OMB No. 0925-0001 and 0925-0002 (Rev. 09/17 Approved Through 03/31/2020)

BIOGRAPHICAL SKETCH

NAME: Alvaro Alonso

eRA COMMONS USER NAME (credential, e.g., agency login): alvaroalonso

POSITION TITLE: Professor

EDUCATION/TRAINING:

| INSTITUTION AND LOCATION | DEGREE  (if applicable) | Completion Date  MM/YYYY | FIELD OF STUDY |
| --- | --- | --- | --- |
| University of Navarra, Pamplona, Spain | MD | 06/2000 |  |
| National School of Health, Madrid, Spain | MPH | 06/2002 |  |
| Hospital Virgen del Camino, Pamplona, Spain | Residency | 06/2005 | Preventive Medicine |
| University of Navarra, Pamplona, Spain | PhD | 06/2005 | Epidemiology |
| Harvard School of Public Health, Boston, MA | Post-doc | 06/2007 | Epidemiology |

**A. Personal Statement  
I am a cardiovascular epidemiologist with over 10 years of experience in the study of lifestyle, clinical, and genetic determinants of cardiovascular diseases in the population, in the context of large prospective cohort studies. For the last 10 years, my research has primarily focused on the epidemiology of atrial fibrillation (AF) and its complications. Funded by grants from NHLBI** and the American Heart Association**, I have led numerous studies in community-based cohorts, such as the Atherosclerosis Risk in Communities (ARIC) study and the Multi-Ethnic Study of Atherosclerosis (MESA), on the incidence and risk factors of AF and its outcomes. In addition, I am leading NHLBI-funded studies evaluating comparative effectiveness for the treatment of AF. I am also involved as coinvestigator in studies evaluating the impact of cardiovascular risk factors on cognitive decline (e.g. ARIC Neurocognitive Study). I have an extensive mentoring experience, having been primary advisor for 7 PhD graduates, having served as committee member for an additional 8 PhD students, and having been involved in different advising and mentoring roles of >20 MPH students. I have provided informal mentoring through T32 training grants at the University of Minnesota and now at Emory University to numerous postdoctoral fellows and I have an extensive record of successful collaborations with junior faculty, leading to publications and grant funding. As proof of my commitment to mentoring junior clinical investigators, I was recently awarded an NHLBI K24 to mentor new investigators in patient-oriented research. My publication, funding and mentoring record, as well as my experience in epidemiologic research and methods and expertise in the epidemiology of cardiac arrhythmias, make me uniquely qualified to serve as mentor to Dr. Anish Shah in his application.**

**B. Positions and Honors**

**Positions and Employment**

2001-2005 Medical Residency. Preventive Medicine and Public Health. Department of Preventive Medicine and Quality Management, Virgen del Camino Hospital, Spain.

2004-2006 Research Fellow. Dept of Epidemiology. Harvard School of Public Health, Boston, MA.

2006-2007 Research Associate. Dept of Epidemiology. Harvard School of Public Health, Boston, MA.

2007-2011 Assistant Professor, Division of Epidemiology and Community Health, School of Public Health, University of Minnesota. Minneapolis, MN.

2011-2016 Associate Professor, Division of Epidemiology and Community Health, School of Public Health, University of Minnesota. Minneapolis, MN.

2016-2019 Associate Professor, Department of Epidemiology, Rollins School of Public Health, Emory University, Atlanta, GA

2019-present Professor, Department of Epidemiology, Rollins School of Public Health, Emory University, Atlanta, GA

**Other Experience and Professional Memberships**

2005-present Member, Society for Epidemiologic Research

2008-present Member, American Heart Association

2009-2010 Member, Institute of Medicine Committee on Gulf War and Health: Health Effects of Serving in the Gulf War, Update 2009

2009-2018 International Associate Editor, *Circulation Journal*

2010-present Associate Editor, *American Journal of Epidemiology*

2013-present Editorial Board member, *Epidemiology*

2013-2017 Standing Member, Neurological, Aging and Musculoskeletal Epidemiology (NAME) Study Section, NIH/CSR

2014-2016 Editorial Board member, *Circulation*

2017-present Editorial Board member, *Circulation: Arrhythmia and Electrophysiology*

**Honors**

2004-2006 Fulbright Fellowship

2005 Excellent doctoral dissertation award, University of Navarra, Spain

2011 Sandra A. Daugherty Award for Excellence in Cardiovascular Disease or Hypertension Epidemiology, American Heart Association

2015 Fellow of the American Heart Association

2016-2020 Established Investigator Award, American Heart Association

**C. Contributions to Science  
1. Impact of traditional cardiovascular risk factors on atrial fibrillation (AF) epidemiology**

**AF is a common arrhythmia in the general population. Most of the data on AF epidemiology and risk factors has come from predominantly white populations. My work in the ARIC study, funded by grants 09SDG2280087 and 16EIA26410001 from the American Heart Association (PI: Alonso) and RC1-HL099452 (PI: Alonso), has contributed to demonstrate that the incidence and lifetime risk of AF in African Americans is lower than in whites, to quantify the burden of AF associated with potentially preventable risk factors, and to demonstrate the association of established and novel risk factors for AF in both whites and African Americans.**

1. **Alonso A**, Agarwal SK, Soliman EZ, Ambrose M, Chamberlain AM, Prineas RJ, Folsom AR. Incidence of atrial fibrillation in whites and African-Americans: the Atherosclerosis Risk in Communities (ARIC) Study. *Am Heart J* 2009;158:111-7. PMCID: PMC2720573
2. Huxley RR, Lopez FL, Folsom AR, Agarwal SK, Loehr LR, Soliman EZ, MacLehose R, Konety S, **Alonso A**. Absolute and attributable risks of atrial fibrillation in relation to optimal and borderline risk factors: the Atherosclerosis Risk in Communities (ARIC) Study. *Circulation* 2011;123:1501-8. PMCID: PMC3181498
3. **Norby FL, Soliman EZ, Chen LY, Bengtson LGS, Loehr LR, Agarwal SK, Alonso A. Trajectories of cardiovascular risk factors and incidence of atrial fibrillation over a 25-year follow-up: the Atherosclerosis Risk in Communities Study. *Circulation* 2016;134:599-610. PMCID: PMC49999250**
4. Mou L, Norby FL, Chen LY, O’Neal WT, Lewis TT, Loehr LR, Soliman EZ, **Alonso A**. Lifetime risk of atrial fibrillation by race and socioeconomic status: ARIC study (Atherosclerosis Risk in Communities). *Circ Arrhythm Electrophysiol* 2018;11:e006350. PMCID: PMC6053683

**2. Prediction of AF in the general population**

**Until recently, our ability to predict incidence of AF in the general population has been limited. Developing tools for prediction of AF provides the opportunity to identify individuals more likely to develop the arrhythmia and, therefore, benefit from potential preventive intervention or from AF screening. Funded by the American Heart Association (09SDG2280087, PI: Alonso) and NHLBI (RC1 HL101056, MPI: Benjamin, Alonso), I led work to develop risk prediction models in the ARIC cohort and in the CHARGE-AF consortium. These risk models allow us to identify high-risk individuals in diverse populations and are being used to determine the added value of new biomarkers.**

1. Chamberlain AM, Agarwal SK, Folsom AR, Soliman EZ, Chambless LE, Crow R, Ambrose M, **Alonso A**. A clinical risk score for atrial fibrillation in a biracial prospective cohort (from the Atherosclerosis Risk in Communities [ARIC] Study). *Am J Cardiol* 2011;107:85-91. PMCID: PMC3031130
2. **Alonso A**, Krijthe BP, Aspelund T, et al. A simple risk model predicts incidence of atrial fibrillation in a racially and geographically diverse population: the CHARGE-AF consortium. *J Am Heart Assoc* 2013;2:e000102. PMCID: PMC3647274
3. Sinner MF, Stepas KA, Moser CB, …, Heckbert SR, Pencina MJ, Benjamin EJ, **Alonso A**. B-type natriuretic peptide and C-reactive protein in the prediction of atrial fibrillation risk: the CHARGE-AF consortium of community-based cohort studies. *Europace* 2014;16:1426-33. PMCID: PMC4197895
4. **Alonso A**, Roetker NS, Soliman EZ, Chen LY, Greenland P, Heckbert SR. Prediction of atrial fibrillation in a racially diverse cohort: the Multi-Ethnic Study of Atherosclerosis (MESA). *J Am Heart Assoc* 2016;5:e003077. PMCID: PMC4802458

**3. Impact of AF on outcomes**

**Understanding the impact of AF on different outcomes is necessary to determine the needs of AF patients, to develop adequate treatment guidelines that address those needs, and to precisely evaluate the costs and burden associated with AF in the population. My work using data from the ARIC study and other populations has contributed to understand the impact of AF on different outcomes, particularly across sex and race groups. We have shown how AF is associated with increased risks of sudden cardiac death, myocardial infarction, and overall healthcare utilization, even when we adequately control for underlying comorbidities. These studies highlight the need to develop guidelines for AF treatment that address prevention of other outcomes beyond stroke.**

1. Chen LY, Sotoodehnia N, Buzkova P, Lopez FL, Yee LM, Heckbert SR, Prineas R, Soliman EZ, Adabag S, Konety S, Folsom AR, Siscovick D, **Alonso A**. Atrial fibrillation and the risk of sudden cardiac death: the ARIC study and Cardiovascular Health Study. *JAMA Intern Med* 2013;173:29-35. PMCID: PMC3578214
2. Bengtson LGS, Lutsey PL, Loehr LR, Kucharska-Newton A, Chen LY, Chamberlain AM, Wruck LM, Duval S, Stearns SC, **Alonso A**. Impact of atrial fibrillation on healthcare utilization in the community: the Atherosclerosis Risk in Communities (ARIC) Study. *J Am Heart Assoc* 2014;3:e001006. PMCID: PMC4338687
3. Soliman EZ, Lopez FL, O’Neal WT, Chen LY, Bengtson LGS, Zhang ZM, Loehr L, Cushman M, **Alonso A**. Atrial fibrillation and risk of ST-segment-elevation versus non-ST-segment-elevation myocardial infarction: the Atherosclerosis Risk in Communities (ARIC) Study. *Circulation* 2015;131:1843-50. PMCID: PMC4447576
4. Magnani JW, Norby FL, Agarwal SK, Soliman EZ, Chen LY, Loehr LR, **Alonso A**. Racial differences in atrial fibrillation-related cardiovascular disease and mortality: the Atherosclerosis Risk in Communities (ARIC) Study. *JAMA Cardiol* 2016;1:433-41. PMCID: PMC5347977

**4. Use of administrative databases for studies of comparative effectiveness**

**Administrative data (e.g. claims databases) offer the opportunity of addressing the effectiveness and risks of treatments in real-world populations. My research in this area has contributed to define the link between several medications and a range of outcomes using a variety of databases (UK-based General Practice Research Database, Spain-based BIFAP). More recently, funded by grants R01 HL122200 and R21 AG058445 (PI: Alonso), I am exploring the comparative effectiveness of of anticoagulants and other treatments in patients with atrial fibrillation.**

1. **Alonso A, MacLehose RF, Chen LY, Bengtson LG, Chamberlain AM, Norby FL, Lutsey PL. Prospective study of oral anticoagulants and risk of liver injury in patients with atrial fibrillation. *Heart* 2017;103:834-9. PMCID: PMC5429195.**
2. O’Neal WT, Claxton JS, Sandesara PB, MacLehose RF, Chen LY, Bengtson LGS, Chamberlain AM, Norby FL, Lutsey PL, **Alonso A**. Provider specialty, anticoagulation, and stroke risk in patients with atrial fibrillation and cancer. *J Am Coll Cardiol* 2018;72:1913-22. PMCID: PMC6512871
3. Claxton JS, Lutsey PL, MacLehose RF, Chen LY, Lewis TT, **Alonso A**. Geographic disparities in the incidence of stroke among patients with atrial fibrillation in the United States. *J Stroke Cerebrovasc Dis* 2019;28:890-9. PMCID: PMC6475902
4. **Lutsey PL, Norby FL, Ensrud KE, MacLehose RF, Diem SJ, Chen LY, Alonso A. Anticoagulant therapy and risk of fracture among patients with atrial fibrillation. *JAMA Intern Med* 2019 (in press.) DOI: 10.1001/jamainternmed.2019.5679. PMCID: In process**

**5. Role of cardiovascular risk factors and CVDs, including AF, in cognitive decline and dementia**

**There is great interest in understanding the impact of cardiovascular (CV) risk factors on cognitive decline and dementia. Particularly, determining whether the association of CV risk factors with cognition and dementia changes over time is highly relevant to understand the pathophysiology of neurodegeneration and to develop preventive strategies. As one of the Principal Investigators of the ARIC Neurocognitive Study (ARIC-NCS, U01 HL096902) between 2010 and 2016, I have collected data and published several manuscripts demonstrating the role of midlife CV risk factors on dementia risk and how that association changes over the lifespan.**

1. **Alonso A**, Mosley TR, Gottesman RF, Catellier D, Sharrett AR, Coresh J. Risk of dementia hospitalization associated with cardiovascular risk factors in midlife and older age: the Atherosclerosis Risk in Communities (ARIC) Study. *J Neurol Neurosurg Psychiatry* 2009;80:1194-201. PMCID: PMC2783764
2. **Alonso A, Knopman DS, Gottesman RF, Soliman EZ, Shah AJ, O’Neal WT, Norby FL, Mosley TH, Chen LY. Correlates of dementia and mild cognitive impairment in patients with atrial fibrillation: the ARIC-Neurocognitive Study (ARIC-NCS). *J Am Heart Assoc* 2017;6:e006014. PMCID: PMC5586306.**
3. **Shao IY, Power MC, Mosley T, Jack C Jr, Gottesman RF, Chen LY, Norby FL, Soliman EZ, Alonso A. Association of atrial fibrillation with white matter disease. *Stroke* 2019;50:989-91. PMCID: PMC6433530**
4. Lutsey PL, Chen N, Mirabelli MC, Lakshminarayan K, Knopman DS, Vossel KA, Gottesman RF, Mosley TH, **Alonso A**. Impaired lung function, lung disease and risk of incident dementia. *Am J Respir Crit Care Med* 2019;199:1386-96. PMCID: PMC6543713

**Complete List of Published Work in MyBibliography (>430 publications):**

<https://www.ncbi.nlm.nih.gov/myncbi/alvaro.alonso.1/bibliography/public/>

**D. Additional Information: Research Support and/or Scholastic Performance**

**Ongoing Research Support**

R21 **AG058445 Alonso (PI) 12/01/17-11/30/20**

**NIH/NIA**

**Atrial Fibrillation Treatment in Older Adults**

**The main goal of this project is the impact that polypharmacy and multimorbidity have in the management and outcomes of elderly patients (75 and older) with atrial fibrillation using data from a large administrative healthcare database.**

**Role: Principal Investigator. As PI, I am responsible for overall study supervision, data acquisition, overseeing data analysis, and disseminating study results.**

**16EIA26410001 Alonso (PI) 01/01/16-12/31/20**

**American Heart Association**

**Atrial Fibrillation: Epidemiology, Prevention, and Outcomes**

**This career award provides support to conduct research on the epidemiology of atrial fibrillation and its outcomes, and on approaches for the prevention of this common arrhythmia.**

**Role: Principal Investigator. As PI, I am responsible for developing study hypotheses, supervising data analysis, and leading drafting of manuscripts.**

**K24 HL148521 Alonso (PI) 07/15/19-05/31/24**

**NIH/NHLBI**

**Mentoring in patient-oriented atrial fibrillation and cardiovascular research**

**This career award provides protected time to the PI to mentor junior clinical investigators, obtain training in omics, machine learning and mentoring best-practices, and advance research on the risk factors and mechanisms of atrial fibrillation and its complications.**

**Role: Principal Investigator. As PI, I am responsible for obtaining training, mentoring junior investigators, and leading research activities.**

**R01 HL137338 Alonso (PI) 5/15/19-4/30/22**

**NIH/NHLBI**

**Effect of an Intensive Lifestyle Intervention on the Atrial Fibrillation Substrate**

**This career award provides support to conduct research on the epidemiology of atrial fibrillation and its outcomes, and on approaches for the prevention of this common arrhythmia.**

**Role: Principal Investigator. As PI, I am responsible for developing study hypotheses, supervising data analysis, and leading drafting of manuscripts.**

R01HL126637 Chen (PI) 03/01/16-01/31/21

NIH/NHBLI

**Significance of Atrial Fibrillation and Atrial Fibrillation Burden Detected by Novel ECG Monitoring in Community-Dwelling Elderly**

This ancillary study of the ARIC cohort will define the prevalence of subclinical AF and AF burden using a 2-week ambulatory monitor, will assess the association of atherosclerosis with AF and AF burden, and will quantify the relationship of AF burden with cardiovascular endpoints and cognitive decline.

Role: Co-Investigator. Involved in development of study hypotheses, interpretation of results, and manuscript preparation.

R01 HL131579 **Lutsey (PI) 01/01/17-11/30/20**

**Contemporary Venous Thromboembolism Treatment**

This project will use data from two large healthcare utilization databases to assess the comparative effectiveness of different treatments (inpatient vs outpatient treatment, direct oral anticoagulants vs warfarin) in the management of patients with venous thromboembolism.

Role: Co-investigator, involved in informing study design, data analysis, result interpretation and drafting of manuscripts.

R01 HL136205 Vaccarino (PI) 3/17/17-2/28/21

NIH/NHLBI

**Sleep disturbance as a mechanism for ischemic heart disease in PTSD**

The major goals of this project are to assess associations of sleep disturbances and autonomic function with PTSD status and ischemic heart disease.

Role: Co-Investigator

OT2 OD026551285 Zuchner (PI) 7/20/18-6/30/23

NIH/OD, subcontract to University of Miami

**Southeast Enrollment Center (SEEC)**

The major goal of this project is to recruit 10,000 participants across Georgia and Florida to the All of Us Program / Precision Medicine Initiative.

Role: Co-investigator, leading the engagement component of study participants at Emory University

**Completed Research Support**

N01 HC55019 Folsom (PI) 11/15/10-11/14/16

NIH/NHLBI

***Atherosclerosis Risk in Communities Study – Field Center***

This cohort study is assessing the determinants of atherosclerosisdiseases in four United States communities, including the Northwest Hennepin County suburbs.

Role: Co-investigator, involved in the adjudication of events, data analysis, drafting of manuscripts, mentoring of students, and participation in and development of ancillary studies.

R01 HL122200 Alonso (PI) 04/01/15-02/28/19

NIH/NHLBI

**Comparative Effectiveness of Oral Anticoagulants in Atrial Fibrillation**

This grant examines the effectiveness of new oral anticoagulants compared to warfarin in the treatment of patients with atrial fibrillation using large claims databases.

Role: Principal Investigator. As PI, I am responsible for obtaining data, developing analysis plans, supervising staff, and disseminating study results.

U01HL096902 Lutsey (PI) 07/07/10-06/30/19

NIH/NHLBI/NINDS/NIA

**ARIC Neurocognitive Study (ARIC-NCS)**

Ancillary study of the ARIC cohort which will evaluate cognitive function in approximately 7000 surviving participants of the original cohort with the aim of identifying novel risk factors for cognitive decline and dementia.

Role: Principal Investigator through 5/2016, Minnesota Field Center. As PI, I supervise the exam, participate in protocol development, conduct data analysis, and write manuscripts. Co-investigator since 6/2016