# COVER PAGE

Title: Impact of Social Determinants on Atrial Fibrillation Symptom Burden and Management: A Longitudinal Analysis

# LAY ABSTRACT (1/2 page)

Atrial fibrillation (AF) is a common heart rhythm problem that affects millions of Americans. It can significantly impact a person’s quality of life and increase their risk of stroke and heart failure. Doctors typically manage AF based on how much it bothers patients, but we don’t fully understand how a person’s social and economic circumstances affect their symptoms and treatment. Our research aims to fill this gap by studying how factors like where people live, their race or ethnicity, and their economic status influence their AF symptoms and the care they receive. We will use a mobile and web-based questionnaire to regularly check how AF is affecting participants’ quality of life. The AF quality of life reporting will be accompanied by monitoring the heart rhythm over the course of the study. We aim to identify what factors may be leading to disadvantages and advantages in the improvement of symptoms over time. We think that geographical factors, like living in a rural neighborhood, may affect how symptoms and quality of life are reported. We also think that patients from minority groups or with lower incomes might be less likely to receive certain advanced treatments, even when their symptoms are just as severe as other patients. By understanding these patterns, we can develop better ways to care for all AF patients, regardless of their background. Our findings could lead to new policies and treatment approaches that ensure everyone with AF receives fair and effective care. Ultimately, this research could help reduce health disparities and improve the lives of many people living with this common heart condition.

# SPECIFIC AIMS (1/2 page)

Atrial fibrillation (AF) is the most common cardiac arrhythmia, affecting millions of Americans and causing significant morbidity and mortality. Management of AF is primarily driven by patient-reported symptom burden, yet there are critical gaps in our understanding of how social determinants of health (SDoH) influence these symptoms and subsequent treatment decisions. Our preliminary work has demonstrated that SDoH, particularly neighborhood deprivation and race-ethnicity, significantly impact quality of life in AF patients over time. However, other factors such as access-to-care, environmental pollution, and educational levels may also play an important role in how quality of life is reported.

Our project aims to extend our previous work to include how regional and geographical aspects of SDoH affect the progression of AF symptom burden, and how these SDoH factors may mediate clinical decision-making. Our overall object is to elucidate the complex relationships between SDoH, AF symptom progression, and clinical management strategies to inform equitable, patient-centered care approaches. We propose to do so through the following aims:

**1. Implement a remote monitoring system for assessing patient reported symptom and arrhythmia burden in participants with AF in areas with limited access to care.**

**1. Determine the impact of social determinants on the progression of both arrhythmia and symptom burden of AF over time.**

We will utilize our current satellite sites to recruit and implement remote monitoring using the Atrial Fibrillation Effect on Quality-of-Life (AFEQT) questionnaire to assess Af symptom burden using mobile and web-based platforms, accompanied with long-term monitoring of AF burden. We will subsequently evaluate the trajectory of AF symptom burden, alongside EMR-based clinical data, to identify areas of health inequity based on management and outcomes.

Our research will provide crucial insights into the role of SDoH in AF symptom progression and management, addressing a significant gap in cardiovascular health disparities research. Our findings will inform the development of targeted interventions and policy recommendations to improve equity in AF care.

# DETAILED PROPOSAL (4 pages)

## Significance

## Innovation

## Approach

## Timeline

## Deliverables

## Research Environment

## Data Sharing Plan

# EXTRAMURAL FUNDING PLAN (1/2 page)

# REFERENCES

# BIOGRAPHICAL SKETCH (5 pages max)

## Principal Investigator - Anish S. Shah, MD, MS

## Faculty Mentor - Ravi Ranjan, MD

# BUDGET JUSTIFICATION (1 page)

Funding is available for salaries and fringe benefits of post-doctoral fellows, students, technicians, and other non-faculty project personnel, supplies, miscellaneous expenses, and services. Awards will not include indirect costs. Grant funds cannot be used for faculty salaries (summer or academic year); travel (e.g., conferences cannot be supported by this grant); consultants; or office equipment, including computers (unless specifically justified). Please prepare a one-page budget with maximum direct costs of $20,000 for ten months of support. The budget template is not required but may be used for this purpose.

20k for 10 months of support (2k per month about)