OUR MISSION

Research: Develop innovative methods and generate actionable evidence about the effectiveness, safety, and value of medical products and services that improve decision making in health care and policy.

Training: Provide transformative training in health economics, outcomes research, and policy analysis to meet contemporary health care challenges regionally, nationally, and globally.

Service: Be a leading resource on the effectiveness, safety, and value of medical products and services by providing expertise and facilitating collaborations at the regional, national, and global level.
CHOICE STATEMENT ON DIVERSITY, EQUITY, AND INCLUSION

CHOICE is committed to creating an inclusive academic community where every individual is treated fairly and with dignity and respect. We strongly believe that diversity enriches learning, broadens the perspectives of all in our program, and improves our sense of community. Diversity requires an atmosphere of inclusion, tolerance, respect, and equity.

Our equality and diversity principles:

• We value the tremendous diversity of the human experience and believe that this diversity strengthens our communities and our program.

• We believe that discrimination or exclusion based on individual characteristics and circumstances, such as age; disability; caring or dependency responsibilities; gender or gender identity; marriage and civil partnership status; political opinion; pregnancy and maternity; race, color, caste, nationality, ethnic or national origin; religion or belief; sexual orientation; socio-economic status; or other distinctions, is unjust and represents a waste of talent and a denial of opportunity for self-fulfillment.

• We recognize that patterns of under-representation and differences in outcomes at CHOICE can be challenged through positive action.

• We respect the rights of individuals, including the right to hold their own opinions and beliefs, but will not allow these opinions to be manifested in a way that is hostile or degrading to others.

• We expect commitment and involvement from all our faculty, staff, and students in working towards the achievement of our vision.
CHOICE FACULTY & STAFF

Core Faculty

Jennifer Bacci, MPH, PharmD
Associate Professor, Endowed Professor in Innovative Pharmacy Practice (I2P2)

Aasthaa Bansal, PhD
Associate Professor

Douglas Barthold, PhD
Research Assistant Professor, CHOICE Endowed Faculty Fellow

Anirban Basu, PhD
Stergachis Family Endowed Director & Professor

Josh Carlson, MPH, PhD
Professor, Director, Graduate Program

Beth Devine, PharmD, MBA, PhD
Associate Director & Shirley and Herb Bridge Endowed Professor for Women in Pharmacy

Louis Garrison, Jr., PhD
Professor Emeritus

Shelly Gray, PharmD, MS
Shirley & Herb Bridge Endowed Professor, Elmer and Joy Plein Endowed Director of the Plein Center for Geriatric Pharmacy Research, Education and Outreach

Ryan Hansen, PharmD, PhD
Associate Professor, Interim Chair, Department of Pharmacy

Thomas Hazlet, DrPH, PharmD
Associate Professor Emeritus

Jing Li, MA, PhD
Assistant Professor of Health Economics

Andy Stergachis, PhD
Professor, Associate Dean for Research, Graduate Education & New Initiatives

Sean Sullivan, PhD
Professor

David Veenstra, PharmD, PhD
Professor

Adjunct Faculty

David Au, MS, MD
Adjunct Professor

Brian Bresnahan, PhD
Adjunct Research Associate Professor

David Flum, MD, MPH
Adjunct Professor

Lurdes Inoue, MS, MS, PhD
Adjunct Professor

Jerry Jarvik, MD, MPH
Adjunct Professor

Larry Kessler, ScD
Adjunct Professor

Gary Lyman, MD, MPH
Adjunct Professor

Scott Ramsey, MD, PhD
Adjunct Professor, Director, HICOR (Hutchinson Institute for Cancer Outcomes Research and Evaluation), Fred Hutchinson Cancer Research Center

Staff

Perchita Bhan, MS, MS
Research Project Manager

Marina Gano, M.Ed.
Graduate Program & Operations Manager

Greg Guzauskas, MSPH, PhD
Senior Research Scientist

William Kreuter, MPA
Research Consultant

Bettina Schifferl, MA
Program Operations Specialist

Adjunct Faculty

David Au, MS, MD
Adjunct Professor

Brian Bresnahan, PhD
Adjunct Research Associate Professor

David Flum, MD, MPH
Adjunct Professor

Lurdes Inoue, MS, MS, PhD
Adjunct Professor

Jerry Jarvik, MD, MPH
Adjunct Professor

Larry Kessler, ScD
Adjunct Professor

Gary Lyman, MD, MPH
Adjunct Professor

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Bettina Schifferl, MA
Program Operations Specialist
Dear friends and colleagues,

I am excited to share our 2021-2022 Annual Report for the CHOICE Institute at the UW School of Pharmacy. I am proud to say that even at the tail-end of the pandemic, we continue to sustain our values, hard work, perseverance, kindness and foster an environment of respect and common purpose.

We look forward to welcoming a new and the largest to-date crop of Ph.D. and MS students in 2022. We congratulate our recently graduate PhD students, Boshen Jiao, Woojung Lee, and Enrique Saldarriaga, and MS students, Gina Ahmadyar, Annaliza Dominguez, Qixin Li, Tommy Majda, Justin Nedzesky, and Joseph Yang. We also congratulate our postdoctoral fellows, Dr. Kate Johnson for joining a tenure-track position at the University of British Columbia, and Dr. Noah Hammarlund for joining a tenure-track position at the University of Florida, in 2021.

Our graduate students deserve special recognition for their outstanding achievements and perseverance through these difficult times. The UW ISPOR chapter, led by third-year PhD student Sara Khor, won the best 2022 student chapter at ISPOR. First-year MS Fellow Justin Nedzesky won the Best Poster Award, and third-year PhD student Yilin Chen won the Best Podium Award at the 2022 ISPOR Annual meeting.

Congratulations to Prof. Jenni Bacci, who was selected as the 2021 Recipient of the Albert B. Prescott Pharmacy Leadership Award, Prof. Aasthha Bansal who was selected to be the 2020 Bernie O’Brien New Investigator Award recipient (announced in 2021) from ISPOR, and Prof. Beth Devine whose paper on the READi Tool, a web-based tool to help healthcare stakeholders and decision-mak ers assess existing real-world evidence (RWE) in health technology assessment (HTA) processes, won the 2021 HEOR Application Excellence Award from ISPOR.

2021-2022 is also a year of tremendous changes in our leadership. After eight years at the helm, this summer, Prof. Sean Sullivan stepped down from the Dean position. During his tenure, the School accomplished great heights, a summary of which can be found on Page 19. Prof. Peggy Odegard is serving as the interim Dean of the School while the search for a permanent Dean begins. This summer, Prof. Steve White also stepped down from being the chair of the Department of Pharmacy. CHOICE faculty Dr. Ryan Hansen is serving as the Interim Chair for the Department. Also, Prof. Dave Veenstra vacated his role as the Associate Director for CHOICE. Prof. Beth Devine is the new Associate Director. Finally, Prof. Josh Carlson is our new Graduate Program Director. We are very grateful for this leadership over the past several years. They were instrumental to our successes and growth, and we look forward to growing further with the new blood.

CHOICE also completed two successful searches this year, and we are very excited to welcome the new members to the CHOICE family. Dr. Jing Li, a health economist who got her Ph.D. at Berkeley, has joined us from Cornell University. Dr. Kyu Eun Lee, a health decision scientist who got her Ph.D. at Stanford, will join us from the University of Pittsburgh. Unfortunately, Associate Professor Zach Marcum has left the Department for a position in the industry. A search for a new pharmacoepidemiologist and health services research is underway.

We also had quite a bit of churn in our outstanding DOP and CHOICE staff. Program Operations Specialist Paul Kraegel and CHOICE Research Project Manager Connor Henry have left their positions. We thank them for their excellent service for the last several years. We welcome Perchita Bhan as the new CHOICE Research Project Manager and Bettina Schifferl as the new Program Operations Specialist for CHOICE and the Plein Center. Our in-house Programmer, William (Billy) Kreuter, will retire at the end of this year after thirty-three years of service at UW. A note on Billy can be found on Page 17. Last but not least, I am thankful to the entire Department of Pharmacy staff for their wide-ranging contribution to the Institute’s administration and keeping the engine running. I would like to give a special acknowledgement to Marina Gano, who was selected for the 2022 SOP Staff Recognition Award for exemplifying the School’s core values and commitment to service.

I thank you for all your support and wish you a healthy 2022-2023 year ahead.

Sincerely,

Anirban Basu
Stergachis Family Endowed Director and Professor
The CHOICE Institute
CLASS OF 2022

DOCTOR OF PHILOSOPHY (HEALTH ECONOMICS & OUTCOMES RESEARCH)

Boshen Jiao
BA, Economics, Fudan University, China; MPH, Epidemiology & Health Economics, EHESP French School of Public Health, France

DISSERTATION: Value of Expanding First-Line Treatment Choices: New Metrics for Economic Evaluation
CHAIR: Anirban Basu, PhD
CURRENT POSITION: Postdoctoral Fellow, Health Economics, Department of Global Health and Population, Harvard University

Enrique Saldarriaga
MS, Epidemiology, University Cayetano Heredia, Peru; BS, Economics, Universidad Del Pacifico, Peru

Dissertation: The Value of using local data to allocate resources to fight the HIV Epidemic. Case of study in Atlanta, Georgia
CHAIR: Anirban Basu, PhD
CURRENT POSITION: Prevention Effectiveness Fellow, Division of STD Prevention, Centers for Disease Control and Prevention (CDC), Atlanta, Georgia

Woojung Lee
PharmD, Seoul National University, Korea; BS, Biology, Yonsei University

DISSERTATION: Investing in Clinical Trials for Older Adults: The Value and Challenges of Older Adult-Specific Clinical Trials
CHAIR: David Veenstra, PharmD, PhD
CURRENT POSITION: Associate-Health Care, Analysis Group
### Gina Ahmadyar
PharmD, University of California San Francisco; BS, University of California Santa Barbara

**Thesis:** Treatment Patterns and Economic Burden of Post Cataract Macular Edema

**Chair:** Ryan Hansen, PharmD, PhD
**Current Position:** Year 2 of UW/AbbVie Postdoctoral Fellowship

### Annaliza Dominguez
PharmD, MS, University of Southern California; BS, University of California San Diego

**Thesis:** Evaluating the effect of treatment satisfaction on future spending for professional cosmetic treatments among aesthetically conscious U.S. adults

**Chair:** Josh Carlson, MPH, PhD
**Current Position:** Year 2 of UW/AbbVie Postdoctoral Fellowship

### Tommy Majda
PharmD, BS, Creighton University

**Thesis:** Demographic, Geographic, and Clinical Characteristics Associated with Receipt of Influenza Outpatient Oral Antiviral Treatment in Commercially Insured US Patients: An Exploration of Potential Health Disparities

**Chair:** Zachary Marcum, PharmD, PhD
**Current Position:** Year 2 of UW/Genentech Postdoctoral Fellowship

### Justin Nedzesky
PharmD, BS, Duquesne University

**Thesis:** Absenteeism associated with gynecologic cancer in the United States

**Chair:** Dave Veenstra, PharmD, PhD
**Current Position:** Year 2 of UW/Genentech Postdoctoral Fellowship

### Qixin (Sandy) Li
PharmD, BA, University of Hawaii Hilo

**Thesis:** Association of Comorbidities with Healthcare Resource Utilization and Cost for Post-discharge Heart Failure Patients with Chronic Kidney Disease

**Chair:** Ryan Hansen, PharmD, PhD
**Current Position:** Year 2 of UW/Bayer Postdoctoral Fellowship

### Joseph Yang
PharmD, University of Maryland, Baltimore; BS, University at Buffalo, SUNY

**Thesis:** Healthcare resource utilization and costs among multiple myeloma patients with double- or triple-class exposure: a retrospective U.S. claims database analysis

**Chair:** Douglas Barthold, PhD
**Current Position:** Year 2 of UW/GlaxoSmithKline Postdoctoral Fellowship
WELCOME: NEW STUDENTS AND FELLOWS

PHD STUDENTS

Shiven Bhardwaj
MS, Population Health Management, Johns Hopkins University; PharmD, Philadelphia College of Pharmacy
Shiven has worked over the past decade in various segments of health care, which include community pharmacy, pharmaceutical industry, hospice care and a pharmacy benefit manager. He graduated from Philadelphia College of Pharmacy in 2011 with a PharmD, and from Johns Hopkins University, Bloomberg School of Public Health with a master’s in applied sciences in Population Health Management. Shiven’s research interests include pharmaceutical policy evaluation and impact of health policy on patient outcomes, especially in Medicare Advantage and Managed Medicaid.

Emma Cousin
PharmD, University of Washington; BS, Molecular, Cellular, and Developmental Biology, University of Washington
Emma joins CHOICE after earning a BS in Molecular Biology and PharmD at the University of Washington. During pharmacy school, Emma expanded her HEOR expertise, including screening literature for a systematic literature review and meta-analysis to assess the prevalence of acute events in patients with sickle cell disease. She also led payer initiatives and formulary management in partnership with Regence BlueShield and Premera. Emma also worked as a Market Access intern at Adaptive Biotechnologies. Emma’s research interests lie in addressing health inequities in the clinical and reimbursement decision-making process. Emma is very excited to start the PhD program and to continue working with distinguished students and faculty!

Emily Callen
MPH, Johns Hopkins University; BS, Biology, University of Tulsa
Emily recently graduated with an MPH from the Johns Hopkins Bloomberg School of Public Health and spent her summer as a Junior Service Fellow at the Agency for Healthcare Research and Quality (AHRQ) working on projects related to insulin affordability and adherence. Earlier in her career, Emily worked in politics, advocacy, and government, including serving in the Obama Administration. Her current research interests include distributional cost-effectiveness analysis, health economics, and HIV prevention. She is excited to join the CHOICE Institute and learn from and collaborate with the students and faculty.

Julia Fox
MA, Economics, Georgia State University; BA, Rhetoric, Georgia College
Julia joins CHOICE with a diverse background in market research for Fortune 500 companies, working directly with dementia patients, and program analysis for WIC at the Georgia Department of Public Health. She received her MA in Economics with international and public health concentrations from Georgia State University, where she found a love for educating others in economic theory. Julia is thrilled and honored to be joining the CHOICE institute and looks forward to working with world-renowned faculty on tackling the big questions and real challenges faced today in HEOR. Post PhD, Julia hopes to educate future generations of economists as well as conduct research that promotes wellness and equity among marginalized populations.
**Karris Jeon**  
MS, Health Economics, University of York; BSN, Nursing, Korea University  
Karris joins us from the Agency for Care Effectiveness (ACE), a national health technology assessment agency in Singapore. Last six years, she evaluated medical technologies, such as insulin pumps, for a national subsidy purpose as a lead specialist. Her research interest includes value assessments of health technologies and value-based insurance design. She is excited to join the CHOICE Institute, where she can hone and develop analytical methodologies applicable to real-world practice.

**Jingmiao (Lynette) Long**  
MHS, Epidemiology, Johns Hopkins University; BA, Biomedical English, Peking University Health Science Center  
Jingmiao is a graduate of the Epidemiology Program from Johns Hopkins Bloomberg School of Public Health. Before she joined CHOICE Institute, she worked for Johns Hopkins Drug Access and Affordability Initiative in pharmaceutical policy, as well as for Deloitte in healthcare consulting. Her research interests lie in cost-effectiveness analysis on innovative cancer therapies and decision sciences. She is also looking forward to refining her methodology and technical skills in real-world studies.

**Zach Baldwin, AbbVie**  
PharmD, BS, University of Washington  
Zach is a recent graduate from the University of Washington School of Pharmacy, where he had an introduction to HEOR during his first AMCP P&T competition. It was after that competition that he knew he wanted to gain additional knowledge within the field, and so he sought out additional courses, faculty mentors, and internships to deepen his understanding of the methods. To him, HEOR is a toolbox of invaluable methodologies for creating access to high-quality healthcare and medications for patients. Two tools that interest Zach the most are real-world evidence generation and economic modeling. He looks forward to working with CHOICE and AbbVie as they sharpen his understanding of HEOR and give him the opportunity to apply himself to real patient and societal problems.

**Jae Kim, AbbVie**  
PharmD, University of Michigan  
Ann Arbor; BA, University of California Berkeley  
Jae received his PharmD from the University of Michigan College of Pharmacy. He developed an interest in health economics and outcomes research (HEOR) after realizing the utility of real-world evidence and the importance of developing strong value propositions for treatment options while working in different functional areas and with formulary decision makers. Jae’s research interests include real-world evidence, cost-effectiveness modeling, and value assessments. He is excited to work with the UW CHOICE faculty and AbbVie team to build upon his current skillset.
Spencer Cheng, Genentech
PharmD, University of Washington; BS, University of California, Davis;
Spencer is a recent graduate from the University of Washington School of Pharmacy where she developed her interest in health economics and outcomes research (HEOR) through the completion of various electives, research opportunities, and pharmaceutical industry/consulting internships. Spencer’s research projects include a cost-effectiveness model, systematic literature reviews, and a claims database analysis. Her current research interests are economic modeling, patient-reported outcomes, and real-world evidence generation. Spencer looks forward to continuing learning from the distinguished faculty at CHOICE and developing her technical skillsets.

Stella Ko, Genentech
PharmD, University of North Carolina Chapel Hill; BS, University of California Los Angeles
Stella recently received her PharmD from the University of North Carolina. She has various HEOR/Market Access experience from her internship with life sciences strategic consulting firm, and from her research project under Department of Pharmaceutical Outcomes and Policy at UNC. Her current research interests include value-based contracting, patient reported outcomes, and cost-effectiveness of personalized medicine. She is excited for the opportunity to expand upon her research skills while receiving an incredible mentorship from CHOICE institute and Genentech.

Arvind Katta, Bayer
PharmD, BS, Northeastern University
Arvind recently received his PharmD from Northeastern University. He has experience in the pharmaceutical industry ranging from medical affairs to market access through internships and rotations during pharmacy school. His interest in HEOR began at his internship at Alnylam Pharmaceuticals, where he saw how cross-functional and dynamic the field could be. His current research interests include real-world evidence as well as precision medicine. He is excited to learn from and collaborate with the world-class faculty at CHOICE and apply his learning to the pharmaceutical industry at Bayer.

Hyunwoo Kim, Neurocrine Biosciences
PharmD, BS, University of Pittsburgh
Hyunwoo graduated from the University of Pittsburgh School of Pharmacy. He found his passion for health datasets and their implications to real-world healthcare problems at a local clinic where he was able to increase patient adherence by analyzing longitudinal patient behavior. With the help of his mentors at his school and different pharmaceutical companies, he was quickly fascinated by HEOR and the use of modeling in solving healthcare problems. He is looking forward to becoming an expert in statistical modeling and strategy building with the best leaders at CHOICE Institute.
CURRENT STUDENTS AND FELLOWS

PHD STUDENTS

Yilin Chen, MPH
PhD Candidate (Year 4)
DISSERTATION TOPIC: Evaluating Heterogeneity in Treatment Effects and Economic Value of Tumor-Agnostic Drugs
ADVISOR: Josh Carlson

Ronald Dickerson, MPH, MA
PhD Student (Year 2)
DISSERTATION TOPIC: TBD
ADVISOR: Dave Veenstra

Samantha Clark, MS
PhD Candidate (Year 6)
DISSERTATION TOPIC: Investigating the effect of Gleevec list price on adherence and outcomes in Medicare patients with chronic myeloid leukemia
ADVISOR: Anirban Basu

Zizi Elsisi, MS, BPharm
PhD Student (Year 3)
DISSERTATION TOPIC: TBD
ADVISOR: Beth Devine

Tori Dayer, PharmD
PhD Student (Year 5)
DISSERTATION TOPIC: TBD
ADVISOR: Sean Sullivan

Shangqing Joyce Jiang, MPH
PhD Candidate (Year 4)
DISSERTATION TOPIC: Disease Risk Prediction and Value of Polygenic Risk Scores in Colorectal Cancer Screening
ADVISOR: Dave Veenstra
Sara Kohr, MASc
PhD Student (Year 4)
DISSERTATION TOPIC: Incorporating Equity into Healthcare Decision Making Around New Technologies
ADVISOR: Josh Carlson

Ashley Tabah, MS, MPH
PhD Student (Year 3)
DISSERTATION TOPIC: TBD
ADVISOR: Ryan Hansen

Felipe Montaño-Campos
PhD Student (Year 2)
DISSERTATION TOPIC: TBD
ADVISOR: Anirban Basu

Jacinda Tran, PharmD, MBA
PhD Student (Year 4)
DISSERTATION TOPIC: Utilizing modeling methods to explore potential efforts to expand access to HIV pre-exposure prophylaxis in the US
ADVISOR: Ryan Hansen

Ifechukwu (Ben) Nwogu
PhD Student (Year 2)
DISSERTATION TOPIC: TBD
ADVISOR: Josh Carlson

Rachel Wittenauer, MPH
PhD Student (Year 3)
DISSERTATION TOPIC: Contextual factors of pharmacy-based immunizations in the United States
ADVISOR: Andy Stergachis
**PHD STUDENTS**

**Sabra Zaraa, PharmD, MPH**
PhD Candidate (Year 5)
**DISSERTATION TOPIC:** *Health and Economic Burden of Substandard and Falsified Medicines*
**ADVISOR:** Andy Stergachis

**INDUSTRY POST-PHARMD FELLOWS**

**Gina Ahmadyar, PharmD, MS**
AbbVie Post-PharmD Fellow (Year 2)
**ADVISOR:** Ryan Hansen

**Annaliza Dominguez, PharmD, MS**
AbbVie Post-PharmD Fellow (Year 2)
**ADVISOR:** Josh Carlson

**Tommy Majda, PharmD, MS**
Genentech Post-PharmD Fellow (Year 2)
**ADVISOR:** Dave Veenstra
Justin Nedzesky, PharmD, MS
Genentech Post-PharmD Fellow (Year 2)
ADVISOR: Dave Veenstra

Qixin (Sandy) Li, PharmD, MS
Bayer Post-PharmD Fellow (Year 2)
ADVISOR: Ryan Hansen

Joseph Yang, PharmD, MS
GlaxoSmithKline Post-PharmD Fellow (Year 2)
ADVISOR: Douglas Barthold
Dr. Jing Li, MA, PhD

Dr. Jing Li, MA, PhD joined The CHOICE Institute and the Department of Pharmacy in August as an Assistant Professor of Health Economics. Dr. Li earned her PhD in Health Policy (Economics Track) from the University of California, Berkeley in 2016. She also holds a BA in Economics & English from Peking University, an MA in International Comparative Education from Stanford University, and an MA in Economics from the University of California, Berkeley. Dr. Li joins us from Cornell University, Weill Cornell Medical College, Department of Population Health Sciences where she has served as an Assistant Professor in Health Policy and Economics since 2016. She has also been a Faculty Affiliate at the Institute for Health Economics, Health Behaviors and Disparities at Cornell University since 2017. Dr. Li’s research focuses on innovative application of economic framework and advanced health econometrics to studying the causes and consequences of behavior and decision-making in health and health care, primarily using administrative healthcare claims and social and behavioral data, with the goal of improving population health. Her most recent work studies health and financial decision-making for older adults with dementia, as well as physician-industry relationships and drug prescribing decisions. Dr. Li is a current recipient of a National Institute on Aging K01 Career Development Award.

Dr. Kyu Eun Lee, PhD

Dr. Kyu Eun Lee, PhD will be joining The CHOICE Institute and the Department of Pharmacy as The CHOICE Institute Endowed Assistant Professor of Health Decision Sciences starting in January. Dr. Lee obtained a PhD in Health Policy (Decision Science track) at Stanford University in 2020 and a Master of Science in Health Services Research at the University of Minnesota in 2014. Dr. Lee joins us most recently from the University of Pittsburgh, Public Health Dynamics Lab, where she completed a postdoctoral research fellowship. Dr. Lee’s research focuses on using simulation models of diseases and policies to forecast the future burden on patients and populations and evaluates current and potential interventions preventing and treating infectious diseases and alcohol drinking disorders. She is also interested in decision science and disease modeling methods to improve model validity and computational efficiency. Her most recent work was on estimating the impact of non-pharmaceutical interventions for COVID-19 on the future influenza seasons and population immunity in the United States. She is also a fellowship recipient in Medical Decision Making from the Society for Medical Decision Making. Dr. Lee will bolster the strong training and research commitment in CHOICE in Health Decision Sciences and bring new substantive and methodological expertise in these areas for our faculty and students.
William (Billy) Kreuter

William (Billy) Kreuter, our programmer extraordinaire, plans to retire at the end of 2022 after thirty-three years of service at the University of Washington. Billy got his BA in Environmental Studies from SUNY Albany and his MPA from the University of Washington. He joined UW in 1989 as a senior Computer Specialist. Over this span, Billy worked in various departments and with many kinds of databases. He developed sophisticated expertise in dealing with claims data, especially those related to the Center for Medicaid and Medicare Services databases. His go-to language for programming is SAS, which is especially suitable for handling the terabytes of raw data he often needs to process. Billy joined the CHOICE Institute in 2018, more recently splitting time with the Department of Emergency Medicine and has been an integral member of many research projects, especially the CureSC Initiative project. We all are accustomed to (and somewhat pampered in) relying on his vast knowledge of databases and the quality of his work. We will miss him as a colleague, but we wish him and his family a fantastic and well-earned retirement.

Paul Kraegel

Over the past 12 years the CHOICE Institute and Department of Pharmacy have been fortunate to be able to call Program Operations Specialist Paul Kraegel a colleague and a friend. Paul joined us from the Department of Health Services in 2010, having started at UW in 2001. Paul joined us to help develop and manage the new online certificate in Health Economics and Outcomes Research (HECON). Since 2012, he has successfully managed 10 HECON cohorts with nearly 500 students from across the globe, along with mentoring several CHOICE graduate students as teaching assistants. The certificate program grew and evolved under Paul’s watchful eye, and we are grateful to have had his expertise and support. Paul also managed the day-to-day operations of the extraordinarily successful PCORI-funded K12 junior faculty training program from 2010 to 2019. That program trained 17 Assistant Professors from across the UW, including current and former School of Pharmacy faculty Carrie Bennett, Josh Carlson, Ryan Hansen, Zach Marcum, and Josh Roth. In addition, Paul worked with Josh Carlson to support the Performance Based Risk Sharing Agreements Database and with Ryan Hansen to facilitate the MarketScan databases. His dedicated approach and attention to detail helped all of us be more successful.

Paul has left the UW for a new adventure as the Director of Strategic Projects at Forterra. We wish Paul, his wife Lynn, and their two boys all the best for the future. Please join us in thanking Paul for all his amazing contributions to the CHOICE Institute and his 21 years of service to the University of Washington.
WE ARE PLEASED TO WELCOME TWO NEW STAFF MEMBERS TO THE DEPARTMENT OF PHARMACY AND CHOICE INSTITUTE

Perchita Bhan

Perchita Bhan joined in June as our new Research Project Manager following Connor Henry’s departure. This role was created in 2019 and has evolved into a truly vital part of our team. Currently, Perchita is supporting projects with Anirban Basu and Aasthaa Bansal, but is also providing support to the general research activities of the Institute. Perchita has a diverse background of experience in technical and scientific project management. Most recently she has worked at Lake Washington School District, where she served as the COVID-19 Response Project Manager. She also brings experience managing research at Harvard Department of Stem Cell & Regenerative Biology and Seattle Biomedical Research Institute. Perchita is originally from India but has studied and worked in the UK, Portugal, and the US. Her educational background is in microbiology and medical molecular biology. When not working, she is either painting (abstract) or doing photography or travelling. She is also an avid gardener and landscaper.

Bettina Schifferl

Bettina Schifferl also joined in June, as the new Program Operations Specialist for the Plein Center and CHOICE Institute. This is a new position that supports the administrative operations of these units. For CHOICE, Bettina’s role will be primarily involved in supporting the MS Fellowship programs as well as providing transitional support to the HECON Certificate program. Bettina joins us from the Continuum College where she has worked as a Program Administrator and Coordinator since 2010. During her time at C2, she has provided hands-on support to an array of fee-based health sciences degree programs including Speech and Hearing Sciences, Audiology, Biostatistics and our own Biomedical Regulatory Affairs (BRAMS) program. In addition, Bettina brings with her a diverse background of experience in publishing, communications, development, and office administration. She has a Master of Arts in US History from Rutgers University and a Bachelor of Arts in English Literature from UW Seattle.
POSTDOCTORAL SCHOLAR UPDATES

Kate Johnson, PhD
PhD, University of British Columbia; MSc, University of British Columbia

We are pleased to share that Dr. Kate Johnson accepted a tenure-track faculty position at her alma mater University of British Columbia. Dr. Johnson is now an Assistant Professor with a joint appointment in the Faculty of Pharmaceutical Sciences and Division of Respiratory Medicine, Department of Medicine.

Noah Hammarlund, PhD
PhD, Indiana University; MS, University of Oregon

Dr. Noah Hammarlund also ended his postdoc position with CHOICE to join the faculty at the University of Florida. Dr. Hammarlund is an Assistant Professor at the University of Florida in the College of Public Health and Health Professions Department of Health Services Research, Management and Policy.

We wish all the best to both Kate and Noah, and look forward to continued collaborations, as well as seeing them at the occasional PHEnOM seminar on Zoom!

DEAN SEAN SULLIVAN RETURNING TO CHOICE FACULTY FULL TIME! (AFTER A DETOUR IN LONDON)

Sean Sullivan, who has served as Dean of the UW School of Pharmacy for the past 8 years, will be returning to his position as professor in the Department of Pharmacy and CHOICE faculty member.

Throughout Sean’s tenure as Dean, the School saw a myriad of successes. Here are a few of many notable accomplishments:

• The new Health Sciences Education Building
• The large number of new faculty we have hired and promoted following retirements
• The innovative PharmD curriculum
• The expansion of our research portfolio and research space
• The way our community works together to identify and tackle issues – particularly during the pandemic
• The School’s 125th anniversary and completion of the capital campaign
• The 10-year renewal of our 3 PhD programs, and the successful accreditation of the PharmD program

Sean has the exciting opportunity for a sabbatical starting in September. He will be based in London, working with Professor Alistair McGuire, Head of Department and Professor of Health Economics in the Department of Health Policy at the London School of Economics (LSE).

Sean first met Ali in 1990 at Oxford when Sean was a graduate student exploring career options. Sean will focus on two topics during his sabbatical:

1. Comparative health policy: How the US can learn from examples and policy experiments in other countries
2. Assess the approach, methods, and underlying framework for ICER’s Unsupported Price Increase work

We wish Sean well, with deepest thanks for his contributions to the School as Dean, and look forward to his return to CHOICE next year.
During this past academic year, I had the honor of being a Fulbright US Senior Scholar and a Visiting Professor at the Institute for Methodology in Health Sciences, Department of Preventive Medicine and Public Health, School of Medicine, University of Murcia (UMU), in Murcia, España. UMU is the flagship university for the autonomous region of Murcia, España. With 38,000 students, it is the third oldest university in Spain, after the University of Salamanca (1218 AD) and the University of Valladolid (1241 AD), and the thirteenth oldest in the world. UMU was established in 1272 by the King Alfonso X of Castile under the Crown of Castile. UMU is comprised of all the major undergraduate, graduate, and professional schools, across four campuses.

The Institute that I joined is led by Alberto Torres-Cantero, a physician who earned his MPH, DrPH, and PhD in Population Health at Harvard TH Chan School of Public Health, also as a Fulbright Scholar. He leads a group of epidemiologists, biostatisticians, biologists, and clinicians who use a variety of research methods to investigate issues in reproductive health, nutrition science, sports medicine, and other select topics. While there, I investigated the association between sources of information about Covid and beliefs in vaccine safety/efficacy, and willingness to be vaccinated. Joined by two junior investigators, I led an analysis of public opinion, cross-sectional, survey data collected by the European Commission in May 2021. Called Flash Eurobarometer 494, the dataset was comprised of a representative sample of individuals 15 years or older, living in 27 countries in the European Union. Using a latent class analysis, propensity score methods, and structural equation modeling, our primary results suggest that only 50% of those why rely on social media and friends/family for information reported that vaccines are safe/effective, and never plan to be vaccinated. In contrast, 86% of respondents who rely on health professionals or national authorities reported that vaccines are safe/effective, and almost 72% indicated they had already been vaccinated or would be vaccinated as soon as possible. Those who had never been in full-time education, were manual workers, and were not vaccinated as children were less likely to believe vaccines are safe/effective. The countries with the highest proportion of vaccine recipients were Spain, Northern Ireland, Norway, Belgium, the Netherlands, and Germany. The European Commission has several initiatives in place to fight disinformation – Fighting Disinformation, #FactsMatter and the Digital Services Act, 2022. I will submit the manuscript to Lancet Public Health.

Separately, I gave guest lectures in the Epidemiology courses for MPH students who are residents in preventive medicine and completed an online course in the statistical programming language R. I was largely able to keep up with my UW work, published a theme section on remote patient monitoring for Value in Health, and co-edited a textbook on Pharmacogenomic-Clinical Decision Support (Elsevier). I also studied Spanish, traveled extensively throughout the culturally and historically fascinating Iberian Peninsula and made several good friends. Spending time and sharing research projects with the other Fulbright Senior US Scholars located throughout España was inspiring and increased my appreciation for all types of research – from music to international human rights for displaced persons.

I am most grateful to my family, colleagues and friends who supported me in this adventure. I am particularly grateful to Josh Carlson and Ryan Hansen for mentoring our AbbVie fellows, and to Canada Parrish and Todd Edwards who taught my PharmD course (Design and Analysis of Medical Studies), and graduate course (Outcomes Research Methods), respectively. I also appreciate the support of Dean Sean Sullivan, DOP Chair Steve White, Marina Gano, and the entire CHOICE faculty.
SAVE THE DATE 2022 CHOICE SYMPOSIUM | HEALTH EQUITY IN HEOR

FRIDAY, OCTOBER 21, 2022 | 2 PM- 4:30 PM
With Reception To Follow for In Person Attendees

HYBRID EVENT
In Person: University of Washington Seattle Campus, Samuel E. Kelly Ethnic Cultural Center Theatre
Remote Attendance: Zoom

Health Equity is a multidimensional construct. We are pleased to host three outstanding faculty to discuss some of the relevant dimensions of health equity and their implications for our work in HEOR. The event will be moderated by Stergachis Family Endowed Director Anirban Basu and Professor Josh Carlson.

FROM LEFT: GARCÍA-PÉREZ, GRIFFIN, ROSE

SPEAKERS

Mónica García-Pérez, PhD
Placing the Equity within Health and Economics: Policy and Economics Dimensions
Dr. García-Pérez is a Professor in the Department of Economics, School of Public Affairs, at St. Cloud State University (SCSU), Minnesota, and a Senior Fellow at the Samuel DuBois Cook Center on Social Equity at Duke University. Her research concentrates on health economics, immigration, and labor economics, examining wealth inequality across race/ethnicity and the impact of health shocks. Her research also looks at the intergenerational effects of barriers to access to health care and health coverage.

Susan Griffin, PhD
Equity in Economics Evaluations
Dr. Griffin is a Professor at the University of York, Centre for Health Economics. She is based in the Team for Economic Evaluation and Health Technology Assessment. Her research interests include the use of decision-analytic models in cost-effectiveness analysis and value of information analysis. Susan’s current research focuses on incorporating inequality concerns into cost effectiveness analysis, and methods for economic evaluation in the field of public health.

Sherri Rose, PhD
Algorithmic Bias and Machine Learning in Health Care
Sherri Rose, Ph.D. is an Associate Professor of Health Policy and Co-Director of the Health Policy Data Science Lab at Stanford University. Her research is centered on developing and integrating innovative statistical machine learning approaches to improve human health and health equity. Within health policy, Dr. Rose works on risk adjustment, ethical algorithms in health care, comparative effectiveness, and health program evaluation.
In May, the whole department gathered for the first in-person retreat in three years. After interacting virtually for so long, this year’s focus was on reconnecting in person and rekindling our culture. The star-studded planning team of Ryan Hansen, Marina Gano, Samantha Clark, Felipe Montano-Campos, and Rachel Wittenauer led the department on a packed day of activities emphasizing the retreat’s theme of “Evidence-Based Fun.” One highlight was the highly competitive round of “CHOICE’s Next Top Model,” during which teams competed with posters and stickers to make the best decision tree to determine where to whip up our lively debates at at the next “intellectual hour” after PHEnOM. We also found out (for better or worse) what our loved ones think we do for a living, with the particularly notable answers of “...prove paying 2 million dollars for a drug is the right thing to do..” and “I didn’t know you work - I thought you were a Ph.D. student.” Taking time to reflect on the recently concluded 10-year Graduate Program Review, faculty and students engaged in a productive discussion around defining CHOICE’s strengths and specific ideas for future improvements. The retreat ended, per tradition, with Samantha Clark MC-ing the “CHOICIES” awards, which officially crowned Sabra Zaraa as having the “Best ‘tude (i.e., most positive attitude)” and a controversial tie between Lucille Clark and Frankie Tabah for ‘Best Pet’. Justin Nedzesky and Tommy Majda were additionally awarded the coveted “Happy Hour MVP” prize for almost perfect attendance at the student happy hours this year. We took time before wrapping up to share personal “thank you” notes to each person in the department as a reflection of how we all helped each other get through such a strange past year. As if the day could get any more exciting, the retreat was followed by a reception at the exclusive favorite haunt of Seattle’s elite: the HUB Bowling Alley. The event was catered by none other than Agua Verde, home of some of the best fish tacos in town. Doug Barthold walked away as the best faculty bowler of the night; although, at the student end, Tommy “gutter balls” Majda gave him a run for his money as he showed off his decades of experience. We look forward to spending more time together this coming year!
The 2022 ISPOR Annual Conference was in National Harbor, Maryland. We were happy to host our first ISPOR reception since 2019. Thank you to those who joined us on Monday night at McCormick & Schmicks! It was wonderful to connect with our alumni and friends after so long. This year, we were able to fund all CHOICE students and fellows to travel to the conference in person. This could not have been possible without support from the generous endowment from CHOICE Alum, Mitch Higashi. This was the first in-person professional conference for many of our students since joining the program. We look forward to seeing everyone again next year in Boston!

**STUDENT PRESENTATION AWARD WINNERS**

**Justin Nedzesky**, 2nd year Genentech Fellow, won the Best Student Poster Award for his project titled, “Cost-Effectiveness of Pembrolizumab in First-Line Treatment of PD-L1 Positive Persistent, Recurrent, or Metastatic Cervical Cancer”

**Yilin Chen**, 4th year HEOR PhD Student won the Best Student Podium Research Presentation award for her project titled, “Designing a Value-Based Formulary for Kaiser Permanente Washington: A Hypothetical Case Study of Diabetes Mellitus Medications”

**STUDENT PRESENTATIONS**
The University of Washington ISPOR Student Chapter was excited to go back to having some events in hybrid and in-person formats this year! The student board, which included Sara Khor, Wooung Lee, Yilin Chen, Tori Dayer, Ron Dickerson, and Ben Nwogu, planned social events and informational events throughout the school year under the guidance of faculty advisor Dr. David Veenstra.

The Student Chapter kicked off the school year with a social event at Flatstick Pub in South Lake Union, inviting students to enjoy playing mini golf together! Throughout the year, students were given the opportunity to attend various seminars in an Alumni Professional and Career Development Talk Series. Some of these seminars were offered in a hybrid format in order to include more students and alumni. The first was hosted by CHOICE alumnus Dr. Mark Bounthavong, who gave a seminar titled “How to Get Your Paper Published”. Students had the opportunity to learn about different career paths with CHOICE alumni Dr. Jean McDougall, Dr. Meng Li, and Dr. Kangho Su joining us for a seminar titled “Is Academia for Me?”, and alumni Dr. Nina Hill and Dr. Mindy Cheng leading a seminar titled “Is Biopharma Industry for Me?”. We hope to continue this series into the 2022-23 school year! During Spring quarter, our chapter collaborated with the UW School of Pharmacy’s Diversity, Equity, and Inclusion Council (DEIC) and the AMCP Student Chapter to present the “Workshop on Data Equity Issues in Quantifying Racism, Race, and Ethnicity”, which provided students with an excellent learning opportunity!

CHOICE students that attended the ISPOR conference in person in Washington DC enjoyed getting to connect with students from other chapters, and many students participated in poster and podium presentations! Yilin Chen received the Best Student Podium Research Presentation award, and Justin Nedzesky received the Best Student Poster Research Presentation award. UW has significant representation in the ISPOR Student Network, with Zizi Elsisi, Enrique Saldarriaga, and Jacinda Tran serving on committees during the 2021-22 term. Enrique Saldarriaga and Jacinda Tran were two of ten students to receive an ISPOR Student Network Distinguished Service Award! For the 2022-23 term, HEOR students Jacinda Tran, Zizi Elsisi, Yilin Chen, Sara Khor, and PharmD Student Kevin Li will all be serving on various committees. The UW Student Chapter was honored to receive one of the awards for Outstanding Student Chapter this year. Tori Dayer will be taking over as our 2022-23 UW Student Chapter President from the 2021-22 Chapter President Sara Khor, and we are looking forward to the coming school year!

Visit the CHOICE Blog, Incremental Thoughts: https://choiceblog.org
Research Assistant Professor and CHOICE Faculty Fellow, Dr. Douglas Barthold was awarded a K01 from the National Institute on Aging, for a proposal titled “Long-term effects of today’s medical care access policies on the future burden of Alzheimer’s disease and related dementias (ADRD).” This work fits into his broad research agenda, which examines the intersection between health policies, chronic disease management, and cognition, from mid-life to end-of-life. Many chronic conditions, including hypertension, hyperlipidemia, and type 2 diabetes, are risk factors for ADRD, and it is hypothesized that better management of these risk factors in mid-life could lead to reductions in ADRD risk. In the proposed study, Barthold will examine how mid-life private health insurance affects type 2 diabetes management, and in turn how these effects translate into long-term alterations to ADRD risk and burden, the cost of which falls to Medicare.

In order to measure these long-term effects of insurance design on ADRD risk, Barthold will build an innovative simulation model in two steps: first, he will expand an existing model of diabetes progression, in order to incorporate the effects of cost-sharing variation that exists in high-deductible health plans and uninsurance. The outcomes of this model will project long-term measures of diabetes progression. In step two, he will incorporate these outcomes into a comprehensive aging model that projects ADRD risk and burden, as a function of risk factors including diabetes. The resulting model will allow experiments of hypothetical policies that affect health insurance design, in order to build understanding of the complicated interplay between health policies, healthy aging, and ADRD.

Dr. Barthold was also awarded a Research Starter Grant from the PhRMA Foundation, for a study titled “The role of mild cognitive impairment (MCI) and Alzheimer’s disease and related dementias (ADRD) in the utilization of high and low value healthcare.” Appropriate use of high-value care, which has a strong evidence-base showing significant clinical benefit, is especially important for older adults and individuals with cognitive impairment, who tend to use more care, and may have more complex care needs. Similarly, it is critical that low-value care, which has no clinical benefit and can even harm patients, be avoided for this large and vulnerable portion of the population. Among Medicare beneficiaries, 25-42% receive low-value care per year, which has led the Centers for Medicare and Medicaid Services to call for policies to promote value. However, the relationship between cognitive impairment and value has not been studied, which leaves critical evidence gaps in efforts to target and implement value promotion policies.

In this study, Barthold, alongside CHOICE Director Dr. Anirban Basu and CHOICE PhD candidate Joyce Jiang, is examining what happens to the use of high-value and low-value services at the onset of MCI, and the onset of ADRD. High-value and low-value services are defined according to their time horizon to benefit, quantifiable effects on mortality or quality of life, burden of the services, and effects on caregivers, and analyses are using a unique dataset that links cognitive assessments from the Health and Retirement Study (HRS) to Medicare claims data. Preliminary results suggest that the onset of cognitive impairment is associated with reductions in the use of both high-value and low-value services, perhaps implying that decision-making for this important and vulnerable subpopulation lacks attention to evidence-based recommendations.

Read Dr. Barthold’s interview with the PhRMA Foundation on this work: https://www.phrmafoundation.org/news/awardee-profiles/qa-with-dr-douglas-barthold-examining-how-health-policies-affect-care-for-people-with-dementia/
CURE SICKLE CELL (CURESC) INITIATIVE: ECONOMIC IMPACT ANALYSIS

Approximately 100,000 Americans have Sickle Cell Disease (SCD), a group of single-gene, autosomal recessive disorders that affect hemoglobin (Hb) structure and function. While treatment strides have been made, resulting in increased life expectancy and reduced disease complications, those with the most severe forms of SCD still have lifespans of 20-30 years shorter than those without SCD. Further, those living with SCD experience significant health and economic burden due to their disease. Currently, a wide array of approaches to curative gene therapy is being pursued in clinical trials, animal models, and tissue culture systems. While promising, the risks to patients vs. ultimate short and long-term benefits remain contested and largely unknown for these therapies.

Over the last three years, CHOICE faculty, post-docs, and students, led by Anirban Basu, have been collaborating with the Fred Hutchinson Cancer Research Center, Seattle's Children, the National Heart, Lung, and Blood Institute, the Emmes Corporation, and the St. Jude Children's Research Hospital to develop a national economic model for SCD. The work involves a comprehensive landscape analysis of the state of evidence on health economics and outcomes research in SCD, analysis of private and public insurance claims databases, generating new evidence on quality of life for SCD-related health states, and connecting quality of life to productivity measures. The final goal is to create the Model for Economic Analysis of Sickle Cell Cure (MEASURE), a simulation model to capture the progression of patients with SCD across relevant health states over their lifetimes across different public insurance coverages. The MEASURE model will follow patients from the age of diagnosis over their lifetimes. It will produce lifetime estimates of outcomes and costs, by modeling state-specific estimates of payoffs in health and healthcare utilization across different public insurance coverages.

Our group has published several works to date. These include works on landscape analysis:


Work on quality of life in SCD:

Professor David Veenstra, along with Vanderbilt University Professor Josh Peterson, and Geisinger Health Assistant Professor Jing Hao, have been awarded a 5-year, $4.5M grant from the National Human Genome Research Institute (NHGRI) to evaluate the clinical and economic outcomes of screening for cancer and cardiovascular disease risk using Polygenic Risk Scores (PRS).

PRS’s are an exciting approach in genomic medicine that utilize information from hundreds to thousands of genetic variants in a person’s genome to predict their risk of future disease. This project, the Rational Integration of PRS (RIPS), will evaluate the cost-effectiveness of using PRS to conduct population-level screening for breast cancer, colon cancer, and coronary heart disease. The investigators will also identify optimal PRS risk thresholds across diverse populations.

Dr. Veenstra will be joined by The CHOICE Institute’s senior research scientist Greg Guzauskas, and PhD candidate Joyce Jiang.

### Work of medical costs of SCD
We found that privately insured individuals with sickle cell disease (SCD) spend approximately $1.7 million on disease-related medical expenses over their lifetime. These findings highlight the enormous economic burden affecting individuals living with SCD and raise questions about how medical advancements, like gene therapy, may one day factor into the cost of care.


### MEASURE Conceptual Model

Several other related works are under review. The CHOICE group aims to publish a cost-effectiveness analysis of Lentiglobin gene therapy using the MEASURE model later this year.
Despite receiving effective primary treatment, many cancer survivors remain at risk of relapse and associated morbidity and mortality. Surveillance testing using biomarkers and imaging may detect disease recurrence before clinical symptoms manifest, which would allow for timely treatment. Guidelines typically recommend a “one-size-fits-all” approach of frequent testing in most cancer settings. However, frequent testing involves trade-offs. Many patients are at low risk of experiencing recurrence, and the complications and costs of frequent tests are not justified for these patients. Experts have cautioned against over-testing and advocated for risk-based strategies using the personal clinical history of each patient to provide better tailored care to cancer survivors. Although there is growing recognition that a one-size-fits-all strategy of frequent patient visits may be suboptimal, there is ambiguity regarding how best to tailor surveillance to individual cancer survivors.

The Personalized Risk-Adaptive Surveillance (PRAISE) team is conducting research that seeks to shift the paradigm of how routinely collected patient information is used for clinical management, by innovatively coupling data-adaptive prediction modeling with statistical decision theory. They developed a decision-making framework that evaluates the value of future clinical information to guide patient-level decisions about the optimal frequency of surveillance testing, while considering the patient’s evolving risk of recurrence. This framework was recently published in the Medical Decision Making journal, in a paper titled “A value of information framework for personalizing the timing of surveillance testing”. This approach can be applied to a variety of diseases to guide more personalized clinical care.

The team is currently using electronic health record data and applying the PRAISE framework to three distinct cancer settings: Colorectal Cancer (CRC), Chronic Myeloid Leukemia (CML) and Prostate Cancer. They have developed a dynamic risk prediction model for CRC recurrence that incorporates patient biomarker history and are working on embedding predictions from this model into a microsimulation model to inform clinical decision-making around patient surveillance and evaluate the PRAISE framework in this setting. Similar work is underway in CML.

The team includes CHOICE faculty members Aasthaa Bansal (PI), Anirban Basu and David Veenstra, Research Scientist Tricia Rodriguez, graduate students Sara Khor and Felipe Montano-Campos, as well as collaborators from UW Biostatistics, Fred Hutch and Kaiser Permanente Southern California.
Epilepsy is a complex spectrum of seizure disorders affecting approximately 3.4 million people nationwide, making it the fourth most common neurological disease after migraine, stroke, and Alzheimer’s disease. Antiseizure medicines are first-line treatment; however, 50% of people living with epilepsy (PWE) experience adverse drug effects, which negatively impact medication adherence and quality of life (QoL). Community pharmacists are among the most accessible healthcare providers with extensive knowledge of pharmacotherapy yet are seldom engaged in epilepsy care. A team led by Associate Professor Jenny Bacci was recently awarded a Tier 3 Pilot Grant from the UW Population Health Initiative to pilot the community pharmacist population health intervention for PWE in community pharmacies in Washington State. Dr. Rusty Novotny from the Departments of Neurology and Pediatrics is serving as co-principal investigator. The team also includes Professors Steve White and Andy Stergachis, Department of Pharmacy Postdoctoral Scholar Michelle Guignet, and CHOICE PhD Candidate Sabra Zaraa.

This work will build on their previous preliminary, proof-of-concept research which developed and pretested a community pharmacist population health intervention for PWE. This intervention aims to improve human health and social and economic equity by positioning the community pharmacist as an accessible, trusted health partner with epilepsy expertise who can help close information and treatment gaps and disparities through frequent touch points, particularly for those patients who do not have easy access to a specialized epilepsy center. This next phase of their work consists of two aims: (1) develop and evaluate a training program for community pharmacists’ population health intervention for PWE and (2) implement and evaluate the impact of the community pharmacist population health intervention on PWE’s, QoL and health outcomes. This study will advance their efforts towards the long-term goal of scaling an effective intervention to improve the humanistic, clinical, and economic outcomes for PWE.

When thinking about what drew her to this work, Dr. Bacci says, “this work is inspired by the experience and unmet needs of people living with epilepsy. Many people living with epilepsy take antiseizure medications. While these medications can help people living with epilepsy achieve seizure control, they can also cause side effects and drug interactions that affect quality of life.... the community pharmacist becomes a readily accessible resource for people living with epilepsy and their caregivers beyond the provision of medications.”
According to a recently published study in Lancet, 1.27 million deaths are directly attributable to and another 4.95 million deaths associated with antimicrobial resistance (AMR) globally in 2019. This makes AMR one of the leading causes of death, with the highest burden in low-resource settings. CHOICE faculty member, Dr. Andy Stergachis, was a key member of this global burden of AMR study team, which was funded by the Bill & Melinda Gates Foundation, Wellcome Trust, and the UK Department of Health and Social Care's Fleming Fund. Called the Global Research on Antimicrobial Resistance (GRAM) Project, this project was a collaboration between the UW Institute for Health Metrics and Evaluation (where Stergachis holds an adjunct faculty appointment in the Department of Health Metrics Sciences) and the University of Oxford. Also, Dr. Stergachis and Rachel Wittenauer, a graduate student in Health Economics & Outcomes Research, recently worked with the USAID-funded Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program and MSH to conduct an antimicrobial use study in Uganda. That study identified key areas for the improvement of antimicrobial stewardship in Uganda and benchmarks for future evaluations. And a global antibiotic consumption study was published in Lancet Planetary Health involving Dr. Stergachis and HEOR graduate student, Sabra Zaraa. Dr. Stergachis also served on the National Academy of Medicine Committee on Examining the Long-term Health and Economic Effects of Antimicrobial Resistance in the United States that released its policy report in late-2021. Stergachis notes that AMR is a major global health threat that needs greater global, One Health action in the areas of strengthening surveillance, promoting antimicrobial stewardship, preventing infections, and bringing novel antibiotics and diagnostics to market.


In 2016, the CHOICE Institute and the Institute for Clinical and Economic Review (ICER) formed a partnership establishing the first multi review academic site. This relationship has continued through additional contracts and collaborative work. The current team is comprised of Josh Carlson (PI) and a lead modeler, Kangho Suh. Kangho is an Assistant Professor at the University of Pittsburg and a CHOICE alumnus. 2nd year HEOR PhD Student Ronald Dickerson will be joining the team as a Research Assistant this fall. Our current contract runs through 12/31/23.


In recent evaluations, we performed a review of treatments for chemotherapy induced myelosuppression, treatments for Type 2 Diabetes and an RWE update to the hereditary angioedema review. For the myelosuppression review, no formal presentation was made due to the drug sponsor receiving complete response letter from the FDA, but a final report was posted in March of 2021. We found that trilaciclib produced a small QALY gain versus no prophylaxis at a moderate added cost, resulting in estimates of $735,000 to $1,400,000 per QALY gained depending on the line of therapy and perspective taken. Plinabulin also moderately increased QALYs, driven by an avoidance of febrile neutropenia-related deaths. No ICER’s were generated due to the complete response letter and the lack of expected pricing information.

For the Type 2 diabetes review, Elizabeth Brouwer presented work done with Ryan Hansen and Yilin Chen at virtual New England CEPAC meeting in January 2022. They found that the incremental costs per QALY gained for tirzepatide was around or under $100,000 versus all comparators using a placeholder price equal to injectable semaglutide. The mean differences in health gains and costs were smallest in comparison to injectable semaglutide. Uncertainty analyses suggested a wide range of plausible cost-effectiveness estimates for tirzepatide.

Finally, for the RWE update to the HAE review, we found that, “HAE prophylactic agents are effective, but real-world experience suggests that patients being treated are less severely affected by HAE than those in clinical trials, and thus prophylaxis with these treatments is far less cost-effective in a real-world patient population than was suggested in the first report.”

Finally, the UW team is part of the ICER interactive modeler initiative that allows decision-makers within payers, pharmaceutical companies, and other stakeholders to access cost-effectiveness models via a web enabled platform. There are now 12 UW models available through the IM platform.

In summary, our collaboration with ICER continues to yield positive returns in terms of research productivity, student opportunities, and contributions to timely and impactful conversations about the value of emerging products in the U.S. We look forward to continued collaboration with ICER and the many companies developing innovative medical products.
STUDENTS AND FELLOW ACTIVITIES AND ACCOMPLISHMENTS

2022 RECIPIENTS OF THE LOUIS SR. AND MARILYN GARRISON ENDOWED PRIZE IN HEALTH POLICY AND ECONOMICS

PHD STUDENT WINNER
Yilin Chen
4TH YEAR HEOR PHD STUDENT
PAPER TITLE: Impact of the Pilot Volume-Based Drug Purchasing Policy in China: Interrupted Time-series Analysis with Controls

MS STUDENT WINNER
Qixin (Sandy) Li
UW/BAYER
POSTDOCTORAL FELLOW
PAPER TITLE: Cost-effectiveness of Rivaroxaban vs Warfarin for Treatment of Venous Thromboembolism and Prevention of Recurrence in Patients with Mild or Moderate Impaired Renal Function.

RECIPIENT OF THE 2022 UW SCHOOL OF PHARMACY GRADUATE STUDENT LEADERSHIP AWARD, DEPARTMENT OF PHARMACY

Rachel Wittenauer
3RD YEAR PHD STUDENT
Rachel was selected as a recipient of the School of Pharmacy 2022 Graduate Student Leadership Award. This awardee is selected by a schoolwide committee and requires a nomination from faculty and students. The award decision is based on the consideration of demonstrated outstanding leadership and service that has had a positive impact on the School, UW and beyond.

Rachel joined the program in September 2020 after earning an MPH from the UW Global Health Program. Her advisor is Dr. Andy Stergachis and her dissertation research is on contextual factors of pharmacy-based immunizations in the United States. Rachel serves as one of the CHOICE Elected Student Representatives and joined this role in just her first year in the program. One of her most notable accomplishments is creating a comprehensive Student Resources hub on SharePoint that will be in place for future cohorts of students to benefit from. On this resources page, students can not only find program materials related to funding, administrative forms, student life, etc., but also broader tools to support writing, research, and training in the CHOICE core competencies. While reflecting on her time in the program thus far, Rachel says, “For graduate students in The Comparative Health Outcomes, Policy, and Economics (CHOICE) Institute, our community of fellow students is critical for social support, connection with ideas and resources, and peer-to-peer advice. This type of culture must be built intentionally, and I do my best to contribute to the CHOICE community with these goals in mind.”

One of her nominators, Dr. Ryan Hansen, highlighted how important Rachel’s commitment to maintaining our culture and community during the pandemic. Dr. Hansen says, “Joining a graduate program is a challenge for most students, doing
so mostly remotely during a pandemic is simply daunting. However, in her time with us Rachel has consistently put in effort beyond the classroom and research activities to serve our graduate student community and lead. As one of our CHOICE Institute graduate student representatives for the past two years, Rachel has been a strong advocate for her fellow students and has taken active steps to engage the students and faculty to maintain a strong culture and support our students.” Rachel’s peer nominator, Samantha Clark, stated that “...despite being early in her PhD career, Rachel has already made tremendous contributions to the student culture within CHOICE. She epitomizes the kind of selfless leader that continually steps up in service of her fellow students, regardless of the degree of recognition that doing so entails.” Congratulations, Rachel, on this award and thank you for everything you do for CHOICE!

RECIPIENT OF THE 2022 UW SCHOOL OF PHARMACY OUTSTANDING DISSERTATION AWARD; WINNER OF THE UW GRADUATE SCHOOL 3-MINUTE THESIS COMPETITION

Enrique Saldarriaga, Class of 2022

5TH YEAR CHOICE PHD STUDENT DISSERTATION TITLE: “The Value of using local data to allocate resources to fight the HIV Epidemic. Case of study in Atlanta, Georgia”

Enrique Saldarriaga won first place in the 2022 UW Three Minute Thesis (3MT) Competition and was the recipient of the 2022 UW SOP Outstanding Dissertation Award. His dissertation, The Value of Using Local Data to Allocate Resources to Fight the HIV Epidemic: Case of Study in Atlanta, Georgia, combines statistical methods and mathematical modeling of infectious diseases to quantify the economic and health value of using local estimates of disease frequency to inform resources allocation for HIV prevention and care.

The 3MT is a professional development competition that celebrates the exciting capstone and research experiences of master’s and doctoral students at the University of Washington from all three campuses. The competition supports graduate students’ capacity to effectively explain their research or capstone project in three minutes, in a language appropriate to a public audience. ‘Impact’, the theme for the 2022 competition, can be defined as the positive outcome of a critical intervention, social policy, service provision model, legal framework, or technological innovation. Enrique’s research will provide a positive impact across several disease areas, including infectious diseases, cervical cancer, obesity and obesity-related conditions, and urology.

Enrique’s career goal is to generate evidence to inform decision-making processes that reduce health care access barriers among historically underserved demographic groups. “My time at UW has provided me with extremely valuable lessons and resources to achieve this objective,” he said. “After graduation, I will join the Prevention Effectiveness fellowship at [the] CDC to assess strategies and interventions to prevent and reduce the spread of sexually transmitted diseases.”

In Fall 2021, Enrique was also selected as the Lusted Award Winner for Outstanding Presentation in Quantitative Methods and Theoretical Developments, 43rd Annual Meeting of the Society for Medical Decision Making. This award was for research conducted for Aim 1 of his dissertation.
STUDENTS AND FELLOW ACTIVITIES AND ACCOMPLISHMENTS continued

2022 RECIPIENTS OF PHRMA FOUNDATION PREDOCTORAL FELLOWSHIP IN HEALTH OUTCOMES RESEARCH

Shangqing (Joyce) Jiang, MPH
4TH YEAR HEOR PHD CANDIDATE
PROJECT: Disease Risk Prediction and Value of Polygenic Risk Scores

Sara Khor, MASc
4TH YEAR HEOR PHD CANDIDATE
PROJECT: Incorporating Equity into Healthcare Decision Making Around New Technologies

2022 RECIPIENT OF THE AMERICAN FOUNDATION FOR PHARMACEUTICAL EDUCATION (AFPE) PRE-DOCTORAL FELLOWSHIP IN HEALTH OUTCOMES DISPARITIES

Sara Khor, MASc
Yilin Chen, 4th year HEOR PhD candidate was selected as one of the University of Washington Magnuson Scholars for the 2022–2023 academic year.

Yilin’s research experience in diabetes will serve as a foundation for her future career within a health sciences institution or industry, where she hopes to continue to research how real-world data and health economics methodologies may be used to improve patient access and outcomes, service delivery, and reduce inequalities for patients with diabetes and other medical conditions.

The Magnuson Scholar Program is a key component of the Warren G. Magnuson Institute for Biomedical Research and Health Professions Training and is funded by an endowment established in 1991 in the late Senator’s name. Each scholar was nominated by their respective Health Sciences School on the basis of outstanding academic performance and potential contributions to research in the health sciences. All Magnuson Scholars help carry on the legacy of the late Senator Warren G. Magnuson and his remarkable commitment to improving the nation’s health through biomedical research, education, and responsive, sustainable healthcare discoveries. Congratulations, Yilin!
AWARDS AND ACTIVITIES: FACULTY

Aasthaa Bansal, PhD
• Grants Received:
  – Personalized Risk-Adaptive Surveillance (PRAISE) – Implications of Algorithmic Bias
  • PI: Bansal; Sponsor: NCI
  • Bernie J. O’Brien New Investigator Award (2020), ISPOR

Jennifer Bacci, PharmD, MPH, BCACP
• Awarded funding from the University of Washington Population Health Initiative for the Community Pharmacist Epilepsy Services Program. Steve White, Andy Stergachis, Sabra Zaraa, and Michelle Guignet are co-investigators on the study.
• Interviewed in State of Reform article with HEOR PhD Student Rachel Wittenauer about pharmacy deserts in Washington State.

Doug Barthold, PhD
• Grants Received:
  – National Institute on Aging K01AG071843, mentored research scientist development award, “Long-term effects of today’s medical care access policies on the future burden of Alzheimer’s disease and related dementias,”
    – 2021-2026, $610,200
    – Role: Principle Investigator

Anirban Basu, PhD
• Grants Received:
  – Progress towards Hepatitis C elimination in Washington State (PI: Kohler) 02/01/2021 – 01/31/2024; Arnold Ventures $1,257,115
  – Impact of Universal Free Meals on Childhood Obesity Risk and Obesity Disparities, 1R01HD097106-01A1 (PI: Jones-Smith) 07/01/2021 – 06/30/2024 NIH $ 560,751
• Value in Health Best Paper Award, ISPOR (2021).
• Abraham G. Hartzema Distinguished Lecture, University of Florida (2022)
Beth Devine, PhD, PharmD, MBA
- Awarded a sabbatical to study at the School of Medicine, University of Murcia, Murcia, España (September 2021-June 2022)
- Awarded US Fulbright Senior Scholarship to study at the School of Medicine, University of Murcia, Murcia, España (Fall 2021).
- Visiting Scholar, University of Murcia School of Medicine, Murcia, España
- Alumni Legend, University of Washington School of Pharmacy
- Published book, titled Clinical Decision Support for Pharmacogenomic Precision Medicine: Foundations and Implementation, 1st edition

Josh Carlson, PhD, MPH
- Promoted to full Professor
- Appointed permanent Graduate Program Director
- Grants Received:
  - ICER Economic Modeling 03/01/2021 – 12/31/2023; Carlson (PI); Role: PI; Institute for Clinical and Economic Review; Budget: $333,500
Lou Garrison, PhD

- Professor Emeritus Lou Garrison served as a member of International Peer Review Committee of the research at the University Medical Centre Groningen (IMCG) in The Netherlands. The review took place over six days of meetings in November-December. Lou chaired the committee that reviewed their Science in Healthy Aging and healthcaRE institute (SHARE), and served as well as a member of the UMCG-wide review committee.

- Professor Garrison and graduate student Zizi Elsisi contributed a course module “Introduction to Health Technology” to a new online pharmacoeconomics diploma program offered by Cairo University and Bournemouth University (UK) targeted for students in the Middle East and North Africa.

- Professor Garrison served as the external reviewer on two dissertation defenses at the University of Groningen in the Netherlands: (1) Abraham Wondim Duagne, “Health-Economics of Vaccine in Ethiopia: Equity considerations and cost-effectiveness analysis, March 16; and (2) Carina Shey: “Multi-criteria decision analysis for assessing orphan drugs,” March 29.

Ryan Hansen, PharmD, PhD

- Grants Received:
  - Neurocrine HEOR Fellowship Training Grant

- Appointed Interim Chair, Department of Pharmacy, Beginning 7/1/2022

Zach Marcum, PharmD, MS, PhD

- Awarded the 2022 School of Pharmacy University of Washington Outstanding Graduate Mentor Award
Andy Stergachis, PhD, BPharm

Sean D. Sullivan, BScPharm, MSc, PhD
- Visiting Professor, London School of Economics and Political Science (Sept 2022 - Aug 2023)
- Value in Health Paper of the Year Award, 2021- Co-authored with Affiliate Faculty Jens Grueger and Lisa Bloudek

David Veenstra, PharmD, PhD
- Nominated for the 2022 Marsha L. Landolt Distinguished Graduate Mentor Award
- Grants Awarded:
  - Rational Integration of Polygenic Risk Scores (RIPS); Sponsor: National Human Genome Research Institute (NHGRI); Budget: $4.5 million; Co-PI’s: Professor Josh Peterson, Vanderbilt University and Assistant Professor Jing Hao, Geisinger Health.


Jiao B, Hanksins JS, Devine B, Barton M, Bender M, Basu A. Application of validated mapping algorithms between generic PedsQL scores and utility values to individuals with sickle cell disease. Quality of Life Research. 2022 Jun 17:1-0.


2021–2022 IMPACT OF PRIVATE SUPPORT

**5**
- Fully Funded RA-ships for PhD Students

**6**
- Faculty Received Endowed Salary Supplements

**22**
- Students Received Training Support for Conferences

**14**
- Students Received Supplemental Stipends

**12**
- Post-PharmD Fellows Funded

**5**
- Students Received COVID-19 Emergency Aid Funds
Check out INCREMENTAL THOUGHTS: The CHOICE Institute Student Blog at https://choiceblog.org/