

RESIDENT RESEARCH IN THE DEPARTMENT OF SURGERY

Dear Prospective Residents,

We are excited that you're considering the University of Washington for your residency. This is a dynamic department that offers comprehensive training in the clinical practice of surgery, as well as all of the components of professional development that will help you be successful in the years ahead; for some of you, this will include research training and/or experience in clinical or basic science research. As the Associate Chair for Research in the Department of Surgery, I am pleased to give you a view of some of the research training opportunities that await you. Many of our applicants want research and research training to be a part of their experience, and we work hard to accommodate those who are interested in pursuing research during residency, and strive to match residents with the ideal research setting so that they can accomplish their professional goals. For some, this means taking part in a formal NIH-sponsored T32 research training program and/or pursuing a secondary degree—a Master of Science, a Master of Public Health, or a PhD. For others, this means participating in discrete, mentored research projects throughout residency. For still others this means leaving the institution for research endeavors at other centers. No matter what path you choose, we are committed to helping you develop a broad breadth of knowledge in the field, giving you the skills needed to be successful as a researcher after leaving the department, and ensuring that your research products (publications, grants, presentations) are something that you can be proud of in the years to come.



David R. Flum, MD, MPH
Associate Chair
for Research

Research in the Department of Surgery spans the spectrum from basic science to health policy, and is organized into 10 major cores: Injury, Burn, and Inflammation; Cancer; Reperfusion; Transplant; Device and Pharmaceutical Clinical Trials; Vascular Biology; Gastrointestinal Physiology and Metabolism; Simulation and Education; Global Health; and Health Services. Each of these cores includes faculty with substantial experience who are eager to work with residents in both short-term research projects and longer research fellowships.

This publication highlights the work of residents currently undertaking two-year research fellowships. You can learn more about all resident research opportunities by visiting the [research section](#) of the Department of Surgery website, where you will find investigator profiles, information about our many research labs and centers, abstracts from the 2016 Schilling Research Symposium, and much more.

The Department of Surgery's research mission is to be the premier home for surgical research. That's for everybody—staff, faculty, fellows, and residents. We are consistently ranked as one of the top programs in the nation for NIH and extramurally funded research, and we strive to do research that is highly innovative, collaborative, and impactful. We hope you will join us in pursuing research during your time as a surgical resident, and welcome you to be part of what we believe is the premier home for surgical research.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Flum'.

David R. Flum, MD, MPH, FACS
Associate Chief Medical Officer, UW Medicine
Professor of Surgery, Adjunct Professor Pharmacy and Health Services
Associate Chair for Research, Department of Surgery
University of Washington



DOS research residents on their way to the ACS Clinical Congress. From left to right: Jonathan Sham (research years 2012–2014), Meghan Flanagan (2013–2015), Vlad Simianu (2013–2015), Morgan Richards (2013–2016), and Andrew Meshner (2013–2015).

Research Residents

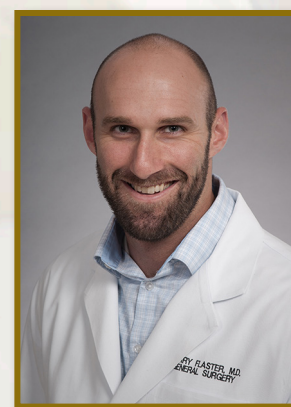
Matthew Bartek, MD, MPH, 2016–2018



Dr. Bartek is a research fellow in the NIDDK-funded T32 fellowship in **Gastrointestinal Surgical Outcomes Research** at the **Surgical Outcomes Research Center (SORCE)**. His mentors include Drs. **David Flum**, Professor in the Division of General Surgery, **Sherene Shalhub**, Assistant Professor of Surgery in the Division of Vascular Surgery, and **Danielle Lavallee**, Research Assistant Professor in the Division of General Surgery. Under their guidance, Dr. Bartek will be conducting research on vascular surgery outcomes with a specific focus on surgical decision-making—both on the part of the patient and the physician—and how data can enhance the decision-making process. He plans to pursue an academic career in vascular surgery, and to continue to develop his research interests and skills to that end.

Harry Flaster, MD, 2016–2018

Dr. Flaster will spend two years as a cardiothoracic research fellow and surgical resident at the Hadassah Hospital Ein Kerem of the Hebrew University in Jerusalem, Israel, under fellowship director Dr. Oz Shapira, Professor and Chair of Cardiothoracic Surgery at Hadassah. The fellowship will have research, clinical, and humanitarian components. Dr. Flaster will be involved with several translational projects, including an international randomized control trial evaluating the impact of different cardiopulmonary bypass oxygenators on neurocognitive function after heart surgery. In addition, he will participate in the clinical duties of an integrated cardiothoracic surgery resident at Hadassah Ein Kerem, including providing free care for pediatric cardiac patients from throughout Israel and the Palestinian territories.



Cameron Gaskill, MD, MPH, 2015–2017



Dr. Gaskill spent his first year as a research fellow in the **Surgical Outcomes Research Center (SORCE)** under the direction of Dr. **David Flum**, Professor in the Division of General Surgery. Over the past year he researched use of CT in perforated appendicitis and use of post-operative wound surveillance to detect surgical site infections.

He also pursued a Master of Public Health in the University of Washington Department of Global Health. For his second year, Dr. Gaskill is completing an **NIH Fogarty International Center** fellowship in Kumasi, Ghana working to improve surgical care in low- and middle-income countries

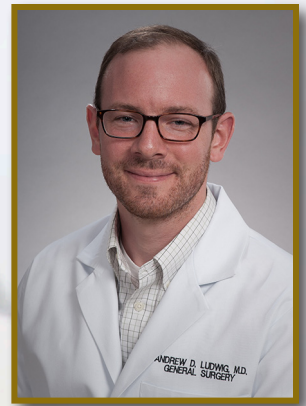
(LMICs) under mentors Dr. **Charles Mock**, Professor in the Division of Trauma, Burn, and Critical Care Surgery, and Dr. **Joseph Zunt**, Professor in the Department of Global Health. Dr. Gaskill will focus on enhancing surgical care of trauma and oncology patients in health facilities in Ghana and other LMICs through systematic assessment of resource need, characterization of disease burden, and modeling the effect of strategic interventions. Dr. Gaskill wishes to pursue a career in academic surgery with attention on LMICs.



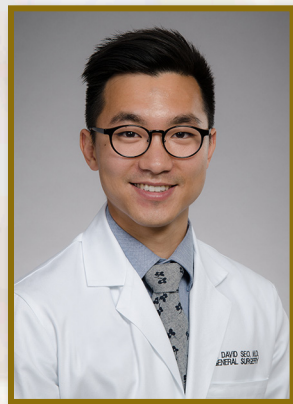
Drs. James Park, Jonathan Sham (2012–2014) and Yon-woo Seo (2016–2018) at the 2015 Washington-Oregon ACS meeting in Suncadia, WA.

Andrew Ludwig, MD, 2015–2017

Dr. Ludwig is a research fellow under the direction of faculty mentors Drs. **James Park**, Associate Professor in the Division of General Surgery, and **Alessandro Fichera**, Professor in the Division of General Surgery and Section Chief of Gastrointestinal Surgery. Under the mentorship of Dr. Park, he is investigating novel antibody-directed positron emission tomography (PET) imaging and radiation-based therapies for hepatocellular carcinoma (HCC). This research builds on previous work by General Surgery resident Dr. **Jonathan Sham**, who developed a liver cancer-specific PET imaging probe. Dr. Ludwig's goal is to develop and refine targeted therapies for liver cancer, leading to earlier detection and more effective treatment with reduced side effects for a disease that represents the second most lethal malignancy worldwide. When not in the laboratory, Dr. Ludwig will perform clinical research on wound healing after colectomy and surgical approaches to rectal adenocarcinoma under the guidance of Dr. Fichera. Dr. Ludwig plans to use this experience to pursue an academic career in colorectal surgery.



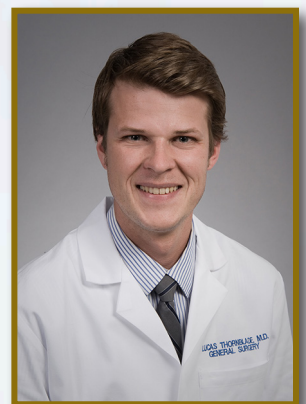
Yongwoo Seo, MD, 2016–2018



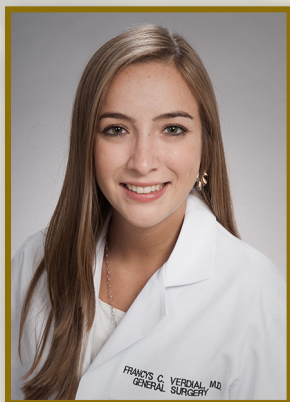
Dr. Seo is working as a research fellow under the collaborative guidance of Dr. **Venu Pillarisetty**, Associate Professor in the Division of General Surgery, and Dr. **Seth Pollack**, Assistant Professor in the Department of Medicine, and he is funded by the Sarcoma Research Program at the Fred Hutchinson Cancer Research Center. In his role he will help complete and analyze the data for a phase I clinical trial in soft tissue sarcomas utilizing an intra-tumoral injection of a Toll-like receptor 4 (TLR4) agonist. In addition, he will lead efforts to develop an in vitro tumor slice culture system, previously demonstrated in multiple solid tumors such as colon and pancreatic cancer, in leiomyosarcoma and liposarcoma. He hopes to optimize the culture conditions for these slice cultures in sarcoma to allow for in vitro examination of the live tumor microenvironment. The goal is to demonstrate the maintenance of this architecture over time in culture and to then use multiple imaging modalities to test the local immune response to promising therapeutic agents (such as immune checkpoint inhibitors and TLR agonists). At the same time, he will continue work previously done by Dr. Pillarisetty's group in human pancreatic ductal adenocarcinoma (PDA) to analyze the specific immune response using T cell receptor (TCR) deep sequencing, in collaboration with Adaptive Biotechnologies. By using these high throughput computational methods and correlating the TCR data with whole genome expression from the same tumors, he hopes to gain a better understanding of what activates or perturbs the immune response to PDA and to develop further hypotheses for therapeutic targets.

Lucas Thornblade, MD, 2015–2017

Dr. Thornblade is a trainee in the NIDDK-funded T32 fellowship in **Gastrointestinal Surgical Outcomes Research** at the **Surgical Outcomes Research Center (SORCE)**. Under the direction of Dr. **David Flum**, Professor in the Division of General Surgery, he plans to carry forward ongoing work in diverticulitis outcomes under an R01 grant through the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). This grant will look at patient reported outcomes of elective colon resection in diverticulitis. Working with Dr. **Farhood Farjah**, Assistant Professor in the Division of Cardiothoracic Surgery, Dr. Thornblade plans to study process of care and clinical effectiveness in thoracic and hepatobiliary cancer. Additionally, while pursuing a Masters of Public Health in the Department of Global Health, Dr. Thornblade plans to continue his ongoing work in surgical education in Vietnam under the direction of Dr. **Charles Mock**, Professor of Surgery, Epidemiology and Global Health.



Research Residents (cont.)



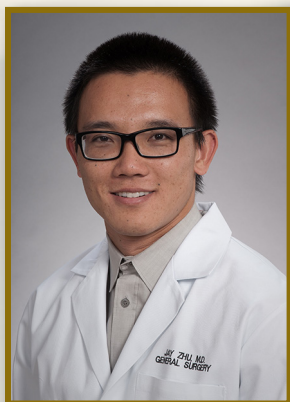
Francys Verdial, MD, 2016–2018

Dr. Verdial is a trainee in the NIDDK-funded T32 fellowship in **Gastrointestinal Surgical Outcomes Research** under the direction of Dr. **David Flum**, Professor in the Division of General Surgery. Her research will primarily focus on addressing appropriateness of surgical care and resource utilization. Dr. Verdial's research spans multiple clinical areas, including lung cancer, breast cancer, small bowel obstruction, and bariatric surgery. In addition, Dr. Verdial is enrolled in the University of Washington Master of Public Health program to help increase her knowledge of research methods and data analysis. She eventually plans to pursue a fellowship in surgical oncology.

Cordelie Witt, MD, 2015–2017



Dr. Witt is a fellow in the NICHD-funded T32 **Pediatric Injury Research Training Program** under faculty mentors Dr. **Frederick Rivara**, Professor in the Department of Pediatrics, and Dr. **Monica Vavilala**, Professor in the Department of Anesthesiology & Pain Medicine, within the **Harborview Injury Prevention and Research Center (HIPRC)**. She also works closely with several faculty within the Division of Trauma, Burn and Critical Care Surgery at Harborview. Her research focuses on processes of care and patient outcomes in trauma and pediatric surgery, including projects relating to clinical care pathways and evidence-based guidelines for patients with blunt trauma. She collaborates with investigators across multiple departments, which enhances the quality and generalizability of her work. In addition, Dr. Witt is pursuing a Master of Public Health in Epidemiology through the University of Washington School of Public Health, where her coursework focuses on research methodology and data analysis techniques. She hopes to ultimately use this training to pursue an academic surgical career aimed at improving patient care via population-based analyses and interventions.



Jay Zhu, MD, 2016–2018

Dr. Zhu is a research fellow in the NHLBI-funded T32 **Cardiovascular Research Training Program** under the mentorship of Dr. **David Dichek**, Professor of Medicine at the University of Washington. He is investigating biochemical pathways involved in the development of aortic aneurysms in genetically heritable conditions such as Loeys-Dietz Syndrome. Specifically, his work focuses on evaluating vasomotor function in an animal model with smooth muscle specific TGF- β deletion. Aside from his basic science research, Dr. Zhu is also working with co-resident, Dr. **Andrew Ludwig**, to standardize clinical handoffs as part of a resident-led multidisciplinary quality improvement project.



Research residents with former Department of Surgery Chair Carlos Pellegrini at the 2015 Washington–Oregon ACS meeting in Suncadia, WA. Back row: Drs. Brodie Parent, Kevin Riggle, Jonathan Sham, Vlad Simianu, Morgan Richards, Yong-woo Seo, Carlos Pellegrini (Chair, Department of Surgery, 1992–2015)

Giana H. Davidson, MD, MPH
Assistant Professor, Division of General Surgery
Medical Director of Post-Acute Care, UW Medicine
Associate Medical Director of Clinical Resource Management, UW Medical Center



“During my clinical training in General Surgery, I completed a two year research fellowship to gain expertise in outcomes and health services research. This program was under the mentorship of Dr. Frederick Rivara and Drs. **Saman Arbabi**, **Ronald Maier** and **Eileen Bulger** at the **Harborview Injury Prevention and Research Center (HIPRC)** as a trainee in the Pediatric Injury Research T32 program. During these two years, I completed my Masters of Public Health in Epidemiology and gained invaluable experience in grant writing and outcomes research, allowing me to publish and present our work at various surgical and public health conferences. This was the foundation for my current research focused on improving the care of our surgical and trauma patients in the post-acute care period. In addition to my academic pursuits, my husband and I expanded our family to include two children! My research fellowship years were a wonderfully busy time in my life and the mentoring, training in epidemiology and statistics, and exceptional departmental support were instrumental in establishing my career in academic surgery.”

Accomplishments Resulting from Fellowship

Significant Publications

1. **Davidson GH**, Hamlat CA, Rivara FP, Koepsell TD, Jurkovich GJ, Arbabi, S. Long-term Survival of Adult Trauma Patients. *JAMA*. 2011;305(10):1001-1007.
2. **Davidson GH**, Rivara FP, Arbabi S. Trauma and Long-term Mortality-Reply. *JAMA*. 2011;305(23):2413-2414.
3. **Davidson GH**, Maier RV, Arbabi S, Goldin AB, Rivara FP. Impact of Operative Delay on Pediatric Trauma Outcomes. *J Trauma Acute Care Surg*. 2012 Jul;73(1):162-7.
4. **Davidson GH**, Rivara FP, Mack CD, Kaufman R, Jurkovich GJ, Bulger ME. Validation of Pre-Hospital Trauma Triage Criteria for Motor Vehicle Collisions. *J Trauma Acute Care Surg*. 2014 March; 76(3):755-761.

Awards and Honors

- First place, Region 10 ACS COT Resident Paper Competition & First place, Washington State COT clinical paper presentation. American College of Surgeons (ACS), Committee on Trauma (COT). Tacoma, WA. November 2010.
- Fourth place, UW Department of Surgery Schilling Research Symposium. Seattle, WA, February 2011.

Presentations

- UW Department of Epidemiology 29th annual SER Meeting. Injury as a Risk Factor for Fatal Unintentional Overdose following Hospitalization: A Population Based Analysis. Seattle, WA. June 2010.
- Washington State Joint Conference on Health. Injury as a Risk Factor for Fatal Unintentional Overdose After Hospitalization. Yakima, WA. October 2010.
- Washington State Joint Conference on Health. Public Opinion About Gun Regulation in Washington State. Yakima, WA. October 2010.
- Regional American College of Surgeons Committee on Trauma (COT) Resident Paper Competition. Long Term Survival of Adult Trauma Patients. Tacoma, WA. November 2010.
- Washington State Department of Health EMS and Trauma Steering Committee. Outcome of WA State Adult Trauma Patients. January 2011.
- UW Department of Surgery Schilling Research Symposium. Long Term Survival of Adult Trauma Patients. Seattle, WA. February 2011.
- American College of Surgeons, Washington-Oregon Chapter. Long Term Survival of Adult Trauma Patients. Lake Chelan, WA. June 2011.

“My research fellowship years were a wonderfully busy time in my life and...were instrumental in establishing my career in academic surgery.”

—Giana Davidson, MD, MPH

Spotlight on Past Research Residents



Farhood Farjah, MD, MPH

Assistant Professor, Division of Cardiothoracic Surgery
Associate Program Director, Cardiothoracic Surgery Residency Program
Associate Medical Director, Surgical Outcomes Research Center

“I interrupted my clinical training in general surgery to pursue a post-doctoral fellowship in outcomes and health services research under the mentorship of Dr. **David Flum** through the **Surgical Outcomes Research Center (SORCE)**. During that time I obtained a Masters of Public Health in Epidemiology and completed post-doctoral level coursework in biostatistics and health services research. In addition, I gained practical experience studying the delivery of care and outcomes of patients with lung cancer using the Surveillance, Epidemiology, and End-Results (SEER)-Medicare database. Moreover, I cultivated a vast network of mentors and collaborators throughout the Department and Institution. This unparalleled experience was critical in providing me the training, experience, and networks to legitimately pursue a career in academic surgery.”

Accomplishments Resulting from Fellowship

Significant Publications

1. **Farjah F**, Wood DE, Yanez D 3rd, Symons RG, Krishnadasan B, Flum DR. Temporal trends in the management of potentially resectable lung cancer. *Ann Thorac Surg*. Jun 2008;85(6):1850-1855; discussion 1856.
2. **Farjah F**, Wood DE, Yanez ND 3rd, Vaughan TL, Symons RG, Krishnadasan B, Flum DR. Racial disparities among patients with lung cancer who were recommended operative therapy. *Arch Surg*. Jan 2009;144(1):14-18.
3. **Farjah F**, Flum DR, Ramsey SD, Heagerty PJ, Symons RG, Wood DE. Multi-modality mediastinal staging for lung cancer among Medicare beneficiaries. *J Thorac Oncol*. Mar 2009;4(3):355-363.
4. **Farjah F**, Flum DR, Varghese TK Jr, Symons RG, Wood DE. Surgeon specialty and long-term survival after pulmonary resection for lung cancer. *Ann Thorac Surg*. Apr 2009;87(4):995-1004; discussion 1005-1006.
5. **Farjah F**, Wood DE, Mulligan MS, Krishnadasan B, Heagerty PJ, Symons RG, Flum DR. Safety and efficacy of video-assisted versus conventional lung resection for lung cancer. *J Thorac Cardiovasc Surg*. Jun 2009;137(6):1415-1421.
6. **Farjah F**, Wood DE, Varghese TK Jr, Massarweh NN, Symons RG, Flum DR. Health care utilization among surgically treated Medicare beneficiaries with lung cancer. *Ann Thorac Surg*. Dec 2009;88(6):1749-1756.

Awards and Honors

- Ruth L. Kirschstein National Research Service Award (NIH/NCI), 2007
- Society of Thoracic Surgeons J. Maxwell Chamberlain Memorial Paper, 2009

Presentations

- **Farjah F**, Wood DE, Yanez D 3rd, Symons RG, Krishnadasan B, Flum DR. Temporal trends in the management of potentially resectable lung cancer. Society of Thoracic Surgeons 44th Annual Meeting. Fort Lauderdale, Florida. January 2008.
- **Farjah F**, Flum DR, Varghese TK Jr, Symons RG, Wood DE. J. Maxwell Chamberlain Memorial Paper for General Thoracic: Surgeon specialty and long-term survival following pulmonary resection for lung cancer. Society of Thoracic Surgeons 45th Annual Meeting. San Francisco, California. January 2009.

“I cultivated a vast network of mentors and collaborators throughout the department and institution. This unparalleled experience was critical in providing me the training, experience, and networks to legitimately pursue a career in academic surgery.”

—Farhood Farjah, MD, MPH

The University of Washington is a target-rich environment for resident research, with many clinical investigators across departments and schools to serve as mentors and resources for funding. Some examples of popular, ongoing NIH-funded training programs are below, but there are numerous other opportunities for funding through grants and other mechanisms. We will work with you to find the right fit to accomplish your professional goals.



Cancer Epidemiology and Biostatistics Training T32 Program
PI: Stephen Schwartz, PhD, MPH
Department of Epidemiology



Gastrointestinal Surgery Outcomes Research T32 Program
PI: David R. Flum, MD, MPH
Department of Surgery



Cardiovascular Research T32 Program
PI: David A. Dichek, MD
Department of Medicine, Cardiology



Northern/Pacific Fogarty Global Health Fellowship
PI: Joseph Zunt, MD, MPH
Department of Global Health



Gastroenterology Research T32 Program
PI: John M. Inadomi, MD
Department of Medicine, Gastroenterology



Pediatric Injury Research T32 Program
PI: Frederick P. Rivara, MD, MPH
Department of Pediatrics



Palliative Care Research T32 Fellowship Program
PI: J. Randall Curtis, MD, MPH
Department of Medicine, Pulmonary and Critical Care Division

NIH Loan Repayment Program (LRP)

In order to encourage health professionals to pursue careers in biomedical, behavioral, social, and clinical research, the NIH Loan Repayment Program may repay up to \$35,000 of qualified student loan debt per year for individuals committing at least two years to conducting qualified research funded by a domestic nonprofit organization or U.S. federal, state, or local government entity. This loan repayment benefit is in addition to institutional salary received during your time in research. Learn more about this program at <https://www.lrp.nih.gov/>.

Learn More About Department of Surgery Research

This handout covers research conducted by the current cohort of residents who have undertaken a structured two-year research fellowship, but there are numerous other opportunities to pursue shorter-term, discrete projects throughout your residency. To learn more about these opportunities, please be sure to visit the Research section of the DOS website, where you will find investigator profiles, information about our many research labs and centers, resident and fellow abstracts from the 2016 DOS Research Symposium, and much more.



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UW Medicine

DEPARTMENT OF SURGERY

Department of Surgery Resident Research Leadership

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Photo credits:
UW Creative (portraits)
Richard Kenagy, PhD (back cover bottom photo)
Michael Hilleary (background pages 4–7)

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