



**PREVENTING MEDICATION ERRORS:
EVIDENCE-BASED MEDICATION MANAGEMENT INTERVENTION**

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INTRODUCTION

Partners in Care Foundation (Partners) respectfully requests \$xxx million (incorporating \$xxx for a subcontract with the National Council on the Aging for special dissemination support, and a 42% match, for a total budget of \$xxx million) over four years to fund a project to disseminate a model to three states that will significantly reduce medication errors and improve medication management for extremely high risk elderly adults, thereby enhancing their health and well-being. The Medication Management intervention was proven effective in reducing medication errors and improving medication management in a defining study led by Vanderbilt University and supported by the John A. Hartford Foundation between 1994 and 2001. More recently, Partners in Care replicated this model among a population of frail elders living at home who are at even higher risk for medication errors, in a project funded by the federal Administration on Aging.

The proposed project will:

- Demonstrate an evidence-based Medication Management (MM) intervention in programs which oversee home care for low-income elderly adults who otherwise would need nursing home care. Our strategy will be to recruit, select and support adoption of the MM intervention in eight geographically dispersed and diverse home care management programs in three states. We propose to partner with the National Council on the Aging (NCOA) to customize their proven Diffusion of Innovation Expert System to create a Medication Management Diffusion tool to assist in this demonstration process.
- Building on the demonstration results, pilot-test and implement an innovative online workshop that provides waiver programs across the country with the education, guidance, and support needed to implement the MM intervention in their sites to further disseminate the model.
- Broadly disseminate the MM intervention to home care agencies and other community-based care management programs via a proven strategy that includes web-based methods and the NCOA System.
- Measure impact of the intervention implementation, including a comparison and control group in California, technical assistance to additional programs nationally and dissemination of findings and lessons learned.

These demonstration, diffusion and dissemination activities will assist waiver programs for the elderly in building capacity to efficiently identify and resolve their clients' widespread and potentially dangerous medication errors. In doing so, the project will help establish new, stronger, and much needed practice standards for medication management in waiver programs throughout the nation. The long-term goal of the proposed project is to integrate into waiver programs a practice standard for medication management that will drastically reduce medication errors and related health problems, thereby keeping very frail older adults in their homes and out of nursing homes.

BACKGROUND AND PROJECT SIGNIFICANCE

Older Adults at Risk for Medication Errors

Older adults benefit more from taking medications than any other age group. "Medications," writes Harvard professor Dr. Jerry Avorn (1995), "are probably the single most important health care technology in preventing illness, disability, and death in the geriatric population." At the same time, however, older adults are more vulnerable to medication-related problems than any other age group. A growing body of research points to the following conclusions:

- Medication problems are widespread. Studies show that the incidence of side effects rises after age 50 and jumps after age 70 (Beers, 2001). Indeed, it has been said that any symptom in an elderly patient should be considered a drug side effect until proven otherwise.
- Medication problems are physically harmful, often fatal. For example: If adverse reactions to medications were classified as a distinct disease, it would rank as the fourth leading cause of death among people over the age of 65. Even if they don't kill you, medication errors can seriously undermine health and quality of life. Common medication-related problems in the elderly, for example, include dizziness, instability, falls (which themselves are a leading cause of death and disability among older adults), confusion, loss of energy, fatigue and swelling.
- Medication problems are enormously costly, amounting to between \$85 billion and \$177 billion annually in direct medical costs (Lazarou, et. al, 1998; Feinberg, 2001; Johnson and Bootman, 1995). America spends nearly \$200 billion annually treating the results of these errors.
- Perhaps worst of all, medication problems for the most part are preventable. "There is a substantial body of literature," writes Perry and Webster (2001), "that indicates that most medication-related problems are predictable and, thus, in many cases, preventable." Indeed, one-third of adverse drug events (ADEs)¹ in the community setting are preventable (Gurwitz, 2003). Errors associated with preventable ADEs occur most often at the prescribing (58%) and monitoring (61%) stages of the medication use process. Errors involving patient adherence are also common (21%) (Gurwitz, 2003).

Older adults, by far the nation's greatest consumers of prescriptions and over-the-counter medications, are especially vulnerable to medication-related problems for two reasons. First, advanced age, which is associated with multiple chronic diseases, is a risk factor for adverse medication effects (Beers, 2001). Second, the likelihood of medication-related problems increases with the number of medications consumed, and older adults take more medications than any other age group. In the U.S., older adults consume an estimated 34% of all prescriptions, though they constitute just 13% of the U.S. population (American Society of Consultant Pharmacists, 2001). Alarming, they take so many medications—an average of six a day—that many do not know what drugs they are taking or why they take them (Chung and Bartfield, 2002).

Certain subgroups among the elderly are at especially high risk for medication-related errors. Perhaps of most concern are the very elderly, who are most likely to have decreased kidney and liver function, which results in delayed elimination of drugs and potential for toxic levels to accumulate in the body; to have an increased number of chronic conditions that require multiple medications; and to have multiple prescribing physicians, who too often fail to communicate with one another.

Older adults living at home are acutely vulnerable to medication problems, largely because they lack the kind of medication management that can help prevent errors. Thus, a recent report found that nearly one-fifth of the 32 million older Americans living at home in the community used one or more of 33 prescription drugs deemed potentially inappropriate for them; nearly 1 million older adults used at least 1 of 11 medications that experts say should always be avoided in older individuals (Zhan, et al., 2001).

¹A medication-related problem (MRP) is an event or situation involving drug therapy that negatively interferes with a patient's health; Adverse Drug Event (ADE): An injury resulting from the use of a medication. Both MRPs and ADEs may result from medication errors, such as errors in prescribing, dispensing, administration, and monitoring; or from adverse drug reactions in which no error was involved.

When these problems are reported, people often ask how this could be: don't the dispensing pharmacies catch these potential errors? Don't the patients' physicians spot these problems? In fact, most pharmacies' screening systems are not set up to prevent many of the major categories of medications errors we are tracking. They do not have access to the data our system requires, such as the patient's blood pressure, reports of confusion or dizziness or recent falls. Without this clinical information, the pharmacy cannot identify the risks and dangers of certain medications. In the case of physicians, often such frail individuals see several specialists, and these physicians generally are not paid to talk with each other but rather are reimbursed to treat the patient's presenting problem. The medical system generally lacks the coordination needed to capture potential medication problems. Thus there is a strong need for a medication management intervention rooted in the system that *does* coordinate care – the care management program centered in the home.

Evidence-based Medications Management Intervention

Fundamentally, the intervention is a structured medication review targeting high-risk medications. It includes core components of screening, assessment, consultation and follow-up conducted by the home care team in consultation with a consulting pharmacist. The model has been successfully tested and implemented in several home health studies. Now it is being adapted and readied for the proposed test in the new Medicaid waiver populations of older adults receiving distinctly different home care services. In the first study, the research team found that the rate of medication errors in a sample of elderly home health patients ranged from 17 percent to 30 percent, depending on the assessment criteria used (Meredith, et. al, 2001). The Medication Management (MM) intervention then was tested in a randomized controlled trial (RCT), the first attempt to test such an intervention in a home-health setting. Results showed that the pharmacist-coordinated MM intervention significantly reduced medication errors among elderly home health patients and improved medication use in 50% of patients, compared to 38% of a control group that received usual care (Meredith, et. al, 2002). Improvement was greatest for therapeutic duplication (71% vs. 24%) and cardiovascular problems (55% vs. 18%). Building on this work, Partners in Care took the Vanderbilt study results across the nation in a powerful project to promote adoption of the MM intervention into home health practice. Well over 100 agencies have adopted this approach.

Building on this success, Partners in Care is currently funded by the Administration on Aging (AoA) to apply this evidence-based work in a new setting. Hundreds of thousands of vulnerable frail elderly are in Medicaid waiver programs across America. Our AoA study has found that rates of medication errors in waiver programs appear to be significantly higher than in home health programs. Our study also identified a missed opportunity: Medicaid waiver staff collect most of the medication data needed to identify potential errors, but fail to analyze the information in any meaningful way. The MM intervention could guide them through this critical task. And because the waiver staff already dedicates time to data collection, adding the intervention to identify and correct medication problems should be cost-effective, relatively simple to implement and have a powerful positive impact on clients' health and quality of life.

To date, the project has tested the MM intervention in three Los Angeles-area Medicaid waiver (MSSP) care management sites, with a sample of 615 elderly clients. Dramatic preliminary findings underscore the need for continued efforts to improve medication management for this population. Consider the following:

- The median number of medications taken by waiver clients was 9, four more than the median taken by home health patients in the Vanderbilt study. As noted earlier, an increase in the number of medications consumed translates into a higher risk for adverse medication effects.

With respect to medication regimes, our findings suggest that waiver clients more closely resemble nursing home residents, who take an average of 7-8 medications, than home health patients (Doshi, et. al, 2005; Meredith, et. al, 2001). A troubling difference between the two groups, however, is that nursing home residents benefit from a federally required pharmacist’s review of their medications, while elderly waiver clients do not (see the subsection below for more discussion of this issue).

- The incidence of medication errors is much higher than expected among Medicaid waiver clients. Almost 50% of the 615 clients screened presented with evidence of potentially harmful medication errors; almost 40% confirmed with problems. This error rate is *well over double* the 17% incidence rate reported in the aforementioned Vanderbilt home health study (Meredith, et. al, 2002). This finding is the single most important reason to transform medication management for elderly waiver clients: the need is great—and so too is the potential to prevent harm and improve lives.
- Along with serious health limitations, many waiver clients present with overwhelming social needs, which can complicate medication management unless adequately addressed. For example, some clients face eviction from current housing or have unstable support systems.
- Waiver clients appear to be at especially high risk for therapeutic duplication. Pilot-test results showed that 17% (108 clients) of the total sample were erroneously taking two or more of the same medication. This finding is particularly significant because such errors can be readily identified and resolved. The computerized risk assessment pilot-tested in our three waiver sites was especially effective in identifying and addressing medication duplications.

The proposed project offers a timely opportunity to prevent medication errors and improve medication management for elderly waiver clients. Introduction of the MM intervention will work to establish within Medicaid waiver programs across the country a new, higher standard of care for the frail elderly. It also will establish a new and cost-effective best practice approach where currently none exists, and in doing so fits well with the emerging agenda in states to address quality and safety in waiver programs. The project’s potential for protecting the health and well-being of vulnerable elders is an imperative for action.

Medicare’s Prescription Drug Benefit May Complicate Medication Management

Complicating medication matters for elderly waiver recipients is the introduction of Medicare’s prescription drug benefit. Virtually all elderly waiver clients are “dually eligible” for both Medicaid and, by virtue of their age, Medicare. Under new Medicare regulations, responsibility for prescription drug coverage for dually eligible beneficiaries shifted in January from state Medicaid programs to the federal Medicare program (Centers for Medicare and Medicaid Services, 2006). For many dually eligible elderly this shift means that they now have a co-payment for medications that they used to receive at no cost. Service providers for elderly waiver recipients are concerned that co-payments of even a few dollars will lead to widespread non-compliance with medication regimens—and resultant health problems—for this low-income population. Preliminary results from Partner’s AoA-funded prevention initiative suggest that, indeed, there are ample reasons to be concerned about potential medication-related problems among elderly waiver clients.

Medication Management Intervention Needed to Create Equity

A final impetus for the proposed project is recognition of the disparity, referenced earlier, in the provision of medication management services for older adults who live in nursing homes versus those who choose to remain at home in the community. This disparity is especially striking in light

of the Olmstead ruling. Currently skilled nursing facilities, by federal mandate, require a pharmacist to review each resident's medications, a practice standard in many hospitals as well. But no such mandate protects Medicaid waiver clients, although they are just as frail as institutionalized patients. However, a recent Supreme Court decision known as the Olmstead ruling stipulates that Medicaid waiver clients are entitled to long-term-care services that are comparable to those received by nursing home residents. (In the case of *Olmstead v. L.C.*, the high court increased state obligations to offer older adults living at home equal choices in long-term care so that frail individuals are not forced into nursing homes to receive the help they need.) Comprehensive medication management services should be available to Medicaid waiver clients, yet this coverage seems to vary widely among the states' waiver programs. Expanding upon our current work will help ensure equity between long-term nursing home patients and Medicaid waiver clients.

MISSION STATEMENT, PROJECT RATIONALE, AND GOALS

The overarching mission of this project is to prevent medication errors and improve medication management for elderly waiver clients, thereby protecting their health, independence and well-being. In keeping with this mission, the project's rationale is based on evidence that: 1) elderly Medicaid waiver clients have an exceptionally high rate of medication errors, and 2) this error rate can be lowered through implementation of the MM intervention.

The project has two primary goals:

- To employ a multi-faceted strategy to broadly disseminate the MM intervention to the nation's Medicaid waiver programs for the elderly. Introduction of the intervention will help strengthen practice standards and thus assist waiver care management programs in building their capacity to efficiently identify and resolve their clients' dangerous medication errors.
- To actively promote and facilitate actual adoption and implementation of the intervention as a standard practice among selected Medicaid waiver programs for the elderly.

The proposed project features three distinct dissemination/implementation methods that straddle a continuum ranging from formal and systematic to in-person and direct. On the one hand, we will provide direct hands-on technical assistance to selected waiver programs that serve as opinion leaders for this provider population to implement this intervention as a new practice standard for their staff. On the other hand, we will cast a wide net by using innovative diffusion tools and mass media strategies focused on large and relevant provider associations to broadcast the MM intervention's availability to Medicaid waiver providers. As a hybrid strategy, we will pilot-test an online implementation workshop, coupled with periodic teleconferences, that provides waiver program participants with education, guidance, and support over several months to help them implement the MM intervention in their practices.

WORK PLAN

We are proposing a four phase project (called Phases 1 to 4 and summarized on page 20) to be carried out over four years, with significant pre-funding work (Phase 0) to be accomplished under our AoA project, which will lay a strong foundation for subsequent work. Five objectives outline the project's work plan:

Objective 1: Refine the intervention and related computerized medication screening tools to meet the specific needs of waiver programs for the elderly and their clients. Develop the "Medication Management Intervention Customized Diffusion Tool" with NCOA.

Objective 2: Recruit, select and implement the MM intervention in eight Medicaid waiver sites in three states to ensure adoption of the intervention in their program practices.

Objective 3: Broadly disseminate the MM intervention to Medicaid waiver programs for the elderly via multiple proven dissemination strategies, which includes our website, www.homemedics.org, publications and presentations.

Objective 4: Pilot-test two distance learning programs that provide waiver staff and administrators across the country with the education, guidance, and support needed to implement the MM intervention in their sites.

Objective 5: Evaluate the impact of technical assistance implementation and dissemination.

Methods and key activities for accomplishing each objective are discussed below.

Objective 1: Refine the intervention and related computerized medication screening tools to meet the specific needs of waiver programs for the elderly and their clients.

- Currently (and with pre-proposal funding) we are refining the intervention and working with software vendors RTZ and Associates to enhance screening tools as described below.
- During the project's first three months, in partnership with RTZ, we will pilot the software for medications screening in three waiver sites in order to reach final decisions on a few key issues, discussed below.
- NCOA will contract with us to develop a "Medication Management Intervention Customized Diffusion Tool" a version of the NCOA web-based Expert System Diffusion Tool.

PHASE 0--Intervention Modifications: As part of our AoA project, we are working with our expert advisory panel to refine, enhance, and tailor the MM intervention to Medicaid waiver programs. Core features of the MM intervention will remain unchanged; the clinical guidelines and protocols originally designed for use by home health nurses will be the major modification. Updated protocols will focus on problems care managers can effectively address within their scope of practice and the waiver program's focus. We believe that simplifying the intervention and tailoring it to the strengths and capacities of Medicaid waiver programs for the elderly of various sizes, in varying kinds of communities and with diverse populations will make it more effective and more feasible for future programs to adopt. We expect to complete all modifications to the protocols and procedures by the start of the first quarter of the proposed project.

PHASE 0--Computerized Medication Alert System: Our AoA project has been testing the efficacy of using a computerized medication risk assessment and alert system, drawn from the MM home health intervention, to help waiver care managers identify potential medication-related problems among their elderly clients. This tool boasts major benefits: care managers usually are not medication experts who can independently assess clients' medication risk (this is one reason why the prevalence rate of medication errors is so high in these programs). The computer can report potential problems to care managers almost immediately, even while they are still in the client's home.

In the AoA project, we are working with software developer and MSSP vendor, RTZ Associates, to adapt this computerized risk assessment screening tool for waiver programs in California and other states. RTZ Associates has been involved for over 25 years in the development of program-based, policy-oriented information systems for community long-term care, adapting program management software to collect research quality outcome data. Working with Partners, RTZ helped to create and test a computerized medication alert system embedded in MSSPCare, a care management data reporting and clinical documentation software system.

The National Institutes of Health (NIH) recently chose RTZ to develop an enhanced web-based information system for long-term care waiver programs based on RTZ's current PC-based MSSPCare system. The resulting system will enable users to collect comparable data across sites, programs, and states, and will also include enhanced medication tracking and alert capabilities. We are consulting with RTZ to refine the software's medication algorithms to detect medication problems, especially redundant (or duplicative) medications and potentially dangerous interactions, and study the impact of this software on prescription patterns and client outcomes across program types. A portion of the NIH grant will serve as a match to the proposed project budget. Use of the data warehouse RTZ will be creating will be employed to improve clinical practice and will provide evaluation data for the California sites. There is also capacity to diffuse the software tool more widely: presently, 19 of California's 41 MSSP sites use MSSPCare, and of these, 13 use it for clinical assessments. The software is also used in programs in Virginia and Arkansas.

As part of the AoA project, Partners is refining the risk assessment software tool and the MM intervention guidelines in consultation with the three MSSP sites that use MSSPCare and our expert geriatric advisory panel. Already the software has demonstrated great efficacy. We will jointly finalize and test the software screening process in the three MSSP pilot sites in the first three months of the project, as described below in Phase 1. Thus, the groundwork we've started to lay in our AoA project will continue into this proposed project.

PHASE 1--Pre-Implementation Activities: During the first three months of Year 1, RTZ and Partners in Care will begin further testing the computerized medication alert system in the three MSSP sites that currently participate in our AoA project. This work will be accomplished as part of RTZ's NIH-funded project, under which Partners in Care is a subcontractor. After piloting is completed, eight additional MSSP agencies using MSSP care will participate in the demonstration described in Objective 2. Recruitment of interested sites has already begun. Selection of participating California sites will be finalized during this phase and selection of other out of states sites will commence, hopefully with Hartford's approval of the contract discussed below.

To assure optimal site readiness and successful implementation and adoption, our proposal includes contracting with NCOA to create a customized version of their Diffusion of Innovation Expert System, based on the Everett Rogers, PhD theoretical model. Their contract proposal for \$100,000 for 36 months of the project to develop a "Medication Management Intervention Diffusion Tool" is in the appendices and is included in our line-item budget. NCOA proposes to assist Partners to screen interested adopters that have the capacity and willingness to implement the Medication Management Intervention in Phase 3 and 4 of our projected work plan. NCOA will develop and maintain an interactive, web-based expert system that will facilitate information exchange and analysis between Partners and potential early adopters regarding this innovation, thereby enabling Partners to further refine, plan for and successfully diffuse the innovation nationally. NCOA believes this will enhance the speed and effectiveness of the diffusion effort.

In our work with RTZ, we are exploring the feasibility of spinning off the computerized medication alert system as a stand-alone product that can be made available nationally, to public and private care management and waiver programs that lack access to an MSSPCare-equivalent software program or might not be ready to adopt an all-encompassing electronic records system. In addition to Medicaid waiver programs, many hundreds of thousands of frail elders are served through less sophisticated care management programs that could be greatly enhanced through the availability of such a tool. RTZ has indicated it can develop the product for a reasonable sum and make the program available to agencies for a modest monthly fee under \$100.

- Objective 2: Implement the MM intervention in eight Medicaid waiver sites in three states to ensure adoption of the intervention in their program practices. In Year 1 (Phase 2), there will be four demonstration sites and four comparison sites in California. In Year 2 (Phase 3), we will begin more widespread national diffusion of the intervention in two care management sites in each of two additional states.

Industry opinion leaders who adopt an innovation can trigger a domino effect such that others in the field follow their lead. Thus, we will recruit eight geographically dispersed and diverse Medicaid waiver sites for the elderly to integrate the MM intervention into their program operations.

The first four demonstration sites will be joint participants in both this project and RTZ's NIH project. These participants will be California-based MSSP sites, selected jointly in Phase 1 by RTZ and Partners in Care. These sites will serve as the intervention group for the RTZ project and will use the computerized version of the medication alert system. (Four additional MSSP sites will be jointly selected as control or comparison sites.)

In Phase 3, Partners team aided by the customized NCOA system will select two sites in each of two additional states, for a total of eight demonstration sites in three states. We are currently in discussion with waiver programs in Minnesota, Ohio, Massachusetts and Wisconsin. To broaden the impact, RTZ also plans to offer the enhanced software to waiver programs they service in two other states. Partners also hopes to assist one non-waiver program in Houston Texas and CA. If more sites express interest in adopting the intervention, and supplemental funding exists, this project will expand the demonstration to additional sites.

By October 2006, the California MSSP sites will implement the MM intervention, and the remaining four demonstration sites will follow their lead by January 2008. Each site selected will implement the intervention for 12 months and participate in evaluation activities as outlined below.

Site Selection: As a preliminary step, we have been contacting aging leaders nationally and regionally to identify target states with strong waiver programs and leadership. Organizations positioned to adopt the MM Intervention also have contacted us to express interest.

Demonstration sites will be selected based on several criteria including readiness, capacity and willingness. The NCOA Diffusion System measures the "readiness" of organizations to implement an innovation. It consists of two components, "capacity" and "willingness." Capacity is defined as the existing or readily available resources and current or prior experience with similar types of programs and skill sets. Willingness is a measure of the predictors that correlate most highly with having made the decision to implement the innovation and have taken steps to do so. We've learned from our recent AoA work how important it is to assess these components at all levels—from administration to line staff before attempting to adapt such an intervention.

Each applicant program site will complete the web-based NCOA readiness assessment that clarifies participation responsibilities and outlines what the site can expect from us in return. There will be approximately 80-100 questions in the custom diffusion expert system questionnaire. They ask questions about:

- Innovation-Decision Status
- Organizational Conditions
- Perceived Characteristics of the Innovation
- Perceived Barriers & Resource Requirements
- Organization type, demographics

The NCOA custom expert system will offer potential innovators increased understanding of:

- The Medication Management Intervention
- Their own organization's readiness and capacity based upon expert analysis
- Their own organization's current resource gaps and how to close gaps
- Cost-effective expert assistance to help determine whether to adopt an innovation

The system will produce two types of output: a report for potential adopters of the MM Intervention that have completed the survey and a report for Partners including a sortable grid by which Partners team can assess potential adopters and rank them by key criteria. A gap analysis will indicate new resources needed by the organization to implement the Intervention and will offer next steps the organization should take to adopt or increase "readiness" to adopt the intervention. This will assist the Partners team in determining up-front further assistance needed.

Assistance Provided: Medicaid waiver programs for the elderly are charged with a daunting task: to meet the complex health and social needs of an extremely frail and poor population with only minimal physician direction. To add to their Herculean responsibilities without offering extra support would be unconscionable. Hence, this project will offer substantial support to each of its demonstration sites to ensure successful implementation of the MM intervention.

We will offer financial support — each site will receive a stipend to offset training and implementation costs — as well as technical assistance (TA) in the form of intensive coaching and mentoring. This assistance will be offered throughout the demonstration period in a variety of ways: on-site, online, and via the telephone. The process will start with an on-site consultation, which in turn will determine the schedule and format for future TA consultations.

Based on our AoA experience, we anticipate that sites will need help with a number of key issues, including planning, training, systems designs, selection of the target medication improvement area, and locating and using a pharmacist or other medication expert resources. The NCOA tool will greatly assist this process upfront, and help guide on-site assessment and consultation.

Sites will be required to have signed Memoranda of Understanding with timelines and bench marks, to provide periodic written reports, and to participate in evaluation data collection and other activities so that we can closely monitor progress, assess agency and patient outcomes, and provide additional support as needed.

Demonstration Benefits: This demonstration effort serves several purposes that will facilitate adoption of the intervention by other waiver programs. It will extend the intervention's track record, thus enhancing its credibility, adoption, and marketability. It gives us the opportunity to

refine our educational materials based on real life experience, which in turn will help ensure broad applicability. It enables us to evaluate the transfer process under various program conditions and, based on our findings, to develop strategies for overcoming barriers to implementation. It will also enhance and disseminate the computer screening model widely, benefiting practice improvement in many locations across the country. Lessons learned from this demonstration will be applied in our distance learning workshop (see Objective 4).

- Objective 3: Broadly disseminate the MM intervention to Medicaid waiver programs for the elderly via a proven dissemination strategy that includes our website, www.homemedics.org, publications and presentations.

Partners has a proven strategy for disseminating project results and findings regionally, statewide, and nationally through its www.homemedics.org website as well as links with other websites, conference presentations, publications and press releases. A strong, experienced communication team will lead dissemination activities for the proposed project, drawing on the wealth of relationships that team members have forged over the years with leading organizations in the field of aging.

Presentations at major national conferences such as the National Managed Medicaid Conference, the National Area Agencies on Aging, ASA/NCOA and pharmacy associations would initially introduce the Medicaid waiver MM intervention, followed by communications with members of major aging services organizations through written and electronic communication methods.

While continuing to encourage adoption and supporting further implementation, new emerging candidate organizations will be encouraged to implement the intervention through web-based learning and support. The NCOA Medication Management Intervention tool will be made available on-line so that potential candidates can assess their readiness.

Homemedics Website: Three years ago, with support from the Hartford Foundation, we launched a website, www.homemedics.org, to disseminate the MM intervention to home healthcare agencies. That site remains active and successful today. Among its offerings is an online toolkit that includes protocols and materials needed to implement the MM intervention in home health agencies. As part of our AoA work, we currently are updating the toolkit so that it is equally applicable to Medicaid waiver programs; those revisions will be completed by late September.

- Objective 4: Pilot-test two distance learning programs that provide waiver staff and administrators across the country with the education, guidance, and support needed to implement the MM intervention in their sites.

Healthcare organizations increasingly are harnessing the power of the web to reach out and provide online professional training and education to doctors, nurses, and social workers across the country. This project will incorporate this technology, targeting a professional group that to date has been overlooked: Medicaid waiver care management leadership and clinical staff. The online CEU course based on pilot trainings will be developed during Phase 1; the agency implementation course unit during Phase 4.

Online CEUs: To encourage the broadest use of our online medication management site, we will seek an accreditation partnership to offer continuing education units (CEUs) to nurses and licensed social workers who complete a Medication Management 101 education component. Other

healthcare-oriented websites have found that offering no- or low-cost CEUs to health professionals helps draw continual traffic to the site, thereby ensuring ongoing dissemination of the educational information the site offers. Registration, testing, and even printing of the CEU certificate can all be accomplished online; thus, apart from an initial set-up expense, there are no maintenance costs for offering CEUs. We anticipate that our course will qualify for at least two CEUs for nurses and licensed social worker care managers. We expect to offer the CEUs at no charge.

In addition to drawing visitors to the site, CEU availability offers other PR benefits. First, nurses and social workers will be required to register for the CEUs; in turn, this registration list of professionals sensitized to the topic will be added to our project's email list, so that they receive our press releases and project updates. In our experience, recipients of online project news often spread the word to colleagues with a few clicks of the mouse, which helps draw new visitors to the site and the module, and so the dissemination cycle builds. Second, CEU registrants will be required to complete pre- and post-tests as well as an evaluation of the module. Their feedback and test results will help us identify areas for improvement and to evaluate the project's overall effectiveness.

PHASE 4--Online Workshop: Although our CEU offer can heighten awareness of the need to improve medication management for older adults and enhance care managers' skill sets, we understand that completion of an online module alone is not sufficient to transform clinical practices throughout an entire waiver program. A more intensive approach is needed. The Cadillac version of such an approach is our proposed on-site technical assistance implementation demonstration, discussed in Objective 2. Here we propose a hybrid approach: an online distance-learning workshop that is convenient, low-cost, yet high-impact. Like our hands-on demonstration program, this workshop aims to effect sustainable improvement in medication management practices.

In the final year of the project, we propose to administer a free-of-charge online course that will guide care management agencies through implementation of the MM intervention in their Medicaid waiver programs. Drawing on lessons learned from our demonstration sites, this distance learning pilot project will use a train-the-trainer model to embed in Medicaid waiver programs the capacity for comprehensive medication management. Administrators of interested agencies will assess their program's readiness for the innovation using the customized NCOA Diffusion Tool. The system's reports will provide invaluable feedback regarding readiness as well as gap analysis to all applicants. For the 10-15 agencies selected to participate through the Diffusion Tool process, frontline managers will be given specialized training and tools to facilitate the care management fieldworker's acquisition of these best practices, ultimately improving client care.

Because this distance-learning project involves no travel for the participants, it may prove to be extremely cost effective for all involved. A related point is that, thanks to teleconferencing technology, several staff members within a single facility can participate in the project's monthly coaching calls (see description under "course administration" below) at no additional charge to the project or the facility. In this way, sites can engage as many staff members as they like in the project, an inter-disciplinary collaboration that may strengthen and help sustain improved medication management practices.

Recruit participants: We will recruit interested sites from between 10 and 15 Medicaid waiver programs across the country to take part in this six-month course. Interested sites will be asked to complete an application, which will assess site readiness. At least one supervisor from each site will be the designated registrant; this person will be expected to participate in all course activities and to serve as the liaison between the project and the care management field staff.

Course administration: The primary instructional reference for the course will be our online medication management materials, which—as noted in Objective 3—will include step-by-step instructions for implementing the MM intervention as well as links to exercises and activities to be completed by participants. Through our website, participants also will have ready access to other pertinent materials and research. A rapid cycle change format will provide learners with short cycles of learning followed by opportunities to test their learning in the field.

Each month, project staff will host a group coaching call of about one hour to allow for shared problem solving and support as the participating managers lead frontline care managers in adopting the MM intervention. Enrolled supervisors are expected to participate in all coaching calls; other staff members may also choose to participate. We will create an online discussion group so that participants can share information and (mandatory) assignment results between coaching calls. We also will offer participants an opportunity to meet face-to-face at one of the professional aging membership conferences we attend.

Objective 5: Evaluate the impact of implementation, technical assistance and dissemination.

The project will be evaluated in several ways to measure the impact of each of the separate components of the project. These components include broad dissemination efforts, model implementation and adaptation, and client and process outcomes associated with implementing the MM model.

Work Plan Timeline

<p>Phase 0 January 2006 – July 2006</p>	<p>Pre-Hartford Project</p> <ul style="list-style-type: none"> ❖ Preliminary diffusion efforts and site recruitment through CA state and national aging meetings ❖ Planning phase of RTZ NIH project to enhance medication risk assessment tool (conference calls, CM input) ❖ Partners/Advisory Panel revises MM Intervention protocols RTZ finalizes enhanced electronic record program with medication risk assessment tool
<p>Phase I July 2006 – September 2006</p>	<p>Pre-Implementation</p> <ul style="list-style-type: none"> ❖ Pilot test refined RTZ software at 3 local So Ca MSSP sites Planning meeting w/NCOA to develop MM Intervention Diffusion Tool ❖ Dissemination: Press releases, website updated and Care manager CEU program developed and implemented
<p>Phase II October 2006 – December 2007</p>	<p>CA waiver program Implementation and Diffusion</p> <ul style="list-style-type: none"> ❖ 4 demonstration sites in California ❖ 4 comparison sites in California ❖ NCOA Diffusion tool tested and implemented ❖ Select sites in 2 other states ❖ Software vendor creates new, freestanding electronic medication screening software ❖ Preliminary Evaluation: analysis of effect and impact ❖ On-going dissemination of progress and findings through website updates
<p>Phase III January 2008 – March 2009</p>	<p>National Diffusion: Implementation of MM Intervention</p> <ul style="list-style-type: none"> ❖ 2 sites in 2 additional states (4 total) ❖ Add additional new states/funding if funding allows ❖ Preliminary Evaluation: analysis of effect and impact ❖ Lessons learned gathered and applied to materials developed below in Phase IV ❖ Dissemination through presentations/publications ❖ Recruitment for Phase IV distance learning workshop via NCOA Diffusion Tool
<p>Phase IV July 2009 – June 2010</p>	<p>Diffusion: Electronic Dissemination</p> <ul style="list-style-type: none"> ❖ Agency Implementation course unit developed ❖ Applications complete NCOA Diffusion questionnaire and receive feedback and gap analysis ❖ 10 – 15 agencies selected and implement via distance learning and coaching teleconferences ❖ Evaluation of module ❖ Refinement of module, on-going CQI <p>Evaluation: Final Analysis and Report</p> <ul style="list-style-type: none"> ❖ Dissemination of lessons learned and findings

LEAD AGENCY

The project will be administered by Partners in Care, a non-profit charitable organization that works as a catalyst to help shape a new vision of care by partnering with diverse organizations, families, and community leaders to create new programs and care models that bridge gaps in our nation's health system and increase access to home-health and community-based care for at-risk populations. Formerly the Visiting Nurse Association of Los Angeles, our organization has over eighty years of hands-on experience in building innovations and advances in quality of care for home service delivery for the elderly. Through our leadership involvement in a combination of unique direct services and macro efforts to improve care for the elderly, Partners is exceptionally qualified to administer the proposed project:

- Over the past 10 years, Partners has participated in three phases of developing, replicating, and disseminating The John A. Hartford Foundation-funded MM intervention. For the past 2 ½ years, we have been the lead agency in a successful effort to facilitate the intervention's adoption by three MSSP sites in the Los Angeles area. This 3-year study is funded by the AoA.
- Partners and its Research Center, the Institute for Change, are known and respected nationally for leadership in end of life care, long term care, advancing Social Work practice and aging health issues; and for fine work with multiple respected funders locally and nationally.
- Partners is nationally respected for its depth in knowledge of community-based care management for frail elderly. Partners has pioneered the concept of empowering the care management approach with powerful new evidence-based tools such as problem-solving therapy and Brief Negotiation, and programs to improve medication management, increase physical activity, and others addressing end-of-life care and depression.
- CEO, June Simmons has been invited to participate on many national think tank panels and as advisor to major initiatives of other organizations, many funded by The John A. Hartford Foundation.
- As demonstrated in many projects, Partners is very effective in inspiring the adoption of advanced practice tools as well as in sustaining funded projects. Through strong partnerships with other leading organizations, we have the strength to bring this ambitious proposal to national impact and prominence as a leading new initiative in a core area of geriatric practice.
- A key partner in this project is software company RTZ and Associates, Oakland, CA. For over 25 years, RTZ has been involved in the development of program-based, policy-oriented information systems for community long-term care (LTC), adapting program management software to collect research quality outcome data. Led by founder and director Rick Zawadski, the RTZ team includes clinicians, researchers, programmers and technical support staff. Dr. Zawadski is a nationally recognized expert in long term care program design and is a pioneer in the development and study of Adult Day Services (ADS), as well as a founder of Program of All-Inclusive Care for the Elderly (PACE) and its replication project.
- Another important partner in the proposed project is the National Council on the Aging (NCOA). Founded in 1950, NCOA is dedicated to improving the health and independence of older persons and increasing their continuing contributions to communities, society, and future generations. NCOA is a 501(c)3 organization located in Washington, DC. One of NCOA's core competencies is fostering the diffusion of innovations, helping organizations to assess their readiness to adopt new interventions. For this project, NCOA will develop and maintain an interactive, web-based expert system that will facilitate information exchange and analysis between Partners and potential adopters regarding the MM intervention, thereby enabling Partners to further refine, plan for and successfully diffuse the intervention to identified early adopters. NCOA's work on this project this will enhance the speed and effectiveness of the diffusion effort.

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