Atrial fibrillation (AF) risk factors and outcomes. The Institute of Medicine, AHA, and NHLBI have all identified AF management as a top priority for research. In particular, relatively little is known about AF risk factors and outcomes in representative elderly populations and in race/ethnic groups other than whites. Central findings of our investigations in AF include: in patients with diabetes, poor glycemic control and longer diabetes duration are associated with higher AF risk; despite having more AF risk factors, blacks have lower rates of incident AF than whites; among elderly individuals at a given age, cognitive function declines faster over time in those with AF than in those without AF, even in the absence of stroke; and in the US Medicare population, during the first 5 years after a new AF diagnosis, mortality was the most frequent major outcome and new heart failure was the most common nonfatal event (as opposed to stroke). These findings have direct clinical relevance for the care of patients with AF and raise new questions about pathophysiology that inspire further research.


2. Genomics of AF. Previously, inherited forms of AF were considered rare, but recent research suggests that AF, and in particular AF with onset at an early age, is heritable. I co-chair the Atrial Fibrillation/PR interval Working Group of the Cohorts for Heart and Aging in Genomic Epidemiology (CHARGE) Consortium and am an active participant in the AFGen Consortium. My colleagues and I have published a series of articles establishing genetic associations with AF and electrocardiographic PR interval using genome-wide association analysis, examining the role of European ancestry to explain the observed lower AF incidence in African Americans, and using targeted sequencing to follow up on GWAS hits. Our current collaborative work focuses on using exome sequencing and whole genome sequencing to study the genetic basis of AF. The goal of this highly collaborative genetic work is increase understanding of the mechanisms of AF initiation and persistence, and to identify potential targets for drug development.


3. Medication effects and drug safety. I have a longstanding interest in medication effects and drug safety. My colleagues and I have conducted studies of medication use in relation to cardiovascular outcomes in the setting of Group Health, making use of the automated pharmacy data that records prescription medication use in an unbiased fashion for Group Health enrollees. I currently collaborate with Group Health investigators on the FDA Mini-Sentinel project, designed to develop methods for studying drug effects nationwide using large automated databases. I completed a recent term as a member of the US Food and Drug Administration (FDA) Drug Safety and Risk Management Advisory Committee, and am currently a member of the FDA Endocrinologic and Metabolic Drugs Advisory Committee. The goal of my contributions is to improve the safety and use of prescription medications in the US.


4. Use of electronic health record data in cardiovascular outcomes research. My colleagues and I have developed and validated methods for identifying cardiovascular disease outcomes using electronic health record data in large populations. My funded work in this area has been conducted in the settings of Group Health Cooperative, the Cardiovascular Health Study, Women’s Health Initiative, Multi-Ethnic Study of Atherosclerosis, Jackson Heart Study, and in US Medicare enrollees. Through this work, we have identified cost-effective, validated methods for studying the determinants and outcomes of cardiovascular disease in large, representative populations.


5. Mentoring of trainees and junior faculty. I am committed to recruiting and training the next generation of highly skilled researchers. I teach the graduate course in Pharmacoepidemiology at the University of Washington (UW), and I have served as a mentor for trainees in the UW T32 Training Programs in Cardiovascular Epidemiology, Cardiovascular Biostatistics, and Pulmonary and Critical Care Medicine. I was chair of the UW K30 Clinical Research Curriculum Award from 2000-2007, took a lead role in the Education
Core of the UW Clinical and Translational Science Award from 2007-2010, and was Director of the UW Clinical Research Graduate Certificate Program in the UW Department of Epidemiology from 2008-2015. I am currently Associate Program Director of the UW T32 Palliative Care Training Grant. I have chaired 28 Epidemiology master’s degree thesis committees and five PhD dissertation committees. Selected publications from my trainees are listed below, and several more are listed above in items 1-4 of “Contributions to Science”.


**Complete list of published work in MyBibliography:**