Allergan PLC (NYSE: AGN), headquartered in Dublin, Ireland, is a bold, global pharmaceutical company and a leader in a new industry model – Growth Pharma. We are focused on developing, manufacturing and commercializing branded pharmaceutical, device, biologic, surgical and regenerative medicine products for patients around the world.

We market a portfolio of leading brands and best-in-class products for the central nervous system, eye care, medical aesthetics and dermatology, gastroenterology, women's health, urology and anti-infective therapeutic categories.

We are an industry leader in Open Science, a model of research and development, which defines our approach to identifying and developing game-changing ideas and innovation for better patient care. With this approach, Allergan has built one of the broadest development pipelines in the pharmaceutical industry with 65+ mid-to-late stage pipeline programs currently in development. Learn more at www.Allergan.com.

GLOBAL HEALTH ECONOMICS AND OUTCOMES RESEARCH (GHEOR)

1. PRODUCT VALUE PROPOSITION
   ...outcomes research strategy based on product value, stakeholder needs & insights

2. EVIDENCE GENERATION AND TOOL DEVELOPMENT
   ...through clinical and health economics & outcomes research (HEOR) data

3. VALUE COMMUNICATION
   ...about evidence informing the value proposition to stakeholders
   ...informs health care decision making
ABOUT OUR SCHOOL

The University of Washington is a world-class leader in health sciences education and has been consistently listed in US News and World Report as one of the top 10 institutions for its graduate programs. The University is particularly noted for its strong research programs and since 1974 has received more federal funds for research and training than any other public university in the United States. It fosters a highly collegial atmosphere between departments and academic units, creating a particularly attractive environment for such partnerships between the public and private sectors.

The Comparative Health Outcomes, Policy, and Economics (CHOICE) Institute is housed within the University of Washington School of Pharmacy, which boasts nearly 125 years of academic and research success. Faculty in the program (1) provide advanced research training for graduate students, post-doctoral fellows and clinicians (PharmDs, MDs), (2) conduct rigorous scientific research in economic evaluations and outcomes of pharmaceuticals and other health technologies, and (3) translate and disseminate the results of research into clinical practice and healthcare policy, with the goal of improving patient care.

The CHOICE Institute faculty participating in the fellowship have been chosen both for their dedication to teaching and their excellence in research. Each is trained either as a health economist or health services researcher and all have an extensive history of effective economic evaluations and pharmacoepidemiologic research.
The University of Washington/Allergan GHEOR Fellowship Program is a two-year program that provides training and hands-on experience in a broad-range of health economics and outcomes research topics. The program is structured to allow fellows to gain proficiency in health outcomes strategy and research as conducted in both academic and pharmaceutical industry settings.

**THE FELLOWSHIP PROGRAM**

The University of Washington and Allergan are pleased to offer two, 2-year GHEOR Fellowship positions for the academic year 2020-2022. Fellows will spend their first year at the University of Washington (Seattle, WA), and the second year at Allergan (Irvine, CA). The objective of the first year is to educate fellows on the principles and methods used in health economics and outcomes research. During the second year, fellows are provided with opportunities to gain practical knowledge and experience with the use of clinical, economic, and humanistic data by supporting the development and commercialization of pharmaceutical products. This will be accomplished by participating in work activities undertaken by the GHEOR team.

Compensation includes a competitive stipend, basic medical insurance, conference attendance, relocation from Seattle to Irvine, and holiday/vacation time. A Master’s (MS) Degree is awarded upon completion of all course requirements and thesis project.

**FELLOWSHIP DIRECTORS**

**UNIVERSITY OF WASHINGTON**

Beth Devine, PharmD, MBA, PhD, FASHP, Professor, Director of Graduate Programs
The Comparative Health Outcomes, Policy, and Economics (CHOICE) Institute
E-Mail: bdevine@uw.edu

**ALLERGAN PLC**

Patrick Gillard, PharmD, MS
Executive Director, General Medicine, Global Evidence and Value
E-Mail: Gillard_Patrick@allergan.com

**ALLERGAN PLC**

Amy Tung, PharmD, MS
Senior Manager, General Medicine, Global Evidence and Value
E-Mail: Tung_Amy@Allergan.com
FIRST YEAR OBJECTIVES

The objective of the first year is to provide the fellow with the research tools necessary for economic evaluation and policy assessment. The fellow will be given an overview of pharmaceutical economics and general health policy, and taught methods of economic assessment, health services research, epidemiology, clinical research design, and biostatistical analyses.

The fellow will be assigned a MS thesis project which is selected based on input from both Allergan as well as the University of Washington mentors. Fellows are highly encouraged to complete their MS project during their first year. Additionally, fellows will also engage in ongoing projects with Allergan throughout their first year, applying skills from previous pharmacy training as well as integrating new techniques developed from University of Washington courses. Applying learning to solve real-world problems is a constant focus of the fellowship.

The fellow’s actual course of study will be developed on an individual basis with the Program Director, Dr. Beth Devine, but will consist of courses in biostatistics, epidemiology, economic evaluations and outcomes research, and health and pharmaceutical policy.

AFTER COMPLETION OF THE FIRST YEAR, THE FELLOW WILL HAVE A CLEAR UNDERSTANDING OF:

- General principles of economics and in particular how economics influences the use, cost, and availability of pharmaceuticals.
- The complex structure of drug policy and how it determines relationships between consumers, health care providers, insurers, payers, and government agencies.
- The breadth and scope of analytical methods needed for the assessment of Patient Reported Outcomes (PROs), economic modeling, retrospective database studies, and observational studies.
- Formulary development, maintenance and evaluation in institutional, managed care, and state-level government programs.
SECOND YEAR OBJECTIVES

The second year of training will be at Allergan in Irvine, CA with the GHEOR department. This part of the program is designed to allow the fellow to learn about the role of economic evaluations and outcomes research in the drug development and commercialization process within the industry setting. The research may be on an existing or experimental product for a disease state that is of interest to Allergan.

In addition to completing individual research project(s), fellows will participate in ongoing economic evaluations, outcomes research, and other projects in collaboration with the GHEOR team. These experiences will provide the fellow with opportunities to interact with team members in other departments at Allergan to learn how economic analyses and outcomes research are used throughout the pharmaceutical industry. Fellows will see firsthand how outcomes research is utilized to demonstrate the place of Allergan products in treatment pathways and its value.
ALLERGAN FELLOWSHIP MENTORS

David Macarios, MBA, MSc
Vice President, GEV

Sepideh Varon, PhD
Vice President, GHEOR

Jonathan W. Kowalski, PharmD, MS
Vice President, US HOV

Joanna Campbell, PhD
Executive Director, GHEOR

Patrick Gillard, PharmD, MS
Executive Director, GHEOR

Vaishali Patel, PharmD, MS
Executive Director, GHEOR

Hema Viswanathan, BPharm, PhD
Executive Director, GHEOR

Kate Burslem, MSc
Executive Director, GHEOR

Katelyn Keyloun, PharmD, MS
Associate Director, GHEOR

Vanessa Shih, PharmD, MS
Associate Director, GHEOR

Anand Shewale, MS, PhD
Associate Director, GHEOR

Amanda Harrington, PhD
Associate Director, GHEOR

Amy Tung, PharmD, MS
Senior Manager, GHEOR

Sarah Baradaran, PharmD, MS
Senior Manager, GHEOR

Elaheh Shirneshan, PhD
Senior Manager, GHEOR

**UNIVERSITY OF WASHINGTON PROGRAM FACULTY**

- Anirban Basu, PhD
  Professor and Stergachis Family Endowed Director of The CHOICE Institute

- Beth Devine, PharmD, MBA, PhD, FASHP
  Professor, Director of Graduate Programs

- Josh Carlson, MPH, PhD
  Associate Professor

- Louis P. Garrison, Jr., PhD
  Professor Emeritus

- Ryan Hansen, PhD, PharmD
  Assistant Professor

- Thomas K. Hazlet, PharmD, Dr. PH
  Associate Professor

- Scott D. Ramsey, MD, PhD
  Professor

- Sean D. Sullivan, PhD
  Professor and Dean of School of Pharmacy

- David L. Veenstra, PharmD, PhD
  Professor and Associate Director of The CHOICE Institute

- Joseph Babigumira, MBChB, MS, PhD
  Adjunct Associate Professor

- Aasthaa Bansal, PhD
  Associate Professor

- Andy Stergachis, BPharm, PhD
  Professor and Associate Dean for Research, Graduate Programs and New Initiatives

- Douglas Barthold, PhD
  Research Assistant Professor

- Shelly Gray, PharmD, MS
  Professor

- Zachary Marcum, PharmD, MS, PhD
  Assistant Professor
JAE HYUN LEE, PHARMD

Jae Hyun Lee earned his PharmD from the University of Illinois at Chicago (UIC), College of Pharmacy. During his time in pharmacy school, he assisted the UIC ICER team with the literature search for the report on Calcitonin Gene-Related Peptide Inhibitors. In addition, he was a rotation student at AbbVie where he forecasted the financial impact that new competitors may have on the company’s hepatitis C portfolio, specifically in the Medicare and Medicaid population. He also worked as a managed care research assistant for Dymaxium where he created monographs for medications nearing their FDA approval dates.

Jae is excited to join the CHOICE Institute and work with the faculty to develop his research skills in HEOR. For his thesis, he will be using the Medical Expenditure Panel Survey (MEPS) data to assess treatment patterns, adherence, and discontinuation of triptan use in patients with migraines.

BRENNAN BEAL, PHARMD

Brennan is a first year UW/Allergan Health Economics and Outcomes Research (HEOR) fellow. Prior to his fellowship, Brennan earned his PharmD from the University of North Carolina Eshelman School of Pharmacy. There he conducted research within the Department of Pharmaceutical Outcomes and Policy (DPOP) as well as the Center for Medication Optimization (CMO), where he worked to understand the cost of embedding pharmacists in primary care settings. While completing his PharmD, he was also recruited as an independent consultant for local pharmaceutical firms modeling expected value and product uptake from various marketing scenarios.

Brennan is humbled to be joining the CHOICE institute to learn from the exceptional faculty and hone his skills in economic modeling and outcomes research. For his thesis, he will be performing a large database research project to understand caregiver burden for age-related macular degeneration.
2ND YEAR FELLOWS

ASHLEY KIM, PHARMD, MS
Ashley received her PharmD from the University of California, San Francisco. For her first year of the fellowship Ashley worked under the mentorship of Drs. Aastha Bansal, Beth Devine, Joshua Roth, and Joanna Campbell. At the University of Washington, she conducted a retrospective claims analysis to characterize the healthcare resource utilization and costs among patients with geographic atrophy for her master’s thesis.

In her second year of the fellowship, Ashley has worked in the eye care therapeutic area with projects in glaucoma and age-related macular degeneration. Ashley is looking forward to continuing to utilize her training in outcomes research and economic evaluation on site at Allergan.

ABSTRACTS FROM FELLOWSHIP:

MANUSCRIPTS FROM FELLOWSHIP:
1. Kim A, Devine B, Shirneshan E, Campbell J, Bansal A. Characterizing the Healthcare Resource Utilization and Costs in Patients with Geographic Atrophy Secondary to Age-Related Macular Degeneration Stratified by Disease Severity (In Progress)

JAMIE TA, PHARMD, MS
Jamie received her BS and PharmD from the University of California, San Diego. For the first year of the fellowship, Jamie worked under the mentorship of Drs. Beth Devine, Sean Sullivan, Lou Garrison, and Joshua Roth. At the University of Washington, she conducted a retrospective claims analysis to assess adherence, healthcare resource utilization, and costs among patients treated with antidepressants. Currently, she is working with Patrick Gillard and Amy Tung to support various projects in the CNS/psychiatry franchise. Jamie is excited to continue her training and apply her skills in real-world evidence, patient-reported outcomes research, and economic evaluation.

ABSTRACTS FROM FELLOWSHIP:
3. Ta JT, Devine B. Impact of Antidepressant Non-Adherence and Non-Persistence on Healthcare Resource Utilization and Costs in Major Depressive Disorder: A Systematic Review. UW Corporate Advisory Board Meeting, September 2018, Seattle, WA. (Poster)

MANUSCRIPTS FROM FELLOWSHIP:
Past Fellows

Senior Manager, Global Health Economics and Outcomes Research • Allergan PLC, Irvine, CA

**KEY RESEARCH FROM FELLOWSHIP**

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Manager, Health Economics and Outcomes Research • Seattle Genetics, Bothell, WA

**KEY RESEARCH FROM FELLOWSHIP**

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Manager, Medical Affairs (HEOR) • Neurocrine Biosciences, San Diego, CA

**KEY RESEARCH FROM FELLOWSHIP**

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Associate Health Economist, Evidence for Access (BioOncology) • Genentech, Inc., South San Francisco, CA

**KEY RESEARCH FROM FELLOWSHIP**
1. Shapouri S, Devine EB, Keyloun KR, Gillard PJ, Sabbatini AK, Bansal A. Predicting Hospitalizations and Returns to the Emergency Department 30-Days Post Emergency Department Discharge Among Patients with Acute Bacterial Skin and Skin Structure Infections.

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Senior Manager, Global Health Economics and Outcomes Research • Allergan PLC, Irvine, CA

**KEY RESEARCH FROM FELLOWSHIP**

---

Manager, Health Economics and Outcomes Research • Seattle Genetics, Bothell, WA

**KEY RESEARCH FROM FELLOWSHIP**

---

Senior Manager, Global Health Economics and Outcomes Research • Allergan PLC, Irvine, CA

**KEY RESEARCH FROM FELLOWSHIP**

---

Associate Director, Global Health Economics and Outcomes Research • Allergan PLC, Irvine, CA

**KEY RESEARCH FROM FELLOWSHIP**
1. Shih V, Campbell J, Devine EB. The Association between Onset of Vision Impairment and Functional Limitations and Informal Caregiving Requirements in Older Americans.
Utilization Management and Specialty Coordinator • Kaiser Permanente of Washington, Seattle, WA

**KEY RESEARCH FROM FELLOWSHIP**

1. Yep T, Patel VD, Slejko JF, Devine EB. Comparing Total and Disease Related Healthcare Cost for Glaucoma Patients by Disease Severity: A Retrospective Claims Database Analysis. (In Progress)

Associate Director, Health Economics and Outcomes Research • Seattle Genetics, Seattle, WA

**KEY RESEARCH FROM FELLOWSHIP**


Senior Health Economist • Genentech, Inc., South San Francisco, CA

**KEY RESEARCH FROM FELLOWSHIP**


Consultant, Health Economics and Outcomes Research • Seattle, WA

**KEY RESEARCH FROM FELLOWSHIP**


Director, Health Economics and Outcomes Research EMEA • Kite Pharma, London, United Kingdom

**KEY RESEARCH FROM FELLOWSHIP**


Executive Director, Global Health Economics and Outcomes Research • Allergan PLC, Irvine, CA

**KEY RESEARCH FROM FELLOWSHIP**


Director, Patient Reported Outcomes • The Janssen Pharmaceutical Companies of Johnson & Johnson, Raritan, NJ

**KEY RESEARCH FROM FELLOWSHIP**


Associate Professor of Clinical Pharmacy • UCSD Skaggs School of Pharmacy, La Jolla, CA

**KEY RESEARCH FROM FELLOWSHIP**


**KEY RESEARCH FROM FELLOWSHIP**

APPLICATION INFORMATION

Interested students must apply to the University of Washington Graduate School, and register for Personnel Placement Services (PPS) at ASHP's Midyear Clinical Meeting. The online application process can be found at: https://sop.washington.edu/choice/graduate-education-training-programs/fellowships

CONTACT INFORMATION

If you have any questions, please contact:

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E-Mail: mcgano@uw.edu
Phone: (206) 616-1383

ALLERGAN PLC
Amy Tung, PharmD, MS
Senior Manager
2525 Dupont Drive
Irvine, CA 92612
E-Mail: tung_amy@allergan.com
Phone: (714) 246-5669

DEADLINE

ASHP Midyear Interview Application Deadline
November 29, 2019

UW Graduate School Application Deadline
December 13, 2019

APPLICATION ELIGIBILITY

Applicants for this fellowship must have a degree in pharmacy and have some research experience (preference will be given to those with a high academic standing). Excellent written and verbal communication skills are also essential. Applicants will be required to submit their curriculum vitae, a letter describing their career goals, and three letters of recommendation. Selection of fellows will be made by a steering committee composed of the University of Washington faculty members and representatives from Allergan.

<table>
<thead>
<tr>
<th>University</th>
<th>UNIVERSITY OF WASHINGTON The Comparative Health Outcomes, Policy, and Economics (CHOICE) Institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Location</td>
<td>Seattle, WA</td>
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<tr>
<td>Allergan Location</td>
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<td>Programs Offered</td>
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<td>Eligibility</td>
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