Pharmacy	2015– 2018

President- ISPOR Student Chapter
University of Washington

2014– 2015

Peer reviewer- Journal of Managed Care Pharmacy
 High quality peer-reviewer award 2015, 2016, 2018

2011– Present

Admissions committee- Pharmaceutical Outcomes Research and Policy Program
University of Washington

2012– 2013

PROFESSIONAL MEMBERSHIPS

AcademyHealth
 Academy of Managed Care Pharmacy
 American Association of Colleges of Pharmacy
 American Society of Health Economists
 International Society for Pharmacoeconomics and Outcomes Research
 Society for Medical Decision Making

CLINICAL EXPERIENCES

Pharmacist

June 2012- Jan 2016

Kelly Ross Pharmacy

Seattle, WA

- Optimized patient outcomes through drug utilization reviews using PharmaServ® computer systems
- Educated patients on appropriate drug usage through patient counseling sessions
- Ensured drug safety and quality through final verification via Pharmacy 2000™ computer systems

Cedars Sinai Medical Center

Nov 2010 - Mar2011

Acute Care (Cardiology)/ Pediatrics/ Renal Transplantation

Los Angeles, CA

Preceptor Names: Daniel Park, Pharm. D., Grace So, Pharm. D., Ashley Vo, Pharm. D.

Level: Advanced

Type: Institutional / Clinical

- Experiential training at a 950 bed non-profit medical institution
- **Acute care (cardiology):** assisted interdisciplinary team in the medical management of decompensated heart failure, pre- and post-op heart transplant recipients
- **Pediatrics:** provided care to pediatrics general medicine and neonatal ICU patients
- **Renal transplantation:** provided care to pre- and post-op renal transplant recipients with training in IVIG-based desensitization protocol, induction and maintenance therapy, anti-infective prophylaxis, treatment of antibody and cellular mediated rejection, and participation in pathology grand rounds

USC Norris Comprehensive Cancer Center

Sept 2010 - Nov2010

Preceptor Name: Betty Chan, Pharm. D.

Los Angeles, CA

Level: Advanced

Type: Ambulatory Care / Clinical

- Experiential training at an oncology infusion and warfarin anticoagulation clinic. Duties included management of the anticoagulation needs of all patients referred to the clinic. Verification of chemotherapy orders, IV admixture preparation, patient consultation and education of chemotherapy regimen, drug administration and side effect management.

Kaiser Permanente Outpatient Pharmacy

Aug 2010 - Sept2010

Preceptor Name: Lily Do, Pharm. D.

Downey, CA

Level: Advanced

Type: Outpatient

- Experiential training in patient consultation, extemporaneous compounding, medication therapy management, inventory control, prescription verification, and management.

Community Pharmacy Intern

Oct 2008- Sept 2010

Rite-Aid Pharmacy

Pasadena, CA

- Communicated with healthcare professionals and insurance companies to ensure accurate patient information, appropriate dosing and medication selection and coverage for optimal patient safety and care
- Entered patient data into computer system, prepared and dispensed products and medications accurately
- Provided customer service in a fast-paced environment

Children's Hospital Los Angeles

Oct 2007 - Oct 2007

Preceptor Name: Elsie Jalian, Pharm. D.

Los Angeles, CA

Level: Introductory

Type: Institutional / Clinical

- Experiential and Didactic training in the fundamentals of aseptic technique, TPN, IV and chemotherapy preparation chemotherapy protocol verification, unit dosing, compounding, order entry and checking, dosage calculations and drug interactions