Integrating Caregiver Support into MS Care
E2205-P
NCT02835677

SPiRE
Rehabilitation Research & Development

Document date: 7/1/2016

EXECUTIVE SUMMARY

Background.

This six month feasibility study will adapt and expand a successful Caregiving intervention developed by the Department of Veterans Affairs, REACH VA, to target Veterans with Multiple Sclerosis and their Caregivers to reduce stress and burden for the Caregiver and improve and/or maintain Veteran mobility. Successful Caregiving interventions target skills MS caregivers need: problem solving, cognitive reframing, stress management, and communication to manage patient concerns/behaviors and their own stress and coping. The study will test REACH VA Multiple Sclerosis materials with Caregivers with a special focus on improving Veteran mobility. REACH VA MS will be delivered by telephone or face to face during a three month period.

Caregiver burden in MS is a response to physical, psychological, emotional, social, and financial stressors associated with Caregiving, often leading to higher risk of depression and lower quality of life. MS Caregivers report greater stress-related symptoms and lower life satisfaction than non-caregivers, have higher needs for mental health services, and report a wide range of problems related to Caregiving.

Caregiver depression is associated with greater MS disease severity, poorer veteran health, and perceived social support. Conversely, MS patients with supportive caregivers report better adherence to medication regimens and disease modifying therapies. Quality of life decreases in MS patients whose caregivers are depressed and lack social support. Providing caregivers with education, coping skills, problem solving and support can help increase quality of life for both the caregiver and care recipient. Providing skills for managing mobility and including caregivers in the treatment plan may help caregivers perform their tasks while avoiding injury to themselves and the MS patient. The Caregiver's efforts to help the Veteran improve physical activity may result in maintaining a level of independence for a greater period of time, thus reducing the need for care.

The REACH VA intervention as used nationally in the VA focuses on caregiving risk areas of safety, physical and emotional well-being, patient behavior management, and social support plus assessment and closure. It is standardized through emphasis on components critical to caregiving interventions, providing education, support, and skills building of problem solving, cognitive reframing, stress management, and communication through use of intervention protocols, scripts, and talking points for each session. It is targeted to the needs of each caregiver/care recipient dyad through a Risk Priority Inventory (RPI)/Assessment, which identifies caregiver and care recipient concerns. Although all Caregivers are learning problem solving, the problem itself is different for each Caregiver based on the dyad's needs as identified by the Caregiver. A MS specific Caregiver Notebook includes materials for all sessions and topics, focusing on practical strategies for managing patient concerns and caregiver stress and coping. The intervention is structured through a protocol that specifies activities for each session. For this feasibility study, one additional problem solving session will be added, focusing on the Caregiver's role in the Veteran's mobility and function.

Objectives. With loss of mobility in multiple sclerosis (MS) comes an increase in amount and types of caregiver assistance, with a concomitant increase in burden for the caregiver (1). In fact, effect on caregiver burden can be seen as a potential indicator of the efficacy of MS

management (1), suggesting that the caregiver is an appropriate and independent target for MS therapeutic strategies (2).

MS patients report difficulty implementing and continuing with home exercise, mobility, and walking programs. This feasibility study will test integration of a successful behavioral caregiving intervention into clinical practice to improve functioning of Veterans with multiple sclerosis (MS) and their Caregivers. Caregivers of Veterans with MS will receive a behavioral caregiver intervention designed to address caregiver coping and management of patient concerns, with special focus on patient mobility and walking. A pre-post intervention design will compare outcomes for Veterans and Caregivers.

For Veterans, the intervention will target Caregiver participation in home-based Veteran mobility activities. Outcomes for Veterans will include the timed up and go test (TUGT), Expanded Disability Status Scale (EDSS), self-efficacy, fatigue, and depression. MS Caregivers report high burden, stress, and depression involved in caring for their loved ones, especially as mobility declines (3-5) and these outcomes are related to physical and emotional health status of the patient (2). For Caregivers, the intervention will focus on improving Caregiver coping and on managing MS-related problems. Outcomes for Caregivers will include depression, burden, anxiety, and number of Veteran MS problems and safety alerts reported, measured at baseline, End of Intervention (3 months), and 6 months.

Study Objectives include:

1) Test whether a caregiver intervention can be integrated into an MS clinical setting.
2) Determine whether Caregiver outcomes are improved.
3) Determine whether Veteran outcomes are improved.
4) Determine which types of Caregivers will benefit most.
5) Determine which types of Veterans will benefit most.
6) Refine materials for future clinical research, translation and implementation.

HYPOTHESES

Hypotheses are related to both Veteran and Caregiver:

Hypothesis 1: Veterans of Caregivers who receive the intervention will have significant improvement in outcomes including the Expanded Disability Status Scale (EDSS), the timed up and go test (TUGT), self-efficacy, fatigue, impact on daily life, and depression.

Hypothesis 2: Caregiver participants will have significant improvement in outcomes including depression, burden, anxiety, and number of Veteran MS problems and safety alerts reported.

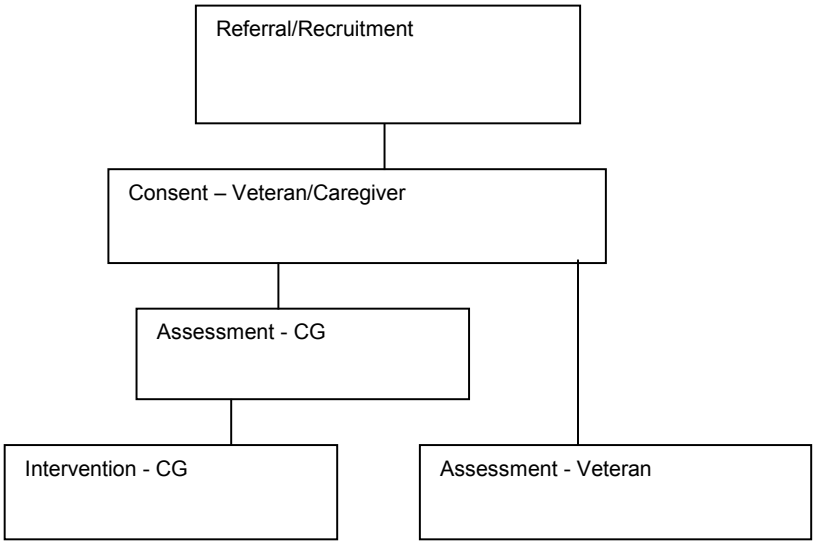
RESEARCH METHODS

Caregivers of Veterans with MS will receive a behavioral caregiver intervention designed to address caregiver coping and management of patient concerns, with special focus on patient mobility and walking. A pre-post intervention design will compare outcomes for Veterans and Caregivers. Veterans will complete mobility assessments and answer questions about their health and well-being.

Caregivers (Intervention): The intervention will be delivered in six individual hour-long sessions during three months by a trained and certified masters-level, mental health professional Program Coach, using the VAMC Memphis Caregiver Center's national certifying procedures. These include didactic, knowledge test, and supervised role play of intervention components. The first consent and assessment visit will also be in the facility during a patient clinic visit; consent can be obtained by the Research Associate or Program Coach. At this visit, the Program Coach will also begin the Intervention process to establish rapport; subsequent caregiver REACH sessions, approximately every two weeks, will be in the facility, by telephone, or by telehealth, dependent on patient appointments and caregiver desire. All sessions will be taped and treatment fidelity will assess intervention delivery, receipt, and enactment.

STUDY FLOW CHART

First Visit Sequence



Data Collection. A trained masters-level Research Associate will collect data from Caregiver and Veteran by telephone or at clinic visits (which typically occur every three months) at baseline (first assessment and consent visit), end of intervention (3 months), and 6 months.

REACH VA MS STATEMENT OF WORK (SOW)

Task 1: Develop Manual of Operations (MOP) — Month 1

Activities
- Finalize REACH VA MS sessions format
- Finalize REACH VA MS materials
- Finalize screening materials
- Finalize data collection protocol/battery
- Develop and print brochures and posters

Products
- Program Coach notebook, topics and scripts
- Caregiver Notebook
- Screening forms and scripts
- Data collection forms, scripts and documentation
- Brochures and posters

Task 2: IRB approval — Month 1

Activities
- Develop all IRB documents

Products
- IRB study approval

Task 3: Train personnel — Month 1

Activities
- Train Program Coach and research associate

Products
- Trained and certified staff

Task 4: Recruitment and Randomization — Months 1-15

Activities
- Mail brochures
- Telephone and screen potential participants

Products
- Approximately 46 Caregivers/Veterans screened
- 25 pairs recruited

Task 5: Intervention — Months 1-20

Activities
- Schedule and provide intervention for Caregivers

Products
- Intervention sessions provided

Task 6: Data Collection/Data Entry/Cleaning — Months 1-24

Activities
- Collect Caregiver data at baseline, 3 and 6 months
- Collect Veteran data at baseline, 3, and 6 months
- Enter and clean data

Products
- Completed data entry

Task 7: Data Analysis — Months 16-24

Activities
- Complete data analysis

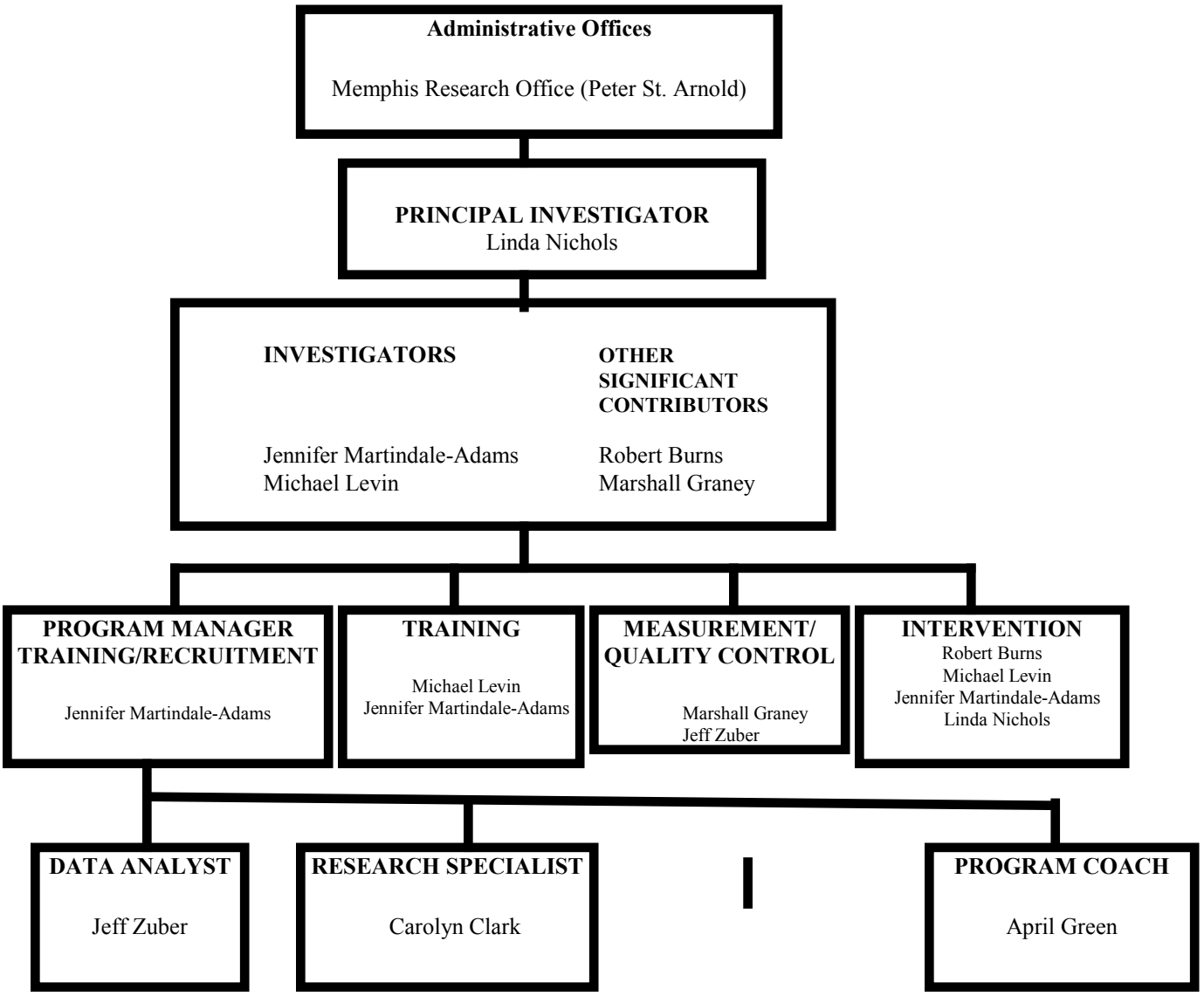
Products
- Completed data analysis, beginning after baselines

Task 8: Preparation and Dissemination of Results — Months 20-24

Activities
- Prepare papers and presentations
- Develop protocol for RCT

Products
- Papers and Presentations
- Manuals and materials and plan for RCT at all VA's nationally

ADMINISTRATIVE ORGANIZATIONAL CHART



RESPONSIBILITIES OF PROJECT PERSONNEL

Senior/Key Persons.

Linda Nichols, Ph.D., will be responsible for the overall scientific conduct of the study. She will conduct weekly meetings during which the research team will review study progress, finalize analytical plans, review results, and prepare manuscripts and reports for dissemination. She will also supervise analysis; and maintain scientific integrity of the study.

Jennifer Martindale-Adams, EdD will serve as the first line supervisor for research staff. This includes training the research staff, and conducting weekly staff meetings. She will monitor recruitment and adherence progress very closely and assure participant safety. Dr. Martindale-Adams will participate in the first year protocol development meetings and will make substantial contributions to the development of the final protocol. Dr. Martindale-Adams will assist in data analysis and results preparation and dissemination.

Michael Levin, M.D. will collaborate with Dr. Nichols and the project team members to refine and finalize instrument development and help in the development of recruitment materials. Dr. Levin will serve as primary point of contact with the MS Clinic, where is a provider. He will assist in data analysis and results preparation and dissemination.

Other Personnel

April Green, MS (Program Coach) will deliver the individual intervention and contact any participant with an alert. The Program Coach will also work with participants to schedule sessions at a convenient time. The Program Coach will make reminder calls to all participants. The Program Coach will input the intervention and treatment implementation data. In addition, the Program Coach will help with recruitment and attend promotional activities. The Program Coach will be certified in all screening; trained to consent participants and attend weekly staff meetings.

Jeff Zuber*, M.A. (Data Analyst) will participate in the first year protocol development meetings and in the development and finalization of the database. He will prepare and maintain a computer codebook for collected data. Mr. Zuber will generate inquiries for missing data. He will generate various data and recruitment reports and will perform all aspects of data management: coding, entry, validity, and reliability checks. He will be certified in all screening and data collection procedures and assist in preparation of publications. Mr. Zuber will attend all research meetings and weekly staff meetings. With assistance from Dr. Graney, Mr. Zuber will analyze all data.

Carolyn Clark, MA (Research Associate) will work closely with Drs. Nichols, Levin, Martindale-Adams and others to ensure easy communication and problem solving at the operational level. She will be responsible for day-to-day project management activities to successfully implement this study. Ms. Clark will be certified in all screening and data collection procedures. She will identify and screen potential participants, enroll and follow subjects, be certified in and perform screening and data collection procedures. She will obtain informed consent, collect data (baseline, 3 and 6-month), and attend weekly staff meetings. She will input all survey data in a timely manner from the baseline, 3, and 6-month survey data points. Ms. Clark will schedule calls at correct data collection points, help with recruitment and attend promotional activities.

Other Significant Contributors.

Marshall Graney, PhD, will be responsible for analytic guidance. Dr. Graney, with assistance of Mr. Zuber, is responsible for data analysis. He will assist in results preparation and dissemination.

Robert Burns, MD will participate in the first year protocol development meetings and will make contributions to the development of the final protocol. He will assist in refining the intervention to assure that the content is scientifically sound and in developing alerts/adverse events and protocols to follow when alerts or adverse events are detected (such as high depression levels). He will assist in data analysis planning and result preparation.

PROJECT STAFF MEETINGS

- Staff meetings are held on Tuesday of every week.
- Research meetings are held on Tuesday of every week.
- Discussion Program Coach meetings are held on Tuesday of every week.

BACKGROUND AND RATIONALE

Background

MS and Caregiving. It is estimated that around 400,000 people in the United States are living with Multiple Sclerosis (MS) (10-11) and about 30,000 veterans using VHA have been diagnosed with MS (12). MS is unpredictable and its symptoms vary widely, including vision problems, fatigue, mobility problems, bladder and bowel issues, cognitive changes, and pain with decreased mobility being the most debilitating (1). Decreased mobility also leads to increased caregiver burden and decreased quality of life, which could cause caregiver burnout (1).

Approximately 80% of MS patients will experience problems with mobility, usually within 10 to 15 years of diagnosis (4). Mobility needs can include help getting in and out of bed, toileting, bathing, transferring, and difficulty walking (13). Patients report walking to be one of the most valuable bodily functions (14). Hence, mobility is frequently ranked as one of the biggest problems with MS leading to less independence and productivity, loss of self-efficacy and decreased quality of life, and even financial loss for the MS patient (1,15).

Between 80 and 90% of informal care for MS patients occurs in the home. Typically a spouse is the informal caregiver who spends anywhere from 4 to 12 hours per day caring for their loved one (13). The more severe the MS symptoms, the higher the cost and the higher the burden on the caregiver (4,19-20).

Caregiver burden in MS is a response to physical, psychological, emotional, social, and financial stressors associated with caregiving, often leading to higher risk of depression and lower quality of life (16). MS Caregivers report greater stress-related symptoms and lower life satisfaction than non-caregivers, have higher needs for mental health services, and report a wide range of problems related to caregiving (17,18).

Caregiver depression is associated with greater MS disease severity, poorer veteran health, and perceived social support (21). Conversely, MS patients with supportive caregivers report better adherence to medication regimens and disease modifying therapies (22). Quality of life decreases in MS patients whose caregivers are depressed and lack social support (21). Providing caregivers with education, coping skills, problem solving and support can help increase quality of life for both the caregiver and care recipient (23,24). Providing skills for managing mobility and including caregivers in the treatment plan may help caregivers perform their tasks while avoiding injury to themselves and the MS patient (1). The Caregiver's efforts to help the Veteran improve physical activity may result in maintaining a level of independence for a greater period of time, thus reducing the need for care (1).

Caregiving Interventions. Successful caregiving interventions target skills MS caregivers need: problem solving, cognitive reframing, stress management, and communication to manage patient concerns/behaviors and their own stress and coping (6,25). The REACH VA intervention is based on Resources for Enhancing Alzheimer's Caregivers Health (REACH II) (6) and Resources for Enhancing All Caregivers' Health in VA (REACH VA) (7-8). With Public Law 111-163 Caregivers and Veterans Omnibus Health Services Act of 2010, REACH VA became a VA clinical program for dementia and SCI/D Caregivers and, in 2015, will include materials for PTSD, MS, and ALS

Caregivers. REACH has also been successfully used with SCI caregivers outside VA (9) in a research design where caregivers and patients both received services.

The REACH intervention provides caregivers with tools and skills to manage ongoing and evolving problems. The structured but targeted nature of the intervention has been successful with all types of stressed and burdened caregivers, and with caregivers who are coping with varying challenges and levels of disease. For REACH II and REACH VA, intervention caregivers showed significant improvement in burden, depression, health and self-care, social support, and management of patient behaviors, caregiving frustrations that can lead to potential abuse, and gained an extra hour per day not spent in caregiving tasks (6-8).

As REACH VA expands to other diagnoses, VA subject matter experts (SME) have refined the Risk Priority Inventory (RPI), which identifies caregiving concerns for each diagnosis. The RPI targets the intervention to specific concerns of the caregiving dyad. The subject matter experts have also collaborated on the diagnosis specific Caregiver Notebooks, which include behavioral and stress/coping topics relevant to the needs of Caregivers of Veterans with the identified condition. Each chapter identifies research and practice-based strategies that can be used as part of problem solving to manage care challenges. Staff from several MS Centers of Excellence (MSCoE) are serving as SMEs for REACH VA Multiple Sclerosis.

To date, although clinicians are the intervention providers in the VA system, caregiver care has not been systematically integrated into care provided by Veterans' clinicians. A trend in caregiving during the last few decades is the increased reliance on the family to perform complex medical tasks at home in support of the patient, such as wound care (26). Excellent care for the patient may lead to negative physical, emotional, economic, or social consequences for the caregiver, as the caregiver struggles to meet the needs of daily life and clinical care requirements of the patient (27). The integrated model of care proposed would appropriately use the caregiver's expertise to help and encourage the patient, while also recognizing and mitigating the stress and burden impacts on the Caregiver and the family.

VA resources are limited. Although each facility has at least one Caregiver Support Coordinator, they are not always able to provide support that Caregivers need. That burden generally falls on the Veteran's clinical team. The REACH intervention provides a methodology for clinicians to work with Caregivers in a focused, efficient way, maximizing clinician and Caregiver time (8). In addition, the proposed model of Caregiver support integrated into clinical care could serve as a physical rehabilitation strategy to improve function for Veterans with MS and for Veterans with other conditions. Working with the Caregiver in conjunction with the Veteran improves the Veteran experience, which is important for MyVA and promotes a positive culture of service, a goal of the Blueprint for Excellence.

Preliminary Studies. The research team brings decades of experience working with caregivers and MS patients and a track record of successfully implementing caregiving and MS interventions in the VHA system to help ensure success of the proposed project. The REACH VA intervention was designed and tested in VHA and is implemented by VHA clinicians daily to help Veteran Caregivers. The caregiving team of Nichols, Martindale-Adams, Burns, and Graney have more than 20 years' experience in this intervention and in working with caregivers as Principal Investigators for REACH I and II (Burns) and REACH VA (Nichols and Martindale-Adams). Martindale-Adams and Nichols

are Co-Directors of VA's national Caregiver Center, located at Memphis VA Medical Center, with responsibility for implementing REACH VA as a national clinical program. The Caregiver Center trains and certifies VA staff nationally to provide caregiver interventions. The REACH model is also being implemented into Tribal Organizations to serve Native American/Alaskan Native dementia caregivers, funded by the Rx Foundation (Martindale-Adams).

Caregivers participating in the REACH II and REACH VA interventions show similar significant improvement in outcomes (6-8). Table 1 below shows data from the current REACH VA dementia program in the VA (8) that has a similar number of sessions as the proposed project but used shorter versions of the outcome measure scales. The analysis section has data from the 2007 to 2009 REACH VA pilot study that had 12 sessions and full versions of the scales (2).

Table 1. REACH VA Program Caregiver Outcomes (N = 125) (8)

Variable	Baseline *M* ± *SD*	Follow-up *M* ± *SD*	*p*-value	Cohen's d
Burden (0-16)	7.7 ± 4.0	6.4 ± 3.5	<.001	.33
Depression (0-6)	2.0 ± 1.9	1.5 ± 1.7	.006	.26
Anxiety (0-6)	2.9 ± 2.1	2.2 ± 1.9	<.001	.35
Safety (0-9)	1.5 ± 1.1	1.1 ± 1.1	<.001	.36
Behaviors (0-25)	13.0 ± 3.7	11.8 ± 4.6	.001	.34
Behaviors bother (0-25)	8.0 ± 4.4	7.3 ± 5.3	.164	.16

The addition of Dr. Michael Levin as a co-investigator provides clinical MS expertise to this team. Dr. Levin is the Program Director and Chief of Neurology Service at Memphis VAMC and Director, Multiple Sclerosis Center and Laboratory of Viral and Demyelinating Diseases at University of Tennessee Health Science Center. He is a physician scientist who has an outstanding record in clinical care for patients with neurodegenerative diseases. He is the Director of the VA's MS Center of Excellence (MSCoE-East). Dr. Levin is VA Merit funded for his contribution to the fundamentals of autoimmunity and neuronal degeneration in MS.

In addition, as part of the Caregiver Center's development of REACH VA MS, staff from Seattle, Portland, and Baltimore Multiple Sclerosis Centers of Excellence (MSCoE) are also serving as subject matter experts for the development of the intervention materials.

Intervention. The REACH VA intervention as used nationally in the VA focuses on caregiving risk areas of safety, physical and emotional well-being, patient behavior management, and social support (8) plus assessment and closure. It is standardized through emphasis on components critical to caregiving interventions, providing education, support, and skills building of problem solving, cognitive reframing, stress management, and communication through use of intervention protocols, scripts, and talking points for each session. It is targeted to the needs of each caregiver/care recipient dyad through a Risk Priority Inventory (RPI)/Assessment, which identifies caregiver and care recipient concerns. Although all Caregivers are learning problem solving, the problem itself is different for each Caregiver based on the dyad's needs as identified by the Caregiver. For example, Caregivers could be working on asking for help, grief, managing safety concerns for the patient, or transportation. A disease specific Caregiver Notebook includes materials for all sessions and topics, focusing on practical strategies for managing patient concerns and caregiver stress and coping. The intervention is structured through a protocol that specifies activities for each session. For this

feasibility study, one additional problem solving session will be added, focusing on the Caregiver's role in the Veteran's mobility and function.

The intervention's ability to reduce caregiving stress may be understood through a stress/health process model. Caregivers experience stress if they perceive that demands placed on them are greater than their resources and their capacity to manage demands. The Lazarus and Launier stress model (29) focuses on actions caregivers can take to cope with stress: action-oriented management of environmental demands. A major intervention component is managing patient behaviors and activities of daily living/instrumental activities of daily living (ADLs/IADLs), an important situational demand for MS caregivers (30-32). Effective action-oriented coping depends partly on information and skills to diminish, tolerate, or master situational demands, and intrapersonal efforts to manage cognitive and emotional responses to situational demands, skills critical for caregivers (30-32). These skills are taught as REACH's problem solving, communication, and stress management components.

Perceptions of demands and coping are individualized (29) and both the internal responses of the stressed individual and techniques to tolerate demands that cannot be changed are critically important (16). Internal responses of the stressed individual are also targeted in REACH. Although caregivers are taught more efficient strategies to manage patient behaviors, they are also taught cognitive reframing skills to reduce distress over behaviors and circumstances not amenable to change and strategies to manage stress.

The intervention will be delivered in six individual hour-long sessions during three months by a trained and certified masters-level, mental health professional Program Coach, using the VAMC Memphis Caregiver Center's national certifying procedures. These include didactic, knowledge test, and supervised role play of intervention components. The first consent and assessment visit will also be in the facility during a patient clinic visit; consent can be obtained by the Research Associate or Program Coach. At this visit, the Program Coach will also begin the Intervention process to establish rapport; subsequent caregiver REACH sessions, approximately every two weeks, will be in the facility, by telephone, or by telehealth, dependent on patient appointments and caregiver desire. All sessions will be taped and treatment fidelity will assess intervention delivery, receipt, and enactment.

GOALS OF INTERVENTION

With loss of mobility in multiple sclerosis (MS) comes an increase in amount and types of caregiver assistance, with a concomitant increase in burden for the caregiver (1). In fact, effect on caregiver burden can be seen as a potential indicator of the efficacy of MS management (1), suggesting that the caregiver is an appropriate and independent target for MS therapeutic strategies (2).

MS patients report difficulty implementing and continuing with home exercise, mobility, and walking programs. This feasibility study will test integration of a successful behavioral caregiving intervention into clinical practice to improve functioning of Veterans with multiple sclerosis (MS) and their Caregivers. Caregivers of Veterans with MS will receive a behavioral caregiver intervention designed to address caregiver coping and management of patient concerns, with special focus on patient mobility and walking. A pre-post intervention design will compare outcomes for Veterans and Caregivers.

For Veterans, the intervention will target Caregiver participation in home-based Veteran mobility activities. Outcomes for Veterans will include the timed up and go test (TUGT), Expanded Disability Status Scale (EDSS), self-efficacy, fatigue, and depression. MS Caregivers report high burden, stress, and depression involved in caring for their loved ones, especially as mobility declines (3-5) and these outcomes are related to physical and emotional health status of the patient (2). For Caregivers, the intervention will focus on improving Caregiver coping and on managing MS-related problems. Outcomes for Caregivers will include depression, burden, anxiety, and number of Veteran MS problems and safety alerts reported, measured at baseline, End of Intervention (3 months), and 6 months.

RESEARCH QUESTIONS

Study Objectives include:

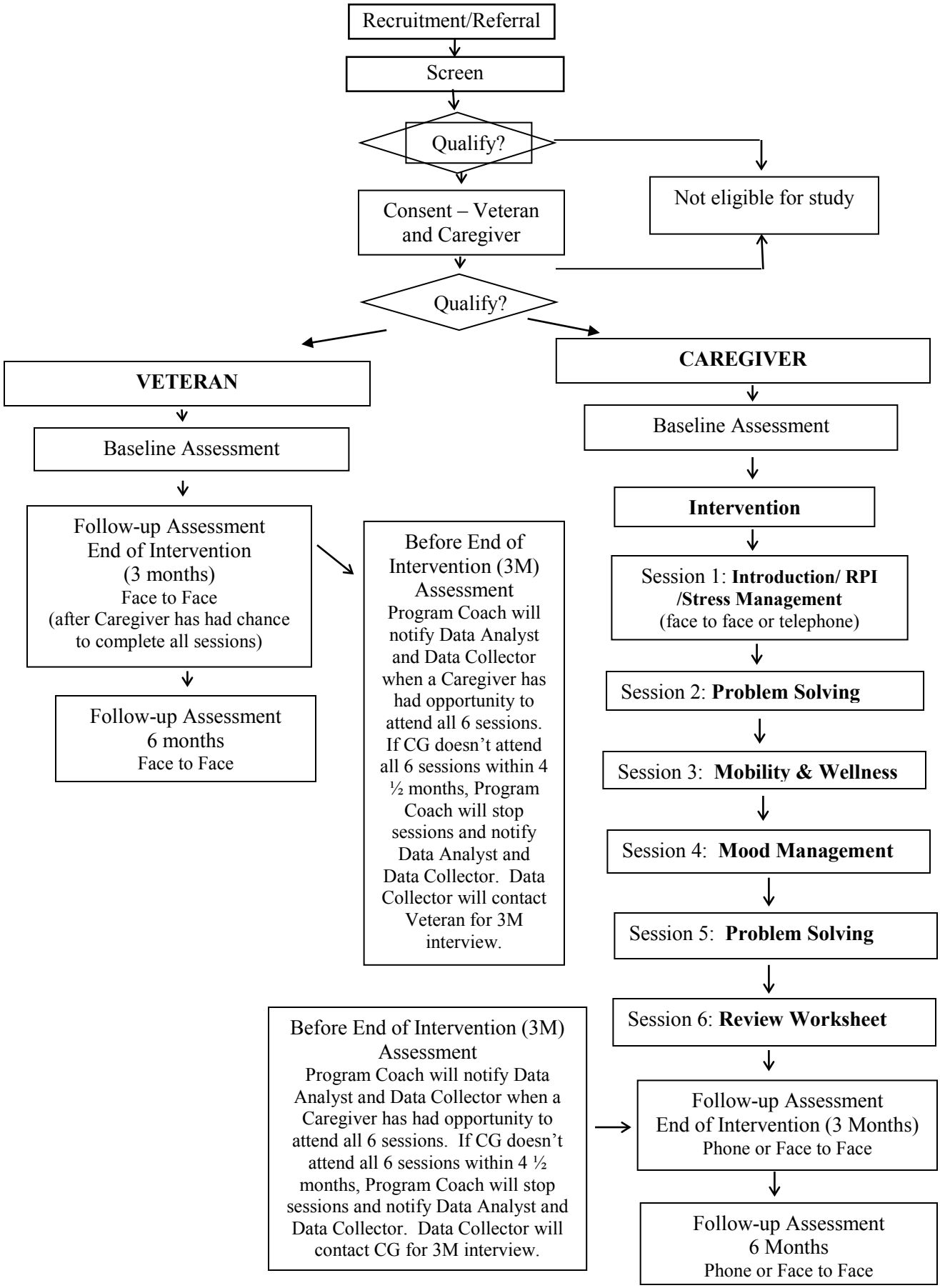
1) Test whether a caregiver intervention can be integrated into an MS clinical setting.
2) Determine whether Caregiver outcomes are improved.
3) Determine whether Veteran outcomes are improved.
4) Determine which types of Caregivers will benefit most.
5) Determine which types of Veterans will benefit most.
6) Refine materials for future clinical research, translation and implementation.

Hypotheses are related to both Veteran and Caregiver:

Hypothesis 1: Veterans of Caregivers who receive the intervention will have significant improvement in outcomes including the Expanded Disability Status Scale (EDSS), timed up and go test (TUGT), self-efficacy, and depression.

Hypothesis 2: Caregiver participants will have significant improvement in outcomes including depression, burden, anxiety, and number of Veteran MS problems and safety alerts reported.

Flowchart of REACH VA MS Intervention Protocol



INTERVENTION - OVERVIEW

The REACH VA Program for the MS Pilot Project is delivered in six sessions over a three month period. The Program Coach can conduct sessions with the Caregiver either face to face (home or facility) or by telephone or telehealth format.

The first component of the REACH VA Program is to assess risk in the caregiving situation, and then address risks by engaging the Caregiver in problem solving and skills building techniques. The program emphasizes safety, health, social support, Caregiver physical and emotional well-being, stress management, and problem solving.

- ❒ Caregivers are usually a family member or someone with a significant personal relationship who provides substantial, necessary, regular or long-term care for a Veteran with MS and is receiving services at the VA.

- ❒ The REACH VA Program can be delivered face to face (in the home or facility) or by telephone or telehealth. The Program Coach will provide Six Individual Sessions.

- ❒ Practical elements or tasks to be completed during the sessions include:
  - **Risk Assessment**
    - Assess Caregiver risk in Session 1 using Risk Assessment.
    - Program Coach uses this assessment throughout the REACH VA Program to target certain Care Recipient problems or safety issues and/or Caregiver centered problems related to health, physical and emotional well-being, and social support.
  - **Education Tasks**
    - Provide general information about care recipient's condition (MS).
    - Present safety materials.
    - Present health care issues and explain the Health Guide.
    - Present chapters in the Caregiver Notebook on Mobility and Wellness for the Veteran.
    - Present Exercise brochures (Exercise as Part of Daily Life and Minimizing Your Risk of Falls) and review the Physical Therapy Exercise Plan.
  - **Problem Solving Tasks around Caregiver Concern**
    - Problem solve to identify Target Problem.
    - Introduce Problem Solving Plan.
    - After initial plan, review and modify Problem Solving Plan.
    - Introduce Mobility Plan
    - Identify new Target Problem and introduce Problem Solving Plan if needed.
  - **Stress Management Tasks**
    - Discuss effects of stress and introduce stress management technique, Signal Breath, in Session 1.

- Help the Caregiver to become aware of stress by using the tension rating scale and the Stress Diary.
- Introduce stress management technique, Mood Management, in Session 4.
- Offer stress management technique, Power of Music, Stretching, Guided Imagery or Pleasant Events, based on Caregiver's needs.

Structure of Each REACH VA Session.

❒ The Program Coach briefly explains the focus of the session and how it will be structured.

❒ Program Coach checks in with Caregiver about the commitment that the Caregiver made in the previous session, determines if Caregiver is using strategies, if the problem is resolved or continues, and if Caregiver has specific questions/concerns about the material.

❒ Program Coach checks in with Caregiver about Physical Therapy Appointment, Physical Therapy Exercise Plan, and any additional sessions attended.

❒ Program Coach and Caregiver work on barriers that blocked progress, new or modified strategies, or introduction of a new Target Problem when appropriate. Caregiver adds these notes to the Problem Solving Plan in the Caregiver Notebook.

❒ Program Coach obtains closure to each session by: a) establishing date/time of next session, b) briefly reviewing problem area(s) addressed and primary strategies discussed in the session, c) briefly reviewing Caregiver's commitment (reviewing strategies Caregiver agrees to try prior to next session) and d) helping Caregiver problem solve when and how to practice/implement selected strategies.

❒ At conclusion of each session, Program Coach completes the REACH VA Program Documentation Form (See Forms Inventory, with an example in Session 1 this manual).

KEY COMPONENTS OF THE REACH VA PROGRAM

PROBLEM SOLVING

Key Features.

❒ Problem solving is the means by which the Program Coach and the Caregiver attempt to find effective and workable solutions to a specific Target Problem.

❒ Problem solving techniques are used to generate relevant information about the Target Problem and the overall caregiving situation, with special emphasis placed on the context in which the Target Problem is displayed.

❒ The Target Problem should be one that is causing stress and burden for the Caregiver, but it should also be a Problem that is "changeable." For example, if the Caregiver enjoyed dining in nice restaurants with the Care Recipient prior to the onset of memory loss, but is now embarrassed by the Care Recipient's behavior, it is unlikely that a behavioral strategy would succeed in changing the Care Recipient's embarrassing behavior. Thus, "embarrassing restaurant behavior" should not be considered a "changeable" behavior. However, using problem solving to decide to obtain a sitter for one night a week so that the Caregiver could eat at a restaurant would be considered a "changeable" behavior.

- ❒ The Target Problem could be something related to the Caregiver's needs, such as asking family members for help, or to the Care Recipient, such as bathing.
- ❒ Once a Target Problem has been identified, an appropriate topic in the Caregiver Notebook is chosen and the strategies are reviewed one at a time. The Program Coach and Caregiver discuss the steps necessary to carry out the strategies (who, what, when, where, how). They will set up a time to have the strategy in place, so the Caregiver can see if it will be helpful in achieving the goal. After discussion and negotiation, the Caregiver marks the strategies that were chosen.
- ❒ The Caregiver Notebook with marked personalized suggestion/strategies, hand written notes becomes the Problem Solving Plan for the Caregiver.
- ❒ At each session following the introduction of the Problem Solving Plan, the Program Coach reviews the suggestion and strategy implementation by the Caregiver (i.e., what have you tried).
- ❒ In the review of the Problem Solving Plan, the Program Coach monitors the effect of strategy use (i.e., are the suggestions and strategies being used and do they work). The Program Coach asks, "Compared to when we started, is the Problem: A lot worse, A little worse, The same, A little better, A lot better?" In general, Problem Solving Plans are not stopped but are modified throughout the sessions, unless there is a rating of "A lot worse" for two sessions or there is marked resistance to the plan as a whole by the Caregiver.

STRESS MANAGEMENT

Key Features.

- ❒ The Caregiver stress management techniques are designed to teach skills for managing Caregiver mood and behavior.
- ❒ This education and training is handled through two overarching approaches: reducing negative affect/mood and increasing positive affect/mood. The Program Coach helps the Caregiver reduce negative affect/mood (frustration/anger and sadness/depression) by learning to relax in the stressful situation, learning to appraise the Care Recipient's behavior more realistically, and learning to identify and challenge negative thinking. The Program Coach works with the Caregiver to increase positive mood through an awareness of the connection between mood and activities, along with strategies for increasing simple everyday pleasant activities.

Session Structure.

1) Each individual session will occur bi-monthly for 6 times over three months. Each session will last about an hour. Sessions can be face to face or over the phone. Sessions will be scheduled at the Caregiver's convenience.

2) The Program Coach will complete the Baseline interview including the Risk Assessment, which answers questions about the Veteran's condition and Caregiver concerns. The Data Collector will complete the RPI/Assessment with the Caregiver at the End of Intervention (3 month) and 6 month interviews.

3) The Program Coach will complete an Intervention Delivery Assessment form, detailing location of session, date, and content for each session. For the last session, after Review, the Program Coach will provide support and encouragement to the Caregiver.

4) The Caregiver Notebook will contain materials and worksheets designed for possible session topics, available published educational materials for each topic, and resources for the red flags.

   Red Flags - guide for unsafe or dangerous behaviors - include information on Abuse, Suicide Prevention, and Understanding & Dealing with Anger.

5) The Caregiver Notebook will structure the materials used by Caregivers during each session, serve as a "central location" to place all materials, and provide a resource after the session's end.

6) **REACH VA MS topics** are structured according to the expressed needs of Caregivers of Veterans with MS. Each didactic component of the topic is based on the sanctioned materials with the addition of CBT content from our work with OEF/OIF troops and spouses, veterans with PTSD, and dementia caregivers:

Session and Topic	Content/Structure
Assessment & Session 1 **Stress Management**	Caregiver Assessment/Baseline Interview Ask CG to tell story Introduce Intervention Review Caregiver Notebook and Mobility Chapters Discuss effects of stress Introduce stress management technique, Signal Breath Discuss physical therapy appointment Obtain closure to session
Session 2 **Problem Solving**	Introduce Session Review/modify last session commitment - Signal Breath Provide general information about MS and Exercise Brochures Present safety material (including alerts if appropriate) Introduce health care issues and Health Guide Problem Solve – Target Problem #1 Obtain closure to session
Session 3 **Problem Solving and Mobility**	Introduce session Review/modify Problem Solving Plan #1 Make Commitment for Problem Solving Plan #1 Introduce Mobility and Wellness Chapters Problem Solve Mobility Plan Obtain closure to session

Session 4 **Mood Management and Mobility**	Introduce session Review/modify Mobility Plan and Check in on PT appointments Make Commitment for Mobility Plan #1 Review/modify Problem Solving Plan #1 Make Commitment for Problem Solving Plan #1 Introduce stress management technique, Mood Management Obtain closure to session
Session 5 **Problem Solving or Mood Management**	Introduce session Review/modify stress management technique, Mood Management Problem Solve – Identify Target Problem #2 or Work on another Mood Management Thought Record Offer stress management technique, Stretching, Power of Music, Guided Imagery, or Pleasant Events Obtain closure to session
Session 6 & Closure **Problem Solving, Stress Management, Mood Management, and Mobility review**	Introduce session Review/Modify Mobility Plan and Problem Solving Plan #1 and #2 Offer stress management techniques, Stretching, Power of Music, Guided Imagery, or Pleasant Events Present REACH VA Review Worksheet Obtain closure to session

PROGRAM COACH FORMS FOR INTERVENTION

The Program Coach must complete different forms throughout the intervention.
Below is a brief description of each form:

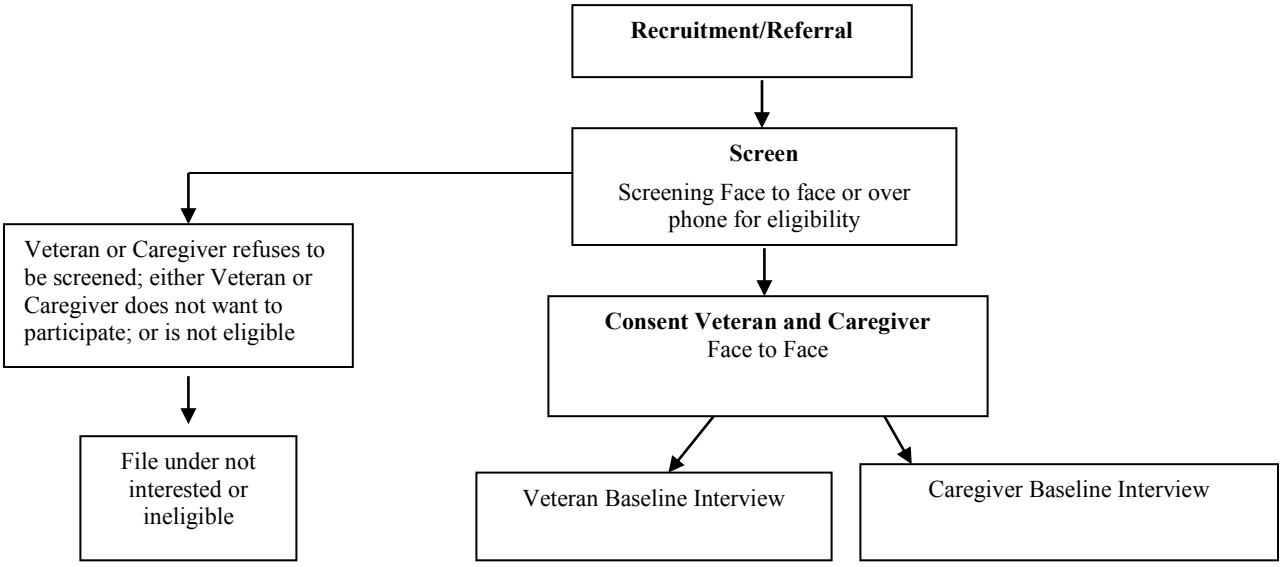
- Risk Assessment: This form is used to record areas of risk in safety, caregiving skills, social support, Caregiver emotional and physical well-being, and Veterans problems/concerns. This form will be completed as part of the Baseline, 3, and 6 month interviews.
- REACH VA Program Documentation Form: This form is used to document all REACH VA MS sessions including any significant changes in Caregiver or Care Recipient status. The Program Coach should complete the form after each session and/or upon notification of change in status of Caregiver or Care Recipient.
- REACH VA Review Worksheet Instructions: This form is used to record issues and strategies covered during the REACH VA Program in safety, health, stress management, social support, behaviors/issues, and problem solving during the last session.
- Additional Contact Form (AC): This form is used to record any meaningful treatment related contacts with the Caregiver or with someone providing direct feedback to the Caregiver. This form is not filled out for any of the 6 individual sessions.
- Alert Form (AF): This form is used to record any Events/Alerts that occur at baseline or during the course of the study.
- Protocol Variation Form (PV): This form is used to document any occurrences that are protocol variations (do not adhere to standards established in the protocol).

Intervention - Manual of Operations Volume III

The Intervention Manual of Operations Volume III covers the intervention in more detail. The Program Coach is responsible for reading the Intervention Manual of Operations Volume III. The MOP includes information on:

- Program Coach Responsibilities and Facilitation
- REACH VA MS Intervention
- Intervention Process
- Procedural Aspects
- Caregiver Notebook
- Scripts and Talking Points
- Alert Procedures
- Program Coach Forms
- Program Coach Certification
- Assigned Readings

DETAILED PROJECT FLOWCHART
RECRUITMENT, SCREEN, CONSENT, AND BASELINE INTERVIEW



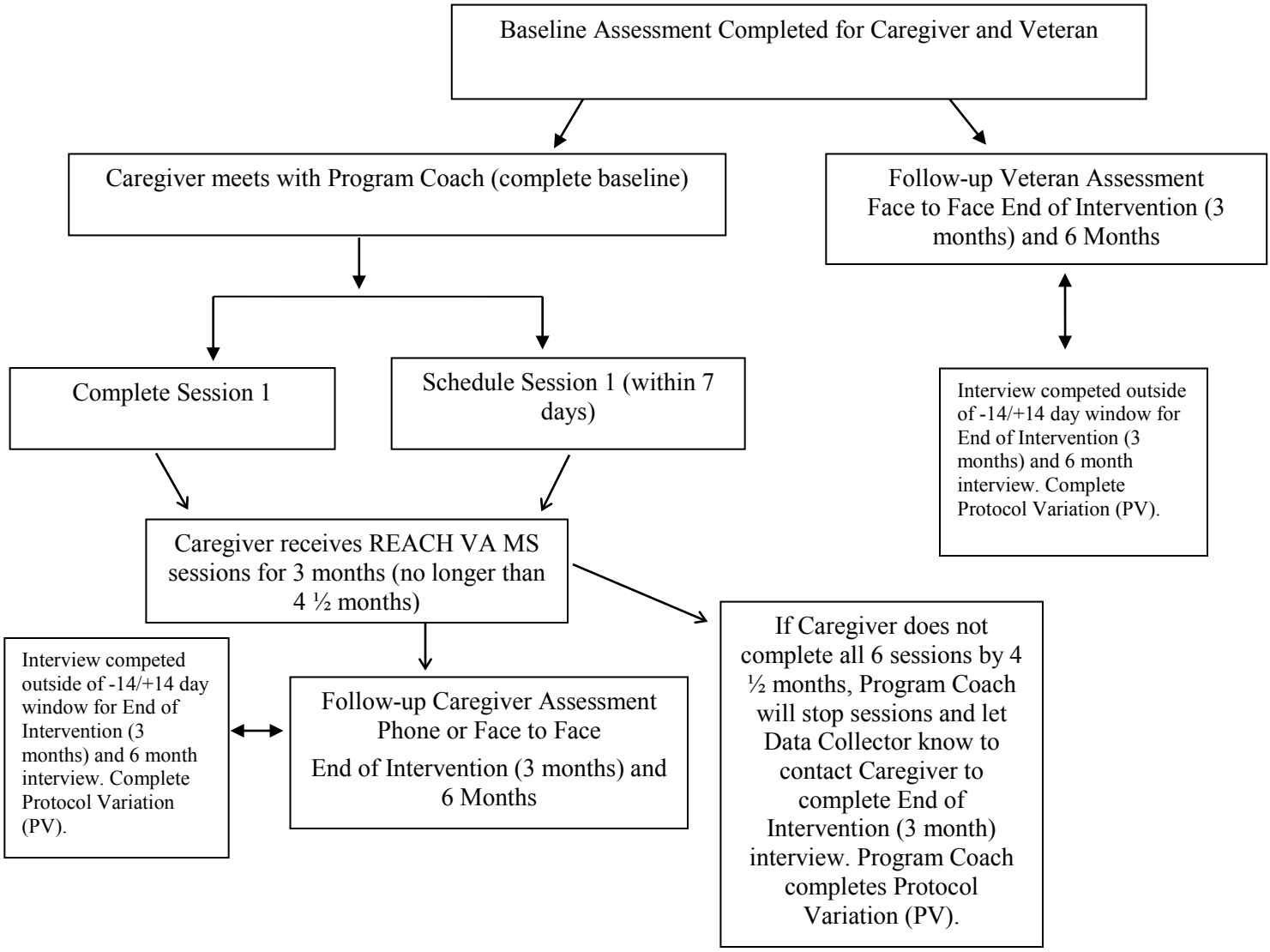
Windows:

Baseline to 1st Session Caregiver call (if not done face to face) – 7 days (goal 1 to 5 days)
End of Intervention (3 month) and 6 month assessment – 14 days prior and 14 days after due date
Two-week turnaround from form completion to data entry

Protocol Variation:

First Session call out of 7 day window
End of Intervention (3 month) and 6 month interview completed outside of -14/+14 day window

DETAILED PROJECT FLOWCHART
REACH VA MS SESSION 1 THORUGH 6 MONTH FOLLOW-UP



Window Variations Events:

First Session call out of 7 day window
End of Intervention (3 months) and 6 month interview completed outside of -14/+14 day window

Protocol Variation:

First Session call out of 7 day window
End of Intervention (3 months) and 6 month interview completed outside of -14/+14 day window
Caregiver does not complete all 6 sessions within 4 ½ months

RECRUITMENT

Caregivers will be recruited from the MS clinic and inpatient unit as Veterans are admitted or seen. We are requesting a waiver of informed consent and HIPAA authorization for recruitment purposes only, as a method of recruiting Veterans who have been diagnosed with MS, prior to participation in the study. Privacy risks to research subjects will be minimal. We will mail brochures to eligible Veterans. Veterans and/or Caregivers may contact us if they are interested in participating. If we do not hear from the Veteran and/or Caregiver in a reasonable amount of time after mailing the brochures, we will telephone the Veteran to give him/her more information about the study. The MS Clinic meets one day a week and study staff will be present to provide information and to screen Caregivers and Veterans. However, Veterans with MS are only seen in the MS clinic every three to six months, thereby potentially missing the enrollment period. Brochures will be mailed to all eligible participants. Brochures will also be strategically positioned around the hospital as well as in the MS clinic. Clinicians in the MS clinic will aid in the identification of eligible Veterans. Full informed consent and HIPAA authorization will be collected after screening as part of study enrollment. Our consent process for Caregivers and Veterans is overseen by the VAMC Memphis IRB and Research and Development Committee.

Screening. Participants must give permission to the Research Associate to be screened after hearing a study description that includes information about the research study and the screening process itself. Research study information includes a statement of the research (purpose, procedures), reasonably expected benefits to subjects or others, and costs. Screening process information includes duration of screening, alternatives, extent of confidentiality, and authorization for release of protected health information for research purposes.

Caregiver Consent and Veteran Consent. After screening, consent forms are provided to the Caregiver and Veteran participant. All participants must give written informed consent before becoming study participants and both Caregiver and Veteran must agree for the Caregiver to participate.

During the informed consent process, the potential participant will be asked to read the consent and ask questions. A Research Associate will review key aspects of the study. Staff will question to ascertain understanding. Potential participants who are illiterate or have impaired vision will have the consent read to them. A signed informed consent is required prior to data collection. A clinic staff member not involved in the study will serve as witness.

Elements of informed consent are those mandated by the VA and will be included in the consent form. Study information includes: a statement that the study involves research, an explanation of the purposes of the research, the expected duration of the subject's participation, a description of the procedures, experimental procedures, risks or discomforts, benefits, alternatives, confidentiality, research-related injury, and voluntary participation. Additional elements appropriate to this study will also be in the form including investigator-initiated termination of participation (for example, if participation causes difficulty for the Veteran), consequences of withdrawal from study, number of subjects, future use of data (for example, the possibility of developing a data repository), payment for participating in the study as outlined in the proposal, and disclosure of results. Finally, general

research subject information will include who to contact in the event of injury or research-related questions as outlined in the proposal, and the participant's rights as a research subject.

The consent form is carbon color coded. After the participant initials and signs the form, one copy of each page is kept by the participant, and one is filed in the study office.

VETERAN AND CAREGIVER INCLUSION/EXCLUSION CRITERIA

Inclusion Criteria:

To be eligible for the proposed study:

1) the Veteran must be diagnosed with MS;
2) must be a patient in the Memphis VA Medical Center MS Clinic;
3) must be ambulatory; and
4) must have a Caregiver willing to participate.

Exclusion criteria:

1) Veteran not ambulatory
2) Caregiver not willing to participate
3) Veteran not willing to participate

RECRUITMENT GUIDELINES

Dr. Michael Levin, head of the Memphis VA Medical Center MS Clinic, will identify eligible Veterans. Brochures will be mailed to these Veterans. If the Veteran/Caregiver, do not contact us within a reasonable amount of time after mailing the brochures, we will call the Veteran/Caregiver to see if they are interested. Brochures will also be placed around the hospital and in the MS clinic. Other staff in the MS clinic may make referrals to us as well. We will also sit in the MS clinic and talk to patients as they come in for their appointments.

SCREENING AND CONSENT

If a Veteran/Caregiver calls us about the study, screening can be done over the phone. If Veteran /Caregiver are seen in the MS clinic, screening can be done there in the clinic.

- Written informed consent from the Caregiver and Veteran is an integral part of the study. Informed consent will follow the procedures of the R&D Committee of the VAMC Memphis. All Caregivers and Veterans **must** give written informed consent before becoming study participants.

- In addition, participants must give permission to be screened after the brief description of the study that includes the components of Informed Consent, including information about the research study and about the screening process itself. Components relating to the research study include a statement of the research (purpose, procedures), reasonably expected benefits to subjects or others, and costs. Components relating to the screening process include the duration of screening, appropriate alternatives, extent of confidentiality, and authorization for release of protected health information for research purposes. These components are all included in the attached study Screening Form.

- In addition to Caregivers/Veterans contacting us, VAMC providers/staff can all refer individuals to the study. In most cases, the Caregiver/Veteran will be given a brochure and can call in. For those cases where there is a direct referral from a VAMC provider, the provider will make a referral with the Veteran's permission and document that permission. Providers will send an e-mail (PKI protected) with Veteran's name and phone number to the recruitment coordinator. The research team must then contact the individual and/or send a brochure, obtain consent for screening, screen for eligibility, and obtain study informed consent.

- Consent is reviewed during informed consent before completing the baseline assessment. The potential participants will be asked to read the informed consent and given the opportunity to ask questions. A Research Associate will review all of the key aspects of the study with the potential participants. Staff will question the potential participants to ascertain whether he/she has understood the information. Potential participants who are illiterate or have impaired vision will have the consent read to them and will be given an opportunity for questions and discussion. A signed informed consent is required prior to data collection. Participants will be encouraged to ask for clarification about the forms and discuss concerns about the study at this time.

- Consent will take place face to face for both the Caregiver and Veteran either in the Neurology department conference room or in the Research conference room.

- The consent form is carbon color coded. After the Caregiver/Veteran initials and signs the form, one copy of each page is kept by both, and one is filed in the study office.

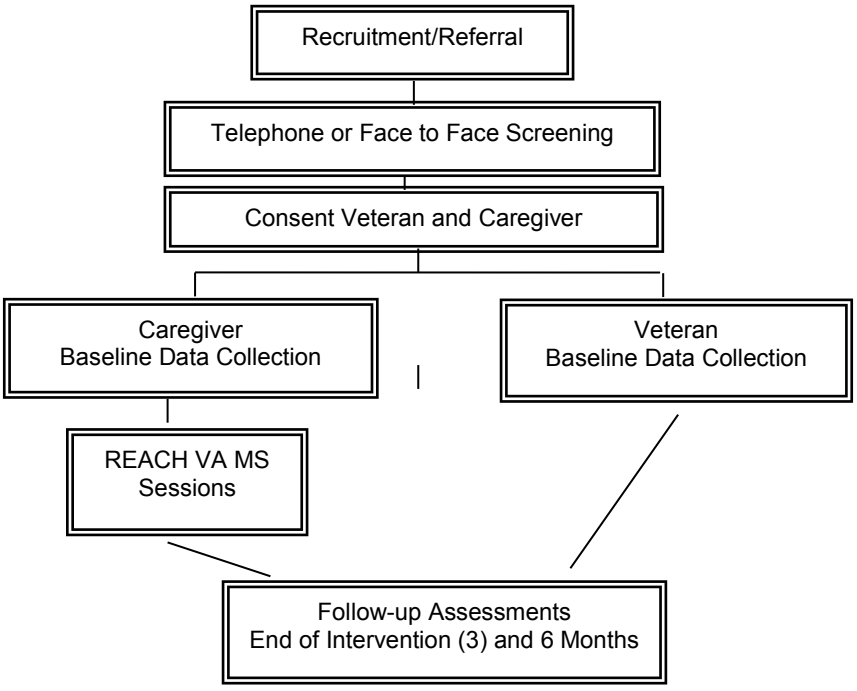
- After consent is obtained, the baseline data collection will be completed for both the Veteran and Caregiver. The Caregiver will also complete the RPI/Assessment as part of the Baseline interview. The Caregiver will receive a REACH VA MS Caregiver Notebook and learn more about the REACH VA MS intervention from the REACH VA Program Coach. Caregivers can complete session 1 at this time or can schedule to complete session 1 over the phone within 7 days. No more than 7 days, with a goal of 1 to 5 days, can pass from baseline to intervention. If this happens, the Program Coach must complete a Protocol Variation form and check the box beside First REACH VA MS session more than 7 days from baseline interview.

- The follow-up data collection will occur at the end of the intervention (3 months) and 6 months. If either interview is completed 14 days prior or 14 days after the due date, the data collector must complete a Protocol Variation form and check the box under Data Collection that says Follow-Up completed outside of the window. Then, choose which interview was completed outside the window (3 or 6 month).

- The data collector has 2 weeks to complete data entry from day data was collected.

- If the Caregiver does not complete the REACH VA MS intervention by 4 ½ months, the Program Coach will stop the sessions, and let the data collector know to go ahead and contact the Caregiver to complete the follow-up interview (End of intervention/3 month). Program Coach will complete a Protocol Variation form and check the box beside Caregiver did not complete all 6 sessions with 4 ½ months under Intervention.

Informed Consent Flow Chart



Confidentiality. Although the information collected by this study is considered to have low potential for abuse because the data do not address sensitive issues, appropriate safeguards are established. Data, other than demographic information, use only ID numbers as identifiers. Paper forms of the research records are kept in secure locked files in the project area, Building 1/Administration Building, Room BEG-16, in a secured building only accessible to project staff. Persons other than research personnel may not obtain files. Research personnel no longer working on the study will not have access to study data. Electronic data is stored on a VA server folder that only local VAMC project research staff can access, P:\Documents\151\Investigator Folders\Dr. Nichols\855122. All computers are password protected. Audiotapes are stored in locked file cabinet in building that is access limited to project staff. ID numbers are kept in a different locked file cabinet in the Building 1/Administration Building, room BEG-16. The staff is trained in all ethics and confidentiality standards.

Project Staff will have access to the information. Representatives from the Memphis Institutional Review Board (IRB) are eligible to review research records as part of their responsibility to protect human volunteers in research.

The health care professionals involved in this research have the legal responsibility to report suspected cases of abuse, neglect, or exploitation to the appropriate legal authorities.

Risk/Benefits Assessment. It is anticipated that the caregiver will experience more benefits than risks from participation in this study. Risks to research subjects will be minimal, but may include fatigue or distress from answering questions.

Foreseeable Risk and Protection against risk. There are no physical risks to caregiver participants involved in this study. For therapeutic risks, during the individual session interventions some of the topics may be upsetting to participants. For Veteran participants, there is a risk of falling during the walk portion of the Expanded Disability Status Scale (EDSS). However, Veterans will be able to use any assistive devices normally required, and there are chairs and safeguards to stop the test if problems, such as light-headedness or fatigue occurs. The protocol allows for stops for rest.

For research risks, during data collection, caregiver participants may experience discomfort or fatigue in answering questions. Some questions may be upsetting to respond to. An additional research risk is loss of confidentiality or breach of identify. However, with the steps discussed below to remove PII in each data set and to identify participants with a coded ID before it is used for analysis, the likelihood of this happening is reduced. The results of this study may be published, but no specific information that could identify participants will be published. Participant records will not be revealed unless required by law.

The participant may experience discomfort or fatigue in answering questions. Some questions may be upsetting to respond to. During the baseline, End of Intervention (3 month), and 6 month data collection calls, a trained Program Coach will be able to help the participant should this occur. Also, the participant can take breaks or stop at any point. There is minimal risk of inadvertent release of personal information. However, care will be taken to secure all of the participant's information. Caregivers' and Veterans' research records will be labeled with a code number. The master key that links the names and the code numbers will be maintained in a separate and secure location in the data analyst's office, Building 1/Administration Building, Room CEG34. Only the project staff will have access to this information. Parts of the intervention sessions may be audio-taped strictly for research purposes and the caregiver's permission will be requested at the beginning of the session. The baseline, 3, and 6 month

interviews may also be taped; but there will be no identifying information about the caregiver or Veteran on these sessions. These tapes will also be kept confidential, with identification codes only, and locked in a file cabinet, Building 1/Administration Building, Room CEG34, data analyst's office. Only project staff, including the PI (Linda Nichols), and our statistician, Marshall Graney, will have access to this information. Records and audiotapes will be maintained and/or destroyed in accordance with the National Archives and Records Administration VHA Records Control Schedule (RCS 10-1).

Potential benefits. A hoped for benefit for Caregiver and Veteran is improvement or maintenance of Veteran function. Participants may not benefit directly from participation in this study. Taking part in this study may help participants better understand the problems they may be having as caregivers. Any information obtained from this research study and which may be important to the participant's health will be shared.

There may be a benefit to society, in the development of materials and interventions to help other caregivers. According to *Caregivers of Veterans – Serving on the Homefront* prepared by the National Alliance for Caregiving (2010), most (96%) caregivers of Veterans are women. Most are spouses (70%). Thirty percent have been Veteran caregivers for more than 10 years; 68% have high emotional stress and 40% have high physical strain. Most (87%) have less time for themselves and less time with others now that they are caregivers.

Caregiving can cause adverse physical and psychological consequences such as depression, anxiety, sleep disturbance, hospitalization and mortality, and increased risk of patient institutionalization. Interventions that enable caregivers to enhance their coping skills and management of care recipient behaviors have been shown to decrease caregiver burden, improve caregiving skills and quality of life for care recipient and caregiver. Implementation of a successful evidence based intervention for caregivers into the Veteran's clinical visit would provide relief for these caregivers and integrate these two important parts of care.

The participant may not benefit directly from their participation in this study. However, there may be a benefit to society, in general, from the knowledge gained in connection with your participation in this study. Taking part in this study may help participants better understand the problems they may be having caring for Veterans with MS. Any information obtained from this research study and which may be important to your health will be shared with the participant.

Withdrawal from the Protocol. The participant may discontinue participation in the research at any time without penalty or loss of rights to which the participant is entitled. If a participant withdrawals from the study, the participant will be asked to complete a discontinuation data collection questionnaire over the phone and will not be contacted by the research staff in the future. During the course of the study, if the veteran exhibits threatening behavior toward the caregiver because of participation in the study, the Principal Investigator has the right to withdraw the caregiver from the study. This is included in the consent form under the section, Investigator-Initiated Termination of Participation. If either participant wishes to withdraw, the other participant may elect to continue with the study without the other. For example, if the Veteran wants to withdraw from the study, but the Caregiver does not, the Caregiver may continue with the study. The Veteran will be withdrawn. However, if the Veteran no longer wants to participate and also doesn't want the Caregiver to participate in the study, the Caregiver and Veteran will both be withdrawn.

Copy of the Approved

Informed Consent

- Always use the original (Jennifer's Office), not the copy in the MOP for making the necessary copies of the consent form for the Caregivers and Veterans.
- Be sure to check the expiration date on the consent forms.

Copy of the Approved

HIPAA Authorization

- Always use the original (Jennifer's Office), not the copy in the MOP for making the necessary copies of the HIPAA Authorization for the Caregivers and Veterans.
- Be sure to check the expiration date.

RETENTION PROCEDURES

Retention Procedures

Follow-up interview reminder reports are available as needed from Access. These reports list the Caregivers/Veterans who are due for their follow-up data collection visits and the date interval for their next visit. This information is also available on each of the individual recruitment form records in Access.

All Caregivers/Veterans get phone reminders prior to their scheduled data collection telephone calls. If the appointment has been rescheduled at the time of the phone call or face to face interview, then the new data collection date is obtained and recorded on the Main Calendar. An additional reminder phone call is made prior to the new data collection call.

All missed appointments are followed within 24 hours by a phone call or email to the Caregiver/Veteran who is then encouraged to reschedule the appointment. If the Caregiver/Veteran cannot be reached after three calls on the first and second day, a search will be made after noon on the second day starting with his/her list of contacts. After the Caregiver/Veteran is located, we encourage him/her to reschedule the cancelled data collection appointment or call us back with a convenient date. If the Caregiver/Veteran does not call us back, we will follow-up two days later. If phone attempts fail, we will send a follow-up letter to the Caregiver/Veteran explaining our failure to contact them and the importance of the follow-up interview. An electronic copy of this letter must be filed on the individual Research Associate's P: drive "Failure to contact" folder.

Addresses and phone numbers for the Caregiver/Veteran and his/her contact are updated at all data collection visits. If there is a change in address or telephone number for the Caregiver/Veteran, it is recorded on the Access Recruitment Form by the Research Associate and communicated to others by email so the Program Coach can update her individual data management program.

Incentives for Retention

A number of incentives are built into the study for retention. These may include, but are not limited to the following strategies:

1. an incentive payment ($25.00/visit) for each completed full data collection visit (baseline, 3, and 6 months);
2. same Research Associate interviewing the participant at each follow-up data collection call;
3. sessions face to face or over the phone for convenience;
4. thank you letter with each payment check sent.

In cases of discontinuation, all reasons must be tracked and documented, starting in the Access Recruitment Form notes section and continuing as appropriate in the Program Coach Caregiver Demographics Form.

Copy of the Approved Recruitment Materials

DATA MANAGEMENT

Quality Control Procedures.

There are three areas of quality control: intervention, data collection and data management. Intervention quality control procedures have been addressed in Section 2, Intervention Overview. The REACH VA Program Documentation Form, REACH VA Review Worksheet Instructions, and the Additional Contact (AC) forms, which are used to measure fidelity to the intervention by the Program Coach, are found in Volume III, Forms. Data collection and data management procedures, and their implementation and monitoring are inter-related and are the responsibility of the Data Analyst and Interviewers, monitored by the Program Manager and Principal Investigator.

Data Collection.

The Interviewers are certified on the assessment and follow up interviews, as described in Volume 2, Section 8, Training. Continual monitoring ensures fidelity to the assessment procedures. The Interviewer/Researcher Evaluation Form is scored by the investigators using audio taped visits. Scores are determined by 1) those things executed (e.g., asks questions as written with no deviation from question wording, probes consistently and only when necessary) and 2) negative items (e.g., volunteers personal information that may bias answers, uses directional probes), with 100 being a perfect score and 90 being acceptable. For more information see Volume 1, Section 9.

Initial Review of Data.

The Interviewer reviews the collected data within 24 hours of the interview, and is responsible for contacting the participant if information is missing. The Data Analyst then reviews and edits completed questionnaires for legibility within two days of receiving the data from the interviewer.

Entry of Data.

The Data Analyst enters all data from the study questionnaires. Procedures for data entry are described below.

Data Recording, Entry and Preparation of Analytic Files.

We will use Microsoft Access for data entry of non cost data. The Data Analyst transfers all data from paper copies to the database file. By our design, the system imposes requirements on the entry process. For example, each form must pass all logical checks such as ID validation, range and type verification, required field verification (e.g., key fields must have values), parent-child field dependencies (triggers), and duplicate detection. Secondly, each form must be verified by double entry. Lastly, all forms must be subjected to a series of consistency edits.

Data Types and Coding for Missing Data.

All data are coded in numeric form for entry and analysis (see Codebook for Measures). Missing data are entered according to the coding scheme, where -1 = missing, -2 = not applicable, -3 = don't know/unknown, -4 = refused to answer.

Editing of Data: Frequency/Range Checks, Accounting for Missing Data, Data Verification and Cleaning.

Editing of the Microsoft Access data files is accomplished with Access reports. Measurement scales are computed and frequencies obtained for study variables twice a month, to check for the presence

of out-of-range data values. When the frequency distribution for a variable indicates out-of-range values, the data search option locates these values; then, the correct score is entered from the appropriate questionnaire. The data search option is also used to locate and verify missing data of each type described above; this check of missing data takes place at the conclusion of each data entry session.

In addition to the frequency and missing-data checks described above, the values on the computer screen are double-checked against the paper forms following the entry of a participant's data. This method of verification is made relatively easy by the forms in Access. Any entry errors are corrected in the Access data file as they are encountered. Once corrections have been made in the data file, the date of verification is recorded on the cover sheet. After verification, frequency/range checks, and checks on missing data are completed for a given interview, a date for "Data Cleaned" is recorded on the cover page.

Back-Up and Disaster Recovery for Data.

All data are stored on the VA network. Data are backed up to the regional server that serves several neighboring VA facilities. The securely stored questionnaire forms also serve as backup in the event that computer files are lost or destroyed.

Disposition of Data.

Paper forms of the research records are kept in secure locked files in the project office. Electronic data is stored on a VA server folder that only local VAMC project research staff can access. After the study is completed, paper data will be stored with other completed research studies in a secured storage area. Records will be maintained and/or destroyed in accordance with the VA Records Control Schedule (RCS 10-1). For electronic information, as stated in the consent form, research information is analyzed for many years after a study, therefore, no specific date can be provided when this information will be destroyed or no longer used.

SCHEDULE OF DATA COLLECTION ASSESSMENTS

Time Frame for Caregiver		
Baseline (Face to Face) After consent signed and before intervention	**Second** (Telephone or Face to Face) **3 months** (+/-14 days)	**Third** (Telephone or Face to Face) **6 months** (+/-14 days)
X	**X**	**X**

Time Frame for Veteran		
Baseline (Face to Face) After consent signed	**Second** (Face to Face) **3 months** (+/-14 days)	**Third** (Face to Face) **6 months** (+/-14 days)
X	**X**	**X**

MEASURES

Data collection will occur at baseline, End of Intervention (3 months), and 6 months either face to face or by telephone. Data collection will take 30 minutes to an hour, based on face-to-face and telephone data collection in our work with OEF/OIF spouses and soldiers, and stressed caregivers, using the same and similar instruments (Table 3). We have used telephone and face to face batteries of similar length for older caregivers, who have not reported difficulty with these methods of data collection. If interviews completed over the phone, we will send response cards to the participant to make answering more efficient. The same RA will perform all data collection for a participant.

Measures were specifically chosen 1) to capture the mechanisms of action related to the theoretical model for individual stress process, and 2) to map onto measures being used by Multiple Sclerosis clinicians and researchers to provide maximum utility and generalizability for the study results.

If the Veteran/Caregiver team withdraws from the study, we will try to complete an abbreviated program evaluation to determine the reason for withdrawal.

The Research Associate will read the Interviewer Instruction Manual (QxQs) in Manual of Operations Volume II. The Interviewer Instruction Manual will provide general guidelines and specific, question-by-question instructions for completing the REACH VA MS interviews and forms.

MEASURES AND TIME

CAREGIVER

Category	Name of Measure/Form	Citation/Source	Items	When
Demographic information	Participant demographics	various sources	15	Study entry
Health and health services		various sources	17	Study entry Follow up
Depression	Patient Health Questionnaire (PHQ-9)	(Kroenke et al., 2001)	9	Study entry Follow up
Anxiety	Generalized Anxiety Disorder (GAD-7)	(Spitzer et al., 2006)	7	Study entry Follow up
Social Support	Social Support	REACH II	10	Study entry Follow up
Burden	Zarit Burden Interview	(Bedard et al., 2001)	12	Study entry Follow up
Caregiving Tasks	Caregiving Tasks in Multiple Sclerosis Scale (CTiMSS)	(Pakenham, 2007)	24	Study entry Follow up
Risk Assessment	Risk Priority Inventory	Various sources	57	Study entry Follow up

VETERAN

Category	Name of Measure/Form	Citation/Source	Items	When
Demographic information	Participant demographics	various sources	11	Study entry
Health and health services		various sources	6	Study entry Follow up
Depression	Patient Health Questionnaire (PHQ-9)	(Kroenke et al., 2001)	9	Study entry Follow up
Impact on daily life	MS Impact Scale (MSIS-29)	(Riazi et al., 2002)	29	Study entry Follow up
Mobility	Timed Up and Go Test (TUGT)	various sources		Study entry Follow up
Self-Efficacy	MS Self-Efficacy Scale (MSSS)	(Rigby et al., 2003)	14	Study entry Follow up
Fatigue	Modified Fatigue Impact Scale (MFIS)	(Fisk et al.,1994)	21	Study entry Follow up
*Mobility/Neurological exam	Expanded Disability Status Scale (EDSS)	(Kurtzke, 1983)		Study entry Follow up

*Neurological exam completed by physician during clinic appointment.

OUTCOMES

Caregiver Outcomes. Caregiver outcome variables include depression (PHQ-9) (34), anxiety (General Anxiety Disorders Scale - GAD-7) (37), with sensitivity of 0.89 and specificity of 0.82 (38), and burden (Zarit Burden Inventory) (39), which has a Cronbach's alpha of 0.85 (40). The Risk Priority Inventory RPI (41) includes data on frustrations (Caregiver Frustrations Scale) (42), vigilance, social support, physical and emotional well-being, patient safety issues, and number of and distress about patient concerns/behaviors. Patient behaviors/concerns are from the Caregiving Tasks in Multiple Sclerosis Scale (CTiMSS) (17). Other caregiver data include demographics, relationship to the Veteran, and social support. Standardized measures will be scored in accordance with published guidelines, referenced above.

Veteran Outcomes. Veteran function outcomes include the timed up and go test (TUGT) (31) and the Expanded Disability Status Scale (EDSS). The 6MW has consistently differed between persons with MS and controls and is correlated with the EDSS, Timed 25-Foot Walk Test (T25FW), and Multiple Sclerosis Walking Scale-12 (MSWS-12) scores in persons with MS (32). Other Veteran outcomes include self-efficacy, which may be a strong predictor of health status and is modifiable through encouragement (1) using the Multiple Sclerosis Self-efficacy Scale (MSSS), which has been shown to be valid, reliable, and sensitive to change over time, with a Cronbach's alpha of .81 (33), and depression (Patient Health Questionnaire - PHQ-9), which is widely used in the VA and has a Cronbach's alpha of .86 (34). Other data include MS impact on day-to-day life, which is positively correlated with caregiver activities (MS Impact Scale-29 - MSIS-29) (35), the Modified Fatigue Impact Scale (MFIS) with a Cronbach's alpha of .81 (46), and CPRS data, including type of MS and clinical severity, and Veteran service use. The standard MS clinic note template includes MS Center of Excellence data elements, including a disability clinical assessment of the patient (36). Standardized measures will be scored in accordance with published guidelines, referenced above.

Program Evaluation. Qualitative process evaluation data will focus on content and process issues of satisfaction, benefit, utility, changes, and support to determine if the intervention process or content needs modification for use in this setting. Data will be collected from Caregivers, Veterans, and clinicians. Clinicians will help determine whether the intervention was disruptive or supportive to patient care and the clinic process and any changes needed to facilitate integration.

Data Analysis

The primary outcomes are measured for all participants at baseline, three, and six months. Data analysis will use repeated measures analysis of variance (ANOVA) to compare baseline and post-intervention follow-up (3 month and 6 month) scores. Each outcome measure will be treated as independent of the others. For continuous variables, an effect size (d) of at least 0.2 SD improvement will be considered clinically significant. Effect sizes are estimated as mean change relative to estimated population standard deviation (44). With 50 subjects and 15% attrition, we will have 80% power to reject a false null hypothesis at $\alpha = 0.05$ when effect sizes fall between 0.3 and 0.4 for depression and anxiety outcomes, and when burden outcome is 0.3, as shown below in Table 2. Cohen considered effects of this magnitude to be between small to medium (44). Recruitment of more than 50 subjects or attrition less than 15% would yield greater power than 80% or allow for detection of smaller effect sizes as statistically significant. As previously mentioned, the means, standard deviations, and effect size values below are similar to those shown in Preliminary Results.

Table 2. Caregiver Baseline Data Values Observed from Previous Studies (7, 45):

Outcome Variable	Baseline (M ± SD)	Reliability (r)	Power	Cohen's d	n
Depression (PHQ-9) (0-27)	7.80 ± 5.94	0.84	0.80	.3	66
				.4	38
Anxiety (GAD-7) (0-21)	8.94 ± 5.70	0.83	0.80	.3	71
				.4	40
Burden (Zarit 12) (0-48)	17.56 ± 9.74	0.88	0.80	.3	50
				.4	29

Note: Estimates of sample size (n) include 15% attrition of subjects during study.