

## Innovative Healthcare for Chronically Ill Older Persons: Results of a National Survey

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### Abstract

**Objective:** To describe the origin, scope, operations, funding, and outcomes of innovative health-care programs for chronically ill older persons.

**Study Design:** Cross-sectional survey.

**Methods:** A national expert panel nominated chronic illness programs they believed to be innovative and field tested. The directors of the 31 eligible programs provided descriptive information in 60-minute semistructured telephone interviews.

**Results:** The innovative programs we surveyed tended to target their services to high-risk patients, use teams of providers to deliver care, designate providers to coordinate multiple components of complex care plans, and shift care from higher- to lower-cost environments and/or redesign the delivery of primary care.

**Conclusions:** Recent innovations in health-care programs hold considerable promise for improving the outcomes of chronic care, but most have yet to be rigorously evaluated.

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Medical care in the United States today is being transformed by 2 major forces. Chronic illness has become the greatest challenge in our older population,<sup>1</sup> accounting for 76% of direct medical care costs.<sup>2,3</sup> As a result, a healthcare system that has been focused traditionally on providing acute care is being asked to tackle the chronic diseases of a rapidly aging population. At the same time, for financial reasons, the fundamental organization of medical care is changing; various forms of capitated care, operated by ever larger corporations, are replacing fee-for-service care.

Capitated Medicare payments have begun to provide the capital needed for developing systems of chronic care that are radically different from and potentially far more effective than the systems of today.<sup>4</sup> As of June 1, 1999, the Health Care Financing Administration (HCFA) was paying \$3.2 billion per month to 402 managed care organizations for the care of 6.9 million enrollees, more than 18% of all Medicare beneficiaries. In 1999, HCFA began making direct capitation payments to provider-sponsored organizations, preferred provider organizations, and indemnity insurance plans that accept the financial risk of providing care under the new Medicare+Choice program.

Capitation could serve as a platform for launching innovations,<sup>5</sup> but there is concern that the health-care industry's attempts to reorganize its systems of chronic care have been limited to small, scattered demonstration programs—and that such trends may continue in the future. Previous studies of innovations in care for chronically ill older persons have reported mixed results. Isolated innovations have evolved,<sup>6</sup> but their penetration into mainstream care has been modest. A survey examining the extent to which the principles of geriatrics had been incorpo-

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rated into Medicare health maintenance organizations (HMOs) suggested that most organizations had not yet established geriatrically oriented systems of care.<sup>7</sup> Another survey revealed that large Medicare HMOs were as likely to use case management to control utilization as to improve coordination of care.<sup>8</sup>

Ideally, the care of chronically ill older persons should be proactive, comprehensive, continuous, coordinated, efficient, evidence based, and predicated on the preferences and involvement of patients and their families. There is no consensus, however, about the methods best suited to providing such care, and there are few existing systems that provide such care. How far have we come toward finding partial answers? To find out, we undertook a study to determine what types of innovation have occurred thus far, to describe these innovative programs, and to articulate lessons that might guide the integration of such programs into better healthcare systems of the future.

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... METHODS ...

The purpose of our study was to identify and characterize today's most innovative systems of care for older people with chronic disease. Our criteria for inclusion in the study required that a program be: (1) innovative (ie, new, different, and potentially capable of providing superior outcomes); (2) designed primarily to serve the health-related needs of older people; and (3) field tested (ie, used to treat more than 100 patients for longer than 1 year).

To identify such programs, we called well-informed national leaders and asked them to nominate programs in the United States that they believed would meet these criteria and to suggest additional people who might know of such programs. The final nominating panel included the program directors and senior staff of 4 national foundations and 5 federal agencies that provide financial support to promising health-related projects for older persons, as well as a health futurist, a representative of a pharmaceutical company, and representatives of 4 trade associations. Older programs, such as the Social Health Maintenance Organizations (SHMOs)<sup>9-11</sup> and Programs for the All-inclusive Care of the Elderly (PACE),<sup>12</sup> have been described extensively in the past.

The panel identified 48 programs that were potentially eligible for the study. After preliminary interviews with program directors, we eliminated 14 that were either not yet field tested (8 programs),

not sufficiently innovative (2 programs, eg, a large organization providing traditional nursing home care), or not focused on providing healthcare (4 programs, eg, a provider of social support or education). Representatives of 3 potentially eligible programs refused to participate. The directors of the 31 remaining programs agreed to provide descriptive information during 60-minute semistructured telephone interviews.

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... RESULTS ...

Of the 31 innovative programs studied, case management programs were the most numerous (12 programs). Next most common were programs that provided long-term care (5) or primary care (4). Three programs integrated comprehensive medical and social services and linked care across settings and providers. The other 7 programs consisted of acute/subacute care (2), end-of-life care (2), data management (2), and self-management (1).

We classified each program according to 7 characteristics: type of care provided, name and location of sponsoring organization, sponsor's core business and for-profit or not-for-profit status, size, age, and source of funding (Table 1). Nine of the programs are sponsored by for-profit organizations and 22 by not-for-profit organizations. Half are sponsored by provider organizations and half by HMOs. Geographically, most parts of the country are represented, with the fewest programs located in the South. Program size varies substantially—7 of the programs have served 100 to 500 patients since their inception, 21 have served 500 to 10,000, and 3 have served more than 10,000. Most programs have been operating for 2 to 7 years, and, somewhat surprisingly, most have been developed not through extramural grants but through internal support, either from general operating funds or from internal foundations. In the following sections, we describe the clinical and financial characteristics of each type of program, summarizing published reports of their effects on important outcomes where available.

### Case Management Programs

Case management is the primary service provided by 12 of the innovative programs. Although heterogeneous in their structure and approach, all of the surveyed case management programs are designed to improve the coordination of health-

**Table 1.** Selected Innovative Healthcare Programs for Chronically Ill Older Persons

Program Type	Sponsor	Sponsor		Program		
		Organization Type	Profit Status	Size	Age	Funding
Case management	Carondelet, Tucson, AZ	Provider	NFP	Medium	Est.	Ext.
	Council on Aging, Cincinnati, OH	Provider	NFP	Small	Est.	Ext.
	St. Joseph, Albuquerque, NM	Provider	NFP	Medium	New	Int.
	Legacy, Portland, OR	Provider	FP	Small	Est.	Int.
	Keystone, Philadelphia, PA	HMO (IPA)	NFP	Medium	New	Int.
	Providence, Portland, OR	HMO (IPA)	NFP	Large	New	Int.
	Oxford, New York, NY	HMO (IPA)	FP	Large	New	Int.
	Brown and Toland, San Francisco, CA	HMO (IPA)	FP	Medium	Est.	Int.
	Sun Health, Phoenix, AZ	HMO (IPA)	FP	Small	New	Int.
	Kaiser, San Francisco, CA	HMO (G)	NFP	Medium	Est.	Int.
	Medica, Minneapolis, MN	HMO (N)	NFP	Medium	Est.	Int.
	Sutter, Sacramento, CA	HMO (G)	NFP	Small	Est.	Int.
Long-term care	Fairview, Minneapolis, MN	Provider	NFP	Small	New	Int.
	Wisconsin Partnership, Madison, WI	Provider	NFP	Small	New	Int./Ext.
	Fallon Clinic, Worcester, MA	Provider	FP	Medium	Old	Int.
	Evercare, Seven Cities	HMO (IPA)	FP	Medium	Old	Int.
	Kaiser, San Diego, CA	HMO (G)	NFP	Medium	Old	Int.
Primary care	Centura, Denver, CO	Provider	NFP	Medium	Est.	Int.
	Henry Ford Medical Group, Detroit, MI	Provider	NFP	Medium	Old	Int./Ext.
	Carle Clinic, Champaign-Urbana, IL	Provider	FP	Medium	Est.	Int./Ext.
	Kaiser, Denver, CO	HMO (G)	NFP	Medium	Est.	Int./Ext.
Acute/Subacute care	Akron City Hospital, Akron, OH	Provider	NFP	Medium	Est.	Int.
	HealthPartners, Minneapolis, MN	HMO (S)	NFP	Medium	Est.	Int.
End-of-life care	HealthCare Partners, Portland, OR	Provider	FP	Medium	Est.	Int.
	HealthPartners, Minneapolis, MN	HMO (S)	NFP	Small	Est.	Int.
Data management	Reynolds Health Center, Winston-Salem, NC	Provider	NFP	Medium	Est.	Int./Ext.
	HealthPartners, Minneapolis, MN	HMO (S)	NFP	Medium	New	Int./Ext.
Self-management	Stanford, Palo Alto, CA	Provider	NFP	Medium	Est.	Int./Ext.
Comprehensive	East Boston Neighborhood Health Center, Boston, MA	Provider	NFP	Medium	Est.	Int./Ext.
	Intermountain Health, Salt Lake City, UT	Provider/HMO (N)	NFP	Medium	Est.	Int.
	Sierra, Las Vegas, NV	HMO (N)	FP	Large	Est.	Int./Ext.

FP = for profit; NFP = not for profit; HMO (N) = network health maintenance organization; HMO (IPA) = independent practice association HMO; HMO (G) = group HMO; HMO (S) = staff HMO; Int. = internal source; Ext = external source; Small = 100 to 500 patients; Medium = 500 to 10,000 patients; Large = > 10,000 patients; New = 1 to 2 years old; Est. = established, 2 to 7 years old; Old = > 7 years old.

related services and thus decrease the total costs of care. Most programs target at-risk patients, assess their clinical status, develop care plans, coordinate their health-related services across several sites of care, and monitor their progress. Ten of the 12 programs were developed with internal funds.

Many of the surveyed programs use a screening instrument (often a mailed questionnaire or a telephone interview soon after enrollment in a capitated system) to target the recipients of case management; some also rely on referrals from providers and on self-referrals. One program (Oxford) targets seniors who are at nutritional risk, and another (Keystone) targets those who are about to undergo elective surgery. Many programs require case managers to have a nursing background so they can provide health education, monitor patients' health, and plan care jointly with physicians. A few prefer social workers, to facilitate psychosocial care and access to community services. Others employ combinations of nurses, nurse practitioners, and social workers. One program (Legacy) uses "resource specialists" (who are neither nurses nor social workers) to address patients' psychosocial needs over the telephone and link them with community-based services. Another (Brown and Toland) trains primary care office personnel, such as receptionists and aides, to monitor older patients' health and to facilitate their referral for case management when indicated.

Other innovations in case management include: (1) providing geriatric nurse practitioner or geriatrician backup for case managers who are social workers (Sutter); (2) using electronic media to share clinical data among case managers, physicians, nurses, and emergency and admissions department personnel (Council on Aging; Kaiser, San Francisco); (3) sharing resources and responsibilities for care between healthcare systems and community service agencies (Sun Health); (4) delivering a capitated nurse-managed package of services (eg, case management, home healthcare, supplies, rehabilitative therapy, and ambulance services) designed to emphasize education, prevention, empowerment, self-management, and changes in lifestyle (Carondelet)<sup>13,14</sup>; (5) providing self-management information and care guidelines to case management clients (Sun Health); (6) building trust-based relationships between patients and case managers (Medica); and (7) basing case managers near the offices of their patients' primary care physicians (St. Joseph; Kaiser, San Francisco).<sup>15</sup>

Program directors saw collaboration between case managers and primary care physicians as

essential but often lacking, noting that some case managers send reports to primary care physicians but few speak with them directly. Several directors cited lack of physician support as the greatest impediment to the effectiveness of their case management programs.

Although the net effects of case management on quality of life and costs of care are mostly unknown,<sup>16</sup> 6 of the surveyed programs (Brown and Toland, Carondelet, Council on Aging, Legacy, Medica, and Providence) have been involved in controlled trials recently. Results should be available in 1999.

### Long-term Care Programs

The 5 surveyed long-term care programs are geographically dispersed. All have in common an expectation that delivering better primary care will decrease the need for hospital care. Four of these programs specifically serve nursing home residents. The fifth (Wisconsin Partnership) serves a community-dwelling population that is eligible for nursing home care. All 5 programs depend on nurse practitioners who work closely with physicians. The nurse practitioners provide most of the primary care, conferring with the physicians when problems arise. The 4 nursing home programs are responsible for paying for physician and hospital costs, but not for the per diem costs of the nursing home.

The Wisconsin Partnership program resembles a PACE site; it uses capitation payments to provide or purchase all acute and long-term care services for its dually eligible (Medicare-Medicaid) patients. A team of nurses, social workers, and geriatric nurse practitioners provides education, support, and case management. Unlike PACE, however, this program does not require active participation in day care, nor does it mandate that patients use the program's physician.

One of the nursing home programs (Evercare) was developed in response to one provision of the Medicare HMO capitation formula—capitation payments for nursing home residents are much higher than those for older persons living in the community. Evercare's strategy is to provide good primary care for long-stay residents, with the goal of reducing the need for hospital care. It seeks to detect acute illness early, and it pays nursing homes special fees to upgrade their subacute services and to provide on-site care for residents who might otherwise require hospitalization. Enrollment in this program by the residents is voluntary.

Evercare was originally developed as a staff-model HMO, with geriatric nurse practitioners,

who were Evercare employees, each collaborating with one contracted physician. When the owner franchised the program to 6 other locations across the country, some of the original features had to be modified. Because geriatric nurse practitioners were scarce in some areas, the new programs recruited a broader range of nurse practitioners, hiring some and contracting with others. They also contracted with panels of community physicians at each home, requiring that each nurse practitioner work with several physicians. The effects of this program are being evaluated under a HCFA contract.

Two other surveyed programs (Fallon Clinic and Kaiser, San Diego) use many of the same techniques, but their histories are different. Both emerged in response to a pressing internal problem—how to provide better care to their HMO members who were in nursing homes. They believed that by concentrating the responsibility for this care among a small group of physicians interested in nursing home care and by employing geriatric nurse practitioners to provide much of the primary care, they could improve the quality of primary care and decrease the need for hospitalization. Few data about the effectiveness of this approach are available, but several programs' internal evaluations of the use of hospitals and the satisfaction of residents and providers have been sufficiently positive to justify continuing the programs.<sup>17-20</sup>

The Fairview program can be viewed as a hybrid of the 3 nursing home programs described above. Developed with the support of a grant, it is a complex partnership of a not-for-profit hospital, a physician group, and 14 nursing homes. It operates as a subcapitated contractor to a Medicare HMO. The program accepts the financial risk for the medical care of voluntarily enrolled residents and uses physician-geriatric nurse practitioner teams to provide primary care. The hospitals are paid according to diagnostic-related groups, the geriatric nurse practitioners and physicians are paid on a fee-for-service basis, and the nursing homes receive additional payments to cover the costs of the extra on-site subacute care of residents with illnesses that would otherwise have required hospital care.

### Primary Care Programs

We found innovation in 4 large, well-established primary care programs, all in the central United States. In each of these programs, physician groups operate either through physician-nurse teams or through a group approach to primary care. The 3

“team care” programs strive for maximal comprehensiveness, continuity, and efficiency of care. They integrate the efforts of physicians and nonphysicians in the care of older adults identified (through referral or screening) as being at high risk for undesirable outcomes. In 2 of the 3 programs (Centura and Henry Ford), geriatricians work closely with geriatric nurse practitioners, nurses, and social workers<sup>21</sup>; in the third (Carle Clinic), family physicians and internists are paired with registered nurses. In all 3, new patients undergo a comprehensive (45- to 60-minute) assessment by one of the team members, and the findings are then discussed jointly with other team members. Responsibility for ongoing care is shared among the members of the team, and patients and their families are encouraged to participate. Depending on the program, computerized clinical databases, home visits, and telephone follow-up by nurses are also used. Evaluation of these programs is under way, but no results are available yet.

In the “group clinic” model (Kaiser, Denver),<sup>22</sup> groups of 15 to 20 older HMO members with chronic illnesses and frequent use of outpatient services are invited to attend monthly group meetings with their primary physician and nurse. After a period of socialization and a 30-minute discussion of a health-related topic, the physician and the nurse move around the conference room addressing individuals' health maintenance needs, such as vaccinations, screening tests, prescription refills, blood tests, and blood pressure measurements. The group then selects a topic for its next meeting. One-on-one physician-patient office visits are provided as needed. The participants have access to traditional primary care between monthly meetings but are encouraged to meet their routine healthcare needs through the group meetings.

In a randomized clinical trial,<sup>23</sup> group clinic participants were compared with a control group that received usual care. After 1 year, the group clinic participants had significantly higher rates of immunization and satisfaction with care and significantly lower rates of hospital readmission, telephone calls to primary physicians, urgent visits to primary care offices, and visits to emergency rooms and specialists. The participating physicians preferred the group clinic approach, but patients' health-related outcomes were similar in both groups. Although this approach appears to be helpful for some patients, it is not appropriate for all; some patients require more intensive management and others prefer one-to-one care.

### Acute/Subacute Care Programs

Reacting to the well-known loss of functional abilities suffered by frail older adults during hospital care, a community hospital organization (Akron City Hospital) revamped a medical ward to decrease iatrogenic complications and promote rehabilitation during acute care. Replicating the successful ACE (acute care for elders) approach pioneered at University Hospital at Case Western Reserve University,<sup>24-26</sup> this hospital renovated a 34-bed general medical unit to create a safe, homelike environment with bright lighting, carpets, grab bars, large clocks, open spaces, a parlor with a television, a kitchen, and an adjacent physical therapy suite. It also instituted rehabilitative nursing protocols for recognizing and managing patients' problems with mobility, self-care, nutrition, continence, depression, anxiety, falls, and skin care. Patients receive care from their primary nurse and established primary physician and are monitored by an interdisciplinary team (geriatrician, clinical nurse specialist, pharmacist, social worker, nurse discharge planner, dietician, occupational therapist, and physical therapist). The team regularly makes rounds, discusses the patients, and makes informal recommendations to the primary physicians. Formal consultations are provided on request.<sup>27</sup>

An anonymous survey revealed that primary physicians and nurses were more satisfied with the processes of care on the ACE unit than on 2 other general medical wards at the hospital.<sup>28</sup> A randomized trial of care on the unit has been completed (but not yet reported), and the hospital has expanded many of the ACE innovations to other wards, including a stroke unit. The efficiency and the popularity of the ACE approach in the community now influences contractual negotiations between the hospital organization and the local managed care companies. A randomized clinical trial conducted at Case Western showed that, compared with care on a traditional medical ward, care on an ACE unit is associated with greater functional improvement, fewer discharges to long-term care institutions, and similar hospital costs.<sup>24,25</sup> Additional randomized trials at other institutions are now under way.<sup>29</sup>

A more widely implemented innovation is subacute (or transitional) care. Subacute [AU: OK?] units provide low-technology rehabilitative care, typically for chronically ill older adults whose acute conditions have been stabilized in a hospital but who have not yet recovered sufficiently to go home. These units are usually located in nursing homes, but some are free-standing or contiguous with hospitals.

The subacute program we surveyed (HealthPartners) operates units in 6 institutions that serve enrollees in a staff-model HMO. Nurses who make hospital rounds with HMO hospital-based physicians identify and arrange the transfer of appropriate patients to the subacute units. There, patients receive care from a team, directed by a geriatrician and a geriatric nurse practitioner, that includes a primary nurse, a social worker, nursing assistants, and, as needed, a dietician and rehabilitation therapists (occupational therapist, physical therapist, and speech therapist). The geriatric nurse practitioner, who functions as a clinician and a case manager, is on site 3 to 5 days a week; the geriatrician makes rounds twice weekly. The team meets weekly to review patients' progress and to plan their continuing care. It provides patients' primary physicians with frequent progress reports. Contracts require that the facility provide staffing and 1- or 2-bed rooms and that the HMO provide the geriatric nurse practitioners, the geriatricians, and per diem payments that are stratified (low, medium, high) according to the patients' needs for care (basic, rehabilitative, complex).

A recent nonrandomized pilot study of this program reported the outcomes of care of older persons with strokes, fractures, or deconditioning, comparing care in the subacute units to postacute care in traditional nursing homes.<sup>30</sup> Patients who received subacute care had a shorter average length of stay in the unit (14.3 versus 20.5 days) and fewer hospital readmissions for pneumonia and urosepsis. Total readmission rates were similar, however, and data about hospital length of stay and other health-related outcomes and iatrogenic complications were not reported.

### End-of-Life Care Programs

Two programs we surveyed are designed to provide care for terminally ill patients who are not eligible for hospice programs. Both programs serve patients with short life expectancy (less than 2 years), but unlike hospice programs, they do not require that interventions be limited to "comfort care." The primary goals are to enhance patients' quality of life and to reduce their end-of-life costs, often by providing terminal care at home rather than in a hospital.

The HealthPartners program provides expanded Medicare benefits that include social services and pastoral care, but no extra home care. Nurses, social workers, and clergy visit the home to assess the patient's needs, establish the goals and plans of care,

and help the person complete an advance care directive. In executing these plans, they communicate regularly with the primary physician. Unlike hospice programs, patients make copayments for some services.

A similar program (HealthCare Partners) is operated by a capitated physician group that is at risk for the costs of acute care. Through its own social service and home health agencies, this program also provides expanded Medicare services at home. Social workers identify the patient's needs for home healthcare, special equipment, and transportation, provide or arrange for appropriate services, and communicate with the primary care physician.

Neither of these programs has been evaluated formally. Directors of both, however, believe that their programs improve quality of life and reduce hospitalization and total costs of care.

### **Data Management Programs**

Whereas the principal innovations of most of the surveyed programs are new methods of providing healthcare, 2 innovative programs focus on improving clinicians' access to information. One program (Reynolds Health Center) maintains a user-friendly central electronic database accessible to the healthcare providers of an ambulatory health center, 2 hospitals, and several community agencies. It hopes to improve the coordination and outcomes of care for chronically ill, disabled older patients of the health center. Up-to-date clinical data are immediately retrievable by all participating providers, who communicate with each other by E-mail. The admissions offices of both hospitals send alerts to all relevant providers whenever an enrolled patient is admitted to their emergency department or inpatient facility. This triggers the involvement of a nurse coordinator who assists with discharge planning and postdischarge case management. The results of a randomized clinical trial that measured the effects of the system on the enrolled patients' use of health-related services, their satisfaction with care, and their informal caregivers' perceived burden will be reported soon.

The second information-focused program (HealthPartners) attempts to improve the outcomes of diabetes care through continuous quality improvement (CQI) techniques.<sup>31</sup> This program trains representatives of primary care practices (eg, a physician and a nurse) to use data and the principles of CQI to improve their clinicians' rates of adherence to a practice guideline for monitoring type 2 diabetes. The representatives attend eight 2- to 3-hour training sessions over the course of a year. The practice guideline is then sent to all physicians

in the system, and implementation of the CQI program is begun at each practice. The operational details of the resulting CQI programs are determined by the individual clinics. This approach was pilot tested during 1996 and is now being evaluated in a randomized trial of 12 practices that will measure clinicians' adherence to the guideline and patients' laboratory values, knowledge of the disease, and self-care behaviors.

### **Self-Management Program**

The goals of the surveyed self-management program (Stanford) are to improve patients' health and decrease their healthcare utilization by empowering them to become more confident and accomplished managers of their own illnesses. Trained lay leaders teach a 7-week course to groups of 12 patients who have various symptomatic chronic conditions. The program covers symptom management techniques, exercise, nutrition, use of medications, managing fatigue and sleep disturbances, dealing with emotions, communicating with others (including healthcare professionals), using community resources, solving problems, and making decisions. During the sessions, participants develop action plans based on their own goals for behavioral change. Leaders and group members assist each other in problem-solving and modeling behaviors. The intervention is designed to be community based, that is, to be implemented in senior centers, churches, and libraries, rather than in medical facilities. One obstacle to this program has been patients' lack of familiarity with the concept of a generic chronic disease program. Some, more accustomed to disease-specific programs, have been reluctant to enroll.

The self-management program was evaluated in a trial in which 952 community-dwelling participants with heart disease, lung disease, stroke, or arthritis were randomly assigned to receive either usual care (control group) or usual care plus the self-management program (experimental group).<sup>32</sup> After 6 months, the experimental group reported significantly fewer hospital admissions and hospital days, better general health, less fatigue, fewer social and functional limitations, and more frequent use of self-management techniques. The groups did not differ significantly in their self-reported pain, shortness of breath, or psychological well-being.

### **Comprehensive Programs**

The 28 programs described above focus their efforts more or less sharply on providing a single

type of care or on coordinating several components of traditional care. In contrast, 3 organizations we surveyed attempt to innovate across the continuum of care. Having accepted financial risk for the healthcare of their clients, these organizations have invested in many innovative programs and linked them together in an attempt to maximize health and decrease the need for expensive institutional care.

Intermountain Health and Sierra are large, vertically integrated corporations, each of which operates a Medicare HMO\* and a provider organization that includes hospitals, physicians, and a home care agency. As a participant in HCFA's Social HMO II demonstration project, Sierra receives risk-adjusted capitation payments. Both screen all new enrollees in the HMO to identify those at risk and to provide them with proactive interventions, such as comprehensive assessment, case management, preventive primary care, telephone follow-up, home care, health education, transportation, nutritional support, recommendations for self-management, and referrals to specialized services as needed. Both have developed computer-based clinical databases that facilitate coordination of care, communication among providers, and continuous quality improvement initiatives.

The East Boston Neighborhood Health Center seeks to improve the health of its local population regardless of a person's ability to pay for services. Through several contracts with the Medicare and Medicaid programs and with private HMOs and other insurance companies, this community health organization obtains the funding necessary to provide, purchase, and coordinate many of the services listed in the preceding paragraph.

None of these 3 comprehensive programs have been evaluated.

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... DISCUSSION ...

The programs described here are the most innovative, field-tested programs for the healthcare of chronically ill older people we could identify. In the aggregate, they appear to have the potential to provide exemplary care for most chronically ill patients. The 3 comprehensive programs, like the PACE and Social HMO programs that preceded them, are attempting to weave several innovative

approaches into comprehensive, coordinated systems of continuous care. Individually, however, most of the programs we studied appear to be fairly cautious experiments, designed to test the water around one type of care. Only one program (Stanford)<sup>32</sup> has demonstrated actual improvements in health-related outcomes (Table 2). Undoubtedly, our inclusion criteria and sampling strategy caused us to overlook some promising achievements of other progressive organizations in the United States and in other countries.

Notwithstanding these limitations, what have we learned? The 31 programs we surveyed were nominated as innovative because they tried to improve some aspects of the traditional organization and delivery of care to chronically ill older people. Although the programs varied greatly in their goals and approaches, they tended to rely on 1 or more of 4 interrelated strategies—targeting high-risk seniors, using teams to provide care, shifting the site of care, and redesigning primary care.

*Targeting high-risk seniors.* Patients at risk for heavy use of healthcare services command the attention of organizations at risk for paying for their care. Accordingly, some organizations dichotomize their older populations into high-risk minorities and low-risk majorities. To the extent that such targeting leads to better care for high-risk, chronically ill patients, it is justifiable on financial and ethical grounds. To the extent that it maintains or erodes a suboptimal status quo for the low-risk chronically ill, it may not be. The more sophisticated programs monitor everyone in their population and make available the interventions that are most likely to help low-risk as well as high-risk patients.

*Using teams to provide care.* The pervasive use of teams reflects the growing sense that chronically ill older people need additional expertise and structure in their healthcare. Expertise is added by supplementing traditional primary care with the services of geriatricians, nurse practitioners, nurses, social workers, case managers, and other providers of healthcare. Structure is added when teams conduct assessments and conferences and when they plan and provide care. Unfortunately, some care teams operate without meaningful conversations with the patients' primary care physicians, leading, not surprisingly, to complaints about lack of physician support. This may account partially for the total omission of disease management programs (which often "carve out" from the primary care relationship the management of one of a patient's diseases) from our list of nominations of innovative

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\* Intermountain Health recently decided not to renew its Medicare HMO contract.



programs. In the absence of reliable outcomes data, anecdotes suggest that the success of supplemental expertise and team care in the future may depend largely on the effectiveness of its integration with primary care.

*Shifting the site of care.* Changing the site of care to less expensive options is another strategy used by innovative programs. Most frequently, programs facilitate a shift from the hospital to the subacute unit or the patient's home by making extra staff or services available at the lower-cost site. The effects of such shifts on the quality, the outcomes, or even the total costs of care are difficult to measure and mostly unknown. Clear, evidence-based guidelines for the care of common geriatric conditions would help to establish standards against which the care provided at different sites could be compared. Ultimately, the success of this strategy will depend on patients' receiving adequate care in the lower-cost settings. The outcomes of some alternative-site care appear comparable to those obtained in traditional sites, but the results of this strategy must be examined condition by condition.<sup>33</sup>

*Redesigning primary care.* Some innovative programs have attempted to enhance primary care, not by appending new providers or referring patients for new services, but by redesigning individual practices' basic systems for organizing and delivering care. These changes affect the practices' structure, methods for supporting clinical decision-making, information systems, and programs for supporting patients in self-management.<sup>34</sup> Promising innovations in these areas include efforts to better define and integrate the roles of physicians and nonphysicians, to use group visits and telephone follow-up, to offer peer support and education about self-management, and to use information systems that alert providers about needed care, provide feedback, and facilitate coordination of care. In the future, computer-tracked milestones may help ensure that the trajectories of chronic illnesses are monitored and that appropriate interventions are offered when a patient's condition worsens more rapidly than expected.

The organizations we studied were among those most willing and able to take risks, and some of their programs are breaking new ground. Nevertheless, as

**Table 2.** Published Outcomes of Controlled Trials of Selected Innovative Healthcare Programs

Type of Care	Organization	Design	n	Reduced Utilization	Cost	Patient Satisfaction	Physician Satisfaction	Health Status	Functional Status
Long-term care	Fallon Clinic <sup>20</sup>	Retrospective cohort	1077	ED, SNF, hospital days	Lower	NA	NA	NA	NA
Long-term care	Kaiser, San Diego <sup>18</sup>	Retrospective cohort	307	Hospital days	NA	High	NA	NA	NA
Primary care	Kaiser, Denver <sup>23</sup>	Randomized, controlled trial	321	ED, x-ray, hospital admissions	Lower	High	High	Same	Same
Subacute care	HealthPartners <sup>30</sup>	Retrospective cohort	1144	Length of stay	Lower	High	High	NA	NA
Self-management	Stanford <sup>32</sup>	Randomized, controlled trial	952	Hospital days, hospital admissions	NA	NA	NA	Better	Better

ED = emergency department; SNF = skilled nursing facility; NA = not available.

we enter an era of pandemic chronic disease armed with a woefully inept healthcare delivery system, we might expect that more innovation would be occurring. Why are today's large healthcare organizations not investing more heavily in new ways to care for the rising tide of the chronically ill (and very expensive) segment of our population? One reason is that innovation in this area is expensive, and there is little consensus about the directions that are most likely to reward investment. Second, executives' enthusiasm for aggressive investment in revolutionary new systems of care is dampened by regulatory requirements, payers' restrictions, competing demands for operating capital, and short-term fiduciary responsibility to shareholders. Third, with a few exceptions, the industry is in collective denial, clinging to the belief that the solution lies in finding more money for the Medicare program.

In light of these factors, it is not surprising that the most widely implemented innovation we encountered was case management. This program is fairly inexpensive, typically involving a small number of modestly paid case managers who provide services to a targeted group of high-risk patients. In addition, many healthcare administrators believe that changing physicians' behavior is simply too difficult. Furthermore, case management can be implemented with minimal involvement or disruption of medical practice. This last factor facilitates the adoption of these programs, but it can also be a barrier to their success. The results of several randomized trials of geriatric case management now under way should soon help answer important questions about its benefits and its costs.

The future of innovation in the care of chronically ill older people is unclear. How will we create the proactive, multifaceted, well-coordinated, efficient care systems that most of us desire for our patients, our parents, and ourselves? Should we invest in upgrading and expanding the capacities of our present primary care providers or should we continue to carve out ever larger pieces of the care process to be provided by specialized practitioners and services? How can we best combine primary and specialty care? How can we make clinical information accessible on-line to clinicians without compromising confidentiality? How can we align our incentives so that all the participants share the benefits of good outcomes and the costs of bad ones?

Opportunities to answer many of these questions are afforded by the many new healthcare programs for chronically ill older patients now being launched

across the United States. Because many such programs are never evaluated rigorously, however, chances to learn are being missed. Even among the fairly high-profile 31 programs described in this report, only 22 (71%) reported having any evaluative component, only 17 (55%) included a control group, and only 5 (16%) have published the outcomes of controlled studies (Table 2). Undoubtedly, promising new programs that actually improve health and reduce expenses will be vulnerable when funding becomes tight or when the next fad comes along, if they are not supported by solid outcomes data. A well-done evaluation would describe the likelihood that a program that was successful in one setting will thrive in other populations and local environments, valuable insights that we lack for most of today's innovative programs.

Although specific answers are not obvious now, a few general principles could help guide us toward our goals in the years ahead. First, the conditions are ripe to reward informed innovation in the care of chronically ill older people. Thus we should continue to create incentives and provide support for experimentation. Second, we should adopt an attitude of tolerance and realistic positive expectations. Most leaders in this field want to improve our systems of healthcare. Regardless of past infractions, continued defensiveness and blaming among physicians, governmental officials, healthcare administrators, and the public will only impede our progress. Finally, we should evaluate carefully the results of our innovations, so we can learn promptly from our successes and our failures.

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### ...REFERENCES ...

1. Hoffman C, Rice D, Sung HY. Persons with chronic conditions: Their prevalence and costs. *JAMA* 1996;276:1473-1479.
2. Freeborn DK, Pope CR, Mulooley JP, McFarland BH. Consistently high users of medical care among the elderly.

*Med Care* 1990;28:527-540.

3. Gruenberg L, Tompkins C, Porell F. The health status and utilization patterns of the elderly: Implications for setting Medicare payments to HMOs. *Adv Health Econ Health Serv Res* 1989;10:41-73.
4. Wagner EH. The promise and performance of HMOs in improving outcomes in older adults. *J Am Geriatr Soc* 1996;44:1251-1257.
5. Boulton C, Boulton LB, Pacala JT. Systems of care for older populations of the future. *J Am Geriatr Soc* 1998;46:499-505.
6. Kramer AM, Fox PD, Morgenstern N. Geriatric care approaches in health maintenance organizations. *J Am Geriatr Soc* 1992;40:1055-1067.
7. Friedman B, Kane RL. HMO medical directors' perceptions of geriatric practice in Medicare HMO's. *J Am Geriatr Soc* 1993;41:1144-1149.
8. Pacala JT, Boulton C, Hepburn K, et al. Case management of older adults in health maintenance organizations. *J Am Geriatr Soc* 1995;43:538-542.
9. Harrington C, Newcomer RJ. Social health maintenance organizations' service use and costs, 1985-1989. *Health Care Financ Rev* 1991;12:37-52.
10. Manton KG, Newcomer R, Lowrimore GR, Vertrees JC, Harrington C. Social/health maintenance organization and fee-for-service outcomes over time. *Health Care Financ Rev* 1993;15:173-202.
11. Kane RL, Kane RA, Finch M, et al. S/HMOs, the second generation: Building on the experience of the first social health maintenance organization demonstrations. *J Am Geriatr Soc* 1997;45:101-107.
12. Eng C, Pedulla J, Eleazer GP, McCann R, Fox N. Program of all-inclusive care for the elderly (PACE): An innovative model of integrated geriatric care and financing. *J Am Geriatr Soc* 1997;45:223-232.
13. Lamb GS, Zazworsky D. The Carondelet model. *Nurs Manag* 1997;28:27-28.
14. Lamb GS. Early lessons from a capitated community-based nursing model. *Nurs Admin Q* 1995;19:18-26.
15. Anker-Unnever L, Nutting FE. Coordinated care partnership: Case management with physician practices. *J Case Manag* 1995;4:3-8.
16. Burns LR, Lamb GS, Wholey DR. Impact of integrated community nursing services on hospital utilization and costs in a Medicare risk plan. *Inquiry* 1996;33:30-41.
17. Lewis BE, Burl J. Integrating nursing homes and managed care. *Nurs Home Med* 1997;5:277-282.
18. Joseph A, Boulton C. Managed primary care of nursing residents. *J Am Geriatr Soc* 1998;46:1152-1156.
19. Burl J, Bonner A, Rao M. Demonstration of the cost-effectiveness of a nurse practitioner/physician team in long-term care facilities. *HMO Pract* 1994;8:157-161.
20. Burl JB, Bonner A, Rao M, Khan AM. Geriatric nurse practitioners in long-term care: Demonstration of effectiveness in managed care. *J Am Geriatr Soc* 1998;46:506-510.
21. Collier P, Early A. A team approach to geriatric case management. *J Case Manag* 1995;4:66-70.
22. Scott JC, Robertson BJ. Kaiser Colorado's cooperative health care clinic: A group approach to patient care. *Manag Care Q* 1996;4:41-45.
23. Beck A, Scott J, Williams P, et al. A randomized trial of group outpatient visits for chronically ill older HMO members: The cooperative health care clinic. *J Am Geriatr Soc* 1997;45:543-549.
24. Covinski KE, King JT, Quinn LM, et al. Do acute care for elders units increase hospital costs? A cost analysis using the hospital perspective. *J Am Geriatr Soc* 1997;45:729-734.
25. Landefeld CS, Palmer RM, Kresevic DM, Fortinsky RH, Kowal J. A randomized trial of care in a hospital medical unit especially designed to improve the functional outcomes of acutely ill older adults. *N Engl J Med* 1995;332:1338-1344.
26. Covinski KE, Palmer RM, Kresevic DM, et al. Improving functional outcomes in older patients: Lessons from an acute care for elders unit. *Jt Comm J Qual Improv* 1998;24:63-76.
27. Counsell SR, Landefeld CS, Palmer R, et al. Impact of an ACE unit on the process of care for elders in a community hospital (abstract). *J Am Geriatr Soc* 1996;44:S3.
28. Counsell S, Landefeld CS, Palmer R, et al. Impact of an ACE unit on physician and nurse ratings of interdisciplinary care (abstract). *J Am Geriatr Soc* 1997;45:S168.
29. Craig DW, Flaum MA, Morrison ES, et al. Cost savings associated with implementation of a specialized geriatric acute care unit (abstract). *J Am Geriatr Soc* 1997;45:S139.
30. vonSternberg T, Hepburn K, Cibuzar P, et al. Posthospital subacute care: An example of a managed care model. *J Am Geriatr Soc* 1997;45:87-91.
31. Solberg LI, Reger LA, Pearson TL, et al. Using continuous quality improvement to improve diabetes care in populations: The IDEAL model. *Jt Comm J Qual Improv* 1997;23:581-592.
32. Lorig KR, Sobel DS, Stewart AL, et al. Evidence suggesting that a chronic disease self-management program can improve health status while reducing hospitalization: A randomized trial. *Med Care* 1999;37:5-14.
33. Kramer AM, Steiner JF, Schlenker RE, et al. Outcomes and costs after hip fracture and stroke: A comparison of rehabilitation settings. *JAMA* 1997;277:396-404.
34. Wagner EH, Austin BT, Von Korff M. Organizing care for patients with chronic illness. *Milbank Q* 1996;74:511-544.