Replication Report

Medication Management Improvement System

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USC DAVIS SCHOOL OF GERONTOLOGY

Partners in Care FOUNDATION
changing the shape of health care

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Evidence-BASED HEALTHY AGING PROGRAM

Partners in Care (Partners) is a charitable, nonprofit organization whose mission is to catalyze a new vision of healthcare by partnering with organizations, families, and community leaders in changing healthcare systems, changing communities, and changing lives.

We work to develop more effective and efficient approaches to improve quality of life for diverse individuals and communities, targeting those most at-risk. Successful models are replicated in leading local, regional, and national organizations.

Since its start as a freestanding nonprofit organization in 1997, Partners has become a nationally recognized leader in promoting innovative community and home approaches to geriatric care management, health promotion, chronic disease management, and end-of-life care, with a special focus on addressing ethnic health disparities and introducing positive practice change. With an annual operating budget of more than $8 million, Partners has an extensive history of testing, adapting, and disseminating evidence-based models.

In collaboration with partners and supporters, Partners and its network of community-based agencies and providers are changing the shape of healthcare. Through innovative projects and meaningful programs, we are striving to improve the care and quality of life of those who lives we touch. Visit our comprehensive Web site at www.picf.org.

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I. Introduction/Executive Summary

Medication Errors: Serious, Costly, Common, Preventable

Older adults benefit more from taking medications than any other age group. "Medications are probably the single most important healthcare technology in preventing illness, disability, and death in the geriatric population" (Avorn, 1995). However, older adults are also more vulnerable to medication-related problems than any other age group. A recent study by Medco Health Solutions, a prescription benefit manager, found that medication errors were seven times more likely to occur in those aged 65+ than in younger adults. The more physicians the older adult sees, the more prescriptions he/she fills and the more errors that occur (Medco, 2006). Annually, there are about 177,000 emergency room visits related to adverse drug events (injuries resulting from medication use) among older adults. Although those aged 65+ compose just 12 percent of the US population, they account for about 25 percent of emergency room visits and 50 percent of hospitalizations related to adverse drug events. Studies estimate that 70 percent of these ER visits and 88 percent of these hospitalizations were preventable (Beijer & de Blaey, 2002). The estimated annual cost of adverse drug events exceeds $177 billion (Institute of Medicine, 2007).

Older adults living at home are especially vulnerable to medication problems, mostly because they lack the kind of medication management that can help prevent errors. 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 (Zahn et al., 2001). Partners in Care Foundation's medication management study found that extremely frail elders who are kept out of nursing homes by Medicaid waiver services are *twice* as likely to experience a potential medication problem.

The cost of these medication-related problems, both human and economic, is too high to ignore. Many can be addressed by community-based agencies serving older adults. The medication management intervention described in this report is designed to help homecare staff identify, resolve, and prevent such risks—a crucial element of any program designed to enable at-risk elders to remain at home.

Improving medication use for community-dwelling elders

The good news is that there are effective interventions to improve medication use among community-dwelling older adults. These programs do, however, require a systematic approach to the problem and a commitment by care management agencies and staff to improve patient safety.

Partners in Care Foundation's Medication Management Improvement System (MMIS), formerly known as and funded by AoA as *A Community-based Medication Management*

Intervention, has its roots in Partners' legacy organization, the Visiting Nurse Association of Los Angeles (VNA-LA), where over 20 years ago, nurses identified a need to improve medication management for their patients. In the 1990s, researchers at Vanderbilt University and two innovative home health agencies, VNA-LA and the Visiting Nurse Society of New York City (VNS-NYC), joined together to address this important health and patient safety issue. They developed and tested a new model of care to identify and resolve medication use in home health patients, and it proved effective in a randomized-controlled trial. Information about the study and the intervention can be found on our Web site: www.HomeMeds.org.

The model was then translated from the home health setting and tested in three Southern California Medicaid waiver sites as part of a national Evidence-Based Prevention effort led by the US Administration on Aging (AoA). The MMIS model is currently being disseminated widely in California's 1915(c) Medicaid waiver programs for elders, called the Multipurpose Senior Services Program (MSSP). The next stage will be to diffuse the model nationally, with funding from the John A. Hartford Foundation.

The Medication Management Improvement System (MMIS)
Developed by Vanderbilt University researchers and a national consensus panel of experts (Brown et al. 1998), the MMIS is a collaborative approach to identifying, assessing, and resolving medication problems in community-dwelling older adults. These system targets potential medication problems include both drug use and symptoms associated with specific adverse drug effects. The process, which includes consultation with a specially trained clinical pharmacist and an interdisciplinary care-management team and a follow-up with the client's physician, adheres to periodically updated guidelines established by a Geriatric Advisory Panel composed of pharmacists, physicians, social workers, and nurses.

Medication errors among community-dwelling older adults are numerous. The MMIS focuses on identifying and resolving the four most common that researchers have determined are amenable to a collaborative staff and pharmacist intervention in homecare programs. They are:

1. Unnecessary *therapeutic duplication* (e.g. generic and brand name of same drug);
2. Falls, dizziness, or confusion possibly caused by inappropriate *psychotropic* drugs;
3. *Cardiovascular* medication problems related to dizziness, continued high blood pressure, low blood pressure, or low pulse;
4. Inappropriate use of non-steroidal anti-inflammatory drugs (*NSAIDs*) in those with risk factors for peptic ulcer.

Home health staff using usual practices can address these problems during a typical home health stay to identify problems with a high likelihood of clinical significance would

warrant further re-evaluation by the prescribing MD. In the original home health intervention, a computerized algorithm identified patients at potential risk, based on a medication inventory and an assessment of vital signs and patient reported symptoms such as confusion, recent falls, and dizziness. After the initial risk assessment, staff members collaborated with a pharmacist to develop an intervention plan. Strategies to resolve the problems included:

- Assessing patient adherence, coupled with education and counseling, as needed; and
- Contacting the prescribing physician to re-evaluate medication use.

Adapting MMIS for Care Management Agencies

The original program to improve medication use was designed for Medicare-certified home health agencies providing in-home nursing and rehabilitation therapy services to patients aged 65+. Following this highly successful effort, Partners in Care Foundation (Partners) became determined to make the intervention more broadly available throughout the country. To this end, Partners, funded by The John A. Hartford Foundation, disseminated the intervention by providing technical assistance to additional home health agencies of diverse types across the country. During this phase, Partners piloted implementation of the model in the care management arm of the Eddy Visiting Nurse Association in Eastern New York State, a home health service that is part of a large regional health system. This brought attention to a very high-risk group of clients who had a much higher rate of potential medication problems: clients receiving Medicaid 1915(c) elderly waiver services. Medicaid waiver clients are deemed to need a nursing home level of care and receive home and community-based services to enable them to continue living safely at home.

An important patient safety and Olmstead equity issue: Skilled nursing facilities, by federal mandate, require that a pharmacist review each resident's medications. No such mandate, however, protects Medicaid waiver clients. This lack of review is supported by studies showing that frail elders receiving home and community based services were found to have a 48 percent rate of inappropriate medication use versus a significantly lower 38 percent for nursing facility residents (Rigler, et al., 2005). The Supreme Court decision known as the *Olmstead ruling* now stipulates that Medicaid waiver clients are entitled to long-term care services comparable to those received by nursing home residents. In the case of *Olmstead v. L.C*, the high court increased state obligations to offer 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. At Partners, we made a commitment to expand our work to help improve the health and safety of Medicaid waiver clients. We also feel it is important to work through advocacy channels to institute a pharmacist review mandate in waiver programs.

After proving that medication management could be successfully implemented in both a home health agency and a care management program, we felt it was important to refine and replicate the intervention to reach as many at-risk elders as possible.

To make the medication management model even more accessible to those serving a vulnerable population, Partners adapted the program further—while remaining true to the original model—so it can be implemented by care management agencies. The program can now be implemented by the care management team in collaboration with a consultant pharmacist. Moreover, several care management programs in Southern California have successfully tested and implemented the program with very strong results and important benefits.

The model contains the following core elements:

- *Screening* to identify potential errors and medication-related problems;
- *Assessment* of the client's condition and adherence based on established guidelines;
- *Consultation* between staff and pharmacist to develop a plan of action based on protocols; and
- *Follow-up* with physician and client to improve medication use.

Roles of pharmacists and nurses: After the initial risk assessment screening, a consultant pharmacist reviews identified potential medication problems and makes recommendations to staff and/or the client's physician regarding changes to the medication regimen. If appropriate the pharmacist recommends client education topics to the care manager to improve client awareness of potential side effects or improve adherence. The degree of pharmacist involvement depends upon the availability of appropriately trained nurses within the care management program. If nurses are readily available, there are many problems they can address, reserving pharmacist consultation for only the most complex cases.

Integrating computerized screening: The MMIS for care management agencies was adapted from the home health model to work effectively in hybrid medical/social or simply social model programs. Early in the adaptation of the MMIS for care management programs, a pharmacist conducted the risk screening for potential problems following the algorithm and protocols designed by the Vanderbilt team. Partners' most recent development is integration of the screening into a care management software package (MSSPCare) for the California Medicaid waiver program known as Multipurpose Senior Services Program (MSSP).

MMIS: A Strong Base of Evidence

MMIS is an attractive intervention because it has proven effective and can be implemented using the existing personnel and usual practices of agencies serving vulnerable elders in the home. It qualifies as an AoA Evidence-Based Disease

Prevention program because it was tested rigorously in home health agencies serving community-dwelling older adults. The results were compelling:

- In the first phase of the study, more than 6,700 home health patients were screened using the Home Health criteria developed for this project plus the well-known Beers criteria (Fick, 2003). Those screened were patients aged 65+, typically recovering from an acute episode of illness. The research team found that the medication error rate in a sample of elderly home health patients ranged from 17 percent to 30 percent, depending on the assessment criteria used. The researchers concluded that more effective methods were needed to improve medication use in this vulnerable population. (Meredith, Feldman & Frey, 2001).
- In the randomized controlled trial phase, overall medication use improved in 50 percent of intervention patients, who benefited from consultation by a pharmacist, compared to 38 percent of a control group that received usual care by home health nurses. (Meredith, et. al, 2002).
- These results were strongest for two of the four targeted medication problems. Improvement was greatest for therapeutic duplication (71 percent vs. 24 percent of controls) and cardiovascular problems (55 percent vs. 18 percent).

The researchers concluded this collaborative nurse and pharmacist intervention significantly improved medication use in a vulnerable elderly population. The additional technical assistance phase, conducted by Partners in Care Foundation, found that the model was effective in improving medication management and identifying potential fall risk as part of an overall quality improvement program.

Evidence of effectiveness in care management programs: Our AoA-funded study of three Medicaid waiver sites found that out of a total of 615 clients screened, 49 percent (N=299) had at least one potential medication problem. Record review and consultation with the client led the pharmacist to recommend either:

(a) Continuing the medications because they were necessary for pain or symptom control;

(b) Collecting additional information regarding vital signs and other clinical indicators;

(c) Verifying the dose and frequency with which the client was taking the medication and revising the medication list accordingly; or

(d) Changing medications or dosage.

Twenty-nine percent of the 615 clients had a medication problem serious enough for the pharmacist to recommend a change in medications, including re-evaluation by the physician. For this intervention group (N=118), 61 percent of recommended changes were implemented.

The benefits of evidence-based programs
We highly recommend that agencies use an evidence-based health promotion approach to programming for medication management and a variety of other health-related issues from fall prevention to nutrition. This strategy employs a thoughtful process of planning, implementing, and evaluating programs adapted from tested models or interventions. Evidence-based programs enhance an agency's ability to use common health indicators and match tested health programs to recognized community needs. Evidence-based programs make it easier to defend or expand health promotion programs, increase the effective use of resources, provide hard data to advocate for new programs, and generate new knowledge about "what works" and "how to do it" that can help others.

For additional information on the concept of evidence-based health promotion and other programs that may be appropriate for your community, please go to:
http://www.healthyagingprograms.org/resources/IssueBrief_1-R_UsingEB.pdf

The Many Benefits of MMIS:
Implementing the MMIS brings an evidence-based medication management and medication error prevention program to community-based programs for vulnerable elders. Its benefits include:

Benefits for clients. Clients experience improved well-being and decreased risk for injury. Positive outcomes, based on client reports and clinical indicators, have included discontinuation of potentially harmful duplicative medicines, less confusion, better pain control, reduced risk of falls and dizziness, and improved blood pressure control. Sixty-one percent of clients whose screening revealed a problem or error that warranted consideration of a change in drug or dosage achieved improved medication use.

Benefits for agencies. The implementation process creates new collaborations and builds upon current partnerships within the care management community. Improving medication management can also enhance the agency's image among a variety of stakeholders. Avoiding medication errors and improving medication management is becoming an important quality improvement goal for programs serving frail elders. Changing care management practice by strengthening staff skills in medication management and implementing a proven program can lead to maximized resources, better practice, and quality regulatory surveys.

Benefits for staff. Medicaid waiver staff typically collect most of the medication data needed to identify potential errors but have not been trained to analyze the information to identify potential risks. The MMIS enables them to turn their data collection effort into an effective tool for improving their clients' safety and health. Staff members who participated in the program report a sense of confidence about the MMIS and find it a rewarding experience. They are especially enthusiastic about seeing their clients improve when a medication problem is identified and resolved, particularly if the problem involves confusion, a fall or pain management. Pharmacist consultations and training materials are geared toward building staff capacity and confidence in

medication management. On a more personal level, care managers often report using what they learn about medications to benefit their own parents or grandparents.

II. Planning and Partners

Planning: The MMIS model has been tested in two types of homecare management: Medicare certified home health agencies and Medicaid waiver programs for older adults. We believe it can (and should) be implemented in other types of care management and community-based programs for vulnerable adults (e.g., residential care/assisted living and adult day health programs), but we have not yet tested the program in these milieus.

This program differs from most of the other AoA Evidence-Based programs in that it does not involve recruiting clients/participants, but rather aims at organizational-level and staff practices only. Its successful implementation does not *require* that it be a community-wide collaboration. Community partnerships and connections will greatly enhance the program, but are not absolutely essential. An individual agency can implement it if it has the capacity— financial and programmatic—to do so; however, a deep sense of collaboration within the organization is necessary.

We believe that our findings concerning the high prevalence of medication-related problems and errors among community-dwelling older adults reflect a national problem. Unless a program for screening clients' medications and following through on potential problems is already in place, the clients of any care management system would likely benefit from applying the medication management improvement system.

Please see Section III for a full list of the criteria we believe are associated with an organization's readiness to implement the system.

Policy-level planning: Medication management can be approached from a policy perspective to make it a standard of practice within care management programs serving frail elders. The planning and partnership aspects of this approach, therefore, can extend far beyond the individual agency, requiring involvement from pharmacy and medical experts, professional associations, legislators, executive branch leaders, regulatory agencies, the media, and community stakeholders.

Collaboration for planning, design, implementation, and evaluation

The concept of working through partnerships is embedded in the mission statement of Partners in Care Foundation, which 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. The work of the MMIS program was in keeping with this mission, as we reached out to involve a diverse group of partners in shaping the program. Because our work aims to change the standard of practice regionally, statewide, and nationally, our view of partnerships went beyond what is necessary for a single agency to implement the medication management improvement system into their care management practice. Listed below are the many partners we had along the way.

Community Partners: Initially we brought together representatives of Los Angeles' two Area Agencies on Aging (AAAs), as well as members of the Partners Disease Prevention/Health Promotion (DPHP) Collaborative. This collaborative provides oversight for Partners' contract with the City of Los Angeles Department of Aging (DOA) to administer DPHP programs to 16 multipurpose senior centers throughout the city. These representatives helped us explore the feasibility of implementing the model into senior center sites and/or other AAA programs.

Implementation Sites: Ultimately, we decided to target three Medicaid waiver MSSP (Multipurpose Senior Services Program) sites in Southern California. Early on in the planning phase of the intervention, Partners' CEO and other key leaders began to build strong partnerships with the California Department of Aging, which administers the elderly waiver programs, and also forged partnerships with MSSP site directors. Participation by Partners in an MSSP site directors committee enabled us to introduce the MMIS and its preliminary findings to care management programs statewide. Once sites were chosen, MMIS project staff worked in close partnership with the administrative staff of participating sites to ensure successful implementation of the medication management model.

Software Partners: Near the end of the AoA project, Partners tested the efficacy of using a computerized risk assessment screening and alert system, drawn from the home health intervention, to help care managers identify potential medication-related problems among their elderly clients. Our partner in the continuing effort to adapt and refine a computerized risk assessment screening tool for waiver programs is software developer RTZ Associates. Working with Partners, RTZ helped create and test a computerized medication alert system embedded in MSSPCare, a care management data reporting and clinical documentation software system. (See Section VIII - 2 for RTZ/NIH project press release.) In the near future, the medication management module will also be available as a standalone package.

Pharmacy Partners: Local schools of pharmacy and gerontology provided consultation and advanced practice interns to assist in implementing the program. Student Intern pharmacists assisted in the implementation phases by helping update the clinical protocols and refining the drug database. Under the supervision of licensed pharmacists, they also provided direct consultation services to sites in screening client medication lists for potential problems and making recommendations for improvement.

Evaluation Partners: To ensure impartial evaluation of the adaptation of the medication management model for care management programs, we worked with the University of Southern California's (USC) prestigious Andrus Gerontology Center. AoA grant funds made it possible to ensure systematic recording of each step in the process and to track outcomes so that we could verify the intervention's effective translation from the home health environment to Medicaid waiver care management programs. A USC PhD candidate found that the MMIS Intervention exemplifies the translation of an evidence-based practice beyond its original efficacy trial in home

healthcare sites to a different long-term care practice environment in the MSSP care management program. Although core features of the original study are in effect to maintain fidelity to the evidence-based practice, minor modifications have been made to adapt the Medication Management Model to pre-existing, contextual elements of the care management program and might affect the success of the intervention (Alkema & Frey, 2006).

Geriatric Advisory Panel: To assist in the translation of the home health intervention for application to Medicaid waiver care management programs, we convened an expert panel from universities, healthcare agencies, hospitals, and care management programs throughout the Los Angeles area. This panel reviewed all of the protocols, guidelines, and procedures to ensure their applicability to care management teams. The panel also brought to bear the latest developments in pharmacy and medical practice so that all protocols were up to date.

The partnerships involved in the integration of MMIS into care management practice are inter-agency and inter-disciplinary. The variety of collaborative relationships relates to the need for expertise in numerous areas to address the risk factors for medication errors and improving medication management. Our partners reflect our goals of developing a county-wide (and eventually statewide) dissemination process. This process would be aimed at reaching older adults from Los Angeles' diverse socioeconomic groups, and our need to guide the evaluation of and translation of the original medication management model, from a medically oriented home health setting to continuum of care management programs offering in-home health and social services.

More Resources on Partnerships

To assist with locating a pharmacist in your area, we suggest seeking out the Web sites of:

American Society of Consultant Pharmacists
http://www.ascp.com/

American College of Clinical Pharmacy
http://www.accp.com/

A variety of resources are available to help you organize and sustain effective partnerships that will promote this work. We refer you to the Center for Healthy Aging Web site www.healthyagingprograms.org for a listing of resources including:

Partnering to Promote Healthy Aging: Creative Best Practice Community Partnerships which may be found at:
http://www.healthyagingprograms.org/resources/HA_CommunityPartnerships.pdf

MD Link: Partnering Physicians with Community Organizations
http://www.healthyagingprograms.org/resources/MDLink_PartnerPhysicians.pdf

III. Adoption—Recruiting Sites

Finding Sites with a Diffusion of Innovation Process

After successfully piloting the Medication Management Improvement System, including the computerized risk assessment, Partners in Care Foundation is moving to find more sites capable of implementing and sustaining the program. Industry opinion leaders who adopt an innovation can trigger a domino effect such that others in the field follow their lead. Thus, we are recruiting at least four more California waiver sites to integrate the MMIS into their program operations, to be followed by at least four additional sites in other states.

California Site Selection: When the MMIS intervention was first developed, it was primarily a collaboration between nurse and pharmacist. California waiver sites have increasing difficulty recruiting and retaining nurses, so we are evolving the intervention to also be an effective collaboration between social worker and pharmacist. Computerized risk screening is an important part of enhancing the affordability and sustainability of the intervention. RTZ Associates has integrated the medication management tools into their Medicaid waiver care management software package, called MSSPCare. Our California efforts are therefore focused on sites that have already fully implemented the MSSPCare software.

National Diffusion: For the second phase, we have been contacting regional and state-level leaders to identify target states with strong waiver programs and leadership. Organizations positioned to adopt the MMIS intervention also have contacted us to express interest. Because the MSSPCare software is not widely used outside of California, we are pursuing other options for the computerized risk screening, including a standalone version and providing detailed algorithms that can be programmed into existing software. National demonstration sites will be selected using the “Diffusion of Innovations” process championed by the National Council on Aging (NCOA).

The Diffusion of Innovations Model: The diffusion of innovations model is based on the Everett Rogers, PhD, theoretical model, which measures the readiness of organizations to implement a new program direction (Rogers, 2003). Readiness consists of two components: capacity and willingness. Capacity measures the availability of resources and experience with similar types of programs and skill sets. Willingness looks at the decision and preparatory steps necessary to undertake an innovation. We have learned from our pilot program how important it is to assess these components at all levels—from administration to line staff—before attempting to adopt such an intervention.

The National Council on Aging (NCOA) has created tools to assist those interested in adopting innovations as well as organizations seeking partners for their diffusion efforts. Partners in Care Foundation has collaborated with NCOA to design a custom diffusion of innovations tool specific to the medication management program. The tool can be accessed through our Web site (www.HomeMeds.org). Management-level staff of any waiver program is encouraged to complete the web-based NCOA readiness

assessment that clarifies participation responsibilities and outlines what the site can expect from us in return.

Indicators of readiness: Based on over ten years of experience implementing medication management in home health and care management agencies, we have identified a number of common predictors of and barriers to success. In collaboration with the NCOA diffusion of innovations team, the Partners in Care medication management team translated that experience into the following indicators of organizational willingness and capacity to successfully adopt the medication management improvement system. Characteristics we believe indicate a high likelihood of success include:

Program Resources:

- Stable client enrollment near target capacity;
- Adequate staffing levels and finances;
- Flexible systems capable of incorporating medication management;
- An organization not simultaneously engaging in other major changes; and
- MMIS not viewed as more complex than other new programs that the organization has successfully adopted

Organizational Culture:

- Key members of the staff believe that potential medication errors put clients at risk and that clients would benefit from having their medications screened;
- Commitment and enthusiasm from one or more levels of staff (executive, managers, supervisors, and care managers) to champion the MMIS effort;
- Members at all levels (board, executive staff, managers, supervisors and care managers) are involved in deciding to adopt the MMIS; and
- Track record of successfully implementing new procedures, new technologies, research or pilot studies, or new models and systems of care.

Staffing/Expertise:

- An organization willing to enter into a formal contract with a medication consultant such as a pharmacist;
- Low levels of staff turnover;
- Sufficient supervisory staff;
- At least one RN and one MSW on staff;
- A staff accustomed to making frequent home visits and reviewing medications with their clients;
- Care managers willing to consider expanding their scope of work and learning new systems and procedures that will benefit their clients;
- Care managers concerned about their clients' welfare and the appropriateness of their medications; and

- Care managers who do not report being overburdened by their work responsibilities and are willing to follow up with clients and physicians on medication problems.

Client Records System:

- Care managers accustomed to using computerized data systems and currently entering their client medication information into an electronic database;
- Care managers who either currently record vital signs in their health assessments or have access to vital sign data collected by other health professionals; and
- An organization willing to integrate or contract for the MMIS software system and document the process of medication management and interventions.

NCOA Online Expert System: The NCOA custom expert system incorporates all of these elements into an online questionnaire that should take about 15-20 minutes if completed by management-level personnel with ready access to certain information such as client census and staffing patterns. The time spent completing the online questionnaire will give potential innovators increased understanding of:

- The Medication Management Improvement System components and requirements;
- Their own organization's readiness and capacity;
- Their own organization's current resource gaps and how to close those gaps; and
- Assistance to help determine whether to adopt an innovation.

The system will produce a gap analysis report indicating new resources needed by the organization to implement the intervention and recommending next steps the organization should take to increase its readiness to adopt the intervention. Partners in Care will contact interested organizations to discuss their results and plan next steps. Visit our Web site www.HomeMeds.org for more information.

Changes in Part D may improve capacity: A national trend that may improve organizations' ability to implement the MMIS stems from the provisions in Medicare Part D for *medication therapy management.* These provisions direct Part D plans to provide counseling to provide counseling and medication management to enrollees who have multiple conditions, take at least five medications, and spend $4,000 or more per year on drugs. Many waiver clients would qualify for this type of oversight, but few are currently receiving it because the kinks have not yet been worked out of the system. One of the principal limiting factors has been reimbursement for local pharmacist services. Coordination with Medicaid is also an issue. It is certainly worth staying in contact with local pharmacists to keep updated on the status of this program.

Ensuring Buy-In
In our experience, the use of the diffusion of innovations process ensures that most participating sites are motivated and able to take on the MMIS. In general, however, these are the most crucial preconditions for successful buy-in:

1. ***There must be a "felt need."*** The issue addressed by the intervention must be something that staff and/or clients know to be a problem and wish to resolve. In the case of medication management, policy makers, the public (including clients and their families), agency leaders, and/or care managers must be sufficiently concerned about the potential for medical errors among clients that they are willing to allocate the time, effort, and resources necessary to implement a new system. A sense of the importance and urgency of the problem should be widespread among stakeholders. Basically, it has to feel important enough to deserve one's effort.
2. ***There must be a champion****.* At least one strong and positively influential person in the organization must be enthusiastic enough to pull others along, learn systems, mentor, serve as an example, and cheerlead when there are successes.
3. ***There must be underlying stability***. The organization should not be in turmoil; resources should be viewed as adequate; staff turnover should be minimal (at least comparatively speaking); and there must have been some recovery time since the last big change.

If people understand deeply how important the effort is, if there is contagious enthusiasm, and if it feels safe—like a no-lose proposition—the only thing left is to try to *make it fun!* In our experience, incentives, contests, and celebrations go a long way toward facilitating success.

Adoption Site Training
MMIS sites learn the following in their training:

- The MMIS curriculum, information about medication errors, and the research evidence upon which the intervention is based;
- Use of the enhanced software features;
- Specific site adaptations (developed before training in collaboration with managers) such as roles of nurses, how to deal with physicians, and use of the consulting pharmacist; and
- Tools to measure outcomes with minimal additional data collection.

As part of training, we provide all the materials sites need to implement MMIS, including:

- Automated medication screening with problem alerts
- Quick written staff guidelines for each type of medication problem, differentiating type and degree of follow through by discipline (nurses vs. other care managers)
- Full protocols detailing every step in the process:

- Screening for problems;
- Verifying patient adherence and accuracy of the medication list as entered into the software;
- Confirming medications either as appropriate to the patient's condition or as needing to be changed; and
- Follow-through with patients and/or the physician on recommendations made by the pharmacist or other medication consultant

We also follow up with consultation on customizing the procedures to complement existing work habits and staffing patterns and provide training for community pharmacists or student interns recruited to provide consultation. Our grant-funded intervention sites also receive ongoing training and support through regular phone calls and e-mails, as well as site visits.

Because there is fairly frequent turnover among staff of care management agencies, we are also designing online training modules to ensure that the MMIS will continue to be properly implemented. Check our Web site, www.HomeMeds.org, for our upcoming online training, qualified for social worker and nurse Continuing Education Units, which is due to be available in mid-to-late 2007.

IV. Reach—Outreach

MMIS: Is it Right for You? The Medication Management Improvement System is designed to benefit community-dwelling older adults at risk for potential medication-related problems from too many drugs (including over-the-counter medications), multiple conditions that increase potential for drug interactions and confusion, and poor care coordination at admission to or discharge from institutional settings (particularly hospitals and nursing homes). We have tested the MMIS in home health agencies and in Medicaid waiver programs serving elders who are considered nursing home eligible. It will soon be tried in purely social-model care management agencies (i.e., those without staff nurses).

This is an agency-based intervention that uses information already collected from clients to identify potential medication problems. Therefore, recruiting individual participants is not an issue. Clients are asked to sign a standard HIPAA release for pharmacist consultation. Very few refuse to do this.

Replication of the MMIS is not feasible in every program for older adults. For example, we found that it was not possible to implement the model as hoped in a City of Los Angeles care management program because it lacked a computerized clinical assessment and medication database and required only annual in-home client visits. In our experience, the MMIS can be successfully implemented in care management programs that:

- Are interested in improving medication management processes and staff practice standards;
- Have some computerized capacity;
- Have stable multidisciplinary care manager staffing;
- Require client contact frequency, which permits timely follow-up when medication problems are identified;
- Are willing and able to arrange for consultation by a pharmacist or other medication expert such as a physician or geriatric nurse practitioner;
- Can institute a procedure for following through on the pharmacist's recommendations, including communicating with physicians; and
- Ensure that medications are reviewed after any transitions in care (particularly after hospitalization).

Because the model was developed in a medical home health setting and refined in a hybrid medical-social milieu, we know it is effective when there is a nurse care manager available as well as a medication consultant, preferably a pharmacist. As we extend the MMIS to purely social-model care management programs, we will be able to report on its effectiveness where there is no nurse on staff. Agencies without computerization can use program materials to "hand-screen" potential problems. This is most appropriately done by a nurse practitioner, physician, or pharmacist.

To reach our target care-manager audiences in California and elsewhere, one particularly successful outreach approach has included providing an overview of the MMIS at meetings for agencies with care management programs. This presentation, usually offered for CEUs, provides an opportunity to share information about medication management and error prevention and describe the system and its results. The focus is on the good news that many falls and other ill effects of medication errors are preventable and that there are viable strategies to reduce risk factors.

V. Implementation

The MMIS is a systematic, comprehensive, and replicable approach to medication management for older adults living at home. Working in consultation with pharmacists and physicians, care managers and/or nurses use tools to identify, resolve and prevent medication-related problems and errors. The intervention uses standardized guidelines (see Section VIII) established by a national expert panel for identifying four highly prevalent and high-risk medication problems deemed to be resolvable within a homecare environment:

1) Unnecessary therapeutic duplication;
2) Use of psychotropic drugs in patients with a reported recent fall or confusion;
3) Use of non-steroidal anti-inflammatory drugs (NSAIDs) in those aged 80 or over or who have other risk factors for peptic ulcer; and
4) Cardiovascular medication problems.

The intervention follows a six-step procedure (see the diagram below for a schematic):

1. Care managers conduct a thorough in-home medication review with each client, entering the list of medications and clinical indicators (falls, dizziness, and confusion) into a medications database. A sample medication list can be found in the Section VIII.

2. The computerized software (or pharmacist) analyzes the data using the intervention's algorithm for risk assessment. The analysis also combines the medication list with key clinical variables such as pulse and blood pressure, as well as client reports of falls, dizziness, or uncharacteristic confusion.

3. If the analysis shows a potential medication problem, the care manager verifies the alerts by reviewing with the client his/her medication dosage and frequency. The medication list is updated if necessary. Registered nurses, if available, can often work with the client at this point to resolve many of their medication issues through education and counseling.

4. Once the information is complete and accurate, the list is passed to an expert, preferably a consultant pharmacist, to review the medication regimen and make recommendations to resolve identified problems, based on intervention protocols (see Section VIII) and clinical judgment. The recommendations are captured by the

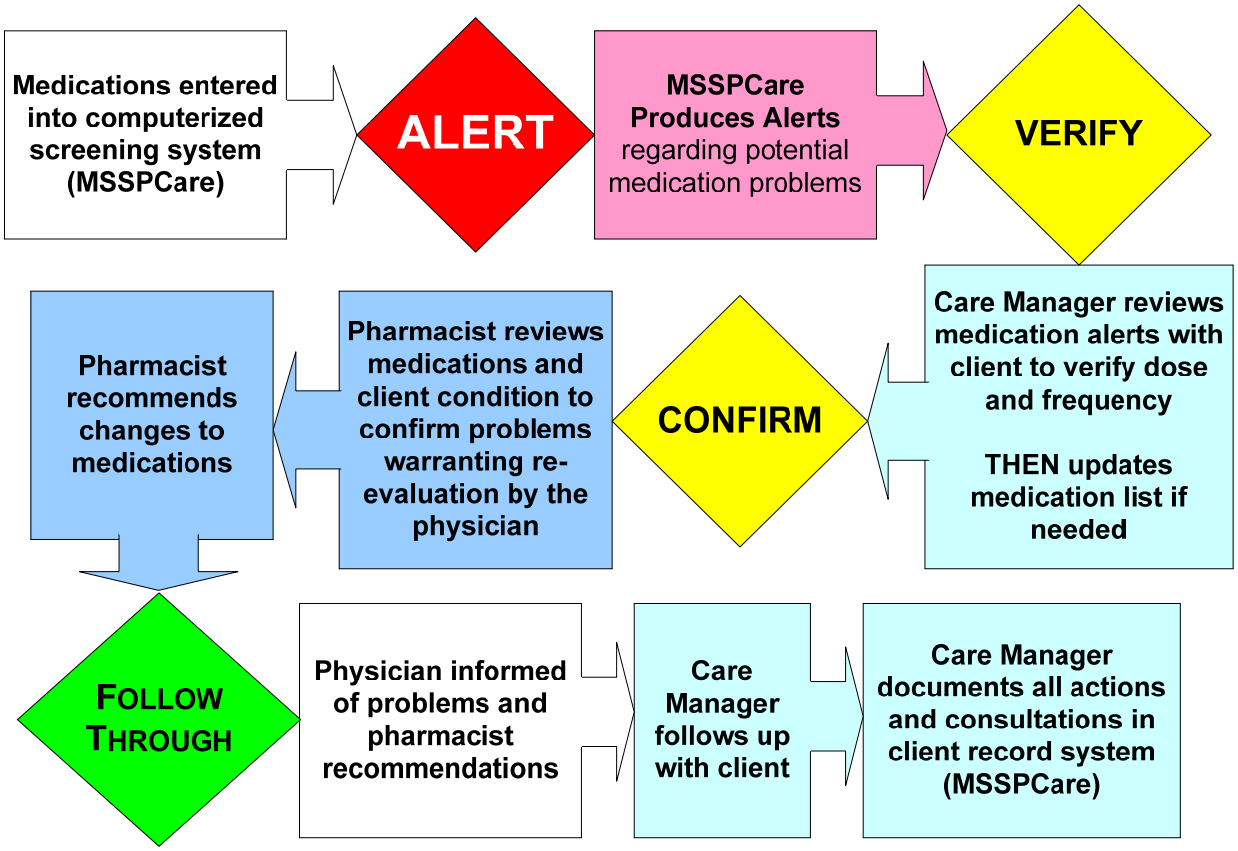
5. pharmacist in a written consultation that can be added to the client's chart. The pharmacist also consults with care management staff to develop an appropriate care plan. Refer to the Section VIII for a sample medication report targeted to the pharmacist.

6. When follow-up with the client's MD is indicated, the pharmacist or care manager contacts the physician to present and discuss the problem and obtain follow-up instructions. We found that faxing a letter with the pharmacist's recommendations was the most effective and preferred method of contacting the prescribing physician. The physician can also be contacted by mail or telephone. The sample script and template letter for contacting a physician are provided in Section VIII to guide care managers.

7. At the next client follow-up phone call or visit, the care manager assists the client with medication changes and follow-up orders. In Section VIII there is a sample follow-up questionnaire that was used to prompt the care managers to ask the appropriate questions regarding the alerted medications. Care managers are encouraged to maintain a thorough record of their actions regarding medication errors. The procedure repeats if a client reports a change in medication.

Computerized Screening: Most recently we have been testing the efficacy of using a computerized risk assessment and alert system to help care managers identify potential medication-related problems among their elderly clients. This tool boasts major benefits because most care managers are not medication experts and cannot independently assess clients' risk. It also shifts the focus of pharmacy consultants from dealing with identified problems to screening for potential problems. The computer can report potential problems to care managers almost immediately—even while they are still in the client's home, if laptops with wireless connections are available. Care management organizations that already use a computerized assessment tool can work with their software developers to integrate the medication assessment tools into their software. We are also working with our IT partner, RTZ Associates, to create a standalone version that will be available online. An algorithm can be found in Section VIII to aid in the development of the computerized medication assessment component.

PARTNERS IN CARE FOUNDATION
MEDICATION MANAGEMENT IMPROVEMENT SYSTEM



Maintaining Fidelity to MMIS:
Evidence-based programs are grounded in research. There are specific core components or constellations of components that compose the essence of the program. To achieve the health outcomes ascribed to the program, these core components must be included in your implementation. This is termed maintaining "fidelity" to the model. In order to implement MMIS in your community-based program and better match the program to your target population, you may wish to alter some of the program's characteristics. However, before making changes, be sure you understand what adjustments can be made without affecting the core components of MMIS, and hence the outcomes you can expect for participants.

In implementing and adapting MMIS, we believe you should try to follow our toolkit and training curriculum as closely as possible, as they have been refined with lessons learned during the demonstration phase. Early activities focus on setting up procedures, processes, and learning protocols. As you implement MMIS, therefore, it is possible to select activities from each session that are of particular interest, but skipping essential implementation steps, including trainings and follow-up sessions, will undermine the program's ultimate impact. These components are also essential in order to provide

sufficient evidence to other agencies, counties, and states for further dissemination and adoption.

The core components of the MMIS intervention, which should not be altered or eliminated during implementation, include:

1) Collecting complete information about the client's medications, including the dose and frequency with which each is actually being taken;
2) Collecting information about recent falls, uncharacteristic confusion, and dizziness (For full implementation, pulse and two blood pressure readings, standing and sitting/lying down, are also necessary);
3) Screening the medication list according to the algorithm for potential problems, preferably using a computerized software system.
4) After a potential problem is identified, review of the client's medications and medical record by a medication consultant, preferably a pharmacist;
5) Written recommendations by the pharmacist/medication consultant;
6) Follow through with the physician and/or client
7) Documentation of all actions and results.

Program Flexibility

Although the foregoing core elements must be adhered to, there are also numerous decision points whereby each agency can customize the intervention to work best with its own staff (particularly regarding the availability and role of nurses in the organization), budget, organizational culture, and relationships with professionals such as physicians and pharmacists. Examples of these areas of flexibility include:

a. Who decides whether/when to consult with pharmacist;
b. How to decide whether/when to inform a physician (e.g., by detailed protocol or nursing judgment);
c. Who contacts the MD and how to inform the MD;
d. Policy on taking medication "orders" from physicians;
e. When the medication list should be systematically updated;
f. How the medication list should be recorded (e.g., by computer while still in the client's home or on paper and then entered into database by clerical staff).

Our Experience: Successes and Challenges

As with most replication programs where the impetus for change comes, at least in part, from the outside, we had to surmount a number of challenges to achieve success. Following are lessons we learned over the past year that might be valuable to other Medicaid Waiver programs interested in replicating the model in their clinical practices.

Start small. This gives providers a chance to understand and feel comfortable with a new program, smoothing the way for a wider rollout later. Staff at one pilot site began

using the new computerized medications program, and we used their feedback to fine tune the procedures. Starting small can also mean piloting the intervention with “early adopters” in the program staff and having them demonstrate the value of the intervention to their peers. This should lead other staff to adopt the intervention and elicit change in practice.

Address challenges in changing care-management practice. Changing the practice standards in care management is an additional challenge in this work. Shifting staff responsibilities, changing behaviors, and introducing a new standard of care almost always involves a learning curve and some resistance. The MSSP staff routinely collects medications data; however, prior to the launch of the medications model program, no system existed for making good clinical use of the data. Care managers rarely called on consultant pharmacists to conduct medication reviews for their clients. The introduction of the MMIS program to the care management programs was challenging, of course, but the following strategies helped staff to adapt and gradually change practice:

- Ongoing training to reinforce learning;
- Staff members mentoring each other—particularly nurses helping social workers and those without a medical background;
- Creating an environment that welcomes and values constructive feedback and suggestions for change;
- Committed leadership continually emphasizing the importance of follow-through;
- Clear policies and protocols providing detailed guidance; and
- Trying various techniques to motivate care managers to focus on the medication regimens of their clients. These included reward systems, challenges, contests, etc. We also found that assisting care managers with data entry helped them feel they could add medication management to their other functions with greater ease.

One aspect of the home health intervention that did not translate easily into the practice of non-nurse care managers was the cardiac protocol, which requires monitoring blood pressure and pulse. The state waiver authority in California does not pay for blood pressure cuffs for clients to self-monitor and record their vital signs. Social workers tend to feel that this is outside of their scope of practice and felt inadequate to the task of advising clients about what to do if vital signs were outside of normal limits. As a result, the cardiac protocol was hard to implement consistently.

Learn to recognize medication-related problems*.* The MMIS model provides resources to help care managers enhance their medication knowledge. As mentioned previously, Section VIII contains excellent training and orientation materials for program staff, including clinical guidelines for identifying and managing common medication problems in the elderly, protocols for resolving potential medication problems, and sample scripts for discussing these problems with physicians. The model also introduces a new member to the care management team: a consultant pharmacist, who

can answer care managers' questions, provide information about medications, and clarify procedures for resolving potential problems**.**

Use community pharmacy resources creatively. Many communities have universities where pharmacy is a course of study. Using pharmacy students under the supervision of their professors can be an excellent way of adding pharmacy consultation to care management programs with little or no cost. Proper supervision, training, communication strategies, and enabling access to the full medical record (which includes having a HIPAA-compliant contract) are, of course, crucial to success. Other strategies for adding fairly low-cost pharmacy consulting would include using local community pharmacists—particularly those serving a fairly large number of care management clients. The developing Part D medication therapy management benefit should be a good resource when it is fully implemented. It would make sense to start collecting information about each client's Part D provider upon assessment or re-assessment.

Experiment to find effective ways to communicate with physicians. Because communicating directly with physicians was not a familiar task for non-nurse care managers, we tried a variety of approaches. What works is somewhat dependent upon the individual physician and his/her awareness of the challenges brought about by the fragmentation of the healthcare and long-term care systems. The issues include:

1. Who is the best person to inform physicians of our findings and/or recommendations? The more medical/clinical training the person has, the more generally comfortable they tend to be in communicating with physicians.
2. What is the best method for communicating with physicians? To some extent, this depends upon the complexity of the case and the recommendations being made. Additionally, the individual initiating contact may have a preference. In general, we found faxing was the most effective approach.

Budget: Budgetary considerations include the need for a pharmacy consultant (or other high-level clinical consultant who can review and advise on medication use among frail elders) and the need for a computerized screening tool.

- *Pharmacist consultation:* Our experience is that, on average, a 15-minute pharmacy consultation will be needed for 30-50 percent of clients. The budgetary impact can be minimized by spreading implementation over one year, screening only newly enrolled clients and those undergoing an annual reassessment. The cost can also be minimized by using trained and supervised local pharmacy students or "friendly" community pharmacists who already provide services to a substantial number of the agency's clients. As it becomes more developed, the Medication Therapy Management services required under Part D may also serve as a resource for pharmacist review, at no cost to the agency.

- *Computerized risk assessment/screening and alerts:* There will also be some cost for the information systems that support the screening and alert system. Our

- algorithm can be programmed into your existing information system or you can use the online standalone version of our software, hosted for approximately $100 per month. If you decide to adapt the system into your own software, we can help guide your programmers through the process.

Useful Implementation Tools

A variety of tools are useful, in fact necessary, to implement the MMIS. Partners in Care offers a full set of tools, available at www.HomeMeds.org. These materials will be updated periodically over the next three years as we disseminate the system to new sites. Many of these are also included with this report; see Section VIII.

VI. Maintenance and Dissemination

Sustaining the MMIS Intervention was our goal from the onset and became even more our focus as the startling prevalence of potential medication problems became evident. The John A. Hartford Foundation (JAHF), funder of the original study that is the evidence base for the current work, awarded Partners in Care a substantial grant to implement a four-year demonstration and dissemination project commencing July 2006.

The overall goal of the JAHF grant is to establish medication management as a standard of practice for waiver programs providing services to high-risk, low-income elders who live at home. State and regional authorities can use the MMIS to help achieve this goal. To implement the program broadly requires a number of strategies, including the following:

- Recruiting care management sites, including leaders and champions in each;
- Building upon existing partnerships and/or creating new ones;
- Identifying new sources of funding to assist with recurring costs of implementation, such as the cost of an ongoing consultant pharmacist and the inclusion of the risk assessment screening in computerized data systems such as the MDS for Homecare;
- Providing ongoing training and support for implementing sites; and
- Identifying a coordinator to work with multiple sites.

Next steps in Partners in Care Foundation's dissemination of the MMIS: The next phase of the project is to roll the intervention out to several California sites that have already implemented the MSSPCare software. In our effort to make this the standard of care in California, we are also working at the state level with the California Department of Aging to enhance policies supporting the inclusion of medication management in all waiver programs. Later in the project we plan to diffuse the MMIS to early adopter waiver sites in at least two other states. Our outreach efforts to date have focused on hosting presentations and workshops at conferences organized by professional groups such as Gerontological Society of America, the National Association of Professional Geriatric Care Managers, American Society of Consultant Pharmacists and the American Society on Aging.

Web site: A key dissemination tool is our Web site, www.HomeMeds.org. Several years ago, with support from the Hartford Foundation, we launched the Web site to make the medication management intervention available to homecare agencies everywhere. Many agencies have visited the site for the implementation toolkit, to download project materials, and to ask for consultation in adapting the program. Currently, the Web site is being extended to include tools developed for the extension of the model into Medicaid waiver care-management programs.

Site-level maintenance of the MMIS: Once the system is implemented within an organization, it is important to sustain the program by:

- Providing ongoing support and education for staff through meetings, case conferences, e-mails, and phone calls;
- Training new staff members to follow-through properly when potential problems trigger an alert in the MSSPCare system;
- Identifying on-going funding for the pharmacist consultant;
- Conducting surveys and other continuous quality improvement procedures to identify best practices and problems (see Section VIII for a sample survey);
- Providing feedback to staff, funders, and community partners by sharing evaluation results and survey outcomes, including client vignettes and testimonials (see Section VIII for a sample client vignette); and
- Identifying and recognizing program champions.

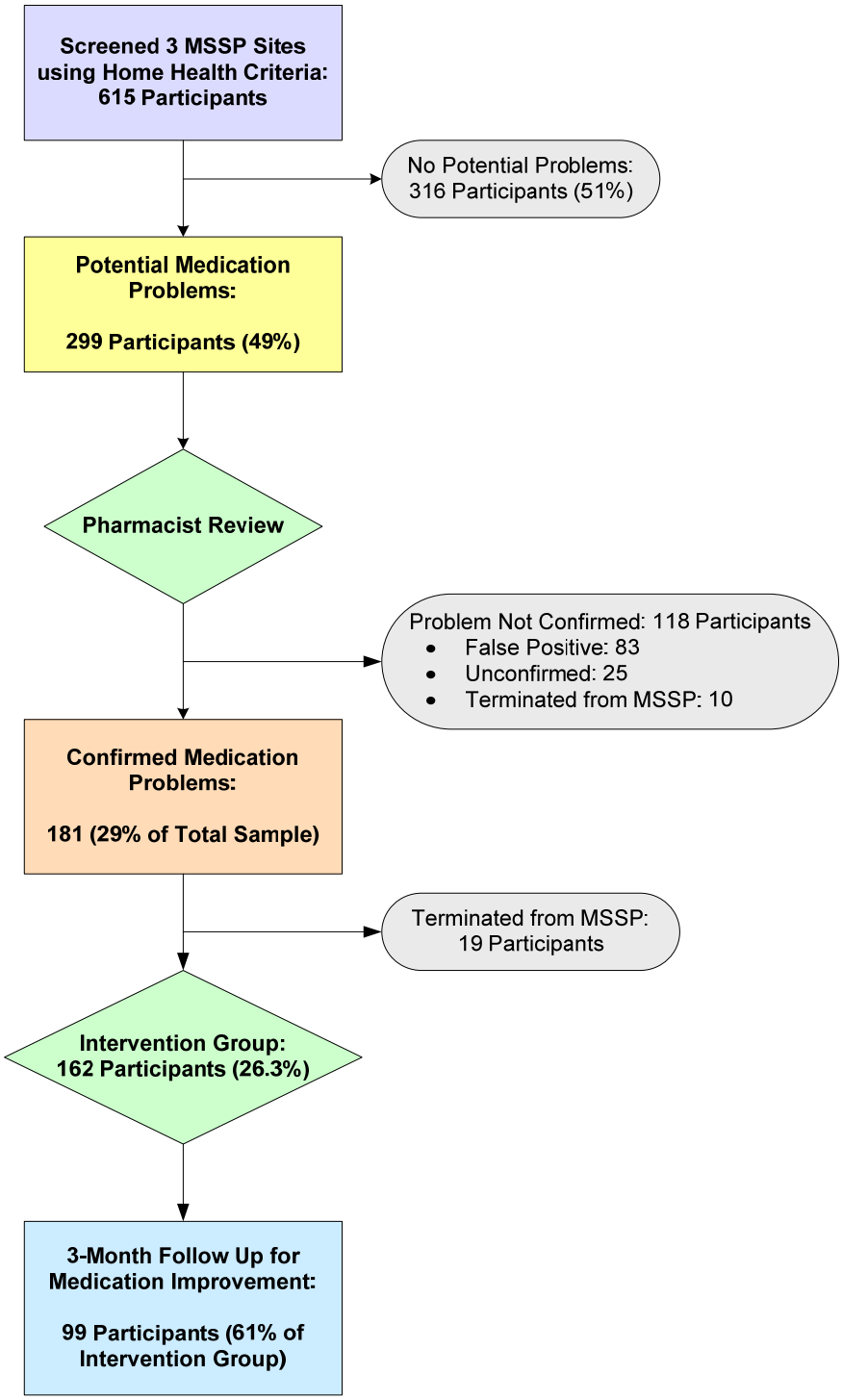
At Partners, we conduct periodic updates at MMIS staff meetings. During the demonstration study we will conduct routine conference calls with the sites adopting MMIS in California to provide updates and an opportunity to share ideas and problem-solve.

VII. Effectiveness, performance measures and other outcomes

After proving the effectiveness of the medication management model through a randomized, controlled trial conducted by Vanderbilt University in a home health environment, Partners in Care tested the MMIS intervention in three Los Angeles-area Medicaid waiver (MSSP) sites, with a sample of 615 elderly clients. Figure 1 (shown as Figure 4.1) shows the progression of the 615 clients in the sample through the process of screening, discovery of potential problems, confirmation of problems, and a positive response to the intervention, defined as a change in at least one of the identified problematic medications.

Figure 1

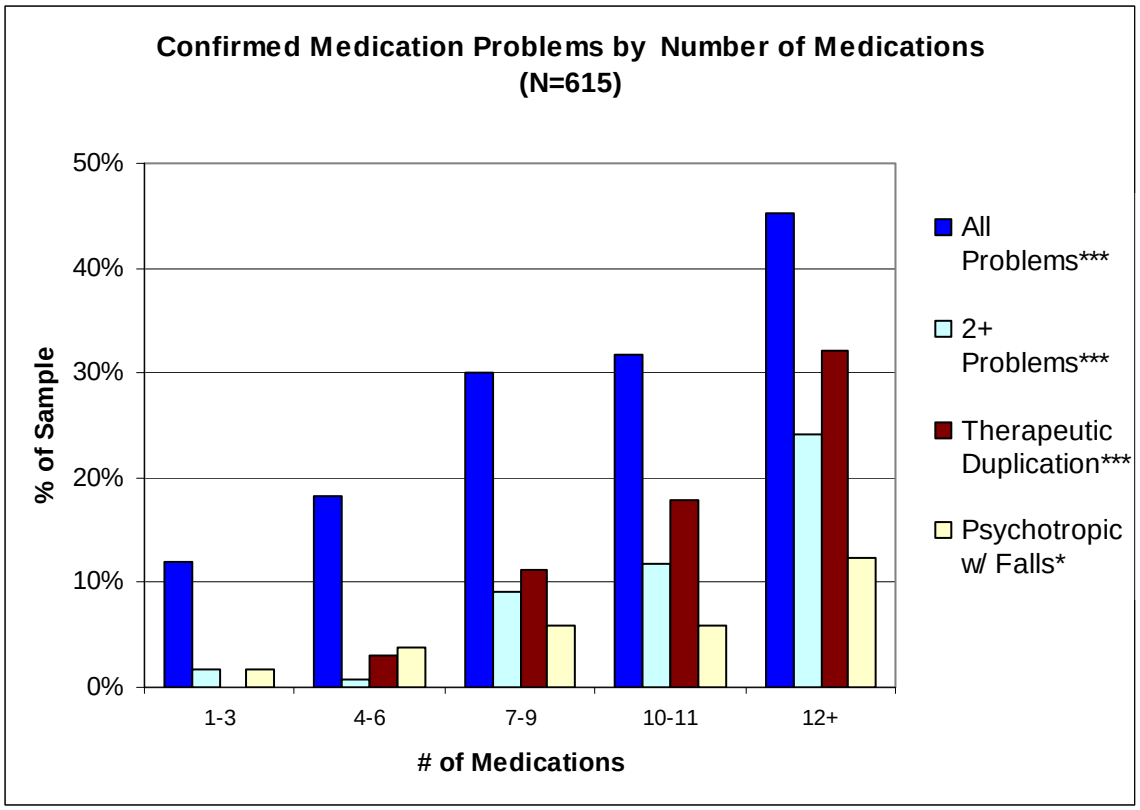
Figure 4.1: Flowchart of CBM Intervention Sample



Dramatic findings underscore the need for continued efforts to improve medication management for this population:

- *High number of medications:* The average number of medications taken by waiver clients was nine—even more than the seven to eight taken by the average nursing home resident (Doshi, et. al, 2005). As noted earlier, an increase in the number of medications consumed translates into a higher risk for adverse medication effects (Figure 2).

Figure 2



**p<.05, **p<.01, ***p<.001*

- *Many medication problems and errors:* The prevalence of medication errors is much higher than expected among Medicaid waiver clients. Almost 50 percent of the 615 clients screened presented with evidence of potentially harmful medication errors that warranted a consultation with the client and/or pharmacist. This error rate is *almost triple* the 17 percent prevalence rate reported in the Vanderbilt home health study (Meredith, et. al, 2002). Almost 30 percent of the 615 clients had problems requiring a change in medication regimen. 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.

- *High rate of therapeutic duplication:* Waiver clients appear to be at especially high risk for therapeutic duplication (Table 1). This may be related to the fact that their fragmented payment sources—Medicaid and Medicare—often lead to fragmented care. Pilot-test results showed that 12.8 percent (79 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.

- *Pharmacists and care managers can effectively improve medication use:* Our measure of effectiveness was simple—if the pharmacist recommended a change in medication or dosage, care managers checked to find out if the change had been made. Table 1 shows that in 61 percent of cases, the medication was changed. Although we did not track the reasons why certain recommended changes were *not* made, anecdotal evidence points to two main issues: (1) Clients were often unwilling to give up certain psychotropic medications such as anti-anxiety and sleeping aids; and (2) after considering the patient's entire medical history and condition, physicians decided not to implement the recommended change

Table 1

Confirmed Medication Problems and Change Rates at 3-Month Follow-Up				
	MSSP Sample Screened (N=615)		**Medication Change (N=162)**	
Medication Problem	***N***	***% Prevalence***	***N***	***% Change***
All confirmed problems	162	26.3 %	99	61.15 %
-Therapeutic Duplication	79	12.85 %	49	62.0 %
-Psychotropic w/Falls or Confusion	59	9.65 %	32	54.2 %
-Cardiovascular Problems	24	3.95 %	11	45.8 %
-NSAIDs	44	7.25 %	22	50.0 %

Key Outcome Measures

Care management agencies can use a variety of measures to evaluate the clinical and cost effectiveness of the medication management model. With the addition of computerized risk assessment to a comprehensive client data system, measurement of health-related outcomes will become easier. To the extent that care managers enter and maintain accurate and complete records, the system can track (at baseline and after implementing the MMIS):

1. The incidence of falls;
2. Changes in vital signs (e.g. pulse, blood pressure);
3. Improvement in mental status (e.g., decreased confusion);
4. Decreases in reports of dizziness;
5. Changes in medications (drug and dosage); and
6. Hospitalizations for conditions related to medication errors, falls, etc.

Outcomes are more difficult to ascribe to the intervention if the risk assessment is only performed during the initial client intake. This is in contrast to assessments performed during ongoing reassessment periods.

Waiver Staff Outcomes

MSSP care managers responded positively to the CBM Intervention, acknowledging that the intervention was useful and worthwhile (69 percent) and should be an ongoing service in MSSP (66 percent). Most of the care managers expressed satisfaction that the intervention originated from an evidence-based practice (65 percent). They generally reported becoming more knowledgeable about medications, potential problems that medications can cause, and warning signs of these problems through the program. The majority (86 percent) reported that medication issues and solutions should be discussed in case conferences.

Direct pharmacist consultation was considered of great value to care managers because it helped in (a) clarifying presenting problems at assessment, (b) creating treatments plans and intervention strategies, and (c) improving staff knowledge on medication issues. Care managers noted that the intervention team provided assistance when needed (79 percent) and questions were addressed in a timely manner (69 percent).

In staff surveys, the following were identified as key challenges to implementing the MMIS:

- Gathering accurate health and medication information from participants;
- Participant resistance to changing medications even when informed of potential dangers;
- Scope of practice issues between nurse and social work care managers due to the medical nature of the intervention;
- Discomfort raising medication-related issues with clients when the care manager felt he/she had insufficient depth of knowledge to answer questions or give advice;
- Frustration with physician communication and perceived lack of follow-through; and
- Technological difficulties in the pilot phase of the computerized screening process.

Brief Effectiveness, Performance measures

In adapting the MMIS model from home health to care management, we selected some additional tools and associated measures that adopting agencies may want to consider in their implementation. We recommend the use of:

- A specific falls question on the clinical assessment that is evidence-based rather than open-ended.
- CAM scale to assess confusion
- A pain scale to assess level of pain and measure pain management intervention outcomes.

VIII. Tools and Resources

Useful Implementation Tools

A variety of useful tools that are useful—in fact, necessary—to implement the MMIS have been discussed previously are either available in the appendices or on our Web site, www.HomeMeds.org. These materials will be updated periodically over the next three years.

The following are examples of tools that could be included:

1. Introduction/Background
    a. Article(s) on original intervention
    b. Background research reference list
2. Planning and Partnerships
    a. Logic Model
    b. NCOA Readiness Assessment Tool
    c. RTZ/NIH grant award letter
3. Adoption
    a. Pharmacist Outcome Record
    b. Client Tracking Sheet
4. Reach
    a. Sample MOU
5. Implementation
    a. Training Protocols
    b. Site specific sample procedure flowchart
    c. MMIS Process flowchart
    d. Medication information form
    e. Sample medication report for the pharmacist
    f. Template letter to the MD
    g. Calling the MD—sample script
    h. Care manager follow-up questionnaire
6. Maintenance
    a. Hartford dissemination proposal
    b. Client vignettes
    c. Care manager follow-up survey
7. Effectiveness/Efficacy

** Evaluation tools can be found in the Adoption section appendices.*