



MEDICATION MANAGEMENT IMPROVEMENT SYSTEM: HomeMedsSM

The HomeMedsSM system is a collaborative approach to identifying, assessing, and resolving medication problems in community-dwelling older adults.

Program Approved by AoA, NCOA

Website: www.HomeMeds.org

First Implemented in Care Management Settings: 2003; developed and tested in home health environment in the 1990s.

Currently implemented in six states: California, Florida, Illinois, Minnesota, Texas, Wisconsin.

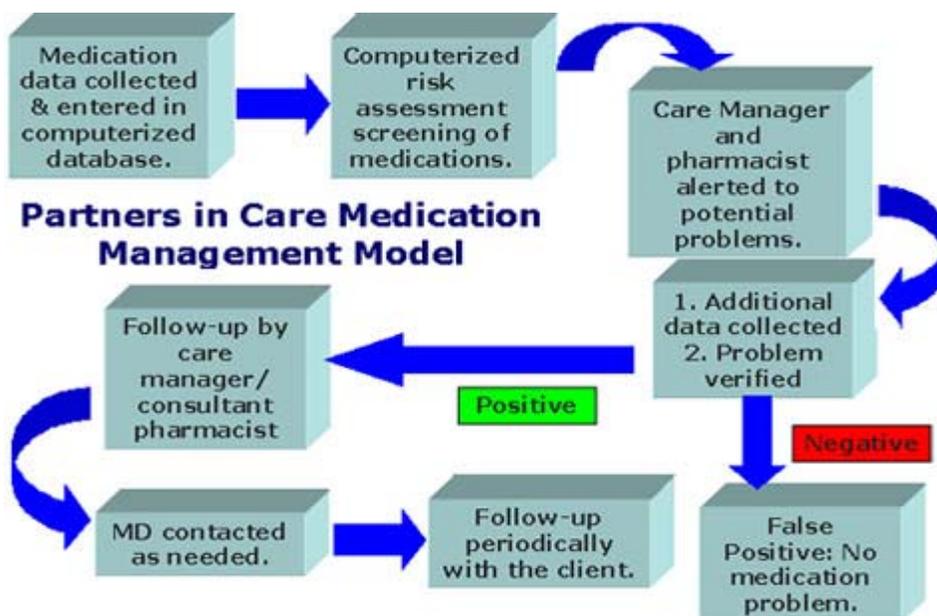
Program Synopsis

- General description of program
 - Developed by Vanderbilt University researchers and a national consensus panel of experts ¹, 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.
- Program goals
 - Enable community agencies to address medication-related problems and errors that endanger the lives and well-being of community-dwelling elders.
- Reasoning behind the program design and elements
 - Medication-related problems exact a heavy toll on American public health. Indeed, medication errors are a leading cause of death in America. Older adults, especially homecare and care management clients, are especially vulnerable to medication errors because of the number of medications they take and the biological changes associated with aging and disease.
 - ♦ If adverse reactions to medications were classified as a distinct disease, it would be the fifth leading cause of death in the U.S.² Among people over the age of 65, it may rank as the third or fourth leading cause of death. ²
 - ♦ The problems are costly, amounting to between \$85 billion and \$177 billion annually in direct medical costs. ^{3,4,5}
 - ♦ The problems are physically harmful, often fatal. According to one report, a meta-analysis of 39 prospective studies, in a single year approximately 2,216,000 hospitalized patients experienced a serious adverse drug reaction and 106,000 died as a consequence of their medication. ²
 - ♦ The problems for the most part are preventable. "There is a substantial body of literature," write Perry and Webster, "that indicates that most medication-related problems are predictable and, thus, in many cases, preventable." ⁶
- Target population
 - Community-dwelling elders; especially dually Medicare and Medicaid-eligible clients and those receiving home health services.
 - HomeMedsSM targets potential medication problems including both drug use and signs or symptoms associated with specific adverse drug effects.
- Essential program components and activities

- The Partners in Care Foundation Medication Management Improvement System (HomeMedsSM) is an evidence-based intervention ⁷ specifically designed to enable social worker and nurse care managers to identify and resolve certain medication problems common among frail elders living in the community.
- HomeMedsSM addresses four problem types:
 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 continued high blood pressure, low blood pressure or low pulse, or dizziness; and
 4. Inappropriate use of non-steroidal anti-inflammatory drug (NSAIDs) in those with risk factors for peptic ulcer.
- The intervention has been streamlined to enable non-nurse care managers to implement the system using a computerized risk assessment screening and alert process, the medication list, and clinical indicators (vital signs, falls, dizziness and confusion) to identify potential medication problems.
- Care managers then collaborate with a consultant pharmacist to (1) verify the accuracy and appropriateness of the client's current medication list, (2) identify problems that warrant re-evaluation by the physician, and (3) follow through with the client and physician to resolve identified problems.
- The HomeMedsSM model contains the following core elements: 1) Screening to identify potential errors and medication-related problems; 2) Assessment of the client's condition and adherence based on established guidelines; 3) Consultation between staff and pharmacist to develop a plan of action based on protocols; and 4) Follow-up with physician and client to improve medication use.

The medication management intervention

- An assessment screening and alert process has been developed, using the medication list and clinical indicators (vital signs, falls, dizziness and confusion) to identify medication problems. Care managers work with clients, a pharmacist, and the physician to resolve problems.



- Length/Timeframe of Program
 - N/A
- Recommended class size
 - Individualized in-home assessment
- Desired outcomes
 - Pharmacists and agency staff work with physicians, clients/patients and family members to resolve identified problems by a change in medication or dose reduction whenever possible.
- Measures and evaluation activities
 - HomeMedsSM was successfully piloted in three Southern California Multipurpose Senior Services Program (MSSP) sites, Medicaid waiver programs that serve functionally impaired clients deemed to need a nursing home level of care. ⁸ These clients, whose average age is 80, are provided with services to enable them to continue living safely at home. The results have been impressive – 49% of the 615 clients screened in with at least one potential problem, and pharmacist review found that 29% of clients had problems that warranted consulting the physician about a change in medication or dose. Three months later, 60% of the medications identified as problematic had been changed. ⁸

Health Outcomes and Evidence Supporting Health Outcomes

- Care managers use software and a pharmacist consultant to screen their clients’ medications for potentially harmful problems. Almost 50% of Medicaid waiver clients screened in with potential problems. ⁸
- In 2004-2006, 615 clients were screened at three California Medicaid waiver (MSSP) sites: Average age 81; 80% female; 38% were hospitalized, in SNF or ER in the last year; 22% had falls in the past 3 months; 27% reported dizziness and 31% indicated confusion. The average number of medications taken by each client was 8.76; 22.3% of clients used 12 or more medications. 49% of clients (N=299) had at least one potential medication problem. After additional review by the consultant pharmacist to confirm a problem existed, 29% of clients had a medication problem serious enough for the pharmacist to recommend a change in medications warranting re-evaluation by the physician. For the intervention group (N=99) 61% of recommended changes were implemented. Positive client outcomes have included discontinuation of potentially harmful duplicative medicines, decreased confusion and dizziness, decreased risk of falls, and improvement in cardiac problems. ⁸

Confirmed Medication Problems and Change Rates at 3-Month Follow-Up				
Medication Problem	MSSP Sample Screened (N=615)		Medication Change (N=162)	
	N	% Prevalence	N	% Change
All confirmed problems	162	26.3%	99	61.1%
-Therapeutic Duplication	79	12.8%	49	62.0%
-Psychotropic w/Falls or Confusion	59	9.6%	32	54.2%
-Cardiovascular Problems	24	3.9%	11	45.8%
-NSAIDs	44	7.2%	22	50.0%

Program Costs

The HomeMeds^{SM sys} is designed to be integrated into the usual practice of care management programs without need to add staff.

- The system is designed to use a computerized risk assessment screening. This online system can be used for a modest monthly fee based on number of users and clients/patients entered. The system is being updated to interface with other existing systems. We also have a detailed algorithm that can enable the protocols to be programmed into existing systems. Past implementations have successfully used a manual screening by a consulting pharmacist.
- Optimal implementation uses a consulting pharmacist or other medication expert such as a geriatric nurse practitioner or a physician. We estimate that the consulting pharmacist would cost between \$55 and \$75 per hour. Reviewing a client's medications, assessed clinical indicators and alerts, and making a written report with recommendations for improvement takes an average of 20-30 minutes. Our experience is that about 50% of clients will need consultation upon initial assessment (i.e. when they first enter the care management program). Some states' Medicaid waivers enable care managers to use waiver funds to pay for pharmacist consultation. Medicare Part D provides for Medication Therapy Management services to be provided to individuals who take 5 or more medications, have 2 or more chronic conditions, and whose medications cost \$4,000 or more per year. Pharmacists can bill Medicare for providing this service. Some community pharmacists are willing and able to review the medication report produced by the software. Schools of pharmacy can work with agencies to provide interns who can cost-effectively review medications and related conditions. Retired pharmacists and physicians are a potential source of volunteer medication-related consultation.

Resource Requirements

Equipment:

- We recommend acquiring tablet computers (or laptops) with wireless cards and entering the medications during home visits so that the nurse or other care manager will have immediate feedback via alerts of potential problems, and can counsel the client as soon as the problem is noted. This is not essential, of course, but adds speed and a personal touch to the program.

Training Requirements

Trainer Qualifications

- There is some staff training and supervision required and the time dedicated thereto can be considered to be a cost. We provide free comprehensive toolkits on this website. There are no licensing fees and all materials may be freely duplicated. Sites that are not our official partners can arrange for our staff to provide training, either on-site or via web-based conferencing for a fee.

References

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A summary of the HomeMeds system is posted on the AHRQ Innovations Exchange website with a strong evidence rating at this link: [Home Health Nurses and Care Managers Use Software-Aided Medication Review Protocol for Frail, Community-Dwelling Seniors, Leading to More Appropriate Medication Use](#)¹²

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