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Utilization and costs of home-based and community-based care within a social HMO: trends over an 18-year period

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Abstract

Purpose: Our objective was to describe the utilization and costs of services from 1985 to 2002 of a Social Health Maintenance Organization (SHMO) demonstration project providing a benefit for home-based and community-based as well as short-term institutional (HCB) care at Kaiser Permanente Northwest (KPNW), serving the Portland, Oregon area. The HCB care benefit was offered by KPNW as a supplement to Medicare's acute care medical benefits, which KPNW provides in an HMO model. KPNW receives a monthly per capita payment from Medicare to provide medical benefits, and Medicare beneficiaries who choose to join pay a supplemental premium that covers prescription drugs, HCB care benefits, and other services. A HCB care benefit of up to $12,000 per year in services was available to SHMO members meeting requirement for nursing home certification (NHC).

Methods: We used aggregate data to track temporal changes in the period 1985 to 2002 on member eligibility, enrollment in HCB care plans, age, service utilization and co-payments. Trends in the overall costs and financing of the HCB care benefit were extracted from quarterly reports, management data, and finance data.

Results: During the time period, 14,815 members enrolled in the SHMO and membership averaged 4,531. The proportion of SHMO members aged 85 or older grew from 12 to 25%; proportion meeting requirements for NHC rose from 4 to 27%; and proportion with HCB care plans rose from 4 to 18%. Costs for the HCB care benefit rose from $21 per SHMO member per month in 1985 to $95 in 2002. The HCB care costs were equivalent to 12% to 16% of Medicare reimbursement. The HCB program costs were covered by member premiums (which rose from $49 to $180) and co-payments from members with care plans. Over the 18-year period, spending shifted from nursing homes to a range of community services, e.g. personal care, homemaking, member reimbursement, lifeline, equipment, transportation, shift care, home nursing, adult day care, respite care, and dentures. Rising costs per month per SHMO member reflected increasing HCB eligibility rather than costs per member with HCB care, which actually fell from $6,164 in 1989 to $4,328 in 2002. Care management accounted for about one-quarter of community care costs since 1992.

Conclusions: The Kaiser Permanente Northwest SHMO served an increasingly aged and disabled membership by reducing costs per HCB member care plan and shifting utilization to a broad range of community care services. Supported by a disability-based Medicare payment formula and by SHMO beneficiaries willing to pay increasing premiums, KPNW has been able to offer comprehensive community care. The model could be replicated by other HMOs with the support of favorable federal policies.

Keywords

integration, home care, managed care, care management, long-term care financing, community care

Introduction

The purpose of the Social Health Maintenance Organization (SHMO) is to finance and deliver home-based and community-based care, as well as short-term institutional care (called ''HCB care'' herein) in conjunction with comprehensive Medicare benefits for acute care services. Essentially, SHMOs offer an entitlement for HCB care benefits within Medicare's prepaid managed care policy structure, through which beneficiaries receive Medicare and supplemental benefits by joining a managed care organization.

A key feature is that SHMOs seek to enroll members from a cross-section of the Medicare population over age 65. This means that the costs and utilization of HBC care can be viewed with reference to the broader population. Over time in such programs, there can be changes in the enrolled population, service coverage, costs for services, management system, and financing mechanisms. Thus, data on utilization, costs, and

service mix may be useful to policy makers, as well as to other providers interested in offering HCB care benefits, and to other countries interested in the long-term evolution of HCB care services entitlements for elders.

The SHMO was originally conceived at Brandeis University in the 1970s. Researchers at Brandeis received a grant from the Health Care Financing Administration to develop the SHMO concept and demonstration sites [1]. KPNW was one of the four sites beginning enrollment in March 1985 [2,3]. The demonstration authority was recently extended through 2007. This article describes 18 years of operations: from its inception in 1985 through to 2002. During this time, SHMOs have had to adapt to aging memberships, rapidly changing market conditions, Medicare policy shifts, and significant changes in health care delivery systems and technologies. In 2002, the four operating sites served 113,000 members [4].

During this same period, much has happened in the health and long-term care fields. The US considered (but rejected) a population-based entitlement for HCB care the (Pepper Commission 1990), and two countries implemented national entitlements: Germany in 1995 [5], and Japan in 2000 [6]. The US made one program that integrates Medicare acute care and Medicaid[1] long-term care permanent (PACE in 1997—(Mui, 2001 #1302)), greatly expanded Medicaid spending on HCB care [7], and launched a multi-state effort to enroll individuals eligible for both Medicaid and Medicare into integrated health and long-term care systems [8]; but all of these efforts focus only on the disabled and the poor. Private long-term care insurance was introduced in the mid-1980s to help cover the healthy middle and upper classes, but it has never served more than 5% of the population and is a financing rather than a care delivery system [9]. The SHMO is the only operating program in the US that offers an affordable, Medicare-based entitlement for community-based long-term care for any aged beneficiary choosing to join.

Continuing policy interest in making Medicare more responsive to beneficiaries with disabilities is reflected in the 2003 Medicare Modernization Act, which includes provisions for plans that serve 'special needs beneficiaries,' (i.e. those receiving Medicaid, those in institutions, or those with severe chronic illnesses or disabilities). This act has an option for the government to define 'special needs plans' serving disproportionate shares of these beneficiaries. While it is possible that this non-exclusive special needs plan designation could be used for plans like the SHMOs, much remains to be developed and defined. The experience reported in this paper could inform this policy formation.

[1] Medicaid is the means-tested program that covers medical care and long-term care services for the poor.

Background on SHMO HCB care benefits and management

The HCB care benefit is offered as part of a package of other SHMO supplements to Medicare, including all Medicare coinsurance and deductibles, preventive medical care, unlimited prescription drugs, eyeglasses, and hearing aids. Although Medicare benefits cover in-home services and nursing facility care, as in many other countries, the criteria for coverage focus on skilled nursing and rehabilitation, particularly in post-acute situations. Physical and cognitive disability are not qualifying criteria for Medicare services—thus the need for the HCB care benefit. While the SHMO's HCB care benefits evolved over the period, they generally included personal care services, homemakers, adult day care, transportation between covered service settings, respite care, personal emergency response systems, durable medical equipment beyond Medicare, home nursing, shift care, cash reimbursement for member-paid/hired aides, dentures, and other services. Descriptions of these services and how they evolved over the study period are shown in Exhibit 1.

Spending on the HCB care benefits for individuals was limited by two 'caps' [1]: $12,000 per year for services in any setting (including nursing facilities), and [2] concurrently, $1,000 per month per member for services delivered in the home or community settings. The $1,000 per month cap could be exceeded in circumstances of special need (e.g. for post-acute care in institutional settings beyond Medicare coverage; and for one-time home modifications and equipment in aid of return to the community) by drawing on the annual cap. Members were also required to pay coinsurance for HCB care benefits: 10% initially, then 20% since 1992. A member receiving $500 worth of services, for example, would need to pay $100, while the plan paid $400.

To receive HCB care benefits, a member needed to be assessed and determined to be nursing home certified (NHC), that is, meeting nursing facility preadmission criteria. Unlike most US HCB care benefit programs, SHMO members needed to meet the NHC criteria for only one month, versus the six months common in other programs. Because of this lower temporal barrier to eligibility, as many as one fifth of NHC members in SHMOs lost eligibility by the next

Exhibit 1. Descriptions of HCB Care Benefit Service

Personal care and homemaker: Personal care workers help members with bathing, dressing, ADL needs, and homemaking tasks in conjunction with personal care visits. The service is purchased by the hour, generally in a minimum of two-hour blocks. Targeted personal care, in the form of 'minimum visits,' which last 45–75 minutes, were instituted in 1992—generally for bathing.
Nursing: The HCB care benefit covered nursing visits that do not meet Medicare criteria, i.e. for skilled care and rehabilitation under a physician's orders. Typical needs served include non-skilled foot care or help managing medications.
Transportation: Transportation to and from covered care services, e.g. primary care, therapy, adult day care, was included for those who did not have their own means of transport. Depending on needs, transportation could be by wheelchair cars or taxi, medical car by radio, or wheelchair van.
Nursing Facility: The HCB care benefit initially covered up to 100 days per episode of illness beyond Medicare, but this was reduced to 30 days in 1989, and again to 14 days in 1992. These reductions were intended to redirect resources toward keeping members in the community rather than using funds to pay for the first portion of long-term institutional stays. Since the reductions, the nursing facility benefit was used primarily for purposes of caregiver respite and to extend convalescence after Medicare-covered stays. After the early years, coverage was only available for stays that supported a return to community living (i.e. if a member entered a nursing home without hope of return to the community, the stay was not covered).
Equipment: The HCB care benefit covered a range of equipment to improve patient and provider comfort and safety. To assess need, the Resource Coordinator typically requested skilled home health staff to complete a home safety assessment (covered by Medicare). A variety of home modifications, which are not covered by Medicare unless life threatening, could then be purchased and installed by the HCB care benefit. Training in their use (covered by Medicare) could then be ordered. During the more recent period, the HCB care benefit rented and purchased equipment. Equipment rented on a short-term basis included fully electric hospital beds, as well as wheelchairs. The plan usually purchased bathroom benches, hand-held showers, grab bars and raised toilet seats; four-wheeled walkers and lightweight wheelchairs; and commodes. Over the years, the list has been refined into a formulary.
Personal emergency response system (*PERS*): PERS devices are worn by individuals, who can push a button to call for medical help in an emergency. When the SHMO began, PERS was not a required benefit by the demonstration protocol. It was introduced in the 'other' category before becoming a covered service in 1992.
Member reimbursement: Throughout the period studied, the SHMO had a mechanism to reimburse members for costs incurred for services. The general policy was to reimburse members for one-third of their out-of-pocket costs up to $600 per month for live-in care, and 80% (up to $800) for hourly care, including private-hire personal care, homemakers, weekend help and some sleepovers, or 'other' services and equipment purchased by the family. The HCB care benefit also reimbursed for HCB care services that staff in retirement facilities could provide more cost effectively than outside workers, e.g. medication management, bathing, and laundry assistance.
Dentures: In 1994, the SHMO introduced a denture benefit, which was enhanced in 1999 to include clinical evaluations of whether dentures were appropriate, including a determination of whether current dentures could be repaired (not covered). The benefit also covered 'immediate' dentures, which are made immediately after the teeth are pulled and are replaced with permanent dentures six months later.
Adult Day Care: Throughout the period studied, the HCB care benefit covered adult day care (usually social rather than medical model, based on availability).
Respite in residential care facilities. The HCB care benefit began covering respite stays in residential care facilities in 1992. Such stays provide a level of care similar to adult foster homes and assisted living facilities (i.e. three meals a day, personal care, and medication management). In more recent years, respite was increasingly used for planned, repeated respites for caregivers of dementia patients, for example, ten days a month in a residential care facility (or an assisted living facility with a dementia unit) for several months in a row. This kept the service near the $1,000 per month benefit cap, and the member would also have access to home care.
Shift care: Shift care was purchased in 8-hour to 12-hour (usually overnight) units, as well as 24-hour units.
Other: Since the beginning of the SHMO, there has been a provision to cover 'other' needs that were not in the stated benefits. On occasion, 'other' was a way to test the utility of new services, including PERS, which became a popular service. Services classified as 'other' more commonly represent exceptions to routine services (replacing lost PERS pendants, piloting a medication dispensing machine, bath and foot-care provided at adult day care, living skills coach, installation of grab bars, and services provided by a vendor in retirement homes). In the early years the demonstration experimented with services to serve the members at home, and 'other' services were prevalent.

quarter [10]. Because they remained members of the SHMO, they were monitored for status changes, and they could readily be re-assessed and served if eligible.

At KPNW, to meet requirements for NHC a member had to have one of eight criteria met. Specifically, the member:

- cannot get around without daily assistance, both inside and outside.
- needs total help with feeding or intravenous feeding.
- frequently disruptive or extremely agitated and requires special tolerance or management of medications and environment.
- is frequently confused and needs protection or supervision.
- has highly impaired health status, bed-bound, needs full-time nursing-medical care to maintain vital bodily functions.
- cannot manage medications, needs daily help.
- needs substantial physical assistance with at least parts of using the toilet, at least three times per week.
- requires assistance, at least three times a week, with catheter care or is totally incontinent day or night and dependent on care.

The HCB care benefits were managed by a unit of case managers (KPNW calls them Resource Coordinators) who did not require physician approval for

their HCB care benefit authorizations [11]. Any member meeting NHC criteria worked with a Resource Coordinator to decide how to use covered HCB care services up to the benefit limits. Those eligible for the HCB care benefit within the entire membership were identified using a self-reported health status questionnaire initially sent to all new members, and all members annually. Others were referred to Resource Coordinators by internal systems and by members themselves. Resource Coordinators screened referrals, assessed those found to be at risk, developed care plans with members and family caregivers, and monitored all service plans monthly—problem-solving issues with members, families, and vendors providing HCB care services, and the medical care delivery system as needed.

Prior studies of SHMOs identified how case managers use HCB care benefit services to address a range of needs presented by elders with chronic illnesses and disabilities [12–14]. This is a creative, dynamic process requiring specific knowledge and good communication skills. A typical plan for a member with need for help with activities of daily living might include personal care twice a week (or daily if member needs help dressing and/or feeding), a homemaker for meals and shopping once a week, a nurse for foot care and/or medication management, and transportation to medical appointments. If the member had a preferred privately hired attendant providing some of these services, the SHMO might reimburse for a portion of the costs. A typical plan for a member leaving the hospital might include a week or two of convalescence in a nursing home beyond what Medicare would pay for rehabilitation, adaptive equipment, especially in bathroom (which Medicare does not cover), plus personal care and homemaking as needed. Members who are relatively independent or who have strong informal care, but are at risk of falling when left alone, might have a minimal plan that included only PERS, homemaking, and transportation. In contrast, the service plan for the bed-bound individual might be $1,000 of personal care each month, combined with occasional respite stays in nursing care facilities (which could draw on the annual cap rather than the monthly cap). Some families also pay for additional care beyond the out-of-pocket benefit.

The HCB care benefit can also help members receiving hospice or palliative care by providing shift care to supplement the meager Medicare coverage of non-skilled hospice services. One of the most common actions would be for the HCB services benefit to cover shift care for two nights a week to a family on hospice so the family could sleep.

Research questions, methods, and data

The questions we aimed to address in this descriptive study are:

- What changes occurred in the SHMO membership and eligibility for the HCB care benefit?
- What covered HCB care services did recipients receive?
- What did these services cost?
- How were the HCB care costs financed?

Our primary sources of information were the quarterly reports submitted by KPNW to the federal government, and the Management Data Set. These two sets of data have been collected by the Social HMO Consortium Coordinating Center at Brandeis University since 1985. Specifically, these reports contain data on SHMO member premiums; enrollment and disenrollment in the SHMO; case mix of the SHMO population; SHMO expenditures and utilization in the aggregate and by service; proportion of SHMO members qualifying for services; and proportions of SHMO with service plans. Data on annual Medicare reimbursement were obtained directly from KPNW's finance department.

Population data on institutional, NHC, and non-NHC status were derived from reports made to the Health Care Financing Administration to obtain Medicare payments, which differed for these three categories. After 1997, the Administration changed its definition of 'institutional' to exclude residents of adult foster homes and assisted living facilities (leaving only nursing facility residents). Most SHMO members in foster care and assisted living were reclassified as NHC in 1998, since they met NHC eligibility criteria. The number of assisted living and adult foster care facilities rose over the period studied.

All costs for HCB care benefits and Resource Coordinators represent actual expenditures. The expenditure figures represent gross service costs, including the 10% (through 1991) or 20% covered by member coinsurance. KPNW's practice was to pay vendors 100% for services delivered and to bill members for their co-payment. In recent years, about 80% of the 20% co-payment was recovered from members. Thus, KPNW was paying 84% of the benefit costs.

Results

SHMO membership and eligibility for HCB care benefits

The KPNW SHMO membership grew steadily from 3,087 in December 1985 (nine months after opening)

to a peak of 6,081 at the end of 1990. Thereafter, enrollment fell each year to a low of 3,913 in 2000, and then rose to 4,308 by the end of 2002 (Section 1 of Exhibit 2).

Membership has become progressively older and more disabled. Demographically, the proportion of member's age 85 or older at the end of each year stayed at 12% from 1985 to 1989, and then grew steadily to 25% in 1999–2002. The proportion of members meeting NHC criteria at the end of each year rose in turn, lagging well below the proportion of members over 85 years for most of the period, and then exceeding those proportions in the last three years (peaking at 28% NHC in 2001—Sections 2 and 3 of the Exhibit 2). In terms of the eight NHC eligibility criteria, 42% of NHC members qualified on one item only, 25% qualified on two, and 33% qualified on three or more.

The proportions of members in the institutional category rose steadily until 1998 and then dropped sharply, largely due to the federal decision to no longer pay institutional rates for residents of adult foster care and assisted living facilities. Most SHMO members in these residences were reclassified as NHC in 1998, which is reflected in a concurrent NHC jump. After 1999, the proportions of members living in nursing facilities continued to decline. Since 1999, the proportion of NHCs in assisted living and foster care facilities ranged between 16 and 18%.

The proportions of members with HCB care plans at the end of each year was substantially less than the proportions of SHMO members meeting requirements for NHC, averaging 72% of the number of year-end NHCs over the 17 years for which there were data. Section 3 of Exhibit 2 shows two measures of NHC status and care plans. For years 1993 to 2002, KPNW collected data on the proportion of members meeting criteria for NHC, and those with HCB care plans at some point during the year. The 12-month numbers are substantially higher than the corresponding year-end numbers. Over the period, on average, 35% more members had care plans during the year, and 24% more were NHC, than the respective December counts. The full-year figures include members who died or voluntarily disenrolled (e.g. moved out of the area, chose other coverage) during the year, and others who remained members but stopped using the HCB care benefit. From the base of these full-year figures, on average over the nine years, 77% of the members meeting requirements for HCB care had care plans during the year (ranging from 73 to 80%), and 41% of the eligibles had some point at which they were eligible and not receiving HCB care services (high year was 46% and low year was 33%—see Exhibit 2).

The reasons eligible persons did not use services have been tracked since 1993 (1994 data are missing in Exhibit 3). The most common reason was having an informal caregiver who met their needs, a reason that decreased from 27% of HCB care benefit eligibles in 1993 to 14% in 2001. Less frequent reasons included costs of coinsurance (an average less than 2% of eligibles), and 'declines other' reasons (3–5%), which included specific reasons given by the member (e.g. problems with the worker or the schedule). A slightly more important reason for not getting the HCB care benefit was that the members' needs were met through non-HCB care benefit services (e.g., home health, hospice, or the member's own aide). The reason that grew fastest was the 'other' category, which includes members who were out-of-area, or in foster care or assisted living. As described above, in 1998 the federal government removed them from the institutional payment category. Since the HCB care benefit does not cover in-home services for members in these settings, all remained in the unserved status.

Patterns of HCB care services utilization and costs

Exhibit 4 lists 2002 data on the frequency with which each service appeared in care plans, how many units were typically provided in a year for a person with that service in the plan, the costs per unit, the annual costs for the service for each user, and the proportion of total HCB care benefit spending for which the service accounted. This section discusses these data for each service in the context of the changes in utilization and costs of each service over the study period. Highlights of changes in patterns are noted. Tables of the detailed data can be found on the studies tab of the Social HMO Consortium website (http://sihp.brandeis.edu/socialhmo/).

Personal care and homemaker

Personal care started small in 1986 (in 43% of plans and accounting for 16% of HCB care benefit spending), peaked in 1994 (59% of plans for PCW/13% for minimum visit and 60% of spending), then fell steadily. In 2002 personal care was in more than a third of HCB care benefit plans for an average of 165 hours and $2,971 per year for each plan with the service (Exhibit 4). Minimum visits were in another 9% of plans, averaging 47 visits a year and $1,421. Together, these two services accounted for 42% of total spending on HCB care services in 2002. In contrast,

Exhibit 2. Case mix, cost, and revenue for HCB care in social HMOs

1. Year-end	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Members in SHMO by functional status/residence																		
Non-NHC	2,955	4,075	4,667	4,603	4,964	5,595	4,420	3,917	3,691	3,673	3,577	3,371	3,220	3,160	2,952	2,733	2,829	3,120
Community NHC	112	232	307	402	448	486	522	494	552	640	701	714	738	953	990	1,101	1,160	1,170
Institutional	20	55	95	127	171	231	228	250	256	264	289	283	249	94	179	79	65	61
Total	3,087	4,307	4,974	5,005	5,412	6,081	5,170	4,661	4,499	4,577	4,567	4,368	4,207	4,207	4,121	3,913	4,054	4,351
2. Year-end Percents																		
Non-NHC	96%	95%	94%	92%	92%	92%	85%	84%	82%	80%	78%	77%	77%	75%	72%	70%	70%	72%
Community NHC	4%	5%	6%	8%	8%	8%	10%	11%	12%	14%	15%	16%	18%	23%	24%	28%	29%	27%
Institutional	1%	1%	2%	3%	3%	4%	4%	5%	6%	6%	6%	6%	6%	2%	4%	2%	2%	1%
Total	100%	101%	102%	103%	103%	104%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3. Other Case Mix Measures for SHMO membership																		
Year-end % age 85 or over	12%	12%	12%	12%	13%	13%	16%	17%	18%	19%	20%	22%	23%	24%	25%	25%	25%	25%
Year-end % w/care plans	m	4%	5%	6%	6%	6%	7%	7%	9%	11%	12%	13%	14%	15%	16%	19%	18%	18%
Within-year % with plans	m	m	m	m	m	m	m	m	12%	m	16%	19%	21%	22%	24%	25%	25%	m
Within-year % NHC	m	m	m	m	m	m	m	m	17%	m	21%	23%	25%	26%	28%	30%	30%	32%
4. HCB care benefit Costs ($PMPM)																		
HCB care benefit Services	m	$14	$23	$30	$29	$27	$34	$29	$33	$40	$43	$49	$52	$56	$63	$65	$71	$65
HCB care benefit Management	m	$7	$7	$7	$7	$9	$10	$12	$13	$14	$16	$15	$16	$19	$23	$26	$27	$29
Total HCB care benefit Costs	m	$21	$30	$38	$36	$36	$44	$41	$46	$54	$58	$64	$68	$75	$87	$90	$98	$95
5. HCB care benefit costs per NHC and per care plan																		
HCB Services/ NHC/yr	m	m	$4,970	$5,320	$4,398	$4,246	$4,384	$3,355	$3,472	$3,802	$3,600	$3,827	$3,740	$3,401	$3,197	$3,005	$3,052	$2,894
HCB Services/ care plan/year	m	m	$5,605	$6,164	$5,661	$5,357	$6,054	$5,057	$4,717	$4,692	$4,511	$4,852	$4,626	$4,465	$4,594	$4,309	$4,746	$4,328
6. SHMO Revenues																		
15% of Medicare revenues	m	m	m	m	$38	$41	$42	$46	$51	$52	$67	$71	$74	$77	$81	$92	$104	$120
Member premium	$49	$49	$49	$57	$58	$75	$125	$135	$144	$156	$156	$156	$156	$156	$170	$176	$176	$180

Notes:
HCB Care—a package of services delivered in home, community, and institutional settings
NHC—Nursing home certified according to preadmission screening requirements.
PMPM—per SHMO member per month.

Exhibit 3. Proportion of members eligible for HCB care benefit who do not use services at least one month a year

	1993 (%)	1995 (%)	1996 (%)	1997 (%)	1998 (%)	1999 (%)	2000 (%)	2001 (%)	2002 (%)
Declines due to cost	4	2	3	2	1	1	1	1	1
Declines for other reason	4	3	3	5	5	4	4	3	2
Informal care is enough	27	23	24	18	18	16	15	16	14
Served by non-HCB care benefit	7	6	4	4	11	6	4	4	2
Other reason	5	5	5	4	7	14	18	19	20
Total Eligible but not served	45	40	39	33	42	41	43	44	41

over the period studied, the use and costs of homemakers were relatively stable in terms of proportions of plans with the service and the portions of HCB care spending going to the service. Homemakers were nearly as widely used as personal care (in 37% of all care plans and 100 hours per year), but not as expensive (19% of all HCB care spending).

Nursing

Over the study period studied, nursing has slowly risen as a proportion of HCB care benefit spending, averaging 0.5% from 1985 to 1992 and 1.9% from 1994 to 2002. (Nursing supervisory visits were included in the cost of personal care services and were not charged to members.) Only 5% of care plans had nursing visits in 2002, accounting for 2% of overall HCB care benefit costs. For those few who needed visits, however, the costs and utilization were substantial, particularly for medication management, which averaged 33 visits and $1,024 per care plan annually.

Transportation

Over the period studied, the use of transportation grew from 5% of care plans in 1986 to 23% in 1991. From 1992 to 1995, orders were down to 2 to 5% of care plans—a drop that resulted from expansions of transportation coverage by the larger health plan to and from medical appointments during this period. During these periods, transportation use in the HCB care benefit was primarily for rides to adult day care. By the mid to late 1990s, the health plan decreased its transportation benefit, and the HCB care benefit again filled the need. In each of the last five years of the period studied, transportation was in at least 25% of care plans. Since 1998, data are available on three options representing increasing levels of help for the user: Beginning at the lowest level of help, wheelchair cars or taxis were in 7–9% of care plans; medical car by radio was in 3–6%; and wheelchair van was in 16–18%. In 2002, the costs per plan per year ($225) were not high, but the wide prevalence of use meant that transportation accounted for 4% of HCB care benefit spending in 2002.

Nursing facility

From 1986 to 1989, about 40 to 50% of members with care plans used the benefit for care in a nursing facility. After the reductions in covered days, nursing facilities were used by 16 to 21% of HCB care benefit users from 1992 to 2002. The intensity of use also fell over time: from a mean of 54 days from 1986 to 1988, to 26 days in 1989, to 12–14 days since 1992. While the benefit was 100 days, nursing facility was the single biggest category of HCB care spending, jumping from 40% of HCB care spending in 1985 to 47% in 1987. The cuts in covered days produced drops to 22% of spending in 1989, and then to 8% in 1992, where it has pretty much remained since (Exhibit 4).

Equipment

The HCB care benefit covered durable medical equipment from 1985 to 1990, dropped the benefit from 1991 to 1997, then resumed it in 1998. Spending on DME was authorized for 4% of the members with HCB care plans in 1986, rose to 11% in 1989, jumped immediately to 30% in 1998, and then fell back to 27% in 2002. From 1999 to 2002, rentals were in 2% of care plans, and purchases were in 33 to 27%. Units/user/year were steady at two purchased and three to five units rented. Costs of purchases per unit averaged $101 over the last five years, and rental/unit averaged $44. Costs per user for purchase averaged $222 and for rental were $177. Since 1998, spending on purchases and rentals have accounted for 2 to 3% of total HCB care benefit costs.

Personal emergency response system (PERS)

When PERS became a covered HCB care benefit in 1992, it appeared in 8% of care plans, and use rose steadily to 13% in 2002. Monthly fees appeared in 17% of plans in 1992 and 38% in 2002. Even though the quality and features of systems have increased significantly over the years, costs have been steady, with installations at $60 in most years, including 2002, and monthly at $35. Patients with PERS averaged

Exhibit 4. 2002 Utilization and costs of HCB Care Benefit Services

Covered HCB Care Benefit Services	% of HCB care plans w/service in year	Units of service/HCB care plan/year	Costs per unit	Costs per user per year	% of total HCB care benefit spending
Personal Care hours Minimum visit	36 9	165 47	$18 $30	$2,971 $1,421	42
Homemaker hours	37	100	$15	$1,505	19
RN (1985–1991 all nursing visits) Medication management	5 0	12 33	$59 $31	$738 $1,024	2
Transportation	25	9	$26	$225	4
Non-Medicare nursing facility days	16	12	$115	$1,343	8
Equipment purchase Equipment rental	27 2	2 4	$93 $31	$187 $138	2
Personal Emergency Response System – Install Personal Emergency Response System – Monthly	13 38	1 9	$60 $35	$61 $301	4
Dental evaluation Dentures Denture immediates (short-term dentures given just after extractions)	4 4 0.5	1 2 1	$255 $855 $1,131	$260 $1,442 $1,131	3
Member reimbursement (Live-in 33%) Member reimbursement (Respite 80%) Member reimbursement (Other 80%)	0.9 0.3 8	8 4 8	$425 $650 $331	$3,364 $2,762 $2,620	8
Shift care (8–12 hour) Shift care (24-hour live-in)	0.9 2	6 17	$111 $178	$666 $3,096	2
Adult day care days	3	61	$53	$3,244	3
Out-of-home respite in residential care facility	1	25	$112	$2,792	1
Other	4	40	$25	$997	2

eight or nine months of monitoring per year, at a cost of about $300. Overall, spending on PERS showed steady growth from 1% of HCB care benefit costs in 1992 to 4% in 2002.

Dentures

Between 2 and 4% of members with care plans took advantage of the benefit each year since it was first offered in 1994. Immediate dentures were less prevalent and have been in less than 1% of plans since 2000. Users received an average of one evaluation at about $250, two dentures (rising from $675 to $855/unit from 1994 to 2002), and one immediate (about $1,000). As a percent of total HCB care benefit spending, the dental benefit was about 1% of total HCB care spending benefit in most years since 1995, but it rose to 3% in 2000 and 2002.

Member reimbursement

Reimbursement to members for both live-in aides and respite aides fell steadily in the study period—from 6 to 3% of care plans in 1992, respectively, to less than 1% each in 2002 (Exhibit 4). From 1992 to 2002, live-in units (a unit generally covered one month of care) varied little from the average of eight units per user year, $400 to $500 per unit, and annual costs of about $2,000 to $4,000 per using member. Units per user of respite crept up to four in 2002, leading to a rise in cost per user despite rather steady costs per unit ($600 over last nine years). Utilization for 'other' rose from 1% of care plans in 1992 to 8% in the last few years. Units of 'other' types of member reimbursement rose steadily in the last 10 years to 8 units in 2002, with costs per unit in the $300 to $400 range, and costs per user rising steadily to $2,620 in 2002. Overall, member reimbursement spending was 8% of total HCB care benefit spending in 2002.

Adult day care

In 1986, 5% of members who used HCB care services had adult day care in their service plans, and the prevalence of use grew to 11% in 1989 (a period when KPNW was running its own program in its research center). Prevalence in plans fell steadily thereafter, with a rate of 3% from 1997 to 2002. Since 1985, the average units/user/year have been steady at about 60, but costs per day rose steadily from $18 in 1985 to $53 in 2002. Due to the increases in per diem costs, the costs/user/year rose steadily from $1,037 in 1985 to $3,244 in 2002. Adult day accounted for 3% of HCB care spending from 1996 to 2002.

Respite in residential care facilities

The prevalence of use of institutional respite started at 4% of members with care plans in 1992 and fell steadily to 1% of those served by the HCB care benefit from 1998 to 2002. Utilization began at 50 days/user/year in 1992, but fell to half that in 2002 (Exhibit 4). Over the same period, costs per day rose from $56 in 1992 to $112, leaving spending per user unchanged ($2,796 in 1992 and $2,792 in 2002). Respite stays were 3% of total HCB care spending in 1992 and 1993, then fell steadily to just 1% 1995–2002.

Shift care

Since 1998, 8–12 hour shift care was received by 1% of members with HCB service plans, and 24-hour shift care by 2%. From 1993 to 2002, units of 8- to 12-hour shift care averaged nine per user per year, and 24-hour shift care averaged 17 units per user. Unit costs per 12-hour shift were steady at $111 for last five years, and unit costs per 24-hour shift were $167 for 9 of the 11 years. Thus, the 2002 annual costs per user ($666 for 8–12 hour shifts and $3,096 for 24-hour) were not atypical for the period. Overall, both types of shift care accounted for 4% of HCB service spending in 1992, but the share fell to 2% in 2002.

Other

The 'other' category was found in the care plans of 27 to 37% of members using HCB care services from 1986 to 1989. Since then, the prevalence of 'other' services fell sharply—never more than 8% of plans since 1992. Similarly, cost per unit started high (mean of $182 from 1985 to 1990), then fell ($13 to $27 per unit from 1993 to 2002). Units per patient were much higher in later years, leading to an average authorization per user of $590 per year across the 18-year period studied. In 2002, 'other' was in 4% of service plans, accounting for 2% of HCB care benefit spending.

Summary of HCB care benefit services

After nursing facility spending exceeded 40% of HCB care benefit costs in 1986–1988, two reductions in the number of covered nursing facility days cut this first to 20% of costs for 1989–1992, and then less than 10% of costs thereafter. The reductions freed up funds for services focused on community living.

Early on, personal care overtook homemaking services in the proportion of patients served with, in the units per person served, and in the total proportion of HCB care benefit spending. Personal care (including minimum visits) accounted for more than 40% of spending since 1991, and it was over 50% of care plans for 1992–1997. No other service exceeded 20% of HCB care benefit spending since 1989. Personal care was in the care plans of 40% or more of those served in eight of the last nine years, and minimum visits were in around 10% of care plans.

In addition to personal care, three other services accounted for significant spending: homemaking, nursing facilities, and member reimbursement. In the last nine years, the use of homemakers ranged between 30 and 40% of those served, and nursing facility stays were in the plans of about 20%. Member reimbursement fluctuated at around 10% of those served. By the end of the period, homemakers accounted for 20% of HCB care service spending, and member reimbursement and nursing facilities for about 8% each. Adding these three services to personal care accounted for 79% of HCB service spending in 2002.

Although other services were not as expensive, there were three other services that were used almost as frequently. In recent years, more than 30% of those served had PERS (4% of HCB care services costs); about 30% had equipment purchases (2%); and 20% of those served used the medical transportation benefit (2%). These three areas added another 8% to HCB services spending.

The six services that accounted for the remaining 13% of HCB care services illustrate the wide range of resources available to members. These include: shift care for intensive and extensive help (used by 1 to 2% of those served and accounting for 2% of HCB spending); home nursing and medication management (5% of those served and 2% of spending); adult day care (3% of those served and 3% of spending); respite in a residential care facility (1% of those served and 1% of spending); dentures and exams (4% of those served and 3% of spending); and 'other' (recently about 6% of those served and 2% of spending).

Trends in costs and financing

Overall, KPNW spending on the HCB care benefit grew five-fold in the 18 years under study—from under $1 million per year to nearly $5 million. Since the SHMO reached its maximum enrollment of 6,081 members in 1990, the increases in total HCB care benefit costs—at least after that date—reflect increases in HCB care benefit costs per member per month (PMPM) (Section 4 of Exhibit 2). As with total HCB care benefit costs, there is a steady and nearly five-fold rise in costs—from $21 PMPM in 1986 to a high of $98 PMPM in 2001. Service costs and the costs for Resource Coordinators (case managers) and administration grew in step, with the latter accounting for an average of 26% of total costs over the full period (27% in the last 10 years). The figures for service costs reflect some of the benefit changes (e.g. the reductions in 1989 and 1992 in the days of nursing home care covered). The drop in service spending in 1992 also may reflect the increase in member coinsurance from 10 to 20% in that year.

The increases in PMPM costs for the HCB care benefit were tied to increases in age and disability case mix reviewed at the outset (Sections 2 and 3 of Exhibit 2). Do the increases also reflect increases in the costs per member eligible for the HCB care benefit (i.e. per NHC) or per member using HCB services? One would expect such an increase, given the reductions in the inflation-adjusted value of the HCB care benefit over the period. In fact, just the opposite is true (Section 5 of Exhibit 2), and the main culprits seem to be the 1989 and 1992 changes in nursing home coverage and the 1992 increase in coinsurance. After those changes, costs per NHC per year settled down in the $3,000 to $4,000 per year range; and costs per member with a care plan per year ranged between $4,000 and $5,000 (mean of $4,584 for the last 10 years). If anything, there was a slow downward trend in the HCB care benefit costs per care plan and NHC.

Section 6 of Exhibit 2 shows the trends in the member premium and Medicare revenues over the period studied. Several points stand out. First, a comparison to Section 5 of the Exhibit shows that up to 1990, the HCB care benefit accounted for most of the member premium. This indicates that the costs of other supplemental benefits could largely be covered in the Medicare capitation. After the repeal of Medicare Catastrophic Coverage in 1990, which modestly expanded Medicare coverage of nursing facility care, this was no longer the case. Although Exhibit 2 shows only a slight leveling of Medicare revenue in 1991, the underlying Multnomah County Medicare rate fell about 4% from 1990 to 1991. The SHMO's Medicare revenues PMPM rose only because the case mix became more severe, and our research in progress shows that severity was enhanced by the fact that frailer HMO

members moved to the SHMO and healthier SHMO members moved to the HMO. The SHMO monthly member premiums were raised in 1991 to $125 to cover the rising costs and revenue shortfall. After this point, the member premium exceeded HCB care benefit costs by $40 to $50 per month, primarily reflecting the high and rising costs of the prescription drug benefit.

Exhibit 2 shows that HCB care benefit costs track very closely with 15% of Medicare revenues. While the benefit was not tied to these revenues, the consistency is remarkable. It is also noteworthy that in its 2001 Report to Congress, the federal agency overseeing the demonstration set an *ex post facto* standard for SHMOs of spending the equivalent of 5% of Medicare revenues on the HCB care benefit. Clearly the SHMO operated by KPNW exceeded this standard throughout the period studied.

Discussion

KPNW's 18 years of experience with HCB services show a continual refinement of the benefit, and of the use of services within it. The data also show that KPNW was able to accommodate an aging and increasingly disabled population and maintain a meaningful HCB care benefit within the Medicare/supplemental premium financing structure. These adaptations are important, since they reflect the types of changes the health care system needs to make as the Medicare population ages.

Our companion research in progress will detail the transformation of KPNW over these 18 years into an integrated acute care and long-term care system that is much richer in geriatric services and management capacity than it was in 1985. The presence of the SHMO's HCB care benefit and Resource Coordinators pushed the system to change by showing the gaps to be filled and how to fill them. For example, there is a saying in the home safety equipment business that 'Medicare stops at the bathroom door.' It also does not cover the most appropriate mobility equipment. In both cases the HCB care benefit filled gaps—often in post-acute situations. Transportation is another example. When KPNW expanded its general transportation benefit in the 1990s, use of the SHMO benefit fell. When KPNW cut back the regular benefit, the use of SHMO transportation increased to fill the gap. The rates of use of transportation (25% of plans in 2002) are consistent with a recent survey of SHMO members eligible for the HCB care benefit that found that 80% of them had problems with transportation, but 56% received help from friends or family.

Changing needs and changing benefits

On the needs side of the equation, the SHMO population aged, the prevalence of disability increased, and increasing proportions of members became eligible for the HCB care benefit. Simple eligibility cross-sections, however, hide the true picture of members' contacts with the HCB care benefit over time: Members moved in and out of eligibility; eligible members moved on and off of service plans; and many others who were not eligible were monitored for changes that could make them eligible. More than a third of the membership was involved in the HCB care benefit during the year by the end of the study period.

On the services side, use patterns of individual services showed decreases in the use of costly institutional and personal care services, with shifts of resources toward a wider variety of 'niche' services. Early decisions to control HCB services costs through cuts in the nursing facility benefit and increases in member coinsurance were effective in controlling costs, and the costs of HCB services per user and per eligible were stabilized in the last 10 years. This remained true despite continuing increases in service coordination activities, unit costs for covered services, and expansions of covered benefits to include dentures, shift care, and personal emergency response systems. Thus, the many-fold increase in dollars PMPM for the HCB care benefit was due almost entirely to the increased prevalence of the population's frailty and eligibility.

Veteran Resource Coordinators cited two additional reasons for the downward trend. One is cost-related: The increases in other costs facing elders (health care premiums, prescription drugs, utility bills, etc.) squeezed the money available for HCB services. Another was the fact that many eligibles with strong family support had low-cost care plans (typically PERS, transportation, and occasional equipment). These low-cost plans are averaged with the higher cost plans. Analysis of individual-level data would be required to tease out these patterns.

An important question to ask is what has happened to what the benefit can cover, as inflation has raised unit costs substantially in almost all service areas, and as the benefit cap has stayed at $1,000 per month. Although we have not tried to make a general adjustment for inflation, a few examples of changes in unit costs comparisons between 1985 and 2002 give the general picture: personal care hours from $8 to $18, homemaker visits from $10 to $15, nurse visits from $32 to $59, day care days from $18 to $53, and nursing facility days from $55 to $115. What has been lost, or where have resources been saved? The two

clearest reductions were in [1] nursing home days covered from 100 to 14 per spell of illness, and [2] the prevalence of personal care in HCB care plans and the number of hours covered per person served per year (down to 165 hours a year in 2002 from its peak of 211 hours in 1993). Reductions in these services allowed members and Resource Coordinators to maintain or increase their use of other lesser-used 'niche' services in care plans, as well as their shares of HCB care benefit spending. The result is that the HCB care benefit was a richer package in terms of variety of capabilities, even as it lost ground in the areas of personal care and institutional care coverage. Assessing the effects of the HCB care benefit on satisfaction, independence, caregiver burden, and institutionalization are beyond the scope of this study. Other studies have shown positive results in these areas [15–17], but the extensive data set at KPNW has opportunities for more research.

Changing costs and changing financing

This paper has discussed HCB care costs in isolation, but in the SHMO model, they are financed in conjunction with a larger and more expensive package of health care benefits. The SHMO's major revenue source—Medicare—required that its monthly capitation be applied first to cover standard Medicare benefits, and any balance had then to be applied to an expansion of benefits beyond the Medicare core (e.g. covering Medicare coinsurance and deductibles, preventive visits, prescription drugs, eyeglasses). After Medicare revenues were so applied, the costs of additional benefits could be charged to members through premiums and coinsurance. Throughout the 18-year period studied, the SHMO had to build the costs of the HCB care benefit into a member premium, since it did not have sufficient 'savings' on its Medicare capitation to pay for the full service package. In general, the two largest benefits built into premium were prescription drugs (the SHMO never had a limit on drugs) and HCB services and management.

On the revenue side, rising HCB costs were covered by risk-adjusted increases in the Medicare capitation and by substantial increases in the member premium. Spending on the HCB care benefit was equivalent to about 15% of the Medicare capitation in every study year, an amount that became larger as risk-adjusted Medicare capitations rose faster than the underlying rate of Medicare spending growth. Beneficiaries proved willing to pay high monthly premiums ($180 in 2002) for a package that included both the HCB care benefit and full prescription drug coverage.

Policy and the future

The future of integrated acute and community care in a model similar to what has existed for the last 20 years at KPNW, as well as at other SHMO demonstration sites in New York, California, and Nevada, is dependent primarily on federal policy decisions. If the government decides to promulgate regulations that are favorable to Special Needs Plans that serve disproportionate shares of beneficiaries with severe, disabling chronic conditions, KPNW and other current SHMOs, as well as a many other Medicare HMOs will likely offer an integrated acute care/HCB care benefit package. Two provisions would be crucial to the regulations [1]: continuation of a disability factor in the payment formula, which would protect plans against the higher medical care costs of frail beneficiaries, and [2] minimum standards for HCB care benefits and case management, which would protect participating plans against competitors who might adopt the name but not the substance of this care model. The KPNW experience shows that beneficiaries will pay for better benefits, that health plans are able to transform their care systems to accommodate geriatric populations, and that the costs of offering expanded benefits can be controlled.

In addition to these broad policy parameters, there are a set of more nuanced program features that appear to be important to cost control. Costs were controlled not just through the reductions of nursing home coverage, but also by the fact that significant proportions of eligibles at any point in time were not using any HCB care services (72% on average at year end over the study period), and to the fact that those who used benefits did not on average use their full entitlement ($4,584 or 38% of the $12,000 cap on average for the last 10 years). Three SHMO program features may have fostered these patterns [1]: the separation of eligibility for services from the decision to use services [2], the definition of the benefit in the form of services (rather than cash), and [3] the requirement that service users pay coinsurance. A few comparisons with other programs that share or differ on these features help make the point.

First, the closest comparison to the SHMO on these features is the Japanese long-term care insurance system, which shares all three (the Japanese coinsurance is 10%). In 2002 in Japan, the participation figures were virtually identical to the KPNW SHMO: 74% of community residents who were deemed eligible decided after the assessment that they would not use benefits, and the average rate of spending among community beneficiaries was about 45% of the caps. The need to pay coinsurance has been reported to

inhibit utilization in both programs, and the need to take benefits in the form of services, when they may not be desired if family care is available, may also be a factor. Furthermore, the ability to start up services quickly since the assessment has already determined eligibility has also been reported as a factor in being willing to wait[2].

In contrast, in the German long-term care insurance system, there is no coinsurance requirement, and there is a cash benefit option. The experience is that virtually all community eligibles receive benefits, since there is no reason not to take the cash. In 2003, 70% of eligibles were taking cash, 15% a combination of cash and services, and 15% services only [18].

Finally, the separation of decisions about eligibility from the decision to use services stands in contrast to Medicaid-financed home care systems in the US. In these programs, including the three-state effort to integrate care in SHMO-like managed care systems [8], the actual receipt of HCB care services is a condition of eligibility for higher NHC reimbursement for the health plans. This approach may hold down Medicare payments on the one hand, but it may increase spending on HCB care benefits on the other, since health plans have incentives to urge members to accept HCB care services so the plan can receive higher Medicare payments.

Limitations of study methods and opportunities for further research

This study was limited by its reliance on descriptive data, which do not allow an analysis of the service use patterns of individuals, the identification of individual factors associated with the use of HCB care benefit services, or the effect of service use on outcomes, such as hospitalization, institutionalization, functional status, satisfaction, caregiver burden, or mortality. The KPNW research center has the data to support such studies, and there is a large comparison population of elders who were in the HMO over the same period. Companion research to this study is showing that Medicare beneficiaries who chose the SHMO had higher prior and subsequent utilization of hospital care and prescription drugs, as well as higher rates of disability than beneficiaries who chose the HMO. Additional analysis could trace the 'careers' of elders as they transition to chronic illness, disability, service use, institutionalization, and/or death over 20 years or more. Comparisons with HMO members could show when the SHMO added HCB care for common geriatric conditions, and examine whether it made any difference in outcomes.

[2] Naoki Ikegami. Lecture at Brandeis University. Waltham, MA; 2003.

Conclusion

For more than two decades, a premier health system has been willing and able to offer a HCB care benefit supplement to Medicare even as the enrollees have aged and become increasingly disabled; beneficiaries have kept choosing the SHMO option even as premiums have nearly quadrupled and the dollar value of the benefit has been eroded by inflation; and the federal government has continued to support the demonstration through five administrations and eight acts of Congress. These simple facts carry strong credibility about the advantages of offering HCB care benefits to a full population of elders in an integrated managed care model. The message is relevant to policy makers, managed care programs, and advocates in both the US and internationally. Not least, the lessons of the SHMO have been followed by other regions of Kaiser Permanente, which have 800,000 Medicare beneficiaries, and which could adopt this model.

The SHMO approach does not have the depth of long-term care benefits or the power of mandated team care management that are found in the US PACE or Medicare/Medicaid Integration Programs, but it enrolls the much broader non-poor, non-disabled population of elders. As such, it extends the potential service delivery and efficiency benefits of integrated services and financing to a much wider stage. If the federal government makes this option available to other managed care programs, there will likely be many new sponsors.

Reviewers

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