Implementation of the YouControl-AFib mHealth application (pilot version) to improve physical activity in persons with atrial fibrillation

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Implementation of the YouControl-AFib mHealth application (pilot version) to improve physical activity in persons with atrial fibrillation

Protocol Number:
2024-0945

Principal Investigator: Matthew Kalscheur, MD

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Protocol Version History

Protocol Version	Version Date	Summary of Revisions Made	Rationale
1.0	08/06/2024	Initial version	
2.0	21Nov2024	Add clarification re:google account	Allows subject to maintain their fitbit data at the end of the trial.
3.0	20Aug2025	Including analysis of 12-lead ECGs obtained previously for standard clinical care.	We included use of EHR data, including ECGs, in our initial consent. We are adding that we will apply an ECG-based AI model to 12-lead ECGs in addition to single lead tracings. We had previously only specifically mentioned the single lead ECGs in this analysis.

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1.0 STATEMENT OF COMPLIANCE

I confirm that I have read this protocol. I will comply with the IRB-approved protocol, and applicable regulations, guidelines, laws, and institutional policies.

I agree to ensure that all staff members involved in the conduct of this study are informed about their obligations in meeting the above commitment.

Name	**Signature**	**Date**
Principal investigator		

2.0 LIST OF ABBREVIATIONS

6MW	Six-minute walk
AE	Adverse Event
AF	Atrial Fibrillation
BMI	Body Mass Index
HIPAA	Health Insurance Portability and Accountability Act
ICTR	Institute for Clinical and Translational Research
IDE	Investigational Device Exemption
IND	Investigational New Drug Application
IRB	Institutional Review Board
LE8	Life's Essential 8 Score
LVEF	Left Ventricular Ejection Fraction
NIH	National Institutes of Health
OnCore	Online Collaborative Research Environment
PHI	Protected Health Information
PI	Principal Investigator
POC	Point of Contact
SAE	Serious Adverse Event

3.0 STUDY SUMMARY

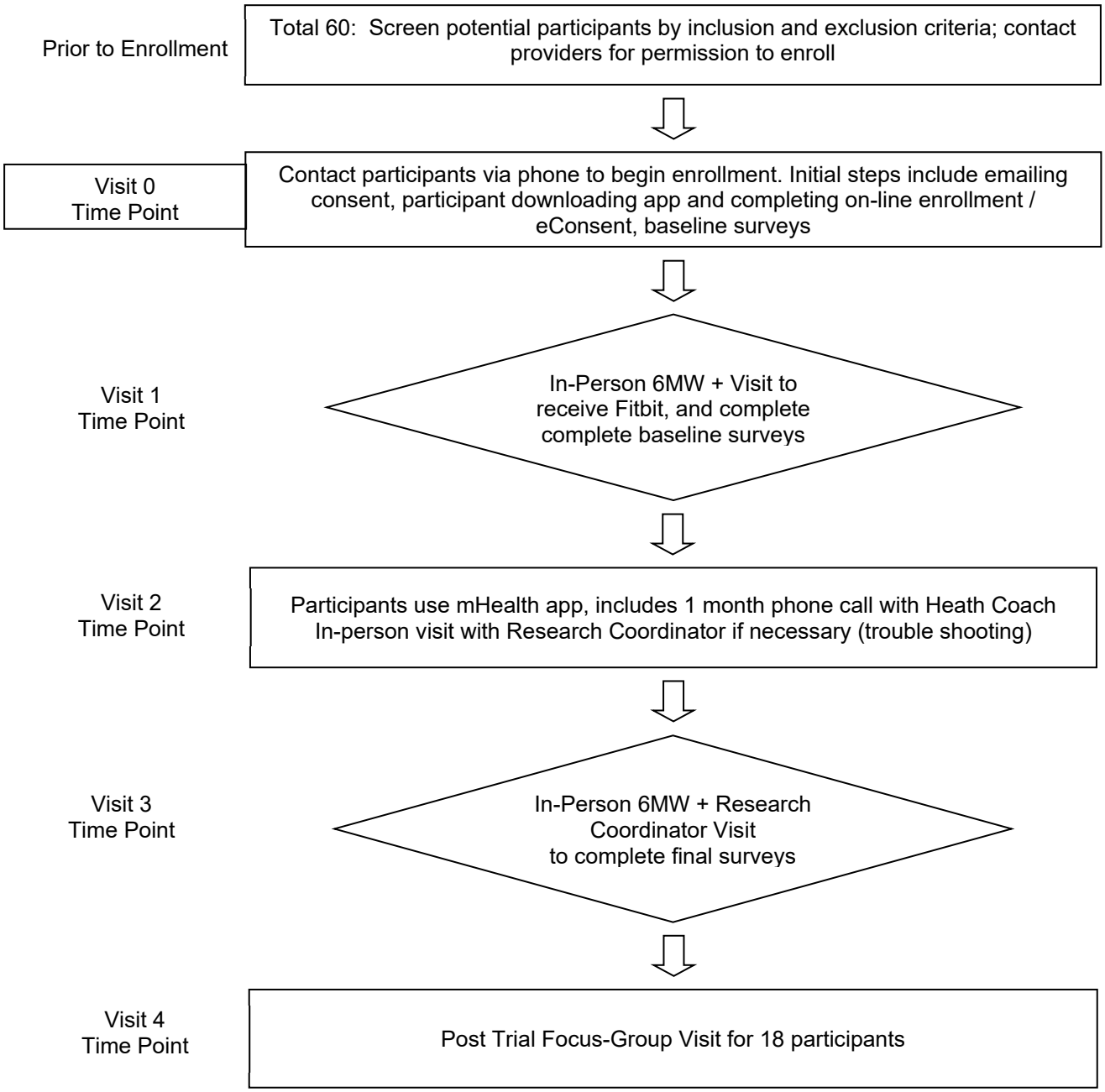
3.1 Synopsis

Full Title	Implementation of the YouControl-AFib mHealth application (pilot version) to improve physical activity in persons with atrial fibrillation
Short Title	YouControl-AFib-Physical Activity
Protocol Number	2024-0945
ClinicalTrials.gov Identifier & Summary	Pending This study is being done to establish the feasibility of performing a clinical trial using a mHealth application named YouControl-AFib designed to improve the cardiovascular health of persons with atrial fibrillation. The study will obtain feedback on the app design to inform future versions and will collect preliminary data to support proof-of-concept and potential effect sizes for future trial design.
Number of Site(s)	Single clinical site in the United States: UW Health Cardiovascular Medicine and Cardiac Electrophysiology Clinics
Main Inclusion Criteria	• Adults (age > 18 and <80) with established diagnosis of paroxysmal or persistent atrial fibrillation. • BMI > 27 • Owns a SmartPhone capable of pairing with a Fitbit Sense 2 • English-speaking (able to provide consent and complete questionnaires).]
Main Exclusion Criteria	• Already participating in a structured exercise program or achieving guideline directed physical activity • Unable to participate in a structured exercise program due to musculoskeletal disease • Myocardial infarction, coronary artery bypass grafting, or valve surgery within the last 12 months • LVEF < 45%
Objective(s)	<u>Primary Objective</u> • To effectively recruit participants for a clinical trial and obtain user feedback on the mHealth app using the Mobile App Rating Scale and focus group sessions. <u>Secondary Objectives</u> • To evaluate the impact of the YouControl-AFib mHealth app (pilot version, 3 months of use) on physical activity in persons with atrial fibrillation. • To obtain several additional functional and disease specific endpoints that will help establish possible effect sizes to be evaluated more formally in subsequent versions of the mHealth application. • To obtain user feedback on the mHealth app using the Mobile App Rating Scale and focus group sessions.
Endpoints	<u>Primary Endpoint</u> • Maximum and average number of participants recruited each month

	• Completion of the Mobile App Rating Scale (subscales B-functionality, C-aesthetics, and D-information) • Focus-groups with trial participants following three months of use <u>Secondary Endpoints</u> • Change in 6-minute walk distance (compared to baseline for each participant after using the mhealth app for 3 months. • Change in daily step count (averaged over 7 days) after using the mHealth app for three months. • Change in intentional activity time (in one week) after using the mHealth app for three months. • Change in general quality of life questionnaires (SF-12 and PHQ-9) and disease-specific questionnaires (AFEQT – Atrial Fibrillation Effect on Quality of Life Questionnaire, AFSS – Atrial Fibrillation Symptom Score, and AFKAT – Atrial Fibrillation Knowledge Assessment Tool). • Change in the Life's Essential 8 score after using the mHealth app for three months. • Change in irregular heart rate notifications (in one week) after using the mHealth app for three months. • Change in ECG-age after using the mHealth app for three months. • Completion of the Mobile App Rating Scale (subscales B-functionality, C-aesthetics, and D-information)
Study Design	This is a prospective, single-arm, single center study for a pilot version of the YouControl-AFib mHealth app designed to gain insight into the mechanics of a future clinical trial, obtain feedback on the app design, and to gather data that may demonstrate proof-of-concept and inform future trials of the mHealth app.
FDA Regulatory Overview	The protocol is evaluating YouControl-AFib. Abbreviated IDE requirements will be followed as the protocol meets the definition of a non-significant risk device trial.
Study Intervention	Adults with a diagnosis of paroxysmal or persistent atrial fibrillation with BMI > 27 and not currently participating in an exercise program will be recruited to use and evaluate the pilot version of the YouControl-AFib mHealth app for three months.
Total Number of Subjects	A total of 60 subjects will be recruited from 1 study sites (i.e., approximately 50 subjects per site).
Study Population	Male and females over 18 and less than 80 years of age with an established diagnosis of paroxysmal or persistent atrial fibrillation who are followed in the UW Health Cardiology or Cardiac Electrophysiology Clinics. We aim to enroll 33% of participants from rural areas as defined by the Rural Health Grants Eligibility Analyzer at https://data.hrsa.gov/tools/rural-health.
Statistical Methodology	The app design will be evaluated through a structured survey (Mobile App Rating Scale) and focus groups. Proof-of-concept regarding improvement in physical activity will be assessed using a pre-post intervention comparison of 6 minute walk at baseline compared to after three months using the YouControl-AFib mHealth app.
Estimated Subject Duration	The duration of the study for each subject is three months
Estimated Enrollment	Study enrollment and follow-up will occur over 5 months with the total expected duration of the trial to be 8 months

Period & Study Duration	

3.2 Schematic of Study Design



4.0 KEY ROLES

The following is a list of all key personnel and roles:

Principal Investigator	**Matthew Kalscheur, MD** **Assistant Professor** **Division of Cardiovascular Medicine** **H4/552 MC 3248, 600 Highland Ave, Madison, Wisconsin, United States, 53792** **mmkalsch@medicine.wisc.edu**
Participating Site(s)	University of Wisconsin School of Medicine and Public Health
Funding Sponsor	UW-Madison Institute for Clinical & Translational Research (ICTR) with support from NIH-NCATS Clinical and Translational Science Award (CTSA) 1UL1TR002373 and funds through a grant from the Wisconsin Partnership Program at the University of Wisconsin School of Medicine and Public Health Program, Wisconsin Partnership Program (WPP 5129) 750 Highland Avenue Madison, WI 53705
Biostatistician	Lu Mao, PhD Associate Professor University of Wisconsin-Madison Biostatistics and Medical Informatics lmao@biostat.wisc.edu

5.0 INTRODUCTION

5.1 Atrial Fibrillation Background

Atrial fibrillation (AF) has become a 21st-century cardiovascular disease epidemic which predisposes patients to major morbidities including stroke, dementia, heart failure, diminished quality of life, and increased healthcare use.[3] Historically, AF care has targeted three main pillars: stroke prevention, rate control and rhythm control; however, over the last decade, a critical fourth pillar has been added – lifestyle and risk factor modification.[4] Numerous, well-designed clinical trials have demonstrated the role of modifiable risk factors like obesity, hypertension, physical inactivity, sleep apnea, diabetes mellitus, smoking, and alcohol use on the burden of AF.[4,12-16]

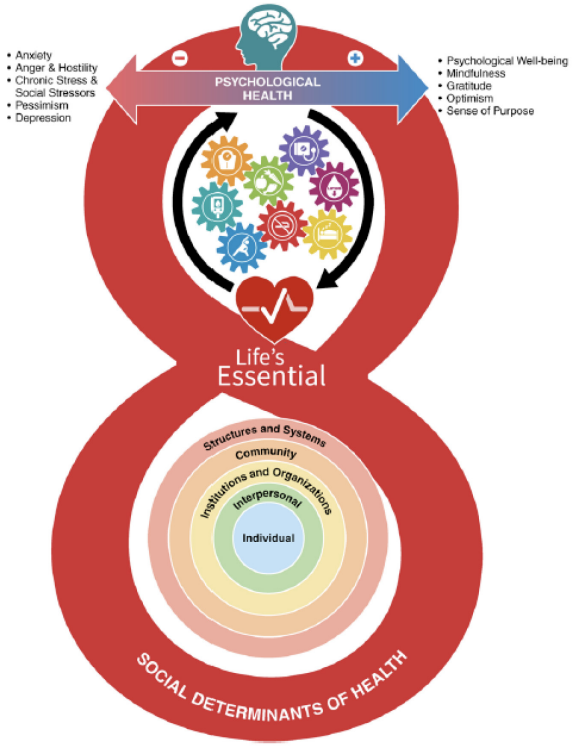


Figure 1. The foundational context of cardiovascular health (from Lloyd-Jones et al., *Circulation*. 2022; 146:e18-e43.

In practice, persons with AF have multiple modifiable risk factors which impact them to varying degrees. One approach to incorporating these factors into a single metric is Life's Essential 8 (LE8) **(Figure 1)**. However, there are several interacting factors (structures/systems, community resources, institutions, interpersonal social/community networks and individual characteristics) which affect an individual's ability to optimize their own CVH.[7] As outlined as a strategic vision by the NHLBI, it is imperative to develop and implement strategies to enable individuals with AF to better understand and treat their arrhythmia within the context of their individual CVH goals and social needs.[17]

5.2 Current Behavior Modification for Atrial Fibrillation

For individuals with heart failure and coronary artery disease, traditional in-person cardiac rehabilitation (CR) commonly fills this gap in care deliver and has been shown to reduce rates of hospitalization, decrease mortality and improve quality of life.[18,19] However, estimates demonstrate that only 1 in 4 eligible individuals enroll in CR and there are disparities based on sex, race and ethnicity, socioeconomic status, and geographic location. Emerging work demonstrates the role of mobile health (mHealth) technologies to extend the reach of CR.[20] The impact of these mHealth innovations have been inconsistent, but applications that recorded information automatically and provided real-time feedback were more effective than those that relied on education and manual recording.[21]

There is currently **no CR indication for AF**, though, leaving persons with AF with a **major barrier to obtain evidenced-based, person-centered care to address modifiable risk factors, obtain psychosocial counseling and ultimately improve their CVH. The current standard of care to support persons with atrial fibrillation in their efforts to modify behavior includes advice given during clinic visits and education in after visit summaries.** The UW Health Living Well with Atrial Fibrillation Clinic, established in 2022 by Dr. Matt Tattersall (UW Division of Cardiovascular Medicine), is attempting to fill that void. It is a novel, multi-disciplinary clinic that delivers an experiential and transformative approach over 12 weeks with six, 2-hour in-person sessions to address modifiable risk factors. Preliminary data from this clinic has shown that participants experienced a 32% increase in exercise capacity and a 47% improvement in well-being. These gains are impressive, but there is room to expand the reach of this clinic.

Many persons with AF cannot travel to the clinic or make the scheduled times and the lessons learned must be continued independently after the sessions conclude.

5.3 YouControl-AFib mHealth application

In this proof-of-concept study, we will implement the pilot version of YouControl-AFib, a mHealth application aiming to improve the cardiovascular health of individuals with AF. The components of the study application will include evidence-based educational content, self-management resources, and just-in-time-adaptive-interventions (JITAIs). Briefly, JITAIs represent an intervention design made possible through mobile and sensing technologies that allow for support to be delivered at the moment and in the context a person is most likely to be receptive.

Participants will be provided a Fitbit Sense 2 and access to the study mHealth app. The study mHealth app is designed to help participants gain a better understanding of atrial fibrillation with a particular focus on understanding their medications and treatments and feeling internally motivated to make the behavior change necessary to manage their atrial fibrillation. This pilot version focuses on helping users to become more physically active using a pre-post mHealth app interventional design with a primary outcome of change in 6-min walk distance (6MWD).

Participants will perform a 6-minute walk pre-intervention and after 3-months using the mHealth app. Both 6-minute walks will be done in a clinical setting with support of research staff or clinic personnel. Additional measures to be performed at baseline and at 3-months include: functional / disease assessments (average step count in one week, intentional activity time in one week, irregular heart rate notifications, and a calculation of Life's Essential 8 score), quality of life questionnaires (SF-12 and PHQ-9), and disease-specific questionnaires (AFEQT, AFSS, AFKAT). At time 0, each participant's Social Determinants of Health will be collected using a survey derived from the UW Health Social Determinants of Health instrument in HealthLink. After using the mHealth app, each participant will complete the Mobile App Rating Scale.

The physical activity intervention will be performed as follows. Baseline physical activity (intentional activity, step count, maximum perceived level of exertion during intentional activity) will be obtained during the first week wearing the Fitbit. Participants will receive daily encouragement to plan activity, motivational messages or congratulatory messages based on the conditions established for the JITAIs. Participants will also be asked to plan their activity each day (time of day, type of activity) and then record their maximum level of perceived exertion using the mHealth app. Each week, the participant will be encouraged to increase intentional physical activity by 10% towards a goal level of 210 minutes / week (30 minutes / day) at a moderate level of exertion – the recommended level of physical activity in current AHA/ACC/HRS AF Guidelines. Additionally, according to the Active-AF trial, after two weeks of increasing intentional activity, participants will be instructed to do more vigorous, interval training one day of the week (5 minute warm-up, 4 minutes of more vigorous activity followed by 4 minutes of recovery activity, repeated 4 times – again, according to the protocol of the Active-AF trial.

At the conclusion of the study, we will conduct a post-trial focus groups including ~18 participants (two sessions, 9/session). At least 6 participants in the focus-group sessions will reside in rural locations. These sessions coupled with the structured usability scores will provide a mixed methods process analysis to better understand mediators and moderators of implementation.

Finally, participants will obtain single-lead ECGs using their Fitbit Sense 2 at baseline and after three months. These single lead ECGs will be collected by the study team using the MyDataHelps platform. An ECG-AI model for estimating ECG-age will be applied to the time-voltage data for these ECGs as well as time-voltage data for clinically obtained 12-lead ECGs for that patient. We are using models developed Dr. Akbilgic at Wake Forest but we will apply the model locally. They have shared the model with us. We hypothesize that the ECG-age model may provide additional insight into a person’s heart health.

5.4 Rationale

Innovative, person-centered programs that utilize information technology to deliver high-quality, effective, and efficient care are critical to achieving good outcomes in resource limited environments.[22] **We believe this is especially true for individuals in rural areas who live far from specialized clinics, those who have limited access to transportation, or individuals with other responsibilities or barriers that prohibit attending a clinic like the Living Well with Atrial Fibrillation Clinic.**[23,24] Developing a solution to reach the rural population in Wisconsin is imperative to our work. We provide AF care at six regional clinics (Sauk, Richland Center, Mauston, Portage, Beaver Dam and Fort Atkinson). A recent AHA Presidential Advisory offered a call to address the health needs of people in rural areas given markedly lower CVH, elevated risks of CVD mortality, and widening disparities.[9] We hope to play a role in answering that call through this project.

Digital solutions in AF are being tested with some promise.[25,26] The number of individuals with wearable activity trackers is exploding (1444% worldwide growth from 2014-2020) and demonstrating some clinically important benefit in increasing physical activity.[11] Given the ubiquitous nature of smartphones and limited resources, we need to understand how to capitalize on these powerful devices for care delivery. **By developing and implementing a pilot mHealth app that incorporates education and adaptive interventions, YouControl-AFib, we believe that we can extend the reach of the brick and mortar Living Well with Atrial Fibrillation Clinic and provide a person-centered approach to allow individuals with AF to improve their CVH and, ultimately, reduce the morbidity associated with AF.** Evidence supports lack of physical activity as an important factor in the development of AF and possibly an intervention to reduce AF burden, so the pilot version will focus on improving physical activity in persons with AF.[16,27,28] An effective mHealth app requires a person-based approach to design and implementation.[29] This proof-of-concept trial is the first step toward that goal.

6.0 STUDY OBJECTIVES AND ENDPOINTS

Objectives	Endpoints
Primary	
To effectively recruit participants for a clinical trial and obtain user feedback on the mHealth app using the Mobile App Rating Scale and focus group sessions.	• Maximum and average number of participants recruited each month • Completion of the Mobile App Rating Scale (subscales B-functionality, C-aesthetics, and D-information) • Focus-groups with trial participants following three months of use
Secondary	
• To evaluate the impact of the YouControl-AFib mHealth app (pilot version, 3 months of use) on physical activity in persons with atrial fibrillation	• Change in 6-minute walk distance (compared to baseline for each participant) after using the mHealth app for 3 months.
• To obtain several additional functional and disease specific endpoints that will help establish possible effect sizes to be evaluated	• Change in daily step count (averaged over 7 days) after using the mHealth app for three months.

more formally in subsequent versions of the mHealth application.	• Change in intentional activity time (in one week) after using the mHealth app for three months. • Change in general quality of life questionnaires (SF-12 and PHQ-9) and disease-specific questionnaires (AFEQT – Atrial Fibrillation Effect on Quality of Life Questionnaire, AFSS – Atrial Fibrillation Symptom Score, and AFKAT – Atrial Fibrillation Knowledge Assessment Tool). • Change in the Life's Essential 8 score after using the mHealth app for three months. • Change in irregular heart rate notifications (in one week) after using the mHealth app for three months. • Change in ECG-age after using the mHealth app for three months.

7.0 STUDY DESIGN

7.1 General Design

This study is a proof-of-concept prospective, single-arm, non-randomized trial of a pilot version of the YouControl-AFib mHealth app. The main goal of this study is to obtain feedback on the mHealth app, understand the mechanics and feasibility of conducting a mHealth app trial, and to generate preliminary outcome data that can be used to design future studies. The primary intervention of this version of the mHealth app is to increase participants physical activity as assessed by 6-minute walk distance at baseline and after 3 months using the mHealth app. Additional outcomes will be assessed with the goal of generating data for future grants.

As described by a recent WHO Global Status Report on Physical Activity, physical inactivity constitutes a contemporary health crisis. A study from the UK Biobank in 2021 demonstrated that individuals with higher levels of physical activity experience less atrial fibrillation, and the Active-AF trial demonstrated that a structured exercise program can reduce an individual's AF burden and symptoms. The activity intervention that will be delivered through the YouControl-AFib is based upon the Active-AF trial done by Elliott et al. In that trial, 120 participants with atrial fibrillation who were referred for rhythm control were randomized to receive a structured physical activity intervention versus usual care. Participants who underwent the intervention (combining home and supervised aerobic activity) experienced less AF recurrence and had improved symptoms. The inclusion criteria proposed for the present study mirror those used in Active-AF.

To that end, a total of 60 participants will be enrolled from the UW Health Cardiology and Cardiac Electrophysiology Clinics who present for clinic visits with a primary diagnosis of atrial fibrillation. This includes enrolling 20 participants from rural communities as defined by the Rural Health Grants Eligibility Analyzer at *https://data.hrsa.gov/tools/rural-health*.

The study intervention will last 3 months and will primarily be delivered via the YouControl-AFib mHealth app which will be downloaded on the participant's phone. Physiologic data will be collected by the study supplied Fitbit which will be linked to the mHealth app. All qualitative assessments will be delivered via the study app. The 6-minute walks, however, will be conducted in-person under the direction of a research

coordinator or other UW Health clinical personnel familiar with conducting this test. At the conclusion of the study, the participant will no longer have access to the study app, but they will retain the Fitbit. Subjects will be linked from their Fitbit to the mHealth app utilizing a study initiated Google® account only access by study personnel for the purposes of linking the Fitbit to the mHealth application. If they choose to be able access to their Fitbit data history at the end of the study, they can use their own Google® account if they prefer.

7.2 End of Study Definition

The end of the study for most participants is defined as the date of the 3-month in-person 6 minute walk evaluation and completion of final qualitative assessment. Eighteen of the participants will be asked to participate in a post-trial focus group.

8.0 SUBJECT SELECTION

8.1 Inclusion & Exclusion Criteria

Inclusion Criteria
1. Ability to understand and the willingness to sign a written informed consent document
2. Willing to comply with all study procedures and be available for the duration of the study.
3. Individuals at least 18 years of age and less than 80.
4. SmartPhone capable of pairing with a Fitbit Sense 2 and Fitbit App (Apple iOS 15 and higher or Android 10 or higher)
5. Paroxysmal or persistent atrial fibrillation verified by 12-lead ECG or other clinical grade monitoring
6. BMI > 27

Exclusion Criteria
1. History of permanent atrial fibrillation.
2. LVEF < 45%.
3. Myocardial infarction, coronary artery bypass grafting, or valve surgery within the last 12 months
4. Moderate to severe valve disease.
5. Inability to participate in a structured exercise program due to musculoskeletal disease
6. Already participating in a structured exercise program or achieving guideline directed physical activity.
7. Planned surgery or procedure during the next three months that limit ability to engage in physical activity.

8.2 Lifestyle Considerations

NA – the study intervention is aimed at improving cardiovascular health through behavior change; however, there are no restrictions or considerations beyond what is encouraged through use of the mHealth app.

8.3 Subject Identification

8.3.1 Identification in Clinical Practice

Potential subjects may be identified during routine visits to UW Health Cardiology or Cardiac Electrophysiology Clinics. The research team will pre-screen participants through conducting a review of medical records gathered through clinic schedules and will also inform providers in these clinics of the trial so that they may refer potential participants to the research team. Medical record information will be reviewed to determine eligibility criteria. A member of the clinical team will inform potential subjects of the research opportunity and ask them if a member of the research team could contact them regarding study participation. These participants will be invited to participate by phone call from someone on the research team. The phone call script is included in our IRB submission. Potential subjects who meet all pre-screening criteria will be invited via email to download the study app and begin enrollment.

8.4 Subject Recruitment

A total of 60 subjects will be recruited from UW Health Cardiology and Cardiac Electrophysiology Clinics. Individuals from rural communities will be enrolled with a goal of ensuring that all eligible patients are given the opportunity to participate in novel clinical trials and that research findings can be generalizable to the entire population.

Specific recruitment strategies are as follows:

8.4.1 Recruitment through Clinical Practice

If the potential subject is agreeable after initial contact by their clinical provider, the research team will initiate contact.

8.5 Remuneration and Retention Strategies

Strategies for retention include:

- Subjects will receive reimbursement for the study. They will receive $50 for downloading the app and enrolling, $50 for completing the first set of qualitative assessments and 6-minute walk, $50 for completing the final set of qualitative assessments and 6-minute walk and will also retain the study provided Fitbit at the conclusion of the study.
- Subjects who need to travel from rural areas to complete in-person visit will receive $50 per visit (total $100)
- Subjects who participate in the focus group session will receive an additional $150 ($200 if they live in a rural area given additional travel expenses).

8.6 Early Termination and Withdrawal

Subjects are free to withdraw from participation in the study at any time upon request.

The Principal Investigator (PI) may discontinue or withdraw a subject from the study for the following reasons at his/her discretion:

- Pregnancy
- Subject non-compliance with study requirements (e.g., study intervention non-compliance)
- If any clinical adverse event (AE) or other medical condition or situation occurs such that continued participation in the study would not be in the best interest of the subject

The following actions must be taken if a subject withdraws, or fails to return for a required study visit:

- The site will attempt to contact the subject and reschedule the missed visit in one week and counsel the subject on the importance of maintaining the assigned visit schedule and ascertain if the subject wishes to and/or should continue in the study.
- Before a subject is deemed lost to follow-up, the investigator or designee will make every effort to regain contact with the subject where possible. These contact attempts shall be documented in the subject's study file.
- If the subject continues to be unreachable, they will be considered to have withdrawn from the study with a primary reason of lost to follow-up. The withdrawn date is the last day of attempted contact.

9.0 STUDY DEVICEAND BEHAVIORAL INTERVENTION

9.1 Study Device Description

The study mHealth app is described in the attached device description.

9.1.1 FDA Regulatory Requirements

This study will be conducted under the Abbreviated IDE requirements for investigations that do not meet the definition of significant risk. As outlined throughout the protocol, and summarized below, the following criteria for a non-Significant Risk device determination have been met:

- Is NOT intended as an implant that presents a potential for serious risk to the health, safety, or welfare of a subject.
- Is NOT purported or represented to be for a use in supporting or sustaining human life that presents a potential for serious risk to the health, safety, or welfare of a subject.
- Is NOT for a use of substantial importance in diagnosing, curing, mitigating, or treating disease, or otherwise preventing impairment of human health that presents a potential for serious risk to the health, safety, or welfare of a subject.
- Does NOT otherwise present a potential for serious risk to the health, safety, or welfare of a subject.

The mHealth application being evaluated in this submission is developed to promote cardiovascular health in persons with atrial fibrillation. This pilot version is focused on promoting physical activity and providing resources to help persons with atrial fibrillation better understand and manage their condition. The physical activity intervention promotes the activity recommended in current guidelines for atrial fibrillation and the population being recruited for this study reflects that used for the clinical trial upon which those guidelines are based – Active-AF.

The study activities do not put participants at additional risk for potential physical harm. Participants will complete surveys and will complete two 6-minute walk tests during the study, but there is no additional potential harm other than those related to data use and privacy. The mHealth app is built on a platform called MyDataHelps, developed by CareEvolution. This platform has robust security measures and is used widely to support large NIH funded studies including the All of Us Research Program. PHI will end up with MyDataHelps/CareEvolution. We have contacted HIPAA Privacy and Security to attend to all the relevant pieces, including a business associate agreement with CareEvolution and security review.

9.2 Study Behavioral Intervention Description

9.2.1 Administration of Behavioral Intervention

This study does include the administration of a mHealth app, YouControl-AFib, that attempts to improve physical activity. The main intervention is through mHealth app itself, without any day to day human intervention. After 1-month using the mHealth app, the participant will have a 20-minute visit with a certified Health Coach trained in self-determination theory.

9.2.2 Procedures for Training Interventionalists and Monitoring Intervention Fidelity

NA – there will be no procedures for training required. Notes from the session with the Health Coach will be maintained with the participant study file.

9.3 Method for Assigning to Treatment Groups

NA – Single arm study

9.4 Study Intervention Compliance

Use of the mHealth app will be tracked within the app.

9.5 Concomitant Therapy

9.5.1 Permitted Concomitant Therapy

Participants will continue all treatments prescribed by their providers.

9.5.2 Prohibited Concomitant Therapy

Participants with scheduled procedures / interventions that will necessitate avoiding physical activity will be excluded.

10.0 STUDY VISITS AND PROCEDURES

10.1 Study Calendar

The procedures performed at each study visit are listed in the table below.

Procedure	Screening and Consent	Enrollment	Use of mHealth app	3-month Assessment
Visit Window		**Day 1**	**1-90 days**	**90 +/- 10 working days**
Identify potential participants – screening for inclusion and exclusion criteria	X			
Contact providers for permission to contact participants	X			
Contact potential participants via MyChart message or phone call to confirm interest and verify inclusion / exclusion criteria	X			
Arrange for participants to download app, complete eConsent, complete initial set of assessments	X			
Research Coordinator in-person visit to complete LE8, confirm that they can perform physical activity, not already		x		

Procedure	Screening and Consent	Enrollment	Use of mHealth app	3-month Assessment
participating in an activity program and do not have an upcoming procedure that will limit their ability to complete activity, collect Social Determinants of Health, and receive Fitbit				
In-person visit to complete 6-minute walk		x		
Participant starts the intervention			x	
20-minute Health Coach phone call after 1 month of app use			x	
In-person visit to complete post-intervention 6-minute walk				x
Research Coordinator in-person visit to complete LE8, and remind participant to obtain ECG using Fitbit				x
Post-intervention surveys completed				x
Invitations sent to participants to take part in post-trial focus group (consecutive participants until 18 participants identified)				x

10.2 Screening and Enrollment

The Screening and Enrollment visits and procedures are described in detail below.

10.2.1 Pre-screening

Pre-screening consists of examining a subject's medical records by research staff with required Health Link access who have completed HIPAA and human subjects training. After identifying a potential participant, research staff will contact the potential participants clinical team. The clinical team will assess if the potential participant is interested in participating. If the potential participant is interested, the research team will reach out and conduct additional eligibility screening over the phone. If the potential participant is eligible and interested, enrollment will proceed.

10.2.2 Informed Consent

Preliminarily eligible subjects will be invited to download the study app and be provided set-up instructions and proceed with informed consent via an electronic consent process. The informed consent process will be conducted following all federal and institutional regulations relating to informed consent. Informed consent will be obtained prior to conducting any study-related activities.

The informed consent process will be performed as follows:

- Research coordinator will provide a copy of the informed consent via email to each potential participant and instruct them to review the consent.
- The subject will have the opportunity to ask questions and have all questions answered by the research coordinator and/or PI.
- The research subject will then complete enrollment using the study app including the eConsent survey.
- The research participant will indicate authorization of this process by typing their name and selected that they agree to participate.
- While subjects are asked to type their name and select that they agree to participate, a waiver of signed consent is being requested as signed consent is not being obtained in accordance with 21 CFR 50 requirements. The requirements for a waiver of signed consent are met as the research presents no more than minimal risk of harm to participants and involves no procedures for which written consent is normally required outside of the research context.

10.2.3 Enrollment Visit

Once eConsent is complete, the participant will be begin filling out baseline surveys using the mHealth app. The research coordinator will arrange an in-person visit to complete Fitbit app enrollment, Fitbit setup, the baseline 6-minute walk test, and complete baseline surveys.

10.2.4 Baseline

Participant completes the in-person 6-minute walk.

10.2.5 Enrollment

A research subject will be defined as “enrolled” in the study when they meet the following criteria:

- The subject has downloaded the study app.
- The subject has completed the eConsent.
- The subject has completed initial assessments including LE8 and SDOH.
- The PI has verified that the subject meets all of the inclusion criteria.
- The PI has verified that subject meets none of the exclusion criteria.
- The subject has completed their baseline 6-minute walk.
- The subject has received and setup the study Fitbit for use.

10.2.6 Screen Failure and Re-enrollment

Individuals who do not meet the criteria for participation in this trial (screen failure) because of inability to complete physical activity, already participating in a structured activity program, or have a planned procedure that will limit physical activity will not be re-screened for this trial.

10.3 On-Study/Follow-up Visits

After subjects have been enrolled, the follow-up visits and the procedures performed at each visit are described in detail below.

10.3.1 Visit Number 1 / 1-month Health Coach call

After 1-month using the study app, a certified Health Coach will call the participant to discuss their progress and help them explore any potential barriers they are experiencing with motivation. This is directly in line with the Health Coach’s usual work.

10.3.2 Visit Number 2 / 3-month 6-minute walk

Arrangements will be made for participants to complete a 6-minute walk in Madison with the Research Coordinator. The research coordinator will record the result in the participants file in Florence.

10.3.3 Final Study Visit

After completing the 6-minute walk, the research coordinator will re-assess the participant’s LE8, remind the participant to obtain an ECG using their Fitbit, and ensure that all final assessments are completed in the study app.

10.3.4 Visit Number 3 / Post-trial Focus Group

Consecutive participants completing the study (up to 18 accepted invitations, a minimum of 6 from rural areas) will be invited to participate in an in-person post-trial focus group that will be conducted with the PI, the research coordinator, the Wisconsin Network for Research Support, and other research staff that may be needed to conduct mixed-methods analysis of the focus group. 18 participants in the clinical trial will take part in post-trial focus groups. These 18 participants will be divided in two groups of 9. These focus groups will be facilitated by Kat Phelps, PhD, from the Wisconsin Network for Research Support (WINRS). As part of the consent process, participants will be informed of the potential to be included in this focus group and the need to protect the identity and information shared

during those visits. Specifically, participants will be asked to refrain from sharing any information disclosed during those sessions outside of those sessions. Participants will be reminded of this agreement prior to the focus group session. The sessions will be recorded (video and audio). These recordings will be analyzed to support future improvements and research regarding the mHealth app. Specifically, we will hope to gain further insight into barriers and facilitators participants encountered while using the mHealth app. This recording will be stored in a Secure Box folder that with limited access.

10.4 Unscheduled Visits

We anticipate ~25% of participants may need additional help with the study app and may require an additional visit with the research coordinator to facilitate set-up.

10.5 Early Termination/Withdrawal Visit or Activities

Subjects who are either withdrawn or terminated early from the study will be asked to return the study provided Fitbit.

10.6 Long-Term Follow-up | Re-contacting Subjects

Not applicable

10.7 Data Collection

All data will be collected using the mHealth app platform – either by user input or by research coordinator interacting with the web-based interface.

Data collection is the responsibility of study team members under the supervision of the Principal Investigator (PI). The PI is responsible for ensuring the accuracy, completeness, legibility, and timeliness of the recorded and reported data.

If any written forms are required, forms must be completed in a legible manner; any missing data will be explained. Data entry errors will be corrected with a single line through the incorrect entry and the correct data is entered above/near the correction. All changes will be initialed and dated.

Data will be downloaded from the app and maintained in the subject files and retained as described in Section 12.3: Records Retention.

10.7.1 Data Management Software System(s)

Clinical data (including AEs, concomitant medications, and solicited events data) will be entered into the following data management software system(s) to ensure consistent data entry and data quality. Clinical data will be entered directly from the source documents.

OnCore
The Online Collaborative Research Environment (OnCore) Clinical Trial Management Software (CTMS) will be used for this study.

OnCore is a web-based data management system that: a) ensures secure, easy data entry at multiple sites; b) integrates multiple data sources; c) provides controlled, secure access to sensitive data using role-based access control; and d) provides workflow automation. This software provides protocol and subject management functions (e.g., subject scheduling; screening; data organization), maintains updated forms, addresses budget development, billing and fiscal management, generates summary reports, and provides essential links with research administration and electronic medical records

systems. The OnCore system eases the burden of the individual researcher and unifies protocol management within research programs and across research sites, enhancing protocol integrity and regulatory compliance efforts.

10.8 Confidentiality and Privacy

Subject confidentiality and privacy are strictly held in trust by the participating investigators, their staff, and the sponsor(s) and their agents. This confidentiality is extended to cover any recordings produced during the focus group sessions. Therefore, the study protocol, documentation, data, and all other information generated will be held in strict confidence. No information concerning the study or the data will be released to any unauthorized third party without prior written approval of the sponsor.

All research activities will be conducted in as private a setting as possible.

All study staff engaged in the conduct of this project have completed training on the protection of human subjects and the Health Insurance Portability and Accountability (HIPAA) Privacy Rule. In addition, all key personnel (i.e., Principal Investigator, individuals involved in identifying/recruiting subjects, obtaining informed consent, or interacting and intervening with subjects) have undergone Good Clinical Practice (GCP) training.

Information about study subjects will be kept confidential and managed according to HIPAA requirements. All subjects will complete a combined eConsent survey and an altered HIPAA authorization form that includes specific privacy and confidentiality rights. Study data will be maintained per federal, state, and institutional data policies.

The investigator(s) will ensure that the identities of subjects are protected by using coded subject information. The log of subject identifying information that links subjects to their study-specific identification number will be maintained by the investigator. The log and all study records will be maintained in locked rooms and access will be limited to essential study personnel. Electronic study records/files will be stored in a Secure Box folder with access provided only to authorized study personnel and managed by University of Wisconsin IS staff.

Authorized representatives of the following groups may need to review this research as part of their responsibilities to protect research subjects: representatives of the IRB. The clinical study site will permit access to such records.

Study staff may use e-mail to communicate with research subjects, if the subject has agreed to using email in the eConsent. The information contained in emails will be limited to study visit time and date information, general questions, etc. All emails to subjects will be sent from secure institution-based accounts; personal, home or Gmail email accounts will not be used.

10.8.1 Collaborators

Dr. McManus is serving as a mentor to Dr. Kalscheur and will not receive or review any primary data or have contact with any participants. He has provided advice and will likely review a manuscript but not perform any analysis.

Dr. Akbilgic’s team will provide ECG-AI models that we will apply to time-voltage data from single-lead ECG data obtained in the trial and 12-lead ECG data that was previously obtained clinically.

IRB/reliance contact, Brian Moore, at Wake Forest confirms that Wake Forest is not “engaged in research” on this project, meaning that IRB approval (or a reliance agreement to extend our IRB coverage) is not needed for Wake Forest.

10.9 Records Retention

Identifiers will be destroyed at the earliest opportunity consistent with the conduct of the study, which may be required by FDA regulations, study related agreements or applicable record retention schedules. It is the investigator’s responsibility to retain study essential documents for a minimum period of 7 years following completion of the study per UW-Madison institutional policy, or at least 2 years after the last approval of a marketing application in their country and until there are no pending or contemplated marketing applications in their country or at least 2 years have elapsed since the formal discontinuation of clinical development of the investigational product, whichever comes last.

10.10 Retention for Future Research: Audio and Video-Recording

10.10.1 Purpose of Storage

Audio and video recordings will be stored for future research.

10.10.2 Data and/or Biospecimens Being Stored

The audio and video recordings will be from the focus group sessions.

10.10.3 Location of Storage

The files will be stored in a Secure Box folder with access provided only to authorized study personnel and managed by University of Wisconsin IS staff.

10.10.4 Duration of Storage

Files will be destroyed at the earliest opportunity consistent with the conduct of the study.

10.10.5 Access to Data and Recordings

Access to data and recordings will be limited to study personnel who have been given access to Florence.

10.11 Publication and Data Sharing Policies

This study will be conducted in accordance with the following publication and data sharing policies and regulations:

National Institutes of Health (NIH) Public Access Policy, which ensures that the public has access to the published results of NIH funded research. It requires scientists to submit final peer-reviewed journal manuscripts that arise from NIH funds to the digital archive PubMed Central (https://www.ncbi.nlm.nih.gov/pmc/) upon acceptance for publication.

This study will comply with the NIH Data Sharing Policy and Policy on the Dissemination of NIH-Funded Clinical Trial Information and the Clinical Trials Registration and Results Information Submission rule. As such, this trial will be registered at ClinicalTrials.gov, and results information from this trial will be submitted to ClinicalTrials.gov. In addition, every attempt will be made to publish results in peer-reviewed journals. Data from this study may be requested from other researchers 7 years after the completion of the primary endpoint by contacting the PI.

11.0 STUDY ANALYSIS

11.1 Statistical Hypotheses

- **Primary Efficacy Endpoint(s):**

At the primary endpoint for this study relates to the feasibility of conducting a clinical trial for this mHealth app and obtaining feedback on the pilot version of the app, there is not a primary efficacy endpoint.

- **Secondary Efficacy Endpoint(s):**

Physiologic data, functional assessments and disease specific endpoints will be collected to understand potential effect sizes for these various endpoints. The key physiologic data being evaluated here is increase in intentional physical activity.

To that end, we hypothesize that participants using the YouControl-AFib mHealth app will experience a meaningful increase in 6-minute walk distance.

11.2 Sample Size Justification

The study size was selected based on a single arm, pre-post intervention assessment of the 6-minute walk distance. For each participant, the change in 6-minute walk distance will be calculated (6-minute walk distance after using YouControl-AFib for 3 months compared to baseline) with a comparison made to a value of change = 0 (Paired T-test). Assuming a two-tailed alpha of 5%, beta of 20%, an effect size of 50 meters and standard deviation of 125 meters, the estimated sample size is 52. Assuming at least 10% attrition, we hope to enroll at least 60 participants.

11.3 Subject Population(s) for Analysis

The analysis will be performed on a protocol-compliant population: all subjects who downloaded the study app, received a Fitbit and complied with the protocol sufficiently to ensure that data would be likely to represent the effects of the study app.

12.0 RISK/BENEFIT ASSESSMENT

12.1 Known Potential Benefits to the Subjects

Participant benefits: Participation in this study may or may not help the participants feel better. While researchers hope participation will lead to participants experiencing an improvement in their cardiovascular health, there is no proof of this yet. By developing and implementing a pilot mHealth app that incorporates education and adaptive interventions, we believe that we can provide a person-centered approach to allow individuals with atrial fibrillation to improve their cardiovascular health and, ultimately, reduce the morbidity associated with atrial fibrillation.

Societal benefits: If this study is able to show a therapeutic benefit, the mHealth app tested here could provide a valuable tool to help persons with atrial fibrillation improve their cardiovascular health and decrease the negative impact of atrial fibrillation on our health care system.

12.2 Known Potential Risks

12.2.1 Known Interventional Risks

Physical Risk: The goal of the study is to promote goal-directed physical activity. Participants will have activity recommendations that are gradual, slowly increasing weekly goals with participants being asked to exert moderate levels of exertion (moving with purpose but able to have a conversation), initially. As participants progress, they will be asked to do short intervals that are more vigorous (only able to speak a few words while moving). It is possible that these levels of activity could result in minor muscle or joint injury, but again, no more than expected based on people following activity instructions given as part of usual care in clinical practice. In addition to that, participants may experience some discomfort related to wearing the Fitbit. We will encourage participants to wear the Fitbit as much as they can but expect that some participants will experience more discomfort than others.

Societal risk: There is no significant societal risks related to the current trial.

Trial design risk: The main risk related to trial design will be a risk of confidentiality breach. Data from the MyDataHelpsTM platform will be stored in a FISMA-compliant location. Data generated external to MyDataHelpTM will be stored securely according to campus policy.

Social/behavioral risk: There are no social or behavioral risks anticipated with participation in this study.

Privacy/confidentiality risks: Participation in this study involves the collection of personal information. The researchers will take steps to protect the information, however, there is a chance that a loss of privacy or confidentiality could occur.

Suicidal ideation or behavior risks: Participation in this study is not expected to cause psychological distress, suicidal thoughts, or risky behavior.

Reproductive risks: None

Side effects: There are no anticipated likely, less likely or rare but serious side effects

Other risks: There are no other anticipated risks associated with this study.

12.3 Risk/Benefit Analysis

The intervention described here seeks to facilitate guideline directed behavior change for individuals with atrial fibrillation – achieving 210 minutes of moderate to vigorous intentional activity each week. Given that there are minimal risks, primarily related to data breach, that are addressed with robust security measures, and potential benefits to participants and society, the researchers believe the benefits of participation outweigh any risks.

13.0 DATA AND SAFETY MONITORING

13.1 Adverse Event (AE) Definition

Adverse event (AE) means any untoward medical occurrence associated with the use of an intervention in humans, whether or not considered intervention-related.

13.2 Serious Adverse Event (SAE) Definition

An adverse event is considered "serious" if, in the view of either the investigator or sponsor, it meets any of the following outcomes:

- Death
- A life-threatening adverse event
- Inpatient hospitalization or prolongation of existing hospitalization for ≥ 24 hours
- A persistent or significant incapacity or substantial disruption of the ability to conduct normal life functions.
- Important Medical Events (IME) that may not result in death, be life-threatening, or require hospitalization may be considered serious when, based upon medical judgment, they may jeopardize the patient or participant and may require medical or surgical intervention to prevent one of the outcomes listed in this definition (FDA, 21 CFR 312.32; ICH E2A and ICH E6).]

13.3 Classification of an Adverse Event

13.3.1 Severity of Event

All AEs will be assessed by the clinician using the following guidelines:

Mild (Grade 1)	Events require minimal or no treatment and do not interfere with the participant's daily activities.
Moderate (Grade 2)	Events result in a low level of inconvenience or concern with the therapeutic measures. Moderate events may cause some interference with functioning.
Severe (Grade 3)	Events interrupt a participant's usual daily activity and may require systemic drug therapy or other treatment. Severe events are usually potentially life-threatening or incapacitating.
Life Threatening (Grade 4)	The participant was at risk of death at the time of the event.
Fatal (Grade 5)	The event caused death.

13.3.2 Relationship to Study, Study Procedure(s) and/or Study Intervention(s)

For all collected AEs, the clinician who examines and evaluates the participant will determine the AE's causality based on temporal relationship and his/her clinical judgment. The degree of certainty about causality will be graded using the categories below.]

Definitely Related	Clearly related to the study procedures/intervention and other possible contributing factors can be ruled out.
Probably Related	Likely related to the study procedures/intervention and the influence of other factors is unlikely.
Possibly Related	Possibly related to the study procedures/intervention and there are other factors that could be equally likely.
Unlikely to be related	Doubtfully related to the study procedures/intervention and there is another likely cause.
Unrelated	Clearly not related to the study procedures/intervention and/or evidence exists that the event is definitely related to another cause.

13.3.3 Expectedness for Study, Study Procedure(s) and/or Study Intervention(s)

The PI will be responsible for determining whether an AE is expected or unexpected in relation to the study procedures.

An AE will be considered unexpected if the nature, severity, or frequency of the event is not consistent with the risk information previously described in the clinical protocol, the IRB application, or the informed consent document. Expectedness is recorded for both study procedures and interventions. Given the nature of this mHealth app, we anticipate that the likelihood of that happening is extraordinarily low.

13.4 Time Period and Frequency for Event Assessment and Follow-Up

The occurrence of an AE or SAE may come to the attention of study personnel during study visits and interviews of a study participant presenting for medical care. All AEs including local and systemic reactions not meeting the criteria for SAEs will be captured on the appropriate CRF. Information to be collected includes event description, time of onset, clinician's assessment of severity, relationship to study product (assessed only by those with the training and authority to make a diagnosis), and time of resolution/stabilization of the event. All AEs occurring while on study must be documented appropriately regardless of relationship. All AEs will be followed to adequate resolution.

Any medical condition that is present at the time that the participant is screened will be considered as baseline and not reported as an AE. However, if the study participant's condition deteriorates at any time during the study, it will be recorded as an AE.

Changes in the severity of an AE will be documented to allow an assessment of the duration of the event at each level of severity to be performed. AEs characterized as intermittent require documentation of onset and duration of each episode.

At each study visit, the principal investigator will inquire about the occurrence of AE/SAEs since the last visit. Events will be followed for outcome information until resolution, stabilization, or completion of study participation.

13.5 Reporting AEs and SAEs

13.5.1 Reporting AEs

- AEs will be recorded from the initiation of mHealth app intervention until 30 days after discontinuation of the intervention.
- AEs will be recorded regardless of whether or not they are considered related to the mHealth app. As participants do have atrial fibrillation, a progressive disorder that can sometime lead to acute care visits or hospitalizations, we do anticipate that participants will have visits like this in the usual course of their disorder. These events will be recorded.
- All AEs will be recorded on the appropriate study specific form and stored in Florence.
- AEs related to the mHealth app will be recorded in the study specific form, stored in Florence and reported to the IRB of record in accordance with their requirements. As described above, any events related to progression of AF will not be reported as these are an expected part of the clinical course of the disorder.

13.5.2 Reporting SAEs

Any SAEs related to the mHealth app will also be reported to the IRB and the FDA by completing the AE/SAE forms in Florence and will be reported within the same timeframe as required by the IRB. We do not anticipate any SAE related to the mHealth app given the nature of the intervention (implementing

guideline directed behaviors), but if one occurs, we will schedule an ad hoc meeting with UW Health cardiologists not involved with the study to discuss the event.

13.6 Reporting of Pregnancy

If a participant becomes pregnant during the course of study, the participant will be withdrawn/early terminated from the study and reported to the IRB.

13.7 Unanticipated Problems

An unanticipated problem (UP), as defined by the DHHS Office for Human Research Protection (OHRP), is any incident, experience, or outcome that meets all of the following criteria:

- The incidence, experience, or outcome is unexpected given the research procedures described in protocol-related documents (e.g., the study protocol, the informed consent documents) and the characteristics of the participant population being studied. An event may be considered unexpected if it exceeds the nature, severity, or frequency described in the study-related documents.
- The incidence, experience, or outcome is related or probably related to participation in the research study. “Probably related” means the incidence, experience, or outcome is more likely than not to be caused by the research study procedures.
- The occurrence of the incidence, experience, or outcome suggests that the research places participants or others at a greater risk of harm (physical, psychological, economic, or social) than was previously known or recognized.

The principal investigator will report UPs to the reviewing IRB and FDA. The UP report will include the following information:

- Protocol identifying information: protocol title and number, PI’s name, and the IRB project number;
- A detailed description of the event, incident, experience, or outcome;
- An explanation of the basis for determining that the event, incident, experience, or outcome represents an UP;
- A description of any changes to the protocol, informed consent documents, or other corrective actions that have been taken or are proposed in response to the UP.

UPs will be reported to the IRB within the timeframe specified by the IRB of record.

13.8 Unanticipated Adverse Device Effect

An unanticipated adverse device effect (UADE) means any serious adverse effect on health or safety or any life-threatening problem or death caused by, or associated with, a device, if that effect, problem, or death was not previously identified in nature, severity, or degree of incidence in the investigational plan or application (including a supplementary plan or application), or any other unanticipated serious problem associated with a device that relates to the rights, safety, or welfare of subjects (21 CFR 812.3(s)).

An investigator shall submit to the reviewing Institutional Review Board (IRB) a report of any UADE occurring during an investigation as soon as possible, but in no event later than 10 working days after the investigator first learns of the effect (21 CFR 812.150(a)(1)). As this is an investigator initiated study, the sponsor-investigator will also submit reports concerning the effect within 10 working days of the event, and additional reports as FDA requests (21 CFR 812.150(b)(1).

13.9 Incidental Findings

Incidental findings are not expected as there are not diagnostic tests being performed as part of the research study.

13.10 Safety Oversight

As this study is essentially a feasibility / proof-of-concept study of a wellness mHealth application that is seeking to promote guideline directed behavior changes, we anticipate that AE or SAE related to the device or UADE are highly unlikely. Therefore, safety oversight will be the responsibility of the study PI and the study team. If there is any question regarding an event, the event will be assessed by two UW Health Cardiologists who are independent from the study conduct and free of conflict of interest, or measures should be in place to minimize perceived conflict of interest.

13.11 Study Monitoring

Clinical site monitoring is conducted to ensure that the rights and well-being of human participants are protected, that the reported trial data are accurate, complete, and verifiable, and that the conduct of the trial is in compliance with the currently approved protocol/amendment(s).

- Monitoring for this study will be performed by the PI and the research team.
- Data and safety (for any AEs) will be monitored by PI after every study visit.
- A form will be created to ensure documentation of consent occurring per protocol, that study activities were completed as expected and recording any AEs.

13.12 Study Stopping Rules

This study may be temporarily suspended or prematurely terminated if there is sufficient reasonable cause. Written notification, documenting the reason for study suspension or termination, will be provided by the PI to the IRB, and PI will provide the reason(s) for the termination or suspension.

Circumstances that may warrant termination or suspension include, but are not limited to:

- Determination of unexpected, significant, or unacceptable risk to participants
- Demonstration of efficacy that would warrant stopping
- Insufficient compliance to protocol requirements
- Data that are not sufficiently complete and/or evaluable
- Determination of futility

Study may resume once concerns about safety, protocol compliance, data quality is addressed and satisfy the applicable institutional regulatory authorities.

14.0 STUDY FEASIBILITY

14.1 Economic Burden to Subjects

Subjects will not have to pay for study procedures (such as the mHealth app, the Fitbit, or the 6-minute walk test). Subjects will be able to keep the Fitbit after study completion. The subject will not be billed by the healthcare system or their health insurance company for any costs related to a study procedure.

14.2 Facilities and Locations

Any in-person visits will be conducted in UW Health Clinics. The PI and research coordinators are familiar with conducting research activities in this setting.

14.3 Feasibility of Recruiting the Required Number of Subjects

Each month, over 100 patients with BMI > 30 and age < 80 are seen in UW Health Cardiology or Cardiac Electrophysiology clinics with a primary visit diagnosis of atrial fibrillation. We hope to recruit ~10 participants per month from these clinics.

14.4 Principal Investigator Considerations

14.4.1 Time Devoted to Conducting the Research

The PI has 20% of his time devoted to conducting this research.

14.4.2 Process for Informing Study Teams

The study team is involved with design of study procedures and will be well-informed of study protocols.

14.5 Availability of Medical or Psychological Resources

Not applicable

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