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Adapting Hypertension Self-Management Interventions to Enhance their Sustained Effectiveness among Urban African Americans

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Abstract

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Conflict of Interest

The author(s) declare that they have no competing interests.

African Americans suffer disproportionately poor hypertension control despite the availability of efficacious interventions. Using principles of community-based participatory research and implementation science, we adapted established hypertension self-management interventions to enhance interventions' cultural relevance and potential for sustained effectiveness among urban African Americans. We obtained input from patients and their family members, their health care providers, and community members. The process required substantial time and resources, and the adapted interventions will be tested in a randomized controlled trial.

Keywords

hypertension; health disparities; implementation science; community-based participatory research; program translation

African Americans have persistently suffered worse rates of blood pressure control and related clinical outcomes than whites despite the availability of efficacious hypertension interventions.^{1,2} Efforts to address African Americans' unique individual, family, health system, and community-level barriers to hypertension control could aid the successful translation of efficacious interventions for use in routine clinical practice settings and could improve the likelihood of interventions' sustained effectiveness in this population.³⁻⁵

The use of hybrid or multidisciplinary methodologies drawing on different theoretical principles has recently been proposed as a strategy for developing effective interventions to address health care disparities.⁶⁻⁸ Two theoretical approaches, community-based participatory research (CBPR)^{4,9} and implementation science,^{10,11} incorporate input from various stakeholders in patients' care (including patients, their families, and their community members as well as health care administrators, payers, policy makers and clinicians) to identify factors that can aid the development of culturally relevant, sustainable, and effective interventions.^{12,13}

We sought to study the effectiveness of established self-management interventions to improve hypertension control among urban African Americans receiving care in Baltimore, Maryland. We adapted interventions to enhance their relevance to urban African Americans' hypertension care and to improve their potential for sustained effectiveness in an urban clinical practice. Using principles of CBPR and implementation science during the adaptation process, we incorporated input from hypertensive urban African American patients, their families, their health care providers, and their communities.

METHODS

Overview

The Achieving Blood Pressure Control Together (ACT) Study is part of the Johns Hopkins Center to Eliminate Cardiovascular Health Disparities, funded by the National Heart, Lung, and Blood Institute.¹⁴ The ACT Study will compare the effectiveness of patient-centered behavioral self-management interventions to improve hypertension control among urban African Americans receiving primary care.

We adapted previously developed chronic disease self-management interventions^{15–19} to enhance their cultural relevance and sustained effectiveness among urban African Americans with uncontrolled hypertension. We obtained input on the proposed study design prior to receiving funding, and we implemented a robust planning phase post-funding to obtain substantially more input on interventions. The Johns Hopkins Medicine Institutional Review Board approved all funded study activities.

Original study design, study setting and population

The ACT study is a randomized controlled trial designed to study the effectiveness of behavioral self-management interventions to improve hypertension control among urban African Americans. The originally proposed multifaceted intervention included three sub components, including (1) Community Health Worker behavioral support, (2) patient and family member training to improve their communication and shared decision-making with physicians, and (3) patient hypertension self-management group training using problem solving strategies^{18,19} to improve self-care.

This study partners with a large, academically affiliated, urban, community-based primary care practice serving over 4,700 adult patients (approximately 90% African American) who reside in several residential areas throughout the Baltimore metropolitan region. Approximately 60% of the adult African American patients receiving care at the practice are estimated to have hypertension, with approximately 40% of these patients having uncontrolled hypertension (i.e., > 140mmHg systolic blood pressure or > 90mmHg diastolic blood pressure).

Intervention adaptation process

We sought to enhance behavioral self-management interventions' relevance and sustained effectiveness among urban African Americans receiving hypertension care in an urban clinical practice. We intentionally applied principles of CBPR and implementation science frameworks to achieve this goal.

Frameworks and other external factors influencing adaptation—Drawing from both CBPR (designed to enhance studies' relevance and sustainability through active, ongoing, and iterative engagement of community members) and the implementation science Practical, Robust Implementation and Sustainability Model (PRISM) (designed to enhance health care interventions' translation into real-world clinical practice through engagement of stakeholders) frameworks, we systematically obtained patient, family, health system, and community input to adapt the original study design. Both frameworks encourage stakeholder engagement during all phases of research.^{4,9–11} (Table 1)

Throughout the adaptation process, we considered several external factors that could influence the sustained effectiveness of our interventions, including national health policy changes (including the Patient Protection and Affordable Care Act)²⁰, and state health policy influences (including the implementation of patient centered medical home demonstration projects in Maryland)²¹, which were evolving during our study planning

phase. Additionally, we considered numerous local initiatives to improve cardiovascular disease care in the Baltimore, Maryland metropolitan area.

Stakeholder engagement—We engaged many stakeholders formally and informally during the intervention adaptation process. (Table 2)

While writing the grant proposal, we informally met community members with hypertension who also had prior experience providing community education on hypertension in East Baltimore, Maryland. They provided us with informal input regarding the potential value and cultural relevance of the proposed interventions to African American patients with hypertension in the East Baltimore community. We modified our preliminary research plan based on this input prior to submitting our grant application. After we received funding, we sought input from individual community stakeholders as well as stakeholders convened as part of a Community Advisory Board. Community Advisory Board members included local political leaders, health care providers and administrators, patients, insurers, representatives from the city and state health departments, faith community representatives, and community organization leaders. We engaged community stakeholders in a variety of ways, including (1) biweekly research team meetings and ad hoc working group meetings, (2) quarterly Community Advisory Board meetings, and (3) informal correspondences (e.g. phone calls, email, etc.). During these meetings and conversations, community members participated actively to enhance the study's perceived cultural sensitivity, effectiveness, and sustainability for patients and their families.

We performed focus groups of hypertensive patients from the clinical practice and their family members, described elsewhere.²² Focus groups identified patients' and their family members' desired features of the interventions, as well as personal, family, clinical practice, and community barriers they thought could be addressed by proposed interventions.

We conducted 60–90 minute directed interviews with the clinical practice medical director, the practice administrator, and representatives from the clinic's predominant health care payer to identify elements of interventions they thought might lead to interventions' sustained effectiveness. Prior to conducting interviews, we provided interviewees with a description of the proposed interventions. We asked the medical director and practice administrator to identify factors influencing the feasible integration of interventions into the clinic's day-to-day practice, including potential barriers for frontline staff, the need to coordinate intervention activities across departments and specialties, potential burdens induced by implementing interventions, and the practice's capacity to sustain interventions long-term. We asked health care payer representatives to discuss their perceived potential value of research findings and factors that would influence their ability to sustain intervention implementation long term.

We also conducted a 60-minute roundtable discussion with practice clinicians during a regularly scheduled staff meeting. During this discussion, we elicited clinicians' views about desired elements of the interventions and strategies we might incorporate to enhance the incorporation of study interventions (e.g., Community Health Worker) into practice

workflows. We audio recorded, transcribed, and analyzed the content from directed interviews and round-table discussions.

Over a period of two days, a study research coordinator shadowed and informally spoke with five clinical staff members (four physicians and one nurse) to learn about their daily workflows, challenges and successes with meeting patients' needs, and the general culture of care. During the course of the intervention adaptation process, we also spoke with and observed a practice pharmacist, a medical records staff member, a front desk staff member, social workers, and medical assistants.

Responsive intervention adaptation—We discussed stakeholder input during biweekly meetings that were attended by the research team, practice clinicians, administrators, payer representatives, and community members. We refined the interventions iteratively, considering advantages and disadvantages to various study intervention protocols, over a period of 24 months.

RESULTS

Stakeholder input on intervention design

Stakeholders' input revolved around their: perceived potential for interventions to improve clinical practice, desired features of interventions, suggested ways to enhance interventions' cultural relevance, and threats to interventions' sustained effectiveness. (Table 3)

Potential for interventions to improve clinical practice—Health care payer representatives and practice administrators reported they might view the individual intervention components more favorably than a bundled multifaceted intervention that might be less efficient to administer in clinical practice. Payers also reported they would view study interventions as most valuable if they could be applied broadly to other (non-hypertension) complex chronic diseases such as diabetes or obesity. Practice social workers reported interventions would be useful if they helped decrease patients' social barriers to care.

Desired intervention features—Patients reported they thought all patients should receive home blood pressure monitors as part of the interventions. Patients and their family members also reported they wanted interventions to facilitate their getting more education about hypertension and more clinic outreach (including appointment reminder and follow-up calls and home visits). Clinicians reported they wanted interventions to facilitate their access to patients' home blood pressure readings during patients' clinical visits.

Intervention cultural relevance—Community members and practice administrators emphasized the importance for intervention Community Health Workers to engender trust and a sense of 'positive' accomplishment among study participants. Community members and family members also emphasized the importance of tailoring interventions to address individual patients' privacy concerns. For example, stakeholders believed not all patients would desire family member training in the communications intervention and not all patients would desire home visits from the Community Health Worker. Finally, community

members' feedback informed the tailoring of intervention materials to reflect community values and meet patients' health literacy needs.

Threats to intervention sustained effectiveness—Payers emphasized the need for interventions to show a positive return on investment within definable time periods in order to be funded long-term. Practice administrators and payers expressed concerns about the potential burden of adding interventions into the clinical practice, which was already implementing other disease management initiatives. Practice administrators also expressed concern about patients' abilities to attend self-management interventions due to other competing health and social concerns. Multiple stakeholders emphasized the importance of identifying patients' preferences for types of Community Health Worker outreach (e.g., engagement via telephone, home visits, or electronic means) as many patients might face financial or logistical constraints limiting certain types of outreach.

Responsive adaptations to original study

In response to stakeholders' input, we adapted both the study trial design and the proposed interventions. (Table 4)

Trial design—We unbundled the original multifaceted intervention arm. The final study will compare the effectiveness of three behavioral strategies to improve hypertension control in a three-arm randomized controlled trial, including: (1) Community Health Worker support alone, (2) the Community Health Worker intervention plus structured one-on-one communications training for patients and their family member or companions, and (3) the Community Health Worker intervention plus hypertension self-management problem solving group sessions for patients. We also modified the study design to ensure all patient participants would receive home blood pressure monitors therefore eliminating a usual care group.

Study interventions—We modified all intervention materials to meet a 4th to 6th grade reading level. We also engaged a local artist to design intervention artwork reflecting community values.

In adapted interventions, the Community Health Worker will conduct frequent, tailored, patient participant contact according to patients' individual preferences (e.g. via telephone, electronic means, or home visits). Community Health Workers will also work to establish patients' trust by reinforcing their positive accomplishments with hypertension self-management and by guiding participants to community resources to help support their hypertension self-management (e.g., church wellness groups, community health fairs, safe exercise areas). Community Health Workers will provide patient participants with detailed education on diet, exercise, and medication adherence. Community Health Worker will liaise between multiple clinical services to help decrease patients' social barriers to care. Community Health Workers will communicate directly with clinic staff to minimize excess paperwork in the electronic medical record.

The adapted communications training intervention will occur with patients directly prior to their routine clinical visits and will only be extended to patients' family members with patients' prior permission.

A trained behavioral interventionist capable of delivering and billing for behavioral interventions for multiple chronic diseases (e.g., diabetes, obesity or substance abuse in addition to hypertension) will deliver the self-management training. Training will occur on evenings and weekends to accommodate patients' work schedules.

Additional considerations—Stakeholder input reinforced our plans to track study costs in conjunction with clinical outcomes to facilitate assessment of payers' potential return on investment.

Estimated resources for adapting the ACT Study

The planning phase took place over 24-months and consisted of 8 meetings with the Community Advisory Board, 38 meetings with the study investigative team (including researchers, community members, and clinic stakeholders), 7 meetings with a Community Health Worker consultant with experience training Community Health Workers in Baltimore, Maryland, 14 meetings with the Community Health Worker working group, 7 meetings between the community-based graphic artist and Community Advisory Board members, 5 meetings with clinical practice patients and their family members, 8 meetings with practice staff, 3 meetings with leaders from other ongoing clinical practice programs, and 3 meetings with healthcare payer representatives. There were 84 total formal meetings, resulting in approximately 91 hours of direct time invested in the environmental assessment. This does not account for additional time spent preparing for meetings, travel, analysis, informal conversations, and redesigning interventions.

DISCUSSION

We applied CBPR and implementation science frameworks to adapt established behavioral interventions for use among urban African Americans with uncontrolled hypertension. We sought to enhance interventions' translation into an urban clinical practice and to improve interventions' likelihood of sustained effectiveness. The adaptation process resulted in several modifications to our interventions, and it required substantial time and resources. A randomized controlled clinical trial is currently underway to study to effectiveness of these adapted interventions.

To our knowledge, prior investigators have not described in detail the process, resources required, and outcomes emanating from their efforts to enhance the translation of interventions designed to address the needs of disparity populations receiving care in real-world clinical practice settings. Effective adapted interventions could yield sustained improvements in health and health care disparities. Our report provides an example for others to consider when planning similar processes and it may help them anticipate the resources similar processes may require.

Our approach to adapting the ACT Study interventions may have had several strengths. Engaging various types of stakeholders (i.e., patients and their families, health care payers, clinicians, staff, and community members) helped us to better understand the needs of our target population from numerous perspectives and to better align our interventions with stakeholder goals. We also gained a better understanding of potential challenges to the successful and sustained implementation of interventions into routine clinical practice. We found stakeholders were highly enthusiastic about being engaged throughout the adaptation process, emphasizing their perceived importance of such efforts.

Despite these potential merits of our approach, our substantial efforts would not have been possible without a funded research planning period embedded in our study design. Further, our adapted interventions may help address hypertension disparities among urban African Americans living in Baltimore, Maryland and receiving care at a single clinic, but they may have limited generalizability to other populations. Finally, the effectiveness of our adapted interventions to improve hypertension control among urban African Americans will not be known until the conclusion of our trial, and additional future studies will be needed to establish whether the interventions are sustained long term.

In conclusion, use of hybrid methodologies to adapt interventions for disparity populations could improve interventions' translation to real clinical practice settings and enhance interventions' sustained effectiveness. Our approach resulted in numerous intervention modifications to improve the potential effectiveness of hypertension self-management interventions for urban African Americans. Investigators planning similar approaches should consider the substantial resources that similar efforts may require.

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Table 1

CBPR and PRISM Overview

	Community Based Participatory Research (CBPR)	Practical, Robust Implementation and Sustainability Model (PRISM)
Description	A collaborative approach to research that equitably involves community members, practitioners, and academic researchers ⁹	A comprehensive model for translating research into practice which evaluates how the health care programs or interventions interact with the recipients to influence program adoption, implementation, maintenance, reach, and effectiveness ¹¹
Goals	<ul style="list-style-type: none"> • Recognize community as a unit of identity • Build on strengths and resources within the community • Facilitate collaborative partnerships in all phases of the research • Integrate knowledge and action for mutual benefit of all partners • Promote a co-learning and empowering process that attends to social inequalities • Involve a cyclical and iterative process • Address health from both positive and ecological perspectives • Disseminate findings and knowledge gained to all partners⁹ 	<ul style="list-style-type: none"> • Successfully implement and sustain interventions in non- research settings by identifying the factors that need to be considered and addressed and how to measure success. This is accomplished by: <ul style="list-style-type: none"> – Assessing organizational and patient perspectives of the intervention – Assessing characteristics of the organizational and patient recipients¹¹
Application	Engaged community stakeholders in all phases of research through: <ul style="list-style-type: none"> • Research team meetings • Focus groups • Community Advisory Board meetings • Informal correspondences • Consultations 	Obtained perspectives of health care payers, practice administrative leaders, clinicians, and other practice administrative personnel, as well as patients and families, through: <ul style="list-style-type: none"> • Directed interviews • Focus groups • Roundtable discussions • Research team meetings • Informal correspondences

Table 2

Stakeholder Engagement using CBPR and PRISM Frameworks

Participant	n	Assessment Method	Types of Input Sought	Example Questions
1. Patient and Family				
African American Patients with Hypertension	18	Community Member Led Focus Groups	<ul style="list-style-type: none"> Desirable interventions; barriers/facilitators to self-management Community resources Practice factors which influence adherence 	<ul style="list-style-type: none"> What needs to happen to help you manage your blood pressure day to day? What is available to you in the community to help you take care of your high blood pressure? What else do you wish you had? Are there people at the practice, besides your doctor, who have helped you with your blood pressure?
Family Members of African American Patients with Hypertension	12	Community Member Led Focus Groups	<ul style="list-style-type: none"> Desired role in family members' BP care Role in family members' doctor's visits Barriers family members face 	<ul style="list-style-type: none"> How involved are you in your family member's treatment for their blood pressure specifically? Tell me about the things you do to try to help your family member at the doctor's. What challenges does your family member face in caring for their high blood pressure?
2. Healthcare				
Health Care Payers	2	Directed interview, 60–90 minutes	<ul style="list-style-type: none"> How intervention aligns with organization's goals Intervention feasibility Return on Investment (ROI) needed to make the case for sustainability 	<ul style="list-style-type: none"> How does our intervention fit in with your vision of the future of [organization]? What intervention components are more/less feasible? What are the performance measures and financial incentives that might encourage your organization to integrate this intervention, if effective?
Practice Medical Director	1	Directed interview, 60–90 minutes, & impromptu meetings	<ul style="list-style-type: none"> Practice feasibility and potential sustainability Practice capacity to integrate new practices Potential burden caused by intervention 	<ul style="list-style-type: none"> What do you think about the feasibility of the proposed program components at [practice]? What factors would influence the practice's capacity to implement new interventions? Would [practice] be willing to permanently adopt this program if it were proven to be effective?
Practice Administrator	1	Directed interview, 60–90 minutes	<ul style="list-style-type: none"> Potential for intervention to decrease burdens Workflow, practice capacity for change Potential sustainability 	<ul style="list-style-type: none"> Could the intervention help lift current burdens from [practice] staff or patients? What is your practice's attitude or feelings about adapting to new protocols or procedures?

Participant	n	Assessment Method	Types of Input Sought	Example Questions
				<ul style="list-style-type: none"> Would [practice] be willing to permanently adopt this program if it were proven to be effective?
Clinicians (RNs, MDs)	10	Roundtable discussions	<ul style="list-style-type: none"> Desired elements of intervention Clinicians' receptivity to intervention 	<ul style="list-style-type: none"> Who should the CHW communicate with on the team? How can the CHW facilitate your work? How would you like to see the patient's home blood pressure measures?
Practice Staff (e.g. Front Desk, Social Worker)	13	Observation via shadowing	<ul style="list-style-type: none"> Daily workflows, challenges/successes meeting patients' needs, culture of care 	<ul style="list-style-type: none"> Ad hoc conversations to discuss challenges and culture of care
3. Community				
Community Members	2	Pre-Funding Roundtable discussions	<ul style="list-style-type: none"> Potential challenges to successful study execution 	<ul style="list-style-type: none"> What are the potential challenges to the successful execution of our proposed study, if it is funded? What do you think about Community Health Workers (CHWs) attending patients' clinical visits? What do you think about patients and families attending intervention sessions together?
Community – Provider Advisory Board (CAB)	30	Research, CAB, work group meetings, informal calls, email	Guidance through all study phases (planning, development, implementation, evaluation, and dissemination)	<ul style="list-style-type: none"> How can we incorporate community more into our study? How can we tailor our study to be more culturally sensitive? How can we enhance use of community resources? How can we better harness community strengths?

Table 3

Stakeholder Input on Intervention Design

Input Received	Sample Quote	Source
1. Potential for interventions to improve clinical practice		
Individual intervention components more efficient to administer than bundled, multifaceted intervention	"What is the piece of this that seems to kick? What could be left out and that's fine?" [Practice Administrator]	Practice Administrators, Payers
Practice-wide (cross-disease) programs preferable to disease- specific programs	"It shouldn't be a diabetes team at [practice], it should be, you know, the self-management support and care coordination team." [Payer]	Payers
Intervention very useful if decreases patients' social barriers to care	N/A (information obtained while shadowing in the practice)	Social Workers
2. Desired intervention features		
Felt everyone should have free BP cuff	"If I have the right kind of the different tools I can do it [measure blood pressure] every day." [Patient]	Patients
Desire more general education about HTN	"I think what my mother would need is a little bit more education on high blood pressure, because a lot of things that she doesn't know that she should know at the age that she is, you know..." [Patient's Family Member]	Patients, Family members
Desire more outreach from practice	"I said I wish I can get someone to come in [to my home] and at least take my pressure and everything because I have high cholesterol and stuff..." [Patient]	Patients
Want to see patient home BP readings	"Or if the Community Health Worker just goes and actually logs the readings like prior to the visit, just toddles through and writes down." [Clinicians]	Clinicians
3. Intervention cultural relevance		
Need to help patients access resources in community to help hypertension management	"The biggest problem with exercising at facilities in the community is not that many and then the ones that are available, most of them are too costly." [Patient]	Community advisory board, Clinicians, Patients, Family members
CHWs need to be familiar with the community	N/A (information obtained at a quarterly Community Advisory Board meeting)	Community advisory board
Engender trust in engaging participants	"...you just need to come through with your absolute caring and that you're not coming through as a research project to collect data for a report." [Practice Administrator]	Practice Administrators, Community advisory board
Some family members attend visits with patients, others don't because of privacy concerns	"But then you got to remember also there is yeah—I don't have to know everything. There are some things I don't need to know. You know as a woman and as a man..." [Patient's Family Member]	Family members
Recruitment and study materials not tailored to health literacy	N/A (information obtained at a quarterly Community Advisory Board meeting)	Community advisory board
Study artwork should reflect the community	N/A (information obtained at a quarterly Community Advisory Board meeting)	Community advisory board
4. Threats to intervention sustained effectiveness		
Need to show return on investment within a specific time period	"...you know, you really have to speak the bottom line, return on investment, cost of care, avoidable events..." [Payer]	Payers

Input Received	Sample Quote	Source
Many other initiatives ongoing in practice	"Well there's a lot going on at [practice] and I think there's potential for a great deal of overlap." [Payer]	Practice Administrators, Payers
Skepticism about patient attendance	"The group will be difficult to muster... There's intensive time taken to remind patients and to arrange transportation." [Practice Administrator]	Practice Administrators
Communication by only telephone could be a barrier for patients, should evaluate patient preference for communication with CHW	"But I think that through outreaching people, through being a part – through a community-based approach, not I think us making phone calls..." [Payer]	Payers, Administrator, Clinicians, Community Members
Concern about increased documentation load with CHW liaison	"...one of the things that we really have to try to figure out is how is it going to not become just another piece of paperwork on the physician's so-called 'desktop.'" [Practice Administrator]	Practice Administrators, Clinicians

Table 4
Original Study Design and Adaptations made during Planning Phase in Response to Stakeholder Input

	Original Design	Responsive Study Adaptations
1. Trial Structure	<ul style="list-style-type: none"> Design: Two-arm design comparing multifaceted behavioral self-management interventions to improve patients' hypertension self-management with usual care Random allocation to: <ul style="list-style-type: none"> Arm 1: Community health worker, communications training, and self- management training Arm 2: Usual care Blood Pressure Monitor: Only participants in intervention arm to receive home blood pressure monitor and physicians would not have access to blood pressure readings 	<ul style="list-style-type: none"> Design: Unbundled the multifaceted intervention arm to improve payers' and clinicians' abilities to efficiently administer in clinical practice Random allocation to: <ul style="list-style-type: none"> Arm 1: Community health worker Arm 2: Community health worker plus communications training Arm 3: Community health worker plus self-management training Blood Pressure Monitor: All patients to receive home blood pressure monitor; Community Health Worker to upload reports to participants' electronic medical records
2. Study Interventions	<ul style="list-style-type: none"> Literacy: Not all study materials tailored for literacy Artwork: Study artwork to be created by internal artist 	<ul style="list-style-type: none"> Literacy: All study materials tailored to meet 4th–6th grade reading level Artwork: Engaged a local student artist to create study artwork reflecting community values
A. Community Health Worker (CHW)	<ul style="list-style-type: none"> Outreach: CHW behavioral support consisting of one home visit and three phone calls over the course of one year Communication with Practice: CHW to liaise with the practice primarily through communication with a practice social worker Documentation: All CHW contacts with patient to be included in patient's medical record 	<ul style="list-style-type: none"> Outreach: Added as-needed, tailored, patient- centered engagement with patient throughout the study; increased emphasis on emphasizing patients' positive accomplishments and connecting patients to community resources Communication with Practice: Extended the CHW's role to liaise between multiple clinical services, provide more patient outreach Documentation: Identified ways to decrease excess paperwork in patient's medical record
B. Communications Training	<ul style="list-style-type: none"> Session Leader: Registered Nurse Attendees: Invite both patients and their family members to participate Length of Session and Setting: Two hour group session in the community 	<ul style="list-style-type: none"> Session Leader: Trained behavioral interventionist capable of billing for behavioral interventions Attendees: Invite companion to participate only after patient permission Length of Session and Setting: Individual session directly prior to patient's clinical visit in the practice
C. Self- management Training	<ul style="list-style-type: none"> Session Leader: Registered nurse, license dietitian, and social worker Attendees: Patients and their family members 	<ul style="list-style-type: none"> Session Leader: Trained behavioral interventionist capable of billing for behavioral interventions Attendees: Patients

	Original Design	Responsive Study Adaptations
	<ul style="list-style-type: none">Length of Session and Setting: Two-hour weekly sessions over nine consecutive weeks, held in various community locations	<ul style="list-style-type: none">Length of Session and Setting: Two-hour weekly sessions over eight consecutive weeks, held in the practice during evenings and weekends
D. Additional Considerations	<ul style="list-style-type: none">Return on Investment: Study costs trackedOther Interventions: Effort to ensure our interventions overlapped minimally with other ongoing initiatives in the practice	<ul style="list-style-type: none">Return on Investment: Greater emphasis on creating a case for short and long term return on investment for payersOther Interventions: Reinforced our efforts to track other interventions in the practice to ensure our interventions overlapped minimally