



# RESEARCH IN ACTION

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## Preventing Disability in the Elderly With Chronic Disease

The population of disabled elderly in the United States is growing rapidly. The number of Americans who will suffer functional disability due to arthritis, stroke, diabetes, coronary artery disease, cancer, or cognitive impairment is expected to increase at least 300 percent by 2049.<sup>1</sup>

Although people tend to develop chronic conditions as they age, growing old does not have to mean becoming disabled. Research sponsored by the Agency for Healthcare Research and Quality (AHRQ) led to the development of the Chronic Disease Self-Management Program (CDSMP), a patient self-management program that can help prevent or delay disability even in patients with arthritis, heart disease, or hypertension.<sup>2</sup> These patients are taught how to better manage their symptoms, adhere to medication regimens, and maintain functional ability.<sup>2</sup> Additional research funded by AHRQ has also shown that education and lifestyle changes can reduce disability, control costs, and have a positive influence on the quality of life of America's elderly.

### Making a Difference

- Patients enrolled in the Chronic Disease Self-Management Program (CDSMP) improved their health and reduced their use of health services...Page 2
- CDSMP participants reduced their health care costs...Page 3
- Education and lifestyle changes helped patients successfully change smoking, alcohol consumption, nutrition, and weight control behaviors...Page 4
- Education and exercise helped to improve function in heart failure patients...Page 4

### Disability has far-reaching consequences

Almost 75 percent of the elderly (age 65 and over) have at least one chronic illness.<sup>3</sup> About 50 percent have at least two chronic illnesses.<sup>3</sup> Chronic conditions can lead to severe and immediate disabilities, such as hip fractures and stroke, as well as progressive disability that slowly erodes the ability of elderly people to care for themselves.<sup>4</sup> According to AHRQ's 1996 Medical Expenditure Panel Survey (MEPS),<sup>a</sup> about 14.3 percent of people age 65 and over—4.5 million elderly Americans—require assistance with bathing, dressing, preparing meals, or shopping.<sup>5</sup>

The costs associated with treating the elderly with chronic conditions are high and continuing to grow. These costs are borne by everyone—Federal and State governments, families, and the elderly themselves. AHRQ research shows that out-of-pocket health costs are highest for people with chronic health conditions or functional impairment.<sup>6</sup>

Home care expenses contribute to these high costs. For example, home health care expenses for the elderly totaled \$27.2 billion in 1996, and Medicare paid for nearly 60 percent of these expenses.<sup>7</sup> The elderly also paid more of these expenses themselves than did younger people.<sup>7</sup> MEPS data from 1996 show that the elderly were more likely than younger people to incur expenses for home health care and their costs per person were higher (Table 1).<sup>7</sup> AHRQ research indicates that the primary risk factor for requiring formal home health care is difficulty in bathing, dressing,

<sup>a</sup>The Medical Expenditure Panel Survey is conducted to provide nationally representative estimates of health care use, expenditures, sources of payment, and insurance coverage for the U.S. civilian noninstitutionalized population. MEPS is cosponsored by the Agency for Healthcare Research and Quality and the National Center for Health Statistics (NCHS).

**Table 1. Home health services use and expenses, 1996**

Statistic	Under age 65	Age 65 and over
Percent with expense	1%	13%
Average annual expense per person	\$3,342	\$6,041
Percent paid out of pocket	2.7%	14.5%
Amount paid out of pocket	\$186 million	\$3.9 billion
Percent paid by Medicare	27.6%	58.9%
Amount paid by Medicare	\$1.9 billion	\$16 billion

Source: Cohen JW, Machlin SR, Zuvekas SH, et al. Health care expenses in the United States, 1996. Rockville (MD): Agency for Healthcare Research and Quality; 2000. MEPS Research Findings No. 12. AHRQ Pub. No. 01-0009.

eating, or using the toilet.<sup>8</sup> Many elderly people can maintain or improve their functional ability by attending the CDSMP and practicing its principles.

### CDSMP improved health and reduced health care use

AHRQ-funded research at the Stanford University Patient Education Research Center led to the development of the CDSMP. The CDSMP is a 17-hour course taught by trained lay people that teaches patients with chronic disease how to better manage their symptoms, adhere to medication regimens, and maintain functional ability.<sup>2</sup> Offered in community settings such as senior centers, churches, libraries, and hospitals, CDSMP classes are held once a week for 7 weeks.<sup>2</sup> This program has been so successful, it has been implemented both nationally and internationally.<sup>9</sup>

Over a period of 2 years, AHRQ-funded investigators compared health behaviors, health status, and health services use in patients age 40 to 90 years (average age, 65) who had completed the CDSMP. When compared to baseline measures taken for the 6 months prior to the CDSMP, researchers found that:

#### After 6 months, CDSMP participants had—

- Increased exercise.
- Better coping strategies and symptom management.
- Better communication with their physicians.

- Improvement in their self-rated health, disability, social and role activities, and health distress.
- More energy and less fatigue.
- Decreased disability.
- Fewer physician visits and hospitalizations.<sup>2</sup>

#### After 1 year, CDSMP participants had—

- Significant improvements in energy, health status, social and role activities, and self-efficacy.
- Less fatigue or health distress.
- Fewer visits to the emergency room.
- No decline in activity or role functions, even though there was a slight increase in disability after 1 year.<sup>10</sup>

#### After 2 years, CDSMP participants had—

- No further increase in disability.
- Reduced health distress.
- Fewer visits to physicians and emergency rooms.
- Increased self-efficacy.<sup>10</sup>

The increase in patients' perceptions of their self-efficacy was associated with reduced health care use.<sup>10</sup> Self-efficacy, the degree of belief people have that they can perform the behavior required to produce a desired outcome, is crucial to the success of the CDSMP.<sup>2</sup> The more self-efficacy people have, the more control they believe they have over

their behavior.<sup>2,11</sup> Therefore, increasing self-efficacy contributes to better decisionmaking processes, stronger motivation, and perseverance.<sup>11</sup>

## CDSMP reduced costs

The CDSMP saved from \$390 to \$520 per patient over the 2-year study period because participants used fewer health care services. CDSMP participants used less hospital and physician services than they had used before participating in the program, and less than those who had not participated in the CDSMP (the control group).<sup>2,10</sup>

Specifically, researchers found that hospitalization rates for CDSMP participants did not increase over the 2-year duration of the study.<sup>10</sup> For example, during the first 6 months, CDSMP participants were hospitalized 0.15 fewer days than they had been during the 6 months before they began the program. Patients in the control group were hospitalized 0.34 more days, making a total difference of 0.49 days.<sup>10</sup> If the cost to hospitalize a patient were \$1,000 per day, cost savings attributed to the CDSMP would be \$490 per person (0.49 fewer days in the hospital multiplied by \$1,000).<sup>10</sup>

CDSMP participants also had 2.5 fewer visits to the emergency room and their physicians.<sup>10</sup> Assuming a minimum reimbursement from Medicare of \$40 for a physician or emergency room visit, savings from the CDSMP would be \$100 per participant (2.5 fewer visits multiplied by \$40 per visit).<sup>10</sup>

The CDSMP cost between \$70 and \$200 per person to administer. After subtracting these costs from the savings due to lower health services use, the total amount saved as a result of the CDSMP over a 2-year period was estimated at \$390 to \$520 per person.<sup>2,10</sup>

## Impact in a community setting continues

Further evidence of the effectiveness of the CDSMP can be found in a study funded by Kaiser Permanente. One year after completing the CDSMP, participants in the Kaiser study showed significant improvements in fatigue, shortness of breath, pain, social activity limitation, illness intrusiveness, depression, and health distress. Participants also reported improved exercise, symptom management, and communication with their physicians.<sup>12</sup>

In addition, Kaiser CDSMP participants had 0.2 fewer visits to the emergency room and 0.97 fewer hospital days compared to the year prior to completing the CDSMP. As a result, they reduced their health care costs. For example, if the average cost per day of hospitalization were \$1,000 and the average cost of an emergency room visit were \$100, the potential savings would be \$990 per participant for the first year following completion of the program (0.97 days of hospitalization multiplied by \$1,000 plus 0.2 emergency visits multiplied by \$100).<sup>12</sup>

Kaiser Permanente paid approximately \$200 per participant for CDSMP training, materials, and administration. With 489 participants, Kaiser's total cost was \$97,800. However, if the cost to care for each participant decreased \$990 because participants used fewer health services, Kaiser Permanente's net savings would be nearly \$400,000.<sup>12</sup>

A final note: Kaiser Permanente's enrollment in the CDSMP grew to 2,500 participants in 2000.<sup>12</sup> In 2002, the CDSMP won Kaiser Permanente's James A. Vohs Award for Quality.<sup>13</sup> This award (named in honor of Kaiser's longtime President, Chief Executive Officer, and Chairman) acknowledges superior, creative programs that improve the quality of patient care.<sup>14</sup>

## CDSMP has international impact

The National Health Service (NHS) of England has adopted the CDSMP as the key educational offering in its Expert Patient program.<sup>15</sup> The Expert Patient program is based on the premise that people with chronic disease often understand their condition better than their physicians do.<sup>15</sup> The NHS intends to help people with chronic disease become "experts" in knowledge about their condition so that they can develop disease management skills, consider themselves partners with their health care providers, and take greater responsibility for their health and health care.<sup>15</sup> Over a 6-year period, the NHS will implement self-management programs such as the CDSMP for patients with chronic disease.<sup>15</sup>

## CDSMP covers multiple chronic conditions

As discussed earlier, most elderly people contend with more than one chronic illness. For example, during the AHRQ-funded studies, patients in the CDSMP had an average of two chronic conditions.<sup>2,9,10</sup> One advantage of the

CDSMP is that patients receive instruction on self-management for several different chronic diseases by attending only one course.<sup>2</sup> However, the CDSMP can also be used in conjunction with disease-specific education programs.<sup>2</sup>

The CDSMP focuses on problems that are common to patients suffering from chronic diseases. Coping strategies such as action planning and feedback, behavior modeling, problem-solving techniques, and decisionmaking are applicable to all chronic diseases. Patients are taught to control their symptoms through:

- Relaxation techniques.
- Changing their diets.
- Managing sleep and fatigue.
- Using medications correctly.
- Exercise.
- Communication with health providers.

In addition, patients receive information on sexual relations, advance directives, nutrition, and pain management.<sup>2,9,10</sup>

Each person enrolled in the CDSMP receives the text *Living a Healthy Life With Chronic Conditions, 2nd Edition*.<sup>9</sup> This manual, developed by Stanford University School of Medicine researchers and supported by AHRQ, teaches self-management behaviors for chronic lung disease, heart disease, high blood pressure, arthritis, and diabetes.<sup>16</sup> Currently, the CDSMP is offered by over 100 health organizations in 31 States and 10 countries—the United States, Canada, Australia, New Zealand, Great Britain, Italy, Norway, Hong Kong, China, and Sweden.<sup>9b</sup>

## Education and lifestyle changes improve health

Other AHRQ research supports the health education and lifestyle changes endorsed by the CDSMP. AHRQ sponsored a comprehensive review of research on how education and counseling interventions affect preventive health behaviors. Although these studies focused on

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<sup>b</sup>Stanford University offers a 4½ day training course to teach representatives of health care organizations how to implement the CDSMP. More information on the CDSMP can be found at the Stanford Patient Education Research Center Web site: <<http://www.stanford.edu/group/perc/>>.

prevention in healthy people, the consensus was that behavioral techniques such as self-monitoring, personal communication with health care providers, and viewing audiovisual materials contribute to successful change for behaviors such as quitting smoking, controlling alcohol consumption, improving nutrition, and weight control.<sup>17</sup>

Education that promoted exercise lifestyle changes enhanced control of heart failure in another AHRQ-funded study. Patients over the age of 30 who were taking medication to control their heart failure underwent an exercise program of walking at home 3 days a week. Participants were taught how to monitor their heart rate and exertion level. They also received instruction on resistance exercises and multimedia material to take home regarding safety and proper technique. At the end of 3 months, patients who exercised reported less fatigue, decreased shortness of breath, improved emotional functioning, and better control over their symptoms than patients who did not exercise.<sup>18</sup>

## AHRQ research supports national goals

A prime objective of *Healthy People 2010*,<sup>19</sup> the Nation's health promotion and disease prevention agenda, is to improve the quality of life and longevity of adults with chronic disease. Specifically, the objectives identified by the U.S. Department of Health and Human Services are to:

- Reduce the number of adults who experience functional limitations and limitations with activities of daily living as a result of chronic joint problems.
- Increase the number of adults who seek help for coping with their arthritis, who see a health care provider, and who have had education about arthritis as part of their overall medical management.
- Reduce the number of people who die as a result of coronary artery disease or stroke through education, screening, and control of high blood pressure and serum cholesterol levels.
- Increase the proportion of older adults who participate in an organized health promotion activity to 90 percent.

Implementation of the CDSMP and other AHRQ-funded research that has been translated into practice clearly helps the United States meet these goals.

## AHRQ-Funded/Sponsored Research on Chronic Disease Management

- *Improving Chronic Disease by Self-Management Education*, Stanford University: This study developed, operated, and evaluated the Chronic Disease Self-Management Program and assessed its effectiveness in improving health while lowering costs for patients with chronic disease.
- *Meta-Analysis of Studies Evaluating Patient Education*, University of Texas Health Science Center: This study evaluated different methods of patient education and examined their impact on preventive health behaviors.
- *Home-Based Exercise in Patients with Heart Failure*, University of California: This study compared a physical activity program with usual care for improving physical performance and quality of life and well-being in patients with heart failure.

## Research to improve chronic disease outcomes continues

AHRQ is continuing to fund research on health care for the elderly and management of chronic disease for all age groups. Ongoing studies include:

- *Education in an HMO: Effectiveness and Efficiency*; Grant No. R01 HS08641-01A1. This study is assessing the short-term and long-term effectiveness of a health education program (HEP) for spouse caregivers and frail elderly care recipients. The researchers are examining whether health education group programs offered by a health maintenance organization (HMO) in a primary care setting can reduce health services use and costs while improving participants' health status and well-being.
- *Effect of Formal Home Care Services on Caregiver Burden*; AHRQ Grant. No. R03 HS10794-01. This study will provide a better understanding of the dynamics of family caregiving to low-income and frail elderly individuals living in the community. It is examining how community and home care services diminish the effect of stressors on caregiver burden.
- *A Patient Activation Approach to Improving Diabetes Care*; Grant No. R18 HS10123-01A1. This study is applying a patient-focused, behavioral-systems approach to improving diabetes self-management. Investigators are studying patient, physician, and practice characteristics associated with compliance with recommended guidelines for diabetes, including clinic

culture, patient autonomy, provider attitudes and supportiveness of patient autonomy, and patient-provider communication.

- *Spouse Involvement in Cardiac Patients' Behavior Change*; Grant No. R03 HS11263-01. This study of heart disease patients and their spouses is exploring patient perceptions of supportive, controlling, and undermining behaviors in response to recommendations for adoption and maintenance of exercise activity. The Transtheoretical Model of Behavior Change is the primary method of promoting healthy behaviors such as exercise to prevent disability due to heart disease.

## New funding opportunities—researchers can make a difference

AHRQ's program announcement "Patient-Centered Care: Customizing Care to Meet Patients' Needs" is intended to support the redesign and evaluation of new processes of care that lead to greater patient empowerment, improved patient-provider interaction, easier navigation through health care systems, and improved access, quality, and outcomes. Specific strategies could include, but are not limited to, electronic clinical communication, self-management programs, Web-based applications for patients and/or health care providers, and shared decisionmaking programs. AHRQ encourages projects that emphasize chronic illness, episodes of care that extend beyond hospitalization, longitudinal care, and priority populations. More information can be found at <http://grants1.nih.gov/grants/guide/pa-files/PA-01-124.html>.

## Conclusion

Programs such as the CDSMP provide self-management education for all patients with chronic disease and help preserve functional ability while reducing costs. AHRQ-funded research clearly indicates that health education and lifestyle changes contribute greatly to reducing the negative consequences of chronic disease. The lives of Americans can be improved by implementing programs such as the CDSMP and encouraging patients to take part in them. Furthermore, this program can help the Nation achieve its Healthy People 2010 goals and objectives: to reduce the number of people who suffer from disability as a result of chronic disease and to increase the number of people who receive education and support for coping with their disease.

## For more information

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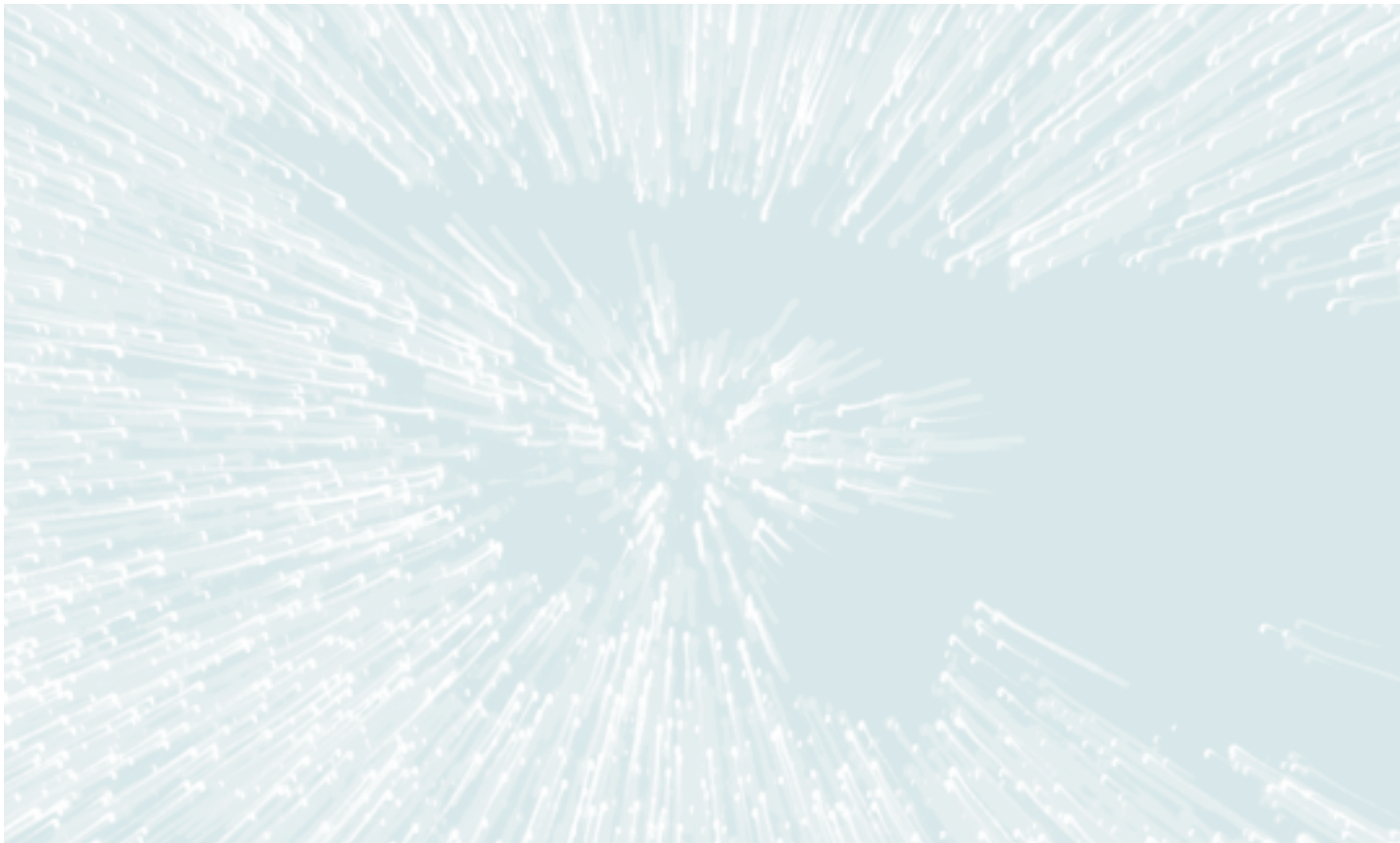
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