Study Title: A Partnership to Translate an Evidence-based Intervention (Take Heart) for Vulnerable Older Adults with Heart Disease

NCT02950818

3/21/2019

This document discusses methodologies for both the pilot study and the portion of the main study that will be conducted with participants recruited through the Detroit Area Agency on Aging, other community sources, the UM Institute of Gerontology database, or the UMClinicalStudies.org website. We have indicated which information applies to the pilot study, the main study or both.

ROLES/RESPONSIBILITIES OF STUDY PARTNERS:

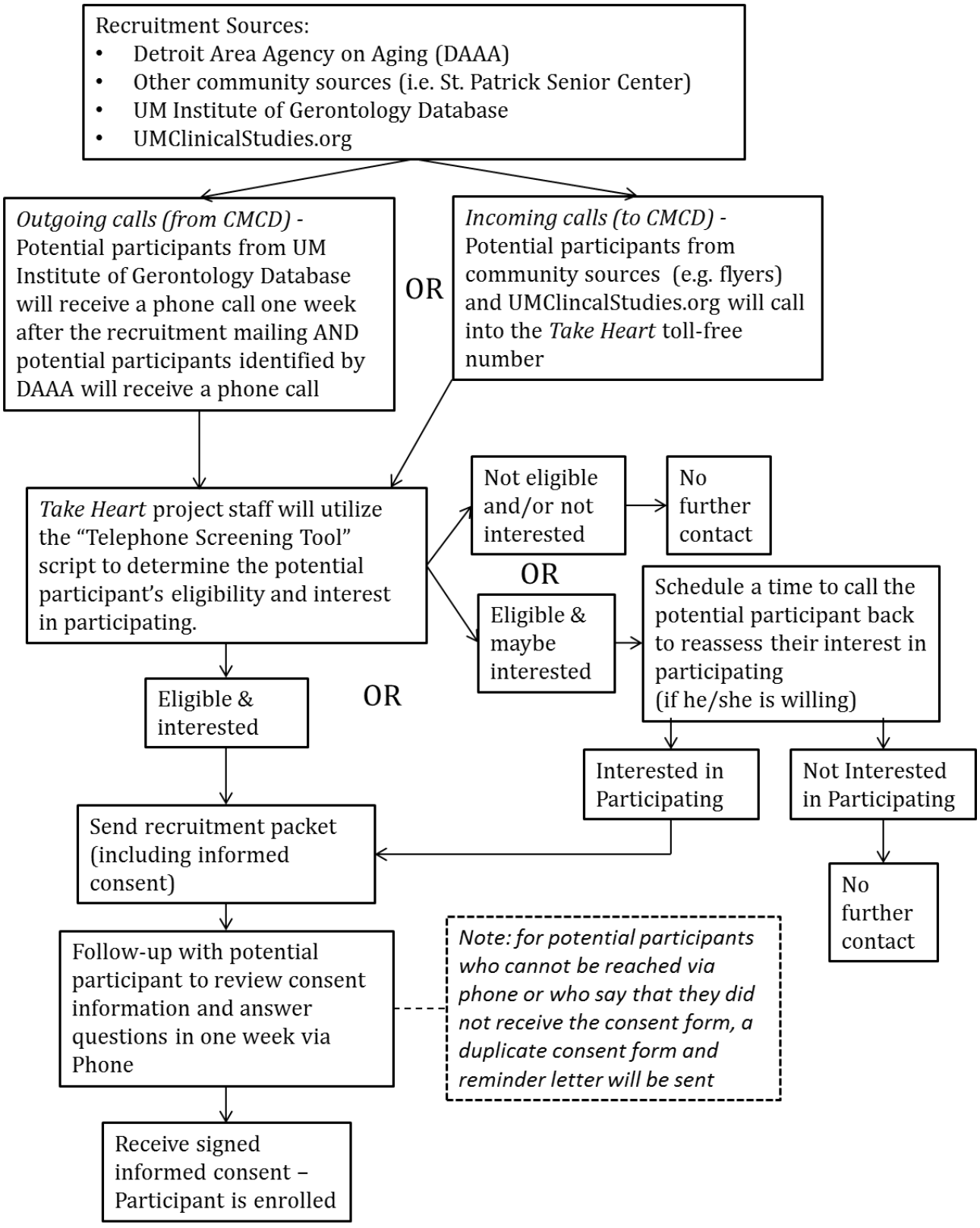
Focus groups, Pilot and Main Study

The UM Center for Managing Chronic Disease (CMCD) is responsible for contacting, screening and enrolling participants (based on lists of names of interested individuals provided by DAAA or who call the project hotline directly after seeing flyers or other advertisements). CMCD is responsible for survey data collection, data storage and management, and analysis. CMCD will train the DAAA-affiliated health educators to deliver the intervention and will provide oversight and technical assistance. CMCD is also responsible for all reporting to funder and for managing subcontracts.

The Detroit Area Agency on Aging (DAAA) will be responsible for delivering the intervention to participants, under direction from the Center for Managing Chronic Disease. They will also be responsible for scheduling participants into sessions, and collecting attendance and other process data, such as topics covered in intervention sessions. They will also engage in some limited recruitment activities (e.g., posting flyers). NOTE: These activities will be overseen by the UM IRB, as DAAA does not have their own IRB.

The Detroit Medical Center (Rosa Parks Geriatric Center) will be responsible for the following: Identifying potential participants based on specific ICD-10 codes from electronic medical records, and sending these lists securely to CMCD. They are also responsible for extracting health care utilization data at two time points (baseline and 12 months) from electronic medical records of participants who provide consent for this. Finally, if deemed convenient for participants by the Community Working Group (an advisory group for the project), DMC may host some intervention sessions (led by DAAA staff) on site at their medical campus.

Recruitment Flowchart



RECRUITMENT AND SCREENING: (ALSO SEE RECRUITMENT FLOWCHART ABOVE AND UPLOADED IN SECTION 44)

Focus groups for program materials adaptation:

Recruitment: Focus group participants will be recruited using both of the following recruitment methods.

Recruitment method A: Flyers displayed or distributed at the Detroit Area Agency on Aging. Potential focus group participants will call in to the toll-free number and research staff will further assess eligibility, answer any questions, and to invite to participate, if appropriate.

Recruitment method B: A registry of older patients willing to be contacted for research is kept at the Claude D. Pepper Center in the Geriatrics Center (Linda Nyquist, Senior Research Associate, Institute of Gerontology). Individuals meeting the broad study criteria (age, gender, diagnoses) will be contacted by letter describing the study (or an email, if they have indicated that they prefer to be contacted this way). This initial contact will be followed by a phone call to further assess eligibility, answer any questions, and to invite to participate, if appropriate. All individuals agreeing to take part in focus groups during this phone call will be sent a reminder letter that confirms the purpose, date, and time of the group. (reminder letter uploaded in 8-1.8.)

The script for the telephone screening and recruitment call has been uploaded to this application. Note that eligibility criteria are the same as described below for the Pilot and Main studies.

Pilot and Main Study

Recruitment method: (NOTE: This method will be used for the pilot study and will also be one recruitment method used in the Main Study. For the main study will also be working with the Detroit Medical Center to recruit participants identified using electronic medical records; approval for those recruitment activities will be sought in a subsequent amendment.)

Potential participants who see our flyers displayed in local community centers, pharmacies and churches, or at DAAA classes, can contact us directly by phone or email. Alternatively, DAAA may keep a list of names and phone numbers of potentially interested individuals—e.g., through sign-up sheets at existing programs. These will be relayed to CMCD via M+Box (which is HIPPAA-compliant), and we will phone them with information about the study.

For the pilot study, if we do not get the desired number (20) of participants using community recruitment and the UM Institute of Gerontology subject pool (a database of older adults expressing interest in research) within the needed timeframe we will also recruit from the UMClinicalStudies.org website.

For the main study, if we are not meeting desired recruitment numbers, DAAA may send out fliers to participants in their Meals on Wheels (MOW) program asking them to call the Detroit Area Agency on Aging (DAAA) if they are interested in participating in Take Heart. When individuals from the MOW program call DAAA the staff will request permission to send their contact information to Take Heart researchers at the University of Michigan. Contact information from those who agree to this will be relayed to UM via M+Box (which is HIPPAA-compliant), and UM Take Heart researchers will call them with information about the study (following the outgoing phone call path in the recruitment flowchart).

Recruitment from electronic medical records (EMR) at the Detroit Medical Center: The Detroit Medical Center electronic medical record (EMR) systems (Cerner at the Rosa Parks Center and for DMC inpatients; NextGen at University Physicians Group and Cardiology clinic) will be utilized to access potential patients with heart disease and heart disease risk factors (see Inclusion Criteria) using ICD-10 documented clinical diagnoses, and clinician review.

Shaun Cardozo, MD from the DMC will collaborate with the DMC IT team to conduct regular data pulls from the electronic medical record of patients meeting the inclusion criteria, with the understanding that this study has an approved waiver of informed consent from the Wayne State University and University of Michigan IRBs. No sensitive medical information, other than the fact that the patient meets the specific study criteria and contact information, will be accessed. DMC physician Fellows will proceed to further review medical records results from ICD-10 pulls to determine likely study participant eligibility, and will be trained to look for exclusion criteria and indicators that patient would not benefit from program. Secondary review by a DMC Fellow and the DMC Data Coordinator, if needed, will further ensure eligibility before sending lists of prospective participants to CMCD. DMC staff will upload a password-protected MS Excel file to M+Box for access by UM/CMCD project director. CMCD will store patient data within the password-protected RedCap database.

Eligible patients will be mailed a recruitment package that includes a personalized cover letter from the study's principal investigators indicating collaboration with their physician as part of DMC, an information sheet describing the study and decline postcard. All recruitment packages and telephone contacts will originate from the CMCD project office to ensure patients are provided with accurate and consistent contact information about the study. The use of a recruitment script, including brief screening items, during telephone contact ensures that all potential participants receive standardized information regarding the study.

Based on previous studies involving participants from similar demographic and socioeconomic groups, we anticipate that 25-30% of those invited to take part in the study will agree to participate. Recognizing that the population of patients targeted for enrollment in the proposed research will be, on average, managing various significant psychosocial challenges and comorbidities, a conservative enrollment figure of 30% is anticipated for purposes of planning. The estimated number of patients available within the DMC is adequate to reach the figure required by our sample size determination (n=376 at baseline).

Additionally, a postcard will be included in the recruitment package for each patient to return to the project director should they not want to be contacted by the researchers. The cover letter will also inform the patient that if they do not decline participation, they will receive a telephone call from a member of the research team to describe the study and determine their interest in participating.

These potential participants will not be asked directly about the presence of terminal illness with a prognosis of a year or less (an exclusion criterion that will be applied when DMC is screening EMR), as it is assumed that people who pro-actively call in to inquire about the program feel that they could benefit from the it and would not have a severely life-limiting illness.

Eligibility criteria for participants are as follows:

- 50 years or older
- One or more diagnosed cardiovascular conditions, including:
  - Atrial fibrillation

- Angina
- Myocardial infarction
- Congestive heart failure
- Valvular disease (aortic stenosis or mitral regurgitation)
- Peripheral vascular disease
- Pulmonary hypertension

- OR >2 major risk factors for CVD (high cholesterol, high blood pressure, smoking, diabetes, chronic kidney disease-stage 3 or 4)

- Must have access to a mobile or landline telephone
- Must be able to travel to group sessions, with or without transportation assistance

Exclusion Criteria

- Limited fluency in English posing significant barrier to deriving program benefit

Screening, consent, and enrollment procedures:

Focus groups: Screening and enrollment procedures are described above. We will ask participants to sign informed consent, including consent to audio record, on site at the group, and will go over the form together as a group.

Pilot Study

Participants responding to flyers or other advertisements for the pilot study, or who are identified via the UM Institute of Gerontology subject pool or respond to a posting on UMclinicalstudies.org will be screened for eligibility over the phone, using the same diagnostic and age criteria as in the main study (see eligibility criteria above). Note that we will send a letter to all potentially eligible Institute of Gerontology recruits, and follow-up with a phone call (see uploaded letter to 8-1.8.). Individuals who have been identified by DAAA as potentially eligible will also receive a phone call. Patients will be notified that the study is completely voluntary and that the decision to participate will in no way influence the future care by their physicians will provide.

During the recruitment call, the patient will be told that the pilot study is being conducted to learn from participants what works well in the program and what does not work well, before the program is tested in a larger study. The call will also include a brief description of the intervention sessions they will be asked to attend, including estimates of time commitment per session. Patients will be told that if they agree to participant they will be asked to attend 6 education sessions- 2 telephone sessions (30-50 minutes) and 4 group sessions (60-90 minutes), and at the last session they will be asked to give feedback in a group debrief session, or, if they prefer, one-on-one. Pilot participants who complete the pilot study debrief session will be given a $30 gift card, and those who agree to pilot-test the baseline survey will be given an additional $10 gift card, for a total of a $40 incentive.

If the patient agrees to participate, they will be scheduled for their first group session. At the very beginning of the first group session they will complete the informed consent in-person. Participants will also be told about an additional opportunity to pilot-test the baseline survey. If they are interested in participating they will complete an additional informed consent for this portion of the pilot study, including consent to audio record the telephone interview.

Throughout recruitment calls, each patient will be encouraged to ask questions and told that they are free to withdraw from the study at any time, for any reason. A toll-free telephone number will be provided so that potential participants can call the research office with additional questions at any time.

Main Study
During scripted telephone contacts and in written/mailed materials, patients will be notified that the study is completely voluntary and that the decision to participate will in no way influence the future care by their physicians will provide.

During the recruitment telephone contact, each patient will hear a description of the study. Participants will be told that those agreeing to participate in the research will be randomly assigned to a group to receive the heart disease education (intervention) immediately or to a usual care/waitlist group. It will be explained that persons randomized to the program group will receive group and telephone education and a program kit. They will also be informed that those randomized to the "usual care" control group will be offered an opportunity to receive the intervention after they complete the 12-month follow-up interview, if time and funding allows.

They will be told that all participants will be asked to complete two data collection telephone interviews (baseline and 12 months) of approximately 50-60 minutes in length. We will tell participants that each phone call will be recorded for quality assurance. Upon completion of each interview, they will receive a $20 gift card.

Interested participants will be screened for eligibility (see eligibility criteria above- on page 1). If the individual agrees to participate, two copies of the consent form will be mailed along with a self-addressed, stamped envelope- one for signing and returning to the research team, and one for the patient's records. Research staff will call potential participants approximately one week after mailing the consent form to review consent information over the phone and answer any questions. For those potential participants who cannot be reached via phone or who say that they did not receive the consent form, a duplicate consent form and reminder letter will be sent.

Upon returning a signed written consent form, the participants will be enrolled in the study and will be contacted by phone to be scheduled for a baseline interview, to be completed prior to randomization.

Once patients have completed the baseline interview, those that have been randomized (see paragraph below) to the intervention group will be mailed program kits; at that point they will be contacted by DAAA to be scheduled into the first intervention session.

Throughout recruitment calls, each patient will be encouraged to ask questions and told that they are free to withdraw from the study at any time, for any reason. A toll-free telephone number (1-844-862-5925) will be provided so that potential participants can call the research office with additional questions at any time.

Randomization will be stratified by four categories of a risk score based on data from prior studies that includes age, gender, and number of comorbidities, using responses from the baseline interview. To reduce the predictability and resulting bias due to block randomization, random block sizes (e.g., lengths of 8, 10, 12 subjects) will be used and blinded to investigators. Prior to recruitment, a permuted block randomization schedule will be created using the RANTBL and RANUNI functions in SAS to generate blocks with varying sizes of 8, 10, or 12 and random numbers for group assignment within each of the 4 categories of risk score.

Once enrolled, participants recruited through the Detroit Medical Center (DMC), will be asked to complete another consent document that includes a HIPAA Authorization statement. This will authorize DMC to release specific health information related to Take Heart after the recruitment phase (first, middle and last name, street address, city, state, zip code, email address, home and cell phone number, primary care provider and specialist, number of visits to the emergency department and hospitalizations during the year prior to the Take Heart study and the year of your participation in the study), to the University of Michigan School of Public Health research staff.

WHAT HAPPENS TO SUBJECTS DURING RESEARCH:

Focus groups:
The purpose of these groups is to get input from our target population on how we can best revise and adapt program materials and processes from the original evidence-based versions. We will conduct two groups, with up to 12 participants each. These will take place at two different times and locations in Detroit. Standard focus group procedures will be used. Focus groups will be recorded on a USB digital recorder and later transcribed verbatim. Informed consent, including consent to audio-record, will be sought from participants prior to the beginning of the focus group discussion. A short written survey with basic demographic and health questions will be given to participants before the start of interview so that the sample characteristics can be described. This survey will be anonymous and will not be linked to individual responses during the discussion; it will be used simply to describe aggregate characteristics of focus group participants.

Pilot Study
We will plan and carry-out a small-scale pilot-study of the program (note that although the program is evidence-based, we will be making updates and adaptations for the target population). Pilot educational sessions will be co-led by CMCD and DAAA staff members who will have background/experience in health promotion, health education, health coaching, or related areas but will not necessarily have clinical training.

We will recruit 20 patients meeting all criteria for participation in the subsequent RCT (see Aim 2), and all 20 will receive the intervention programming. We will conduct 1-2 complete program series consisting of 6 educational sessions – 2 individual telephone sessions and 4 group sessions spanning over an 8 week time period. Each telephone session will be 30-50 minutes, and each group session will last 60-90 minutes. Participants will be provided a binder of materials as part of this program.

We will use four strategies to maximize information learned from this pilot:

1. An observer from CMCD will be present at each session to take notes on activities' flow and how they are received by participants.

2. We will audio record the educational phone sessions. Recordings will help ensure fidelity across all phone sessions and aid in training. The Health Educator will remind participants at the beginning of the phone call that the session is being recorded. If the participant does not wish to be recorded the Health Educator will end the call, and call back with the recording equipment turned off.

3. At the final session of each of the 2 series we will hold a group 'debrief' with participants to elicit their suggestions for improving the program. Giving feedback via this "in-class"

format will be more convenient for participants than a written assessment or separate interview. However, if the participant does not feel comfortable providing feedback in a group setting or cannot attend the last session we will arrange for a separate one-on-one debrief.

4. We will conduct in-depth interviews with the two program facilitators (DAAA staff).

We will pilot-test the baseline survey with pilot participants. This will allow us to make corrections to the instrument before beginning the RCT. A UM researcher from the Take Heart study team will be present at the first group session to inform pilot participants about the opportunity to pilot-test our baseline survey. Those who are interested will fill out a separate consent form for pilot-testing the survey (uploaded in Section 10). In addition, we will ask up to 10 participants to answer feedback questions every 2-3 pages while completing the survey, to get an idea of what improvements can be made to the survey's clarity, length and format. We will include this in the pilot-test survey consent form.

We will audio record the telephone interviews for quality assurance and to accurately capture answers to the feedback questions. Consent to be audio recorded will be sought in the informed consent for pilot-testing the survey.

We will also test and refine tools measuring implementation processes, such as instructor fidelity checklists and observation forms. Based on pilot study learnings, we will make a list of suggested further adaptations, and bring it to the CWG for final approval.

Main Study
Participants assigned to the Take Heart Program Group will be asked to talk to a health educator/heart disease counselor 2 times over the phone, and 5 times in person as part of a group. Health educators will be trained DAAA staff members, and will have background/experience in health promotion, health education, health coaching, or related areas but will not necessarily have clinical training. There are 7 total combined phone and group education sessions over a total of 7 weeks during which they will learn ways to manage heart disease. More information about the program content and process is found in the Study Background document. Each telephone session will be 30-50 minutes, and each group session will last 120-180 minutes. Telephone sessions will be audio recorded for quality assurance purposes. Participants will also be provided a binder of materials as part of this program. After completing the 7 weeks of groups and phone sessions, the health educator will check in with each participant 3 more times throughout the course of the year, at the 3, 6 and 9-month marks. Two of these check ins will be via mail (3 months and 9 months); each participant will receive a Take Heart newsletter tailored to the main topic of their goals. The 6-month check in will be via phone; the health educator will call each participant to follow up with them, check in on their goals and answer any questions they may have at that time. This phone call will also be audio recorded. These check-ins are intended to help keep participants motivated to continue working on their goals and remind them of their participation in the Take Heart program. Individuals in the waitlist/control group will receive usual care. If time and funding allows they will have the opportunity to participate in the Take Heart intervention once they have completed their follow-up (12-month) survey.

DATA COLLECTION:

Pilot Study

Data sources for the pilot study include: (1) CMCD observer notes from the education sessions; (2) qualitative data gathered through the participant debrief; and (4) quantitative and qualitative data gathered from the pilot-test of the baseline questionnaire.

Observer notes: at each education session a member of the CMCD research will be present taking notes about session activities and participant response.

Participant debrief: Participants will be asked the following questions regarding their satisfaction with various program topics and elements, in a group format or, if preferred by participants, one-on-one: What did you like about this element/activity/topic? What could we do to make it better? They will also be asked: Is there anything else that should be in the program that is not? How well do you feel like the program addressed your needs? What can we do to keep participants' interest in the program? Did you use the materials—why/why not and how?

Note that this data is for purposes of program refinement.

Pilot-Test Baseline Survey: We will pilot-test our baseline survey to see what areas, if any, of the survey need adjustment before we begin the RCT. We will also ask up to 10 participants who agree to pilot the survey to answer check-in questions about their experience with the survey every 2-3 pages. This will allow us to gather more detailed information about what areas of the survey can be improved. We have uploaded the feedback questions we plan to ask in Section 29.

From the audio recordings we will transcribe participant answers to the feedback questions; and record information about length of the survey and participant engagement with interviewer. An alpha-numeric participant ID will be used in all transcribed materials to protect the individuals' identity.

Note that this data is for purposes of survey refinement.

Main Study
Data sources for this study include: (1) participant telephone surveys at two time points: baseline and 12 months; and (2) health educator logs indicating sessions attended and participation in intervention activities (copy uploaded to Section 44).

Telephone surveys: These will be conducted by trained research assistants, and will collect health, psychosocial, and demographic data. The vast majority of measures used in this study are standard measures that have been used in previous studies. A copy of the survey is uploaded in Section 29. A copy of our Interviewing Protocol, which includes a description of interviewer training and oversight, is uploaded in Section 44. Telephone surveys will be audio recorded for quality assurance.

Health educator logs and session observation: The 'dose' of the intervention will be examined using the logs completed by the health educator. The subject will receive one point for each of 4 sessions attended and a point for each of the three components completed: goal setting, tracking form, and the judgment/reaction. The scores will only be available for the intervention group and will describe average level of participation within the intervention group using frequencies and mean scores. The components of the intervention: observation, judgment, goal setting strategies, outcome expectancy and efficacy can also be described individually.

Intervention fidelity will be assessed at two levels. The first level will compare the adapted with the original program. A second level of fidelity assessment, employed in previous work by the CMCD, will examine how the adapted program is implemented by DAAA. Those charged with delivering the adapted program may not maintain full fidelity or protocols may need to change mid-stream in response to unanticipated issues. The CMCD will assess fidelity in partnership with DAAA and RPC personnel. At the end of each session, the health educator will fill out a "fidelity checklist', summarizing delivery of the core components of the program: teaching the "PRIDE" problem solving process, number of sessions attended, observation tools distribution, and an interactive discussion format. CMCD staff will observe a randomly-selected subset of "take PRIDE" sessions to assess coverage of core components and other key intervention processes, using a standardized rating form. The proposed study team has employed fidelity tools and logs for clinical trials that have informed the development of these draft tools; they will be further refined for this project and tested during the pilot-study in Aim 1. A qualitative and contextual approach to fidelity will be employed through a systematic ongoing process assessment. This will include annual in-depth interviews with key stakeholders (staff). These interviews will explore and document the barriers and facilitating factors experienced in terms of program implementation, as per Specific Aim 3 of the study – ""Assess the process of translation and implementation of the intervention in the target setting and identify factors that help or hinder the process." Interview protocols for staff will be developed to explore perspective and meaning about implementation;(e.g., reasons for adaptation). These protocols will be based on those developed for previous CMCD dissemination projects but will be refined for the current project.

DATA STORAGE:

Focus groups:

The following steps will ensure that participants' privacy will be maintained:

1) No names or other identifying information will be included in the transcribed focus group discussions, and thus no information will be included in any published or unpublished reports using interview data that could be used to identify any participant.

2) Participants' names will not be included on the short supplemental written survey; these will be anonymous.

3) The database that will be maintained of potential participants will not be linked with any of their interview or survey data.

4) Lists of potential and actual participants will be stored on a university computer that is password-protected and will only be accessed by the Study Coordinator.

5) Audiofiles will not be stored on a USB drive at any point.

Pilot and Main Study

Throughout the data collection phase, extreme care will be taken to ensure high quality and secure data. Details about standard CMCD procedures for data management are described in Data Management Protocols and Access to Subject Identification Policy uploaded in Section 44.

All data collection and management will be coordinated by the research team at the University of Michigan School of Public Health, Department of Health Behavior and Health Education. Extreme care to ensure high quality and secure data will be exercised (see Data Management Protocol below). All participant survey data will be collected using Qualtrics, a survey software, and stored in RedCap. Qualtrics is SAS 70 Certified and is compliant with the strict regulations from the European Union's Safe Harbor Agreement. All data is stored on secure servers that have met these standards. Qualtrics complies with the privacy standards imposed on health care records by the Health Insurance Portability and Accountability Act (HIPAA). Further, all Qualtrics accounts are hidden behind passwords and all data is protected with real-time data replication. The survey data housed in Qualtrics can be imported and stored in RedCap (see description below of RedCap's capabilities and HIPPAA compliance) for future analysis.

Only a numerical identifier will be used, and the respondent will not be able to be identified from the actual interview. However, it will be possible to enter the ID number into the participant data base and, thereby, to identify study participants. Thus, we have devised a specific procedure (See Access to Subject Identification Policy, described below) for limiting access to the linked information in the database with only the data manager and project coordinator having full administrative access. All data will be provided as aggregate statistics, and no individuals will be recognizable from the data reported.

All data will be perused for consistency, errors of omission, and appropriateness of response. Unacceptable responses will be investigated via telephone, computer, or mail, as appropriate, until acceptable answers are gleaned. Logic-check programs will be run to ensure that each data point falls within the expected range or corresponds to possible values in the code book. Discrepancies will be resolved by the data manager and project coordinator. These tracking system files will be maintained on a personal computer. A personal identifier field will contain each participant's name, ID number, address, phone number, and interview and health-care use (as randomized).

All members of the study team will be required to complete the "University of Michigan's" web-based Responsible Conduct of Research Training Program (PEERRS) and to sign a confidentiality document stating that he/she understands the procedures to be followed to ensure the integrity and confidentiality of the data and the consequences of disregarding them.

Study subject information will be collected, stored and managed in RedCap. RedCap is a secure, web-based application designed to support data capture for research studies, providing 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources. It is HIPPAA compliant and supported by the University of Michigan.

As detailed in the Interviewing Protocol (uploaded in Section 44), careful training and ongoing monitoring of data collectors will be provided by the principal investigator and project coordinator and will follow a set of procedures used successfully in previous studies.

<u>Data Management Protocol</u>

Data Collection/Entry

The participant surveys will have only a numerical identifier and the respondent cannot be identified from the actual interview. However, it is possible to enter the ID number into the

electronic subject database and, thereby, to identify the name of study participants. Thus, we have devised a specific procedure (See the Access to Subject Identification Policy in Section 44) for limiting access to the linked information in the database.

A RedCap database will be set up to contain the subject data, including identifying information. After training regarding issues of confidentiality, only specially-designated research staff will be authorized to have password-secured administrative access to the master list of names and original participant data. All other research staff and health educators will only have access to specific and select information on an "as needed" basis in order, e.g., to collect interview data, conduct the intervention or mail gift card incentives. This level of access will also be password secured to just those few individuals who need the data. Otherwise, participants' data records will have only a sequential code number necessary for identification.

Data management personnel will prepare the data entry software, and will set up the logical and range checks. This software will store the data, together with the date of entry, in a data entry set that will be maintained in the research office at the School of Public Health.

Written documentation of data collection, storage, and transmission procedures will be maintained by the data management personnel.

Quality Control

Data management members will have primary responsibility for quality control and the integrity of the database. They will review all data submitted for completeness, accuracy, and consistency. Data will be checked for consistency between sections of the same form and between different forms on the same subject.

To request missing data and/or ask for clarification in the event of apparently inaccurate or inconsistent data, data management will send a query to the Project Manager, who will then direct the question to the appropriate individual.

Data management will monitor the files to enter new data into the database or update existing records. Corrections determined from queries must be made through this update system. In this way, the integrity of the database is ensured because inappropriate or inconsistent changes are avoided. Data management will be responsible for running the programs, which will incorporate the updated files into the database.

Audit trails will be maintained for any changes to the completed files and for changes to the database. Records will be kept on the nature of the error or deficiency, when it was detected, what changes were made, when and by whom.

Data management will be responsible for monitoring interviews completed, which will be done monthly. The interviewers will be sent a list of interviews that have not yet been completed with study participants. This process differs from query letters which request information on specific data items within a form.

Data management will periodically conduct an audit program. A random subset of cases will be selected from the files. In this way, problems with data collection and transmission can be detected early. In addition, data will be monitored for secular trends in data completeness and quality. Study audits will be conducted several times over the course of the study.

Only the study generated ID will used for any and all references to records for purposes of cleaning and overall quality.

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We added the University of Michigan IRB to the language about the HIPAA waiver for recruitment and language about the HIPAA authorization for enrolled participants recruited from the Detroit Medical Center.

Study Statistical Design

Sample Size Determination:

The primary outcomes of interest in the randomized trial are ED visits and hospitalizations, both overall and heart related. In a sample of 443 patients at a 12 month follow-up, there were significant differences between those that received "take PRIDE" and those that did not in hospitalizations overall (difference of 0.26 times hospitalized) and heart related hospitalizations (difference of 0.41 times hospitalized) and also in overall ED visits (difference of 0.17 visits). The secondary outcome of interest is cardiac symptom experience: number, frequency, and bothersomeness. Several cardiac symptoms will be summed to obtain overall scores: chest pain, shortness of breath, waking with chest pain, waking with shortness of breath, and palpitations. In a sample of 460 patients randomized to the intervention or usual care, researchers found that the change in the number and frequency of symptoms differed significantly between the intervention and comparison group (difference of 0.36 and 1.16 in scores, respectively).

To detect a 0.15 difference in the change in the number of overall ED visits between the intervention and comparison groups at a 12 month follow-up, a sample size of 188 will be necessary in the intervention and comparison groups for a total sample size of 376 at the end of 12 months. This number will be sufficient to detect a 0.20 difference in hospitalizations and will also be sufficient to detect differences in cardiac symptoms. In a recent iteration of the intervention, the recruitment response rate was 48% and the loss to follow-up was about 20%. Therefore, 1300 subjects will be contacted for participation and 376 subjects will be enrolled.

Analysis of patient outcomes:

Descriptive statistics will be computed for all outcomes overall and stratified by randomized study arms. Health care utilization: Outcome variables including hospitalizations and ED visits will first be assessed as dichotomous variables and will be analyzed using chi-square analyses followed by logistic regression modeling. Because these are count variables, Poisson regression analyses will also be conducted. Cardiac symptoms: The presence of cardiac symptoms will be assessed individually using chi square tests and logistic regression modeling. The cardiac symptoms will also be summed to obtain an overall score of symptoms as well as a score for the frequency and severity. These will be continuous and will be analyzed using analysis of covariance (ANCOVA) and multiple linear-regression modeling assuming normal distributions. If necessary, transformation will be used to ensure normality or Poisson regression will be used if Poisson distributions are found for these variables. They may also be recoded as categorical or ordinal variables and analyzed using chi-square tests and multiple or cumulative logistic regressions.

Functional health status: Functional health status will be assessed using the PROMIS Global Health Scale and/or PROMIS-29. The scores are continuous variables and will be analyzed similarly to the symptoms using ANCOVA and linear regression modeling where the normality assumption is appropriate. They may also be re-coded as categorical or ordinal variables and analyzed using chi-square tests and logistic regressions.

Intervention dose received: The dose of the intervention will be examined using the logs completed by the health educator. The subject will receive one point for each of 4 sessions attended and a point for each of the three components completed: goal setting, tracking form, and the judgment/reaction. The scores will only be available for the intervention group and will describe average level of participation within the intervention group using frequencies and mean scores.

The components of the intervention: Observation, judgment, goal setting strategies, outcome expectancy and efficacy can also be described individually. Participants in the intervention group may be stratified based on the dose score and outcomes compared using t-tests or chi-square tests of homogeneity to describe impact of dose on outcomes. Instrumental variable approaches to estimating the complier-average causal effect of the intervention will be applied,with compliance defined using two different choices of cut-off on the performance score.

Change over time: The focus of the mixed-model (for continuous outcomes) and GEE (for discrete outcomes) analyses will be to assess changes in dependent measures over time, and whether these changes differ between program participants and “usual care” controls. The effect of time as well as the interaction between time and program participation (program vs. waitlist control) will be included as factors in all models.

Generalizability of the intervention: To determine how effective the intervention would be if duplicated in a similar population, it will be important to examine non-consenters to see if those who choose to participate have certain factors that may be correlated with improved outcomes not present in those who do not participate. Aggregate data from the DMC including demographics, and health care use values will be obtained on those patients that meet the criteria for participation but were not enrolled in the randomized controlled trial to be compared to enrolled participants using t-tests and chi-square tests to discover any differences.