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Social Health Maintenance Organizations: Transition into Medicare + Choice

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Judith Wooldridge
Randall Brown
Leslie Foster
Sheila Hoag
Carol Irvin
Robert L. Kane
Robert Newcomer
Barbara Schneider
Kenneth D. Smith

Submitted to:

Health Care Financing Administration
CHPP/PDIG/DDP, C4-17-27
7500 Security Boulevard
Baltimore, MD 21244-1850

Project Officer:
Thomas Theis

Submitted by:

Mathematica Policy Research, Inc.
P.O. Box 2393
Princeton, NJ 08543-2393
(609) 799-3535

Project Director:
Todd Ensor

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EXECUTIVE SUMMARY

This report was prepared in response to a provision (in the Balanced Budget Act of 1997) that requires the Secretary of Health and Human Services to submit a plan to transition the social health maintenance organization (S/HMO) demonstration plans into the Medicare + Choice program. Currently there are four operational S/HMOs, three S/HMO model I plans and one model II plan. This report does not discuss a distinct group of three plans in the end-stage renal disease S/HMO demonstration for which the Health Care Financing Administration (HCFA) will submit a separate transition plan after the evaluation of that demonstration is completed in May 2002.

BACKGROUND

The Social HMO was a new model of managed care for frail elderly people in the 1980s

The S/HMO is one of several models of managed care developed in the 1980s that were intended to improve care for frail Medicare beneficiaries in the community. S/HMOs are hybrid organizations incorporating elements of both (1) a regular Medicare managed care plan and (2) a modest long-term community care insurance plan that covers care coordination and expanded home- and community-based services for targeted frail members. S/HMOs enroll a broad spectrum of Medicare beneficiaries (like risk plans in general), but target the extra services to those members who are at greatest risk of being admitted to a nursing home, or who have significant health care needs.

S/HMOs screen, assess, and identify members eligible for the expanded community care services. All S/HMO plans use a "health status form" to screen new members for risk factors indicating frailty and functional impairments. They subsequently screen each member annually. Members who appear to be at risk of complications that could lead to a hospital or nursing home stay (including those referred directly by providers) are assessed by case managers. They conduct an in-person comprehensive assessment to determine whether members are eligible for extra services. Members who are at risk may receive extra services that may help them to stay in the community and reduce risk of complications.

Two distinct S/HMO models exist, with different targeting strategies and uses of geriatric approaches

The two current S/HMO models use distinct approaches to identify members for the extra community services. The S/HMO I model identifies members through a State-specific "nursing home certifiable" screen that assesses functional status--this extra screen is either built into the comprehensive assessment or is conducted separately. S/HMO I members classified as nursing home certifiable are eligible for care coordination and all expanded community services. The S/HMO II model, in contrast, targets individual needs rather than individuals for extra services, and eligibility criteria vary by service. Thus services can be provided more flexibly and to a wider set of enrollees.

Critical distinctions between the two S/HMO models are that the S/HMO II incorporates an interdisciplinary, team-based geriatric approach to care integration in the design and that the intervention in the S/HMO II model is time-limited rather than long term. The S/HMO II model includes primary care physicians, specialists, pharmacists, dieticians, geriatricians, and nurse case managers in the interdisciplinary care coordination team to ensure that acute and long term care services are fully integrated. Geriatric approaches are practice modifications necessary for the differing physiological and social characteristics of elderly people. Examples include annual screening of members for risk factors, formulary restrictions that discourage use of drugs found harmful among older people and interventions for identified at risk members. While all S/HMOs use some geriatric approaches, the S/HMO II model requires that such approach be implemented.

S/HMOs are capitated, but are paid an augmented rate relative to Medicare risk plans

S/HMOs are capitated and accept risk for their members, just like Medicare risk plans. However, they are paid more than regular Medicare risk plans because of two features of the payment method. First, the S/HMOs are paid at the published Medicare county rate book amount for risk plans, augmented by the implicit 5 percent discount that is built into the risk plan rates. The augmented rate (about 5.3 percent above the published Medicare county rates) is intended to cover the expanded community care and care coordination S/HMOs provide. Second, unlike Medicare risk plans, S/HMO payment is adjusted for additional risk factors that indicate differences among members in the need for services.

The approach to risk-adjusted payment is different in the two S/HMO models. S/HMO I plans are paid using a modified version of the "payment factors" used to pay Medicare risk plans prior to January 2000. Special higher factors are used for the nursing home certifiable group of members who are eligible for expanded services to compensate the plans for the higher medical needs of this group. To make the risk adjustor for S/HMO I plans budget-neutral, the payment rate factors for those in the community who are not nursing home certifiable are lowered.

The S/HMO II payment method replaces the nursing home certifiable concept with an individual calculation to estimate each member's risk of subsequent health care use. A payment rate formula was developed from a statistical model estimated on data from the Medicare Current Beneficiary Survey. Data on chronic conditions, functioning, and other health risk indicators for individual S/HMO II plan members are collected in an annual survey and inserted into the formula to determine each member's payment factor. These member-specific payment factors are updated annually. This approach is intended to reflect service needs more accurately than the payment approach used for the three S/HMO I plans because it is based on a more comprehensive set of health risk indicators.

Four S/HMO I plans started in 1985, one S/HMO II plan started in 1996

The demonstration began in 1985 with four S/HMO I plans; the sole S/HMO II plan began in 1996. The original four S/HMO I plans received foundation financing to develop their ideas and financing from HCFA in the form of shared risk for any losses incurred over the first 30 months.[1] The S/HMO II model was a HCFA initiative that developed as a result of an evaluation of the

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[1]One S/HMO I plan closed in 1995.

S/HMO I plans. Although six S/HMO II plans were approved, only one of the six ever became operational.[2] Two additional S/HMO plans were approved as part of an initiative for state dual eligible programs. In the early years of the S/HMO II demonstration, there was no outside support except for a HCFA planning grant of $150,000 and, unlike the S/HMO I demonstration, HCFA did not share in S/HMO II plan financial risk. Table 1 describes the four operating S/HMO plans.

TABLE 1

THE FOUR CURRENT S/HMO DEMONSTRATION PLANS

Model	Site	Location	Sponsoring Organization	Membership September 1999
I	Elderplan	Brooklyn, NY	Metropolitan Jewish Geriatric Center	5,840
I	Senior Advantage II	Portland, OR	Kaiser North West	4,044
I	Senior Care Action Network (SCAN)	Long Beach, CA and surrounding area	SCAN	32,966
II	Senior Dimensions	Las Vegas and Reno, NV	Health Plan of Nevada (HPN)	35,005

NOTE: All members are at least 65 years old except in the Nevada S/HMO II site, which includes younger Medicare beneficiaries entitled because of a disability. Total membership across the four sites is 77,855 (based on HCFA's GHP file).

An evaluation of S/HMO I plans found that they did not include physicians in care integration and did not have the intended effects

An evaluation of the S/HMO I demonstration during the period 1985 to 1989 (Newcomer et al. 1995) found that the sites had not integrated long-term care and acute care in the way the designers had intended. For example, because coordination between S/HMO case managers (typically social workers) and physicians was infrequent, the evaluators recommended that plans implement stronger geriatric approaches that would involve physicians in care management.

The evaluation also found that hospital costs were lower and nursing home costs were higher for S/HMO members than for Medicare beneficiaries in the fee-for-service sector with similar medical conditions. However, total costs were higher in some plans and lower in others. Furthermore, frail S/HMO I members were less satisfied with almost all aspects of their care than frail fee-for-service beneficiaries. The lack of substantial reductions in both hospital and nursing home costs suggested that the S/HMO I model was not achieving its goals and was not an effective

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[2]Three additional S/HMO II plans targeted to members with end-stage renal disease also are operating, but are not the focus of this report or its transition recommendation.

approach to care integration. The S/HMO II demonstration was developed in response to the S/HMO I evaluation.

NEW OPERATIONAL FINDINGS

New data on S/HMO plan operations were collected through visits to the S/HMO I plans early in 1999, through a visit to the S/HMO II plan in 1998 and subsequent monitoring. Data from the Health Outcomes Survey were used to assess adverse selection, and HCFA data files were used to assess costs.

The S/HMOs offer a richer set of benefits than local Medicare risk plans at a higher cost to the federal government

The package of benefits available to S/HMO members includes:

- Expanded community care benefits and care coordination for targeted frail members to help them live at home (the benefit is subject to annual limits and member copayments in the S/HMO I sites)

- Supplementary medical care benefits (such as prescription drug coverage) that are as rich as or richer than those offered by local Medicare risk plans

- No member premiums for medical care, except for the Kaiser S/HMO (in Oregon) and an enhanced option offered by HPN (in Nevada)

The S/HMO II plan integrates expanded care with medical care

All S/HMO plans coordinate the delivery of the expanded community-based services; that is, they ensure that clients who need these services are identified, the services are delivered, and that client progress is monitored. Between 7 and 15 percent of members are monitored and receive community care benefits. However, the S/HMO II plan, through its interdisciplinary team approach, appears to integrate the expanded community care benefits most closely with medical care, as intended. The S/HMO I plans use more *ad hoc* approaches to integrate acute and long-term care. These methods do not usually involve the primary care physicians, although one plan, Kaiser, is beginning to use team approaches to prevent problems such as adverse effects from multiple medications. Some Medicare risk plans have implemented stronger care coordination and integration than the S/HMO I plans.

The staff and group model S/HMOs have implemented innovative geriatric approaches

Two S/HMOs (HPN in Nevada and Kaiser in Oregon) have implemented strong geriatric approaches that should help improve the care management of their frail members, and Elderplan in Brooklyn (an Independent Practice Association model S/HMO) has implemented some geriatric approaches. However, the SCAN S/HMO I plan in California only started such approaches in mid 1999.

S/HMO payments are higher than they would be if S/HMOs were paid as Medicare risk plans

By design, the base rate book amounts used to pay all S/HMOs are approximately 5.3 percent higher than the Medicare payment that they would receive if they were Medicare risk plans. S/HMO I plans receive even higher payments, however, as a result of the risk-adjusted payment factors.

- The S/HMO I plans are paid 15 to 30 percent more than they would be if they were Medicare risk plans

- Between 66 and 81 percent of the extra payment to S/HMO I plans results from the high proportion of enrollees classified as nursing home certifiable

- However, the risk-adjusted portion of the S/HMO II plan's payment was almost exactly the same as it would have received as a Medicare risk plan

Only one S/HMO plan had adverse selection

These higher payments are surprising, inasmuch as there is little difference in case-mix between the S/HMOs and local risk plans. With one exception, the overall case-mix of the S/HMOs is comparable to that of the Medicare risk plans operating in the S/HMO market areas, after accounting for differences in age. (Case-mix is measured by composite scores of mental and physical functioning, self-reported health status and the presence of a chronic condition using data from the Health Outcomes Survey.) Although all the S/HMOs enrolled older populations, the payment rate adjustments for age are designed to compensate the plans adequately for the higher expected medical expenses associated with aging. The exception is the Kaiser S/HMO in Oregon. This plan, which offers a rich benefit at a high premium to the consumer, has enrolled a much more frail membership than local risk plans, even controlling for age and other characteristics accounted for in payments to risk plans. This finding suggests that many of the enrollees classified as nursing home certifiable in the other two S/HMO I plans may not be highly impaired. This is consistent with the finding from recent discussions with S/HMO I plans that the criteria used to classify enrollees as nursing home certifiable are not strictly defined and nursing home certifiable enrollees are almost never reclassified out of this cell.

Some S/HMOs do not spend the full 5.3 percent augmented base (rate book) increment on coordinated care and extra community benefits

The S/HMOs receive the 5.3 percent rate book augmentation to cover the expanded benefits and care coordination. Although data were not available from all S/HMOs, some do not appear to be spending the full increment on coordinating care and providing expanded care benefits. The Kaiser S/HMO I plan is an exception; it reported spending 14.8 percent of Medicare revenues on care coordination and expanded care benefits, commensurate with the 5.3 percent extra payment and the sizable premium ($170 per month) it charges enrollees.

NEW FINDINGS ON BENEFICIARIES

New data were analyzed on both S/HMO I and S/HMO II members to assess whether there were differences in member outcomes between S/HMOs and Medicare risk plans.

Member satisfaction with the S/HMO I plans and their providers is comparable to that of local risk plans

Controlling for member characteristics, there was no difference in member satisfaction between the S/HMO I plans and local Medicare risk plans in 1997.

A preliminary analysis found no consistent evidence that the S/HMO II plan operated by HPN improves health, functional status, or use of services, relative to HPN's Medicare risk plan

The S/HMO II benefit did not systematically improve members' physical health, lower their service use, or slow the decline in their ability to perform activities of daily living such as bathing and dressing. The S/HMO II benefit might have a positive effect on the ability of enrollees to perform instrumental activities of daily living (such as housework and cooking), and S/HMO II members are more likely than risk plan members to have had an influenza vaccination in the past 12 months. Nevertheless, these effects were small and it is uncertain whether they can be attributed to the influence of the S/HMO.

The S/HMO II impact analysis has some important limitations, some of which are intractable

The limitations of the preliminary analysis relate to timing and design. First, the analysis of the S/HMO II model is based on only one plan, an insufficient basis for making reliable inferences about the effectiveness of the model. Second, the analysis looked at effects on members' functioning and utilization over only one year, and it might take longer for the S/HMO's effects to occur. (This limitation would remain in any future analysis because of the restriction of the observation period to the early stage of the intervention.) Third, researchers studying the S/HMO plan (Newcomer et al. 1999) have concluded that it did not implement all its care coordination and geriatric approaches fully until 1998. Therefore, much of the follow-up period analyzed in the preliminary analysis fell in the first year of the intervention. It is possible that the program would be more effective after more experience. A future analysis (to be completed in 2000) will include a larger sample from a slightly later period, but does not fully address this problem. Fourth, due to a limited sample size, effects for subgroups of enrollees for whom the S/HMO intervention may be most effective could not be assessed (a future analysis will evaluate effects on subgroups). Fifth, the analysis compares members of HPN's S/HMO II plan with members of HPN's risk plan. There is potential for spillover effects to have occurred in the risk plan which would bias downward the estimates of effects of the S/HMO. This bias could result if physicians in the risk plan discussed with physicians in the S/HMO their approaches to treating patients. This problem is intractable with current data, and likely to be worse for later samples.

IMPLICATIONS

The findings may be grouped into three categories: those related to (1) program effects on beneficiaries, (2) program costs and case-mix, and (3) extent and type of innovation. Each set of findings has implications for the types of options Congress should consider for the transition plan.

There is no consistent evidence that S/HMOs improve beneficiary outcomes

All the evidence on beneficiary effects suggests consistently that the S/HMOs have not had the expected positive effects. Some of that evidence is from an evaluation of the S/HMO I program as it operated over 10 years ago, and some is from the preliminary analysis of the sole S/HMO II plan, described in this report.

Implication: S/HMO models have not proven that they are worth the substantial additional cost to Medicare.

Because of the augmented rate book used under S/HMO, the S/HMO plans are paid more than risk plans (despite comparable case-mix)

The S/HMO I payment method results in two of the three S/HMO I plans being paid excessively--both relative to their case-mix and relative to the amount of expanded care benefits they provide. They receive substantially more than they would if they held risk contracts because of the higher payment for the nursing home certifiable rate cell, yet only one of the three plans (Kaiser) experiences adverse selection warranting higher payment. Furthermore, only this one plan reports expending the full 5.3 percent increment on expanded community care benefits and care coordination, as intended. The S/HMO II payment method of adjusting for health risk does not lead to total payments higher than risk payments would be but it requires collection of survey data, which increases program costs by about 0.5 percent.

Implication: The payment method should be modified (both the risk adjustors and the 5.3 percent rate book augmentation) if the S/HMO program becomes a permanent option.

The innovative S/HMO II design has been implemented in only one site

The early evaluation found that four S/HMO I model plans had all implemented a case management system for the expanded community-based long term care services, but evaluators reported a lack of physician involvement in the process, and a lack of geriatric approaches to care for the frail elderly (Kane et al. 1997). The evaluators speculated that these shortcomings led to the absence of effects on beneficiary outcomes. As a result, they recommended that geriatric approaches be developed and implemented. A new S/HMO model (the S/HMO II model) was developed (with the participation of the S/HMO I plans) to accomplish these goals. Only one S/HMO II model plan has ever been implemented (HPN in Nevada).

HPN has implemented innovative interdisciplinary coordination of care, involving primary care physicians, and employs extensive geriatric approaches such as identifying high risk patients and intervening to reduce their likelihood of needing a hospital or nursing home stay. However, limited

ability of other organizations to implement a S/HMO II plan has been evident. Of the three remaining S/HMO I plans, none chose to convert to the S/HMO II model, and only one of them, the Kaiser S/HMO in Oregon, has introduced extensive geriatric and interdisciplinary approaches. Five other plans were authorized to implement a S/HMO II plan in 1995, but none has done so (though one is still in the planning stage). In 1998, HCFA funded two states (Florida and Maryland) to plan S/HMO programs for dual eligibles (people eligible for both Medicare and Medicaid). Neither state has yet implemented its S/HMO II program. The reasons why approved sites have not implemented S/HMO II plans include lack of infrastructure, loss of personnel, and concern about the payment level.

The S/HMO program requires separate risk adjustors, payment approaches, and monitoring efforts. These requirements add a considerable fixed cost to HCFA to operate the program.

Implication: Few managed care plans have shown interest in the S/HMO II approach, suggesting that the program might never be large enough to justify the administrative expense of operating it as a separate program.

RECOMMENDATION

Two options are open to the Congress for the future of the S/HMO program:

1. Convert the S/HMO demonstration into standard Medicare + Choice plans
   a. At the conclusion of the demonstration
   b. After a transition period, during which the S/HMO payment factors are phased out (the current augmented payment would be eliminated at the end of the demonstration)
   c. After a transition period during which the current augmented payment and the S/HMO payment factors are phased out

2. Add the S/HMO as an alternative managed care model to the Medicare + Choice program after a transition period. The demonstration's two distinct payment methodologies would continue during the transition phase. In 2007, the recommended S/HMO model would be the S/HMO II version.

The recommended option is to convert the S/HMOs to standard Medicare + Choice plans by phasing out the supplemental payment that augments the Medicare payment rate and phasing in the Medicare + Choice plan payment formula (option 1c). This option would complete the payment transition by 2007. Only the four currently implemented S/HMO plans would be authorized to operate S/HMOs during the transition period.

The strongest argument in favor of this option is that the current evidence does not support making the S/HMO an alternative program option. Of the three variants of this option considered, this one is recommended over the others because it has the following advantages: (1) it provides for an orderly transition period for the S/HMO demonstration during which the plans could conduct

careful planning to minimize negative transition effects on their members; (2) it would be relatively inexpensive to implement, because only the four currently implemented S/HMO sites could operate.

The S/HMO plans that currently operate could continue to do so under current rules, with the changes listed below. Thus the S/HMOs would continue to enroll members (subject to an aggregate cap of not less then 324,000 for all sites), assess their eligibility for the special S/HMO benefits (care coordination and expanded home- and community-based care benefits), and provide these services to eligible members. The difference would be that the special payments would be phased out and regular risk plan payment would be phased in.

Transition Features

- Transition would begin at the conclusion of the demonstration.
- Transition to standard Medicare + Choice status would be completed in 2007.
- During the transition period the supplemental payment received by S/HMOs would be reduced in even annual steps from the current 5.3 percent of the Medicare risk payment rate (2004 = 4%; 2005 = 2.7%; 2006 = 1.4%; 2007 = 0%)
- During the transition period the current S/HMO payment factors would be used (subject to the blending in of the comprehensive risk adjustment specified in the Benefits Improvement and Protection Act of 2000 (BIPA): 2004 = 30% of comprehensive payment model; 2005 = 50% of the comprehensive model; 2006 = 75% of the comprehensive model. In 2007, the comprehensive payment methodology would be used.)
- Only the four currently implemented S/HMO plans can operate during the transition period.

If Congress prefers the other option, the following structure is recommended. If Congress wished to add the S/HMO as an alternative managed care model under Medicare + Choice (Option 2), the recommended S/HMO model would be the S/HMO II version. This model would require the introduction of specific geriatric approaches, such as medication management, and use of a multidisciplinary care coordination team to plan care across all settings and providers. Eligibility for the special S/HMO services would be based on need for the service rather than on a nursing home certifiable standard. This option, if chosen, should be implemented in 2007 after a transition period. The payment method would be a comprehensive payment model. The county rate book amount would be augmented, but only up to the documented expenditures on care coordination and the expanded community-based care benefits, with a cap set at the current augmentation to payment rates. After the demonstration period ends, the current membership limits would be removed.

REFERENCES

Kane, Robert L., Rosalie Kane, Michael Finch, Charlene Harrington, Robert Newcomer, Nancy Miller, and Melissa Hulbert. "S/HMO's, the Second Generation: Building on the Experience of the First Social Health Maintenance Organization Demonstrations." *Journal of the American Geriatric Society,* vol. 45, no. 1, 1997, pp. 101-107.

Newcomer, Robert, Charlene Harrington, Colleen Lawrence, and Robert Kane. "Implementation of the Social Health Maintenance Organization: A Case Study of the Health Plan Of Nevada 1996-1999." Draft report prepared for the Health Care Financing Administration. University of California, San Francisco and University of Minnesota, July 1999.

Newcomer, Robert, Kenneth Manton, Charlene Harrington, Cathleen Yordi, and James Vertrees. "Case Mix Controlled Service Use and Expenditures in the Social Health Maintenance Organization Demonstration." *Journal of Gerontology: Medical Sciences*, vol. 50A, no. 1, 1995a, pp. 111-119.

I. INTRODUCTION AND BACKGROUND

Social health maintenance organizations (S/HMOs) are a hybrid of a Medicare risk plan and a modest long-term-care community insurance plan. S/HMOs have been operating as demonstration plans since 1985. In addition to providing regular Medicare-covered medical services, these HMOs offer care coordination and expanded home- and community-based long-term care benefits to their frail elderly members (and receive an augmented capitation payment rate relative to the Medicare risk plan rate to cover those services). The S/HMOs offer coverage for home- and community-based services that might enable frail beneficiaries to remain in the community and reduce their need for expensive medical services.

In the Balanced Budget Act of 1997, Congress required the Secretary of Health and Human Services to submit a report recommending a plan for the integration and transition of the S/HMO into the Medicare + Choice program.[1,2] This report has been prepared in response to this legislative mandate.[3] To provide context for the transition plan, this chapter: (1) summarizes the authorizing legislation; (2) defines and describes the S/HMO models of care; (3) reviews the history and objectives of the S/HMOs and summarizes the results from the only evaluation of the S/HMOs, which compared S/HMO outcomes with fee-for-service sector outcomes; and (4) describes key

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[1]The relevant section of the Balanced Budget Act of 1997 (P.L. 105-33, Section 4014(c), August 5, 1997) is excerpted in Appendix A.

[2]The Medicare + Choice program is the name the Balanced Budget Act of 1997 has given to the revamped Medicare program. Medicare + Choice offers beneficiaries a number of alternative health delivery systems: the traditional fee-for-service system; Medicare risk plans, which are HMOs that sign risk contracts with the Health Care Financing Administration (HCFA); and new private health plan alternatives, such as preferred provider organizations and medical savings accounts.

[3]This report does not make recommendations about a special version of S/HMO for Medicare beneficiaries with end-stage renal disease. As of August 1, 1999, three special S/HMOs had enrolled 1,360 members with end-stage renal disease (HCFA 1999).

features of currently operating S/HMOs. The report continues with a review of the operations of the S/HMO plans, 15 years after the initial S/HMO legislation, and compares S/HMOs with Medicare risk plans that operate in the same market areas. The report assesses differences in member characteristics between the S/HMOs and local Medicare risk plans and presents new findings on the second-generation model (S/HMO II).[4] The report concludes with a recommended plan for the transition of the S/HMOs into the Medicare + Choice program. The recommendation is based on current knowledge about the relative impacts of the S/HMOs, Medicare risk HMOs, and the fee-for-service sector on member outcomes. The key issue that the recommendation addresses is whether there are good reasons to retain the S/HMO as a distinct model of care.

A. S/HMO AUTHORIZATION

The 1984 Deficit Reduction Act mandated a demonstration of the S/HMO concept (P.L. 98-369, Section 2355). Statutory language provided for the demonstration of the integration of health and social services under the financial management of a single provider of services. The legislation also specified that all Medicare services would be provided at a fixed annual prepaid capitation rate, set at 100 percent of the average adjusted per capita cost (AAPCC) rate.

The demonstration was extended by Acts of Congress in 1987, 1990, 1993, 1997, 1999 and 2000 (see Appendix A, Table A.1). In addition to extending the demonstration, this legislation included the following modifications:

- The 1990 Omnibus Budget Reconciliation Act (P.L. 101-508) approved four additional S/HMO projects and mandated that they operate as second-generation S/HMO demonstrations. Statutory language provided for a different payment methodology to test "...the effectiveness and feasibility of refining targeting and financing methodologies and benefit design...." (P.L. 101-508, Section 4207(b)(4)(B)). The second generation

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[4] As described in detail in Chapter II, the S/HMO II model uses different approaches to target frail elders for services and is paid differently from the three first-generation (S/HMO I) plans.

of the demonstration could also test new care management methods to test the effectiveness of "the benefit of expanded post-acute and community care case management through links between chronic care case management services and acute care providers" (P.L. 101-508, Section 4207(b)(4)(B)(i)).

- The 1993 Omnibus Budget Reconciliation Act increased the enrollment limit and allowed for a new S/HMO demonstration that focused on providing care to beneficiaries with end-stage renal disease.

- The 1997 Balanced Budget Act increased the limit on the number of enrollees per site from 12,000 to 36,000. It also required the report on integration and transition of the S/HMO into the Medicare + Choice program (P.L. 105-33, Section 4014).

- The 1999 Balanced Budget Refinement Act replaced the site cap with an aggregate limit on the number of individuals who may participate in the project of not less than 324,000 for all sites. (P.L. 106-113, Section 531.)

B. THE TWO S/HMO MODELS

The S/HMO is a demonstration HMO that accepts full financial risk for its Medicare members by signing a modified risk contract with HCFA. The key features of the S/HMO that differentiate it from a Medicare risk plan are:

- Identification of frail elders who need care coordination and community services

- Coordination of the special benefits for the targeted elders[5]

[5]Care coordination is a professional function that includes assessment of a person and his/her home situation; planning and arranging for appropriate care and services; ongoing monitoring of the situation for the quality and continued appropriateness of the service; and periodic reassessment and adjustment of services as necessary. The professionals performing care coordination are usually social workers or nurses; in the S/HMO II, care coordination is performed by a multidisciplinary team. The services being coordinated are the S/HMO expanded home- and community-based long-term care services and also may include other S/HMO health, educational, and preventive services and services available from other sources in the community.

- Provision of expanded community care benefits (such as personal care)[6]
- A modified and enhanced payment method

S/HMO I and S/HMO II model sites differ in the way these features are implemented.

1. The S/HMO I Model

The S/HMO I model identifies enrollees who are nursing home certifiable (NHC) according to state-specific criteria and targets them for care coordination and expanded community care benefits. Elderly people who are deemed eligible for care coordination on the basis of the NHC criteria also can receive any of the additional S/HMO services offered, such as personal care and home delivered meals.

As with Medicare risk plans, payments to S/HMO I sites are tied to the Medicare payment rate. However, the S/HMOs are paid at the published Medicare county rate book amount for risk plans, augmented by the implicit 5 percent discount that is built into these rates.[7,8] The extra payment is intended to pay for the expanded home- and community-based long-term care services and care coordination the S/HMOs are required to offer. Furthermore, the S/HMO I approach incorporates

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[6]A complete list of the S/HMO expanded benefits is given in Chapter II, Table II.1. They include personal care, homemaker, emergency response systems, home-delivered meals, adult day care and many other services not normally covered by Medicare.

[7]The Medicare county rate book amount replaced the average adjusted per capita cost (AAPCC) as of 1998. The Medicare county rate book amount is based on the 1997 AAPCC, with annual increments. Payment rates for a given county are set at the maximum of: (1) a national floor; (2) 2 percent above the rate for the previous year; and (3) a blend of the national rate and the county-specific rate from the previous year.

[8]This higher payment rate was originally derived by setting payments to S/HMOs at 100 percent of the AAPCC for beneficiaries living in that county, whereas risk plan payments were set at 95 percent of the AAPCC for that county. Under the current payment rate approach for risk plans, published payment rates for a given county already incorporate the 95 percent adjustment. Thus the rate for the S/HMO I plans is currently equal to 1.052 (=100/95) times the Medicare county rate book amount.

different payment factors for individual members than are used for the Medicare risk plans. Under the S/HMO I payment formula, the Medicare payment rate cells for beneficiaries living in the community are split into nursing home certifiable and not nursing home certifiable. The payment factors for the people who are in the nursing home certifiable rate cells are much higher than the factors for corresponding payment rate cells for Medicare risk plans, and the factors for the people who are not nursing home certifiable are substantially lower. The aim of the payment factor modifications is to ensure adequate risk adjustment for the particularly high medical care needs of the group targeted as nursing home certifiable while ensuring neutrality with respect to the Medicare county rate book amount over the entire S/HMO plan membership. To control the financial risk resulting from high rates of frail elderly people joining the plan, two of the plans initially limited the NHC group to 5 percent of their membership. (The plans eventually dropped the limitations, however--one in 1997, the other in 1999.)

2. The S/HMO II Model

The S/HMO II model was intentionally different from the S/HMO I model. It was designed to emphasize geriatric approaches and care coordination across the entire spectrum of enrollees who required such activity, rather than limit case management and special services to a targeted subgroup of enrollees.[9] As a result, the concept of nursing home certifiability was dropped. Furthermore, to support this shift in emphasis, the payment system for S/HMO II was modified substantially.

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[9]Geriatric approaches to care include the use of geriatricians and geriatric nurse practitioners in a team approach that offers evaluation and assessment. Geriatric approaches also include but are not limited to the following: prevention and health maintenance, attention to continuity of care across settings, use of protocols for managing geriatric syndromes, medication management, facilitated access to the primary care practitioner or nurse practitioner, attention to advance directives, special hospital units for elderly patients, attention to geriatric mental health problems, and primary care for long-term nursing home residents. To be effective these approaches have to be disseminated among primary care physicians throughout an HMO's network.

The geriatric emphasis was reinforced through the use of specially developed geriatric protocols and HCFA's requirements that each S/HMO II site have geriatricians on its staff to coordinate and oversee the care of frail older persons. Likewise, case management forms and protocols were developed.[10] HCFA also provided technical assistance in the development of management information systems to coordinate information transfer among all those involved in providing care.

The S/HMO II model payment replaces the NHC concept with an individual calculation to estimate each enrollee's risk of subsequent health care use. A payment rate formula was established in a regression model that used data from the Medicare Current Beneficiary Survey. Information on the risk factors for each individual member is collected from members in an annual survey by a third-party contractor and inserted into the formula to determine the payment factor for each plan member. This payment approach is expected to reflect service needs more accurately than the payment factor approach used for the three S/HMO I model plans because it incorporates measures of members' ability to function, their health status, and their chronic care problems. The payment method is described in DHHS (1996).

As with the S/HMO I model, the S/HMO II model uses the Medicare county rate book amount augmented by the implicit 5 percent discount that is built into the rates. This augmented payment is intended to support the additional care coordination and community care benefits. The risk-adjusted rate for individual members is intended to reflect their varying medical care needs.

C. ALTERNATIVE MODELS OF CARE FOR THE FRAIL ELDERLY

S/HMOs are one of several types of demonstration programs that help frail elders maintain their health, prevent accidents, and delay medical problems in order to reduce complications that would

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[10] S/HMO I sites participated in this development and had access to these forms as well.

result in hospital stays or nursing home placements. Frail elders have complex medical and health-related needs resulting from chronic diseases, functional limitations, polypharmacy, limited income, and social isolation that place them at risk of medical complications (such as falls and adverse drug reactions) that can result in potentially avoidable hospital stays and long-term nursing home placements. The demonstration programs developed to respond to these problems have included coordination of community-based services, integration of acute and long-term care through consideration of the need for both medical and social services, and the inclusion of geriatric approaches in medical care that focus on the needs of elders. The S/HMO demonstration and other programs for frail elderly Medicare beneficiaries, such as the Program of All-Inclusive Care for the Elderly (PACE), On-Lok, the precursor of PACE, and the National Long Term Care Channeling demonstration, have used some of these approaches to address the same issues among frail elderly people.[11]

PACE, which soon will become an option under Medicare + Choice, reduced both hospital use and nursing home use relative to use by a fee-for-service comparison group, according to a recent evaluation (Burstein et al. 1996). In contrast, an evaluation of the Channeling demonstration found that the program's case management program had no effects on nursing home entry or hospitalization, although enrollees reported better quality of life than did a control group that did not

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[11]On-Lok, which began in San Francisco in 1972, was replicated in nine sites as PACE. PACE is open to people who meet state nursing home admission criteria. It offers a comprehensive array of acute and long-term care services, such as day care, nursing home care, home care, prescription drugs, and restorative therapies, that are substantially more extensive than the services available in the S/HMO sites. As soon as federal regulations have been completed, PACE, which currently operates in 11 sites in addition to the original On-Lok site, will become a permanent part of the Medicare program. (The conversion from demonstration status was mandated by Section 4801 of the Balanced Budget Act of 1997.) Channeling was a demonstration program in 10 sites that provided care management of community care services for a population screened and found to be at risk of nursing home placement. The goal of this program was to help frail elders remain in the community rather than enter nursing homes.

receive case management (Kemper et al. 1988). This finding appears to result from the difficulty in targeting people who are likely to enter a nursing home for a long stay.[12]

D. EARLY HISTORY OF THE S/HMO I DEMONSTRATION AND EVALUATION FINDINGS

The S/HMO was originally proposed in the early 1980s as a way of incorporating social approaches into medical care for frail elders, with the expectation that these approaches would reduce the need for expensive medical care and thus reduce spending. In this context, "social approaches" included the provision of health-related support services, such as personal assistance with activities of daily living, transportation to a physician's office, and assistance with or provision of home meals, under the oversight of social workers or other professionals.

1. Early History of the S/HMO I Model

The S/HMO I model grew out of an initiative supported by the Robert Wood Johnson Foundation and intended to increase attention to and resources for frail elderly people needing long-term care, including social care. The foundation provided extensive support for designing and starting up the first S/HMO sites. Because this model of care was directed to elderly, Medicare-covered beneficiaries, the founding sites asked the federal government to authorize a demonstration project to allow the four sites to offer S/HMO services under a capitated model. HCFA authorized this model, and shared substantially in the risk for financial losses in the first 30 months of the demonstration plans, while the feasibility of this approach to caring for frail elders was established

[12]Another evaluation assessed the effects of targeted case management demonstrations on Medicare beneficiaries in the fee-for-service sector, most of whom had been admitted to the hospital for specific diagnoses, such as congestive heart failure. The evaluation found that the programs succeeded in targeting high-cost cases, but that the case management did not have any effect on readmission to the hospital, probably because it was not integrated with medical care (Schore et al. 1997).

(Kane et al. 1997). The demonstration began in 1985. The four initial sites were Elderplan (in Brooklyn, New York); Medicare Plus II, later known as Senior Advantage II, operated by Kaiser (in Portland, Oregon); Senior Care Action Network (SCAN) (in Long Beach, California); and Seniors Plus (in Minneapolis, Minnesota). Seniors Plus closed in 1995; the other three sites still operate.[13]

2. Early Evaluation Findings

The evaluation of the first-generation S/HMOs found that S/HMO enrollees with medical conditions similar to those of fee-for-service Medicare beneficiaries had higher nursing home and home care costs and lower hospital costs than the fee-for-service group (Newcomer et al. 1995a).[14] The total costs at some sites exceeded fee-for-service costs, whereas costs at others were relatively lower. Furthermore, relative to fee-for-service beneficiaries, S/HMO participants with impairments had higher mortality and lower reported satisfaction with almost all aspects of care (Manton et al. 1993 and 1994; and Newcomer et al. 1996). Although the S/HMO administrators have argued that these results were an artifact of the evaluation design, the results suggest that the S/HMOs did not have the expected favorable impacts on clients (Leutz et al. 1995; and Newcomer et al. 1995b).[15]

The S/HMO I evaluation also found that the demonstration had not integrated acute and long-term care in the way the designers had intended. Because coordination between S/HMO case managers (typically social workers) and physicians was poorly developed, the evaluators proposed

[13]Seniors Minneapolis-St. Paul, Minnesota, operated from 1985 through January 1995. It closed because of sustained and substantial losses continuing over several years (Fischer et al. 1998).

[14]The S/HMO I demonstration plans were evaluated relative to the fee-for-service sector, using data collected from the early operational period (1985 to 1989).

[15]The U.S. Department of Health and Human Services reported these results to Congress in 1996 in *Status Report on the Implementation and Evaluation of the Social Health Maintenance Organization Demonstration: Report to the Congress.*

stronger geriatric approaches that would involve physicians in care coordination (Harrington et al. 1993).

3. Early History of a New Model: S/HMO II

Congress authorized an expansion of the S/HMO demonstration in 1990 based on the evaluation of the project that was conducted during the period 1985-1989. HCFA specified a new S/HMO model, developed a request for proposals, and selected six sites to implement the second generation of S/HMO (S/HMO II). Thus, the second S/HMO model resulted from a federal government effort (unlike the nongovernmental origins of the S/HMO I demonstration).

On the basis of responses to a competitive request for proposals, in 1995, HCFA awarded planning grants to six sites to develop S/HMO II demonstration plans. HCFA wanted to encourage rural and Medicaid-oriented plans, and its site selection reflected that aim. Each site received a $150,000 development grant from HCFA but bore the other costs associated with startup (except for technical assistance provided by a HCFA contractor). Moreover, the sites were expected to bear full financial risk for the care of their enrollees (unlike the risk-sharing arrangement with HCFA in the early years of the S/HMO I model). Of these six sites, one became operational (Health Plan of Nevada's [HPN] site), one is under development, and four withdrew (although no formal notices of withdrawal were received by HCFA).[16] Some plans withdrew for financial reasons, including being unwilling to assume the risk of an untested payment method. Other reasons included lack of

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[16]The status of the original six S/HMO II sites is as follows:

Site	Status
Health Plan of Nevada (Las Vegas/Reno, Nevada):	Operational
Contra Costa Health Plan (Martinez, California):	Under development
United Health Care Plans of Florida (Miami, Florida):	Opted out
Fallon Community Health Plan (Worcester, Massachusetts):	Opted out
Richland Memorial Hospital and SC Blue Cross (Columbia, South Carolina):	Opted out
Rocky Mountain HMO (Mesa County, Colorado):	Opted out

infrastructure needed to implement a site (particularly among the rural plans), and loss of personnel who had developed the initiatives.

In 1997, when it became clear that many of the initial S/HMO II sites would not implement an operational demonstration, HCFA initiated a new effort to recruit sites. A special component of a solicitation to states for programs for dually eligible populations (those eligible for both Medicare and Medicaid) invited states to submit proposals to establish S/HMOs. Under that solicitation two states (Florida and Maryland) were funded (in 1998). Neither state has yet implemented an operating program.

The legislation that authorized the expansion of the S/HMO demonstration also extended the project so that the S/HMO I model could continue. However, in 1995 the first generation sites were offered the option to convert to S/HMO II sites. They participated in the planning meetings for S/HMO II, including those in which protocols were developed for geriatric approaches and case management, and instruments were developed to screen and assess members. After considering the requirements for the S/HMO II model, none decided to convert.

E. CURRENT STATUS OF THE S/HMO DEMONSTRATION

As of January 1, 1999, three S/HMO model I demonstration plans and one S/HMO model II plan were operating. The three S/HMO I plans are Elderplan, Senior Advantage II operated by Kaiser, and SCAN. The sole S/HMO II plan is Senior Dimensions. It was formed in 1996 by HPN, which already operated a Medicare risk plan. The HPN S/HMO plan was started by denominating selected clinics as the S/HMO and the remainder as the risk plan, and by rolling over the Medicare members attending the S/HMO clinics as S/HMO members. Many of the risk plan clinics converted to S/HMO clinics on May 1, 1999, and members attending those clinics could receive S/HMO benefits. Table I.1 provides the locations of the four S/HMO plans and indicates the type of HMO, whether

TABLE I.1

THE CURRENT S/HMO DEMONSTRATION SITES

Characteristic	Elderplan	Kaiser	SCAN	HPN
Model	S/HMO I	S/HMO I	S/HMO I	S/HMO II
Year Started Operations	1985	1985	1985	1996 (Las Vegas) 1998 (Reno)
Location	Brooklyn, NY	Portland, OR, and surrounding area	Long Beach, CA, and surrounding area	Las Vegas and Reno, NV, and surrounding areas
Counties in Market Area	Kings County, NY	Clackamas, Multnomah, and Washington Counties, OR; and Clark County, WA	Los Angeles, Orange, Riverside, and San Bernardino Counties, CA	Clark, Esmeralda, Mineral, Lyon, Nye, and Washoe Counties, NV; and Mohave County, AZ
Sponsoring Organization (Type)	Metropolitan Jewish Geriatric Center	Kaiser NorthWest (HMO)	Senior Care Action Network (SCAN)[a]	HPN (HMO)
Type of HMO[b]	IPA/network	Group model	IPA/network	Staff and network model
Parent Operates a Risk Plan?	No	Yes	No	Yes
Membership (As of September 1999)[c]	5,840	4,044	32,966	35,005
Categories of Medicare Members Enrolled	Aged	Aged	Aged	Aged and Disabled
Aged Medicare Beneficiaries in S/HMO Market Area, in 1997[d]	248,577	177,498	1,411,761	159,826

[a]SCAN has operated a case management agency since 1978.

[b]Type of HMO denotes the type of arrangements with physicians. Staff model denotes a salaried group of physicians. IPA denotes that the HMO contracts with an independent practice association, which is a physician association. Network denotes that the HMO contracts with a mix of groups or IPAs.

[c]Source is HCFA's GHP file.

[d]See HCFA web site: http://www.hcfa.gov/stats/cnty97en.pdf

the organization also operates a Medicare risk plan, the sponsoring organization, and current Medicare enrollment.

With a current total membership of about 78,000, the S/HMO plans have enrolled only a small fraction of the over-65 Medicare population residing in their market areas (4 percent on average, but ranging from 22 percent in Nevada to 2 percent elsewhere). Eighty-seven percent of the members are enrolled in two plans: SCAN and HPN. Beginning in 1997, the S/HMOs were limited to a membership of 36,000 per plan, but this cap constrained the membership of only one site (SCAN). The 1999 Balanced Budget Refinement Act replaced the site cap with an aggregate limit on the number of individuals who may participate in the project of not less than 324,000 for all sites. The S/HMOs themselves believe that, because beneficiaries do not like to join "temporary" plans, operating as demonstration plans rather than as permanent plans has limited their ability to enroll members.

II. S/HMO PLAN BENEFITS AND PAYMENTS

The social health maintenance organizations (S/HMOs) are required to offer extra services that are not available through Medicare for risk plan members or beneficiaries in the fee-for-service sector. These extra services are special home and community-based long-term care benefits, such as personal care, and coordination (management) of the benefits.[1] The S/HMOs' expanded care benefits and care coordination are offered to targeted members to help them to continue to live at home. (This expanded benefit is subject to limits and member copayments.) Furthermore, the S/HMOs subsidize Medicaid for the minority of members who are dually eligible (that is, those eligible for both Medicaid and Medicare). The S/HMO I and II model plans use different methods to target members for the extra services, with S/HMO I plans targeting members who are nursing home certifiable, and the S/HMO II plan targeting members for specific services. Few S/HMO members receive care coordination and expanded care services, regardless of model.

S/HMOs receive higher payments than Medicare risk plans. First, they receive the Medicare county rate book amount augmented by the implicit 5 percent discount instead of the regular Medicare county rate that the risk plans receive. The intent of this higher payment is to cover the costs of the expanded care services and care coordination. However, most S/HMOs spend less than

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[1]Care coordination is a professional function that includes assessment of a person and his/her home situation; planning and arranging for appropriate care and services; ongoing monitoring of the situation for the quality and continued appropriateness of the service; and periodic reassessment and adjustment of services as necessary. The professionals performing care coordination are usually social workers or nurses; in the SHMO II, care coordination is performed by a multidisciplinary team. The services being coordinated are the SHMO expanded home- and community-based long-term care services and also may include other SHMO health, educational, and preventive services and services available from other sources in the community. See Chapter III for a detailed description of care coordination in the S/HMO plans. A complete list of S/HMO expanded benefits is given in Table II.1. They include personal and homemaker care, emergency response systems, home delivered meals, adult day care and many other services not normally covered by Medicare.

5 percent of their revenues on these expanded benefits. Second, S/HMOs are paid using different payment factors than the risk plans. The S/HMO payment factors include higher payments for functionally impaired members (offset by lower payments for less impaired members) relative to the risk plans. If the S/HMOs were paid as if they were risk plans, they would receive $58 million a year ($846 per member) less than they do.[2]

The S/HMOs offer supplementary medical care benefits and prescription drug coverage that are as rich as or richer than the ones local Medicare risk plans offer. With the exception of the Kaiser S/HMO (in Portland, Oregon) and an enhanced option offered by HPN (in Nevada), member premiums for medical benefits are zero, and the S/HMOs charge low or no copayments.

A. PREMIUMS AND BENEFITS AMONG S/HMOs AND MEDICARE RISK PLANS

As of May 1999, 22 Medicare risk plans operated in the four market areas in which the S/HMOs operate (HCFA 1999a).[3] The risk plans compete with the S/HMOs for members partly on the basis of price (premiums and copayments) and benefits. Three of the S/HMOs offer zero premium options as well as lower copayments and richer medical benefits than the local risk plans.

1. Expanded Community Care Benefits

S/HMOs are distinguished from Medicare risk plans by the requirement that they offer expanded home- and community-based long-term care benefits and management of these services to targeted members. The augmentation of the Medicare county rate book amount that S/HMOs receive is

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[2]Assuming membership characteristics as of October 1998.

[3]Four risk plans operate in Elderplan's market area (Brooklyn, New York), six operate in the Kaiser S/HMO's market area (Portland, Oregon), eight operate in SCAN's market area (in and around Long Beach, California), and four operate in the Health Plan of Nevada (HPN) S/HMO II market area (primarily Las Vegas and Reno, Nevada). Several small plans in these markets are excluded because each has less than 1 percent of the Medicare enrollment in the market.

intended to cover these extra services. The expanded care benefits include home- and community-based care to help members remain in their homes (for example, personal care, non-medical transportation, and emergency response systems) and limited institutional care for respite and other purposes. Table II.1 lists the expanded care benefits that the four S/HMOs provide.

TABLE II.1

EXPANDED CARE BENEFITS OFFERED BY THE S/HMOs

Service	Elderplan	Kaiser	SCAN	HPN
Personal Care	x	x	x	x
Homemaker		x	x	x
Transportation	x	x	x	x
Transportation with Escort		x	x	x
Emergency Response Systems	x	x	x	x
Home-Delivered Meals	x		x	x
Nutrition Supplements			x	x Plus nutritional counseling
Equipment and Supplies		x	Incontinence supplies and equipment not covered by Medicare	Home safety equipment and other supplies and equipment not covered by Medicare
Counseling for Situational Disorders		Living skills coaching		Individual or group counseling/ therapy
Maintenance Therapy and Home Safety		x		x

TABLE II.1 *(continued)*

Service	Elderplan	Kaiser	SCAN	HPN
In-Home Respite	x	x	x	x
Adult Day Care Respite		x	x	x
Adult Day Health Care	For patients with Alzheimer's disease only	x	Respite only	x
Medication Management		x		Available to S/HMO and risk plan members
Short-Term Group Home Care		x		x
Short-Term Nursing Home Benefit	NF care: 10 days lifetime maximum Separate respite benefit of 14 days each year	NF or SNF care: 14 days as respite or postacute or recuperation per period	$7,500 lifetime benefit: 14-day custodial care renewable after 60 days out of the facility	14-day stay in SNF (requires recertification to exceed 14 days), Alzheimer's care home, or other licensed adult care facility

SOURCES: Elderplan: 1997 membership Contract and Expanded Benefits Addendum. Kaiser's Senior Advantage II: Kaiser marketing brochure, "A Comparison of Kaiser Permanente's Senior Advantage Plans" and plan information provided in July 1999. SCAN: marketing brochure,"How to Stay Healthy, Independent and Living in Your Home: Independent Living Power"™ and "1999 Benefits Table: The Big Picture". Newcomer et al. (1999).

NOTE: SCAN also offers a short-term postacute benefit to all members that includes all services except respite and transportation escort.

NF = nursing facility; SNF = skilled nursing facility.

x = Plan offers the service, no further details available.

Because S/HMO I plans limit the amount of these services that members can receive, the average amount spent on recipients is less than half the maximum. The per member monthly limit on expanded care benefits varies between $625 at SCAN ($7,500 per year) and $1,000 at the Kaiser Senior Advantage II S/HMO plan ($12,000 per year). HPN has no limit on the benefits members can receive (see Table II.2). Kaiser spends an average of about $380 a month per recipient, SCAN about $100 a month, and Elderplan $155 a month.[4]

TABLE II.2

LIMITS ON EXPANDED CARE BENEFITS

Cost	Elderplan	Kaiser	SCAN	HPN
Total Cost per Month, Including Copayment	$650 (can be waived)	$1,000 (excludes nursing home care)	$778 (cannot be waived except for dual eligibles)	No limit
Total Member Copayment per Month	Amounts vary by service	Up to $200 (20 percent of total)	$153 maximum (amounts vary by service)	$0
Total Cost per Year, Including Copayment	$7,800	$12,000 (includes nursing home care)	$7,500 (excluding the $7,500 lifetime maximum nursing home benefit)	No limit

SOURCES: Elderplan: 1997 membership Contract and Expanded Benefits Addendum. Kaiser's Senior Advantage II: Kaiser marketing brochure, "A Comparison of Kaiser Permanente's Senior Advantage Plans." SCAN: "1999 Benefits Table: The Big Picture." HPN: Newcomer et al. (1999).

Members who receive expanded care benefits share in paying for them (they do not pay for the care coordination component).[5] After a member has received the maximum monthly or annual benefit amount, he or she must pay for any additional services used. Elderplan, SCAN, and HPN

[4]Averages are based on information reported in Tables II.11, II.12, and II.14.

[5]The Medicaid departments in three states pay for the shares of Medicaid-covered members.

charge a different copayment for each service, whereas Kaiser charges 20 percent of the costs, up to a monthly maximum of $200. The combination of monthly S/HMO premiums and expanded care service copayments leads to costs as high as $370 per member per month in the Kaiser plan. These payments could result in adverse selection into this group, as only members requiring extensive personal care services (or expensive prescription drugs) are likely to enroll in (or stay in) the Kaiser S/HMO.

The S/HMOs subsidize the state Medicaid programs by providing expanded care benefits, some of which would otherwise be covered by Medicaid for dually eligible plan members (those who are enrolled in both Medicare and Medicaid). In return, some of the states and counties pay the expanded care service copayments for S/HMO I plan dually eligible members. New York pays Elderplan a capitation payment to cover the copayments ($101.25 per member per month). In California, three counties (but not Orange County) pay a capitation payment to cover the member copayments (the highest capitation rate is $300 per member per month). In California and New York, the S/HMOs manage additional Medicaid benefits for which dually eligible members are eligible. In Oregon, dually eligible members must join one of the three plans that offer both Medicare and Medicaid managed care products. Because Kaiser does not offer both products, the Kaiser S/HMO does not receive a payment for dual eligibles.[6]

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[6]Dually eligible membership varies across plans. In October 1998, 8.7 percent of SCAN members were dually eligible. Corresponding percentages for the other plans were: Elderplan, 4.6 percent; Kaiser, 3.4 percent; and HPN, 3.0 percent. These percentages are drawn from tabulations of HCFA's GHP file for members in October 1998 (see Table IV.2).

2. S/HMOs in Three Market Areas Do Not Charge Member Premiums

Like members of most Medicare risk plans operating in the S/HMO market areas, members of three S/HMOs pay no premiums.[7] In contrast, the premium of the Kaiser S/HMO (in and around Portland) is much higher than the premiums of risk plans in the market area, reflecting both the additional benefits the S/HMO offers and the costs of adverse retention in that plan of a relatively frailer membership (see Table II.3).

TABLE II.3

PREMIUMS FOR S/HMOs AND LOCAL RISK PLANS IN 1999

S/HMO Plan (and Market Area)	S/HMO Premium	Premiums at Local Medicare Risk Plans
Elderplan (Brooklyn, NY)	$0	$0 (three plans) $20 PMPM (one plan)
Kaiser (Portland, OR)	$170 PMPM	$75 PMPM (Kaiser risk plan) $15 to $29.50 PMPM (other plans)
SCAN (Long Beach, CA)	$0	$0 (all seven plans)
HPN (Las Vegas and Reno, NV)	$0 or $49.95 PMPM[a]	$0 or $49.95 PMPM (HPN risk plan)[a] $0 (remaining two plans)

SOURCE: The Health Care Financing Administration's (HCFA's) Medicare compare website: http:/32.97.224.58/comparison/default.asp; accessed May 1999.

[a]The parent organization offers an enhanced package for both its S/HMO and its risk plan.

PMPM = per member per month; HPN = Health Plan of Nevada.

3. S/HMOs Have Low Member Copayments and Offer Supplementary Medical Benefits

The S/HMOs charge lower copayments for regular Medicare benefits than do the Medicare risk plans. Like Medicare HMOs in general, neither the S/HMOs nor the local Medicare risk plans

[7]As long as they have both Medicare Part A and Part B coverage.

require beneficiaries to pay hospital or skilled nursing home deductibles or coinsurance.[8] Moreover, S/HMO member copayments for physician visits are even lower than Medicare risk plans' copayments (S/HMOs make no charge except for the Kaiser S/HMO in Portland, which charges $5 per physician visit) compared with a median charge of $5 among the local risk plans. In contrast, fee-for service beneficiaries pay 20 percent of the approved charges.

The S/HMOs generally offer more generous coverage for supplementary medical benefits, such as prescription drugs, hearing coverage, and dental coverage, than do local risk plans. For example, in three of the market areas, the S/HMOs set no limit on the prescription drug coverage and in all market areas, the S/HMOs charge no more per prescription than the risk plans that offer prescription drug coverage. In one area (Portland), the Kaiser S/HMO and the Kaiser risk plan are the only ones to offer prescription drug coverage; Kaiser's S/HMO coverage is more generous than its risk plan coverage. In contrast, these benefits are not available to Medicare beneficiaries in the fee-for-service sector except through Medigap policies. Table II.4 compares selected supplementary medical benefits offered by the S/HMOs and local risk plans.

TABLE II.4

SELECTED SUPPLEMENTAL BENEFITS OFFERED BY THE S/HMOs
AND LOCAL RISK PLANS

	Plan (and Area)			
Benefits	Elderplan (Brooklyn, NY)	Kaiser (Portland, OR)	SCAN (Long Beach, CA)	HPN (Las Vegas and Reno, NV)
Number of Risk Plans	Four	Five[a]	Seven[a]	Four

[8]This contrasts with the requirements of the Medicare fee-for-service program. Neither the S/HMOs nor local risk plans charge copayments for hospital stays. In contrast, fee-for-service beneficiaries must pay the 1999 deductible of $768 per hospital episode and copayments after the 90th day of a hospital stay.

TABLE II.4 *(continued)*

Benefits	Plan (and Area)			
	Elderplan (Brooklyn, NY)	Kaiser (Portland, OR)	SCAN (Long Beach, CA)	HPN (Las Vegas and Reno, NV)
Prescription Drug Benefit Offered?				
S/HMO	Yes	Yes	Yes	Yes
Risk Plans	Yes	One plan only[b]	Yes	Yes
Generic Drug Copayment per Prescription				
S/HMO	$5.00	$5.00	$3.50	$6.00
Risk Plans	$5.00 to $12.00	70 percent of cost	$3.00 to $10.00	$5.00 to $6.00
Any Prescription Drug Limits?				
S/HMO	None	None	None	$2,500/yr for brand name drugs; none for generic drugs[c]
Risk Plans	Overall limit of $1,000/yr (three plans) Brand name drug limit of $500/yr (one plan)	None (Kaiser risk plan)	None (three plans) Brand name drug limits of $2,000 to $4,500/yr Overall limit of $1,000/yr (one plan)	Brand name drug limits of $800 to $2,500/yr (two with quarterly limits)
Hearing Aids Covered				
S/HMO	Yes: every 3 years, up to $600	Yes: every 2 years, at 50 percent discount	Yes: as many as two hearing aids every 2 years, up to $300 per two years	Yes: at 40 percent discount
Risk Plans	Yes (four plans) One hearing aid per 3 years, up to $500 (three plans) One hearing aid per year, up to $300 per 3 years (one plan)	No (three plans) Yes: up to $250 per 2 years (one plan)	No (two plans) Yes (four plans) 30 to 35 percent discount (three plans) One hearing aid per 3 years, up to $250 (one plan)	No (two plans) Yes: one plan, at 35 percent discount; one plan at 40 percent discount

TABLE II.4 *(continued)*

Benefits	Plan (and Area)			
	Elderplan (Brooklyn, NY)	Kaiser (Portland, OR)	SCAN (Long Beach, CA)	HPN (Las Vegas and Reno, NV)
Preventive Dental Coverage Offered?				
S/HMO	Yes: two preventive visits per year	No	Yes: unlimited preventive visits per year	No (unless purchased under a separate rider)
Risk Plans	No (one plan) Yes: up to two preventive visits per year (three plans)	No (four plans)	No (one plan) Yes: preventive exams at $5 or $10, up to two per year (six plans)	No (three plans) Yes (one plan offers two free preventive visits per year)

SOURCE: HCFA's Medicare Compare web site: http:/32.97.224.58/comparison/default.asp.

[a]One plan in Oregon and one in California are no longer operating in 1999, and data are not available from Medicare Compare.

[b]The Kaiser risk plan offers a prescription drug benefit; none of the other risk plans offer this benefit.

[c]The enhanced option plan has no brand name drug limit.

B. TARGETING MEMBERS FOR EXPANDED CARE BENEFITS AND CARE COORDINATION

1. S/HMO Members Are Targeted for the Extra Benefits and Care Coordination in Diverse Ways

Although the two S/HMO models have different targeting objectives and use different targeting criteria, they follow a similar, four-step process. First, in S/HMO I and S/HMO II plans, members are initially identified for care coordination or extra benefits through a screen completed at enrollment and annually thereafter, and through referrals to care management from sources internal and external to the S/HMO. Second, a telephone screen of the member is conducted to ascertain his or her interest and likely eligibility. Third, a formal in-home comprehensive assessment collects information required to establish eligibility. Fourth, a comparison of member characteristics with

the targeting criteria establishes eligibility (S/HMO I plans) or eligibility for specific services (the S/HMO II plans). Figures II.1 and II.2 summarize this process in the two S/HMO models.

Initial Screening. The screening instrument in both S/HMO models collects information that is used to determine who should be considered "at risk." Information is collected on whether the member has certain health conditions (such as heart disease, diabetes, or cancer); the member's recent use of hospital, emergency room, or home health services; whether the member needs help in activities of daily living (ADLs) or instrumental activities of daily living (IADLs); the number of medications taken; health habits, including smoking, alcohol use, regular exercise, weight gain or loss; and whether the member has been screened regularly for cancer or has received immunizations. The S/HMO I plans mail the screening instrument (the Health Status Form [HSF], developed for the S/HMO demonstration) to their members. The members, in turn, complete the forms and return them to the plan. The health status screening interview, developed specifically for the S/HMO II demonstration, is administered by telephone to S/HMO II members by a HCFA contractor.

Members who are referred to care coordination from sources other than the screening instrument must meet the same criteria as screened members. The majority of referrals come from the screen when enrollment is growing and from other sources, such as hospital care coordinators or health plan member services departments, when enrollment is not growing.[9] (See Table II.5).

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[9]Table II.7 shows screen triggers and referral criteria used at each S/HMO I site.

FIGURE II.1
S/HMO I CARE
MANAGEMENT INTAKE AND
ASSESSMENT PROCESS

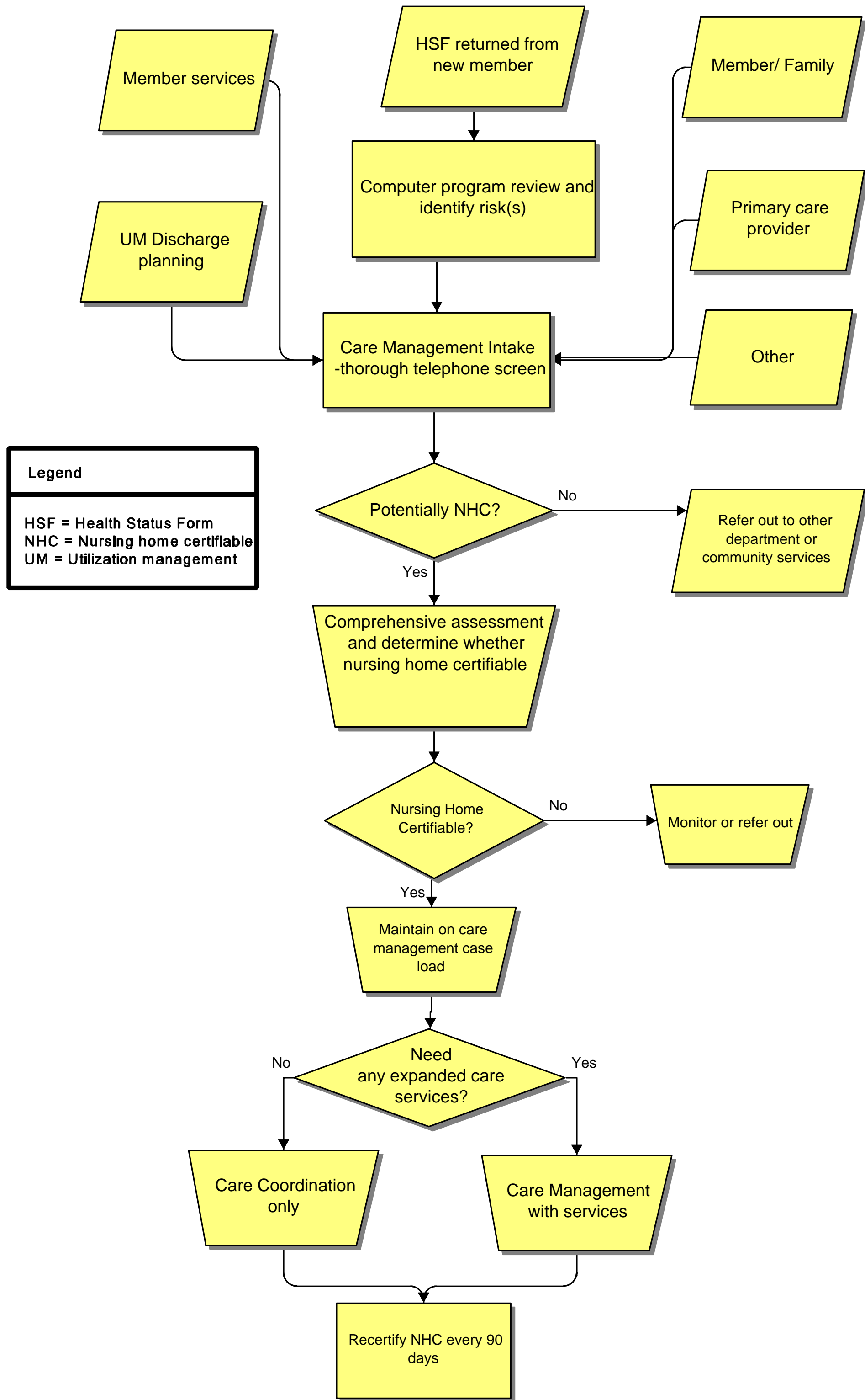

FIGURE II.2
S/HMO II INTAKE AND CARE MANAGEMENT PROCESS

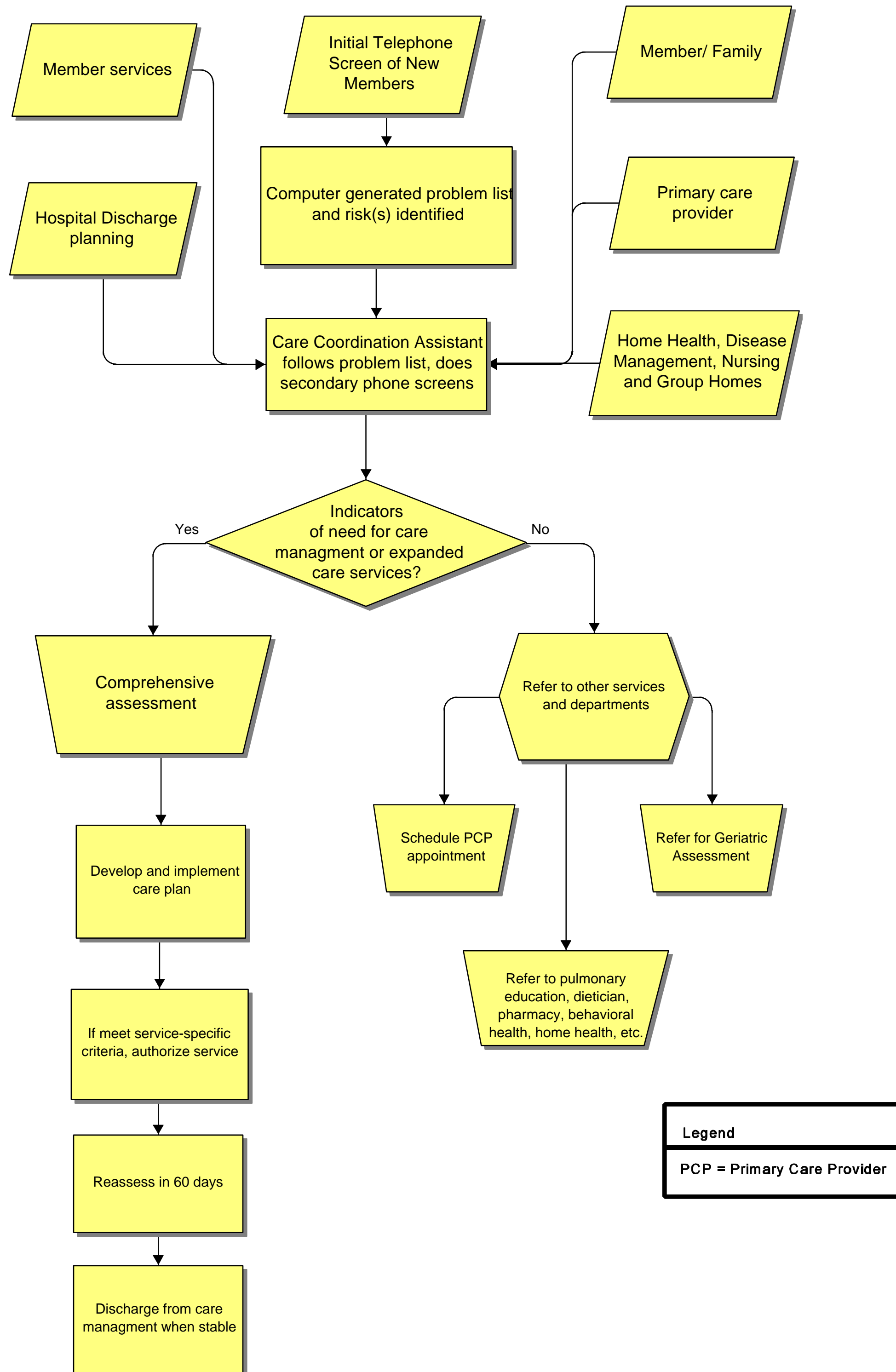

TABLE II.5

PERCENTAGE DISTRIBUTION OF MEMBERS REFERRED TO CARE COORDINATION, BY REFERRAL SOURCE

Source	Elderplan (September 1, 1998- March 10, 1999)	Kaiser (1998)	SCAN (April 1998 - March 1999)	HPN (1998)
Hospital	44%[a]	28%	7%[b]	24%
Home Health	0	11	<1	6
Physicians	3	0	<1	21
Outpatient Social Workers	0	11[c]	3	0
Member Services Department	19	11	33	7
Enrollment Services, New Screen (HSF)	7	6	32	24
Member or Family	11	29	13	2
Disease Management, Monitoring	0	0	4	[d]
Use of Oxygen Services	0	0	0	[d]
Group Homes, Nursing Home	0	0	<1	<1
Other	17	5	6	16[e]

SOURCES: Elderplan, Kaiser, and SCAN: care management department statistics. HPN's Senior Dimensions S/HMO II plan: data provided by plan, July 1999.

HSF = Health Status Form.

[a]Includes hospital utilization management and home health agency.

[b]Includes hospital and quality and utilization management.

[c]Includes physicians.

[d]Included in "other" category.

[e]Includes other providers.

Telephone Screen, Comprehensive Assessment, and Nursing Home Certifiable Certification. After the care management unit receives a referral, an intake worker contacts the member, usually by telephone, to confirm information and make an initial determination about the types and extent of the member's needs. At this point, the models use different processes.

S/HMO I Plans. In S/HMO I plans, the objective is to determine whether a member is likely to be nursing home certifiable (NHC) if assessed. If so, the member is assigned to a care manager, who conducts a comprehensive assessment during a home visit. At SCAN and Kaiser, the NHC determination and comprehensive assessment are made during the same visit. At Elderplan, an outside contractor makes the NHC determination. Consequently, the NHC determination process is initiated if the care manager has determined that the member is appropriate. If the S/HMO I member is determined to be nursing home certifiable, the care manager may authorize any of the expanded services.

S/HMO II Plan. In the S/HMO II plan, the initial telephone screen automatically generates a problem list for each member. The care coordination assistant (a member of the care management team in the member's medical clinic) reviews these results and conducts secondary telephone screens with the member to begin addressing the risk factors. The member may be referred to another unit of the health plan, as appropriate, or may receive a comprehensive assessment in the home by a nurse or social worker if certain risk factors are present or if it appears that expanded care services may be required.[10] Each service offered has specific eligibility criteria; if the criteria are met, the service is authorized by the physician and nurse care manager. (See Table II.6.)

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[10]Examples of these decision-making criteria in the S/HMO II site appear in Table II.10.

TABLE II.6

TARGETING PROCESS

Process	Elderplan	Kaiser	SCAN	HPN
Period	See below	1998	9/97 to 12/98	Last quarter 1998
S/HMO I Members Returning HSF or S/HMO II Members Completing Telephone Screening Interview	52% returned[a]	90%	69%[b]	95%
Members Referred to Care Management for Telephone Screen (S/HMO I) or Triage (S/HMO II)[c]	10% (estimated)[d]	12%[e]	24%[f]	33.5%[g]
Members Referred to Care Management Who Receive Comprehensive Assessment	43.2%[d]	80%[e]	80%[h]	60%[g]
Membership NHC (Percent)	19.2%[i]	24.1%[j]	13.1%	Not applicable

[a]TLC Report (1998).

[b]Status report for 9/97 to 12/98 provided by SCAN, June 1999.

[c]Includes referrals from screen and all other sources.

[d]Count of caseload, February 1, 1999 to March 22, 1999.

[e]SA II expanded care action summary, by month.

[f]For the period April 1998 to December 1998, provided by SCAN project manager.

[g]HPN data are from the site for the last quarter of 1998 (provided July 1999).

[h]Report from SCAN for period 4/98 to 12/98 excludes "unqualified" referrals. Including "unqualified" referrals, 73 percent were assessed.

[i]Care management department statistics dated March 1, 1999.

[j]Count of caseload on one day.

2. S/HMO I Plans Use Nursing Home Certifiability to Target the Benefits but the Criteria Differ

The NHC status of individual members in the S/HMO I plans is critical to both plan finances and member access to services. The plan is paid a higher rate for members who are nursing home certifiable because they are at higher risk for medical problems. The plans therefore have financial incentives to classify members as NHC. In considering transition plans for S/HMO I plans, an important policy issue is whether the NHC criteria used for classifying S/HMO members accurately target high-risk members, whether the three plans use similar criteria, and whether they are consistent with the state's actual, current criteria for NHC.

Because the NHC criteria are state-specific, targeted members differ across sites.[11] As Table II.7 shows, Elderplan's criteria appear to be the least stringent, as almost all members who receive the NHC interview are certified. Kaiser's criteria are the most stringent, as members generally must require daily assistance with mobility, toileting, medications, or eating. Probably as a result of the differences in stringency, only about 35 percent of Elderplan's NHC group receives the chronic care services, compared with 65 percent of Kaiser's NHC group.[12]

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[11]Historically, the NHC criteria are related to the state's process for determining appropriateness for a given level of nursing home care, because of the policy interest in reducing nursing home admissions. However, the relevance of these criteria to current state usage is difficult to determine. It appears that SCAN, Kaiser, and Elderplan use forms that their respective states (California, Oregon, and New York) no longer use. For example, New York had based its Medicaid payments for nursing homes on a level-of-care approach. This approach used a Patient Review Instrument form to identify the appropriateness of care and its associated payment for potential residents. The state now uses a case-mix approach under which a different method is used to classify nursing home residents for payment. Elderplan uses the old Patient Review Instrument to assess NHC status.

[12]Data derived from Table II.11.

TABLE II.7

CURRENT CRITERIA USED TO TARGET MEMBERS AT S/HMO I SITES

Plan	Criteria Used to Refer Members Completing Health Status Form to Care Coordination	Nursing Home Certifiable Criteria
Elderplan	PRA score or frailty score of .5 (starting 4/99), receiving home services, any ADL or IADL impairment, uses cane, consents to referral	Uses Patient Review Instrument. Site could not explain scoring of NHC (reported to be complex). Everyone assessed is determined NHC, as no one purportedly can score low enough to be eliminated.
Kaiser	Frailty score greater than .5 or dependence in at least two ADLs	Uses 1983 Oregon form. The member must have at least one of the following ongoing functional dependencies: C Requires daily assistance with mobility, toileting, maintaining bodily functions (confined to bed), medications and prescribed procedures, or feeding C Requires special tolerance and daily management by another person for cognitive functioning and emotional control or becomes a danger to self or others C Requires assistance three times weekly to manage catheter, ostomy, or incontinence of bowel or bladder (cannot qualify on incontinence alone)
SCAN	Frailty score greater than .5, recent hospitalization, assistance with any ADL, other triggers	Uses Prolonged Care Assessment Form. The member generally has one ADL impairment plus one other complicating factor (for example, another ADL impairment, cognitive impairment, poor judgment, or weak support system). (No criterion specifies need for daily assistance.)

NOTES: The PRA is a score predicting the risk of repeated hospital admissions, developed by Boult (1993). It is based on age, self-rated health status, hospital admissions and physicians' visits in the preceding year, presence of heart disease or diabetes, and availability of an informal caregiver.

The frailty score was developed by the Center for Health Research at Kaiser Permanante to identify the risk of increased frailty within the next year. It is based on age, need for assistance with bathing or medication, and whether health interferes with activities.

ADL = activities of daily living; IADL = instrumental activities of daily living.

Although NHC members' status is redetermined every 90 days at all S/HMO I sites, regardless of whether they are receiving services, few members are discharged. Redetermination of nursing home certifiability is an important event because members who no longer are NHC eligible do not receive the extra services, and the S/HMO will not receive the higher level payment rate for members whose eligibility ceases. One study reported that more than half the members identified as nursing home certifiable lose eligibility within one year, but that NHC status lasting longer than one year was likely to be permanent (Hallfors et al. 1994). Although the care managers reported circumstances under which members would no longer qualify, they were under the impression that discharges from NHC status, other than because of disenrollment or death, occurred rarely (see Table II.8).[13]

At Elderplan, where every assessed member is determined to be nursing home certifiable, people are discharged from NHC only if they die, disenroll from the plan, or are institutionalized. At SCAN, a case determined to have lost NHC eligibility is discussed at a case conference, at which a supervisor gives advice about retention. The member is then monitored by the case manager, by telephone, rather than being discharged. Care managers at Kaiser report that they develop a discharge/transition plan for a member who loses NHC status. The member is then referred to community services or to the social worker at the member's medical clinic. (According to caseload statistics, very few such discharges occur.)

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[13]A case manager gave the following example of a case eligible for discharge from NHC: member with long-standing mobility problems who has a knee replacement and has recovered all mobility after six months.

TABLE II.8

DISCHARGES FROM CARE COORDINATION

Characteristic	Elderplan (Monthly Average, 1998)	Kaiser (Annually)	SCAN	HPN (Monthly Average)
Reasons for Discharge	Death Move from area Institutionalization	Death Disenrollment Move from area or to another plan No longer NHC	Death Disenrollment Institutionalization No longer NHC	Stabilized (Goals met) Death Disenrollment
Percentage Closed to Care Coordination	1.6%	14.9%	Very few	7%

SOURCES: Elderplan: care management statistics, January 25, 1999; Kaiser: SA II EC special report; SCAN: care coordinator description; HPN: Newcomer et al. (1999) and HPN data provided July 1999.

Two S/HMO I plans monitor a small number of members who are not currently nursing home certifiable, although they do not receive additional payment for doing so. For example, SCAN monitors members who are "not yet NHC" but are expected to become eligible soon, people who are nursing home certifiable but refuse services, people who refuse the assessment but seem to be at risk, and all members older than age 90 years. This monitoring may enable the care managers to detect early signs of changes in functioning.[14] (See Table II.9.) Kaiser conducts monitoring monthly; SCAN and Elderplan do so every 90 days.

[14]Scan reports that 14.5 percent of the monitored population of 5,964 in May 1999 are non-NHC.

TABLE II.9

REASONS FOR MONITORING MEMBERS WHO DO NOT RECEIVE SERVICES

Type of Monitoring	Elderplan	Kaiser	SCAN	HPN
Monitoring Status: on Care Coordinators' Caseload	NHC but not receiving chronic care services	NHC but not receiving chronic care services Not NHC but meets criteria for exception	NHC but not receiving chronic care services	Care plan implemented Disease state monitoring (care plan not required)
Monitoring Status: Not on Care Coordinators' Caseload			Not yet or no longer NHC Older than age 90 years (monitoring conducted by monitoring specialist in care management department)	

SOURCE: Site visits, supplemental information provided by plans after visits.

NHC = nursing home certifiable.

3. S/HMO II Screening Criteria Identify a Broad Range of Risk Factors

The S/HMO II goal is to provide members with the appropriate care at the appropriate time, rather than identify a group of patients who might be nursing home certifiable. Achieving this goal entails a very different approach to targeting. Table II.10 gives examples of "screen triggers" (that is, characteristics that lead to intervention by the care coordinators) and their corresponding interventions. A care coordination assistant is responsible for referring members to the various appropriate interventions within care coordination and in the rest of the health plan.

TABLE II.10

S/HMO II SCREENING CRITERIA

Screen Triggers	Next-Step Intervention
High risk (score .5 or more) on Probability of Repeated Admissions (for example, heart conditions, prior hospital use) One or more ADL limitations (dressing, toileting, transferring, eating) Three or more IADL limitations Selected chronic conditions (CHF, COPD) Multiple emergency room visits Use of durable medical equipment Use of home health	Provide comprehensive assessment, care coordination Schedule appointment to primary care provider if multiple admissions to hospital or multiple emergency room visits Social services assessment if three or more IADL limitations.
Self-rated health poor status Heart disease Urinary incontinence Two or more visits to the emergency room	Schedule primary care provider appointment Refer to or advise primary care provider Refer to geriatric department for geriatric assessment or evaluation
Cancer Diabetes Mental or psychiatric disorder Vision or hearing problems Parkinson's disease, stroke, arthritis, hip fracture	Refer to primary care provider Send disease-specific material to member Refer for health education Refer for social work evaluation
No influenza or pneumonia shots, pap smear, mammogram	Refer to (and advise) primary care provider Send annual reminders to members
Five or more prescription medications	Refer to pharmacy
Alcohol use	Refer to behavioral health
Lives in nursing facility	Perform full team geriatric assessment
COPD Smoking	Provide pulmonary education
Diabetes Currently uses home health Currently uses durable medical equipment	Refer to dietician Refer to home health Refer to utilization management

SOURCE: Newcomer et al. (1999).

IADL = instrumental activities of daily living; ADL = activities of daily living; CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease.

During the demonstration, the automatic triggers for the comprehensive assessment have been changed several times as site staff attempted to identify appropriately vulnerable members and to avoid overwhelming the care coordinators; consequently, the comprehensive assessment rates have varied from 5 percent to 30 percent of those screened.[15]

Care coordination is designed to be time limited, rather than a long-term or permanent intervention. After a care plan has been established, the member is monitored and reassessed for service needs every 60 days. Members can be--and frequently are--discharged from care coordination. (At one clinic, the coordination team was averaging 48 referrals for services and 16 discharges each month.)

C. USE OF CARE COORDINATION AND EXPANDED CARE BENEFITS

In the context of the S/HMO demonstration, care coordination is defined as follows. Care coordination is a professional function that includes assessment of a person and his/her home situation; planning and arranging for appropriate care and services; ongoing monitoring of the situation for the quality and continued appropriateness of the service; and periodic reassessment and adjustment of services as necessary. The professionals performing care coordination are usually social workers or nurses; in the S/HMO II, care coordination is performed by a multidisciplinary team. The services being coordinated are the S/HMO expanded home- and community-based long-term care services and also may include other S/HMO health, educational, and preventive services and services available from other sources in the community. (Chapter III describes the care coordination functions in detail.)

[15]The program was also developing a shorter "primary assessment" that could be used in some circumstances and could be administered by telephone.

1. As Many as 15 Percent of Members Are Monitored and Receive Expanded Care Benefits

Differences in approaches to member targeting and, possibly, in member frailty result in care coordination rates varying between 10 and 25 percent of members across sites (see Table II.11). In the S/HMO I plans, only members who are nursing home certifiable and who receive care coordination are eligible to receive the expanded care services. In the S/HMO II plan, the expanded care services are available to any S/HMO member meeting service-specific eligibility criteria.[16]

At any given point in time, between 7 percent and 15 percent of S/HMO members actually receive expanded care services. These varying proportions result from variations in the NHC criteria across sites and in member acceptance of offered services. The percentage of members receiving expanded services among those classified as NHC varies from 35 percent to 84 percent.

TABLE II.11

PERCENTAGE OF MEMBERS RECEIVING CARE COORDINATION AND EXPANDED CARE SERVICES

Characteristic	Elderplan (1/99)	Kaiser (1/99)	SCAN (3/99)	HPN (6/98)
Number of Members	5,500	4,200	35,181	25,301
Members NHC				
Number	1,055	1,000	4,597	
Percent	19.2	23.8	13.1	not applicable
Members Receiving Care Coordination				
Number	962	1,053	4,299	2,480
Percent	17.5	25.1	12.2	9.8

[16]For example, personal care is available to people who are at risk of exacerbation of disease process or disability, exhibit geriatric frailty (such as instability, falls, or incontinence), have deficits in one or more ADLs, require hands-on assistance from an attendant, live in a substandard environment that places them at risk for decline, or are depressed as a result of an acute situational disorder (Newcomer et al.1999).

TABLE II.11 *(continued)*

Characteristic	Elderplan (1/99)	Kaiser (1/99)	SCAN (3/99)	HPN (6/98)
Members Receiving Expanded Services				
Number	367	646	3,869	2,775
Percent	6.7	15.4	11.0	11.0
Members Receiving Care Coordination and Expanded Services				
Number	367	646	3,869	2,480
Percent	6.7	15.4	11.0	9.8

SOURCES: Elderplan: care management department statistics dated March 1, 1999; Kaiser: caseload summary report for January 1999. SCAN: data provided by site (estimate of percentage receiving services was provided by one care manager); HPN: data provided by site July 1999.

NOTE: Enrollees receiving care coordination but not expanded care benefits are assessed in person and monitored by telephone regularly.

NHC = nursing home certifiable.

D. S/HMO PAYMENTS

1. S/HMO Payments Are Adjusted for Risk Factors and the Additional Benefit

S/HMO plans are paid substantially more than they would receive if they held risk contracts. This additional payment arises from two differences in the way S/HMO and risk plans are compensated. First, the county payment rates used to determine payments to S/HMO plans for residents of a given county are based on the rates used to pay risk plans but are augmented to eliminate the 5 percent discount that is implicit in the risk plan rates. Second, the risk factors used to determine the payment rate for individual beneficiaries are based on additional criteria.

The augmented county payment rates result in plans receiving 5.3 percent more as a base payment than they would for the same beneficiaries under Medicare + Choice. This difference arises because the Medicare risk plan county payment rates, on which the S/HMO rates are based, are

themselves based on the Adjusted Average Per Capita Cost (AAPCC) rates from 1997-- HCFA's actuarial estimates of what Medicare beneficiaries in fee-for-service in that county would cost the government. Payments to risk plans were set at 95 percent of the AAPCC prior to 1997, and payment rates since then are based on the 1997 payment rates. The payment rate to the S/HMO plans eliminates the implicit 5 percent discount in the Medicare county rate book amount, with the additional payment intended to be used by the S/HMOs to purchase the expanded home- and community-based additional long-term care services for patients who need them. The county payment rates for S/HMOs are therefore set at the published Medicare risk payment rates divided by .95 or, equivalently, 5.3 percent more than the published county rates for risk plans.

The second difference between S/HMO and risk plan payment methods is that they use different risk factors for individuals. The S/HMO I and S/HMO II methods differ from each other as well. The risk cells defined for S/HMO I plans are similar to those used for risk plans--10 age-sex cells for each of five types of Medicare beneficiaries, including nursing home residents, community residents on Medicaid, community residents not on Medicaid, working aged, and those with end-stage renal disease. In addition, the S/HMO I payment method includes a separate set of age-sex rate cells for community residents (whether Medicaid or not) who meet the state's nursing home certifiable (NHC) criteria. The payment rate factors for the NHC cells are much higher than the payment rate factors for community residents, reflecting the substantially higher expected use of Medicare services among this group of beneficiaries in the fee-for-service sector. To make the risk adjustor for S/HMOs risk-neutral, the payment rate factors for those in the community who are not NHC are lowered substantially. Thus, plans receive substantially lower capitation payment factors than they would under risk contracting for community-dwelling beneficiaries who are not classified as NHC, and substantially higher factors for those who are classified as NHC.

The S/HMO II payment method is totally different and is based on a regression model. The payment received by the S/HMO II for individual enrollees depends upon their sex, 10 chronic diseases, ability to perform certain daily activities independently (bathing, dressing, walking, shopping), self-reported general health rating, and ability to walk a quarter mile. (See Appendix B for the list of precise characteristics on which S/HMO II capitation payments depend and the coefficients.) These data are gathered through a survey of enrollees at the time of enrollment and at their anniversary date each year. The individual payment amounts are updated annually.

For October 1998, these payment methods resulted in average payments per enrollee that ranged from $476 for HPN to $863 for Elderplan (see Table II.12). Total Medicare revenues for the month of October ranged from $2.3 million for Kaiser to $22.2 million for SCAN, due to the widely varying enrollment levels across the four plans. Elderplan and Kaiser each have about 5,000 enrollees, and SCAN and HPN each have over 25,000 members.

TABLE II.12

S/HMO MEDICARE REVENUES FOR OCTOBER 1998

Amount	Elderplan	Kaiser	SCAN	HPN
Medicare Revenues per Month (Dollars)	4,487,542	2,288,026	22,206,399	12,330,239
Members in Month (Number)	5,201	4,322	32,747	25,881
Revenues per Member per Month (Dollars)	863	529	678	476

SOURCE: Calculations based on enrollment for October 1998 from HCFA's Group Health Plan File and from HCFA's plan payments reports (see footnotes to Table II.13).

To assess the effects of the special S/HMO payment features on Medicare revenues, each plan's Medicare revenues were compared to the amount it would have received under the Medicare risk plan payment method. These calculations were made for the month of October 1998, using simulations to generate the payments (actual payments to S/HMOs for that month are very similar to the simulated amounts, but differ slightly because they include adjustments for prior months).

As the bottom row of Table II.13 indicates, payments to the three S/HMO I plans are 15 to 30 percent higher than the amounts these plans would have received for these same individuals under risk contracting, but the S/HMO II plan receives only about 5 percent more than it would as a risk plan. The bulk of this extra payment for S/HMO I plans arises from the much higher payment for the NHC rate cell than for the risk plan rate cell for community residents. For example, Elderplan receives 20 percent more as a S/HMO I plan than it would as a risk plan, and only one-fourth of this amount (5.3 percent of the risk plan payment amount) is due to the augmentation of the county rates. The S/HMO II plan, in contrast, receives almost exactly the same amount (0.3 percent less) under the S/HMO II risk adjustment method as it would get as a risk plan. Thus, the additional amount received by the S/HMO II plan relative to what it would get as a risk plan is due entirely to the elimination of the 5 percent discount implicit in the Medicare risk plan county payment rates.

If the higher payments received by the S/HMO I plans as a result of the modified risk factors were due to enrolling more functionally impaired, frailer Medicare beneficiaries than risk plans enroll, the higher payment might be warranted. Differences between S/HMO and risk plans in characteristics of their enrollees are presented in Chapter IV.

TABLE II.13

EFFECTS OF S/HMO PAYMENT METHODOLOGY ON REIMBURSEMENTS
RELATIVE TO RISK CONTRACTING
(FOR MONTH OF OCTOBER 1998)

	Elderplan	Kaiser	SCAN	HPN
1. Simulated S/HMO Payments for October 1998 (in Dollars)[a]	4,487,542	2,288,026	22,206,399	12,330,239
2. Simulated Payments Under Medicare Risk Payment Rates and Methodology (in Dollars)[b]	3,738,773	1,751,587	19,261,431	11,752,592
3. Simulated Payments Under Medicare Risk Methodology, Eliminating 5 Percent Discount [(2)/.95)] (in Dollars)	3,935,551	1,843,775	20,275,190	12,371,150
4. Difference Between S/HMO and Risk Payment Due to Elimination of 5 Percent Discount [(3)-(2)] (in Dollars)	196,778	92,189	1,013,760	618,557
(As a Percent of Medicare Risk Payment [(4)/(2)])	(5.3)	(5.3)	(5.3)	(5.3)
5. Difference Due to Modified Risk Factors in Payment Methodology for S/HMOs [(1)-(3)] (in Dollars)[c]	551,992	444,251	1,931,209	-40,911
(As a Percent of Medicare Risk Payment [(5)/(2)]	(14.8)	(25.4)	(10.0)	(-0.3)
6. Total Difference [(4)+(5), or (1)-(2)] (in Dollars)	748,769	536,439	2,944,969	577,646
(As a Percentage of Simulated 95% AAPCC Payment [(6)/(2)])	(20.0)	(30.6)	(15.3)	(4.9)

SOURCE: Calculations based on enrollment for October 1998 from HCFA's Group Health Plan (GHP) File.

[a] To simulate S/HMO I plan payments, HCFA's October 1998 GHP file was used to calculate each plan's enrollment by payment cell, for each county in the plan's market area. These enrollment figures were multiplied by the appropriate S/HMO cost adjustment factors and Medicare risk plan county payment rate and summed to simulate payments for that month. Simulated payments differ slightly from the amounts in HCFA's plan payment report, due to various adjustments for prior months. For the S/HMO II plan, HCFA's plan payment report for October 1998 was multiplied by the ratio of enrollment calculated from the GHP file to enrollment reported in the plan payment report (the two sources had a discrepancy of 258 individuals, or less than 1 percent of total enrollment).

[b] To simulate risk plan payments, S/HMO enrollees were assigned to Medicare risk plan payment cells by county, and the number of people in each cell was multiplied by the appropriate county rate and 1998 Medicare risk plan demographic cost adjustment factor. The rate paid to S/HMOs for enrollees residing in a particular county is the published Medicare county rate book amount, divided by .95 to remove the implicit 5 percent discount. Since there is no NHC category under the risk plan methodology, all individuals in the S/HMO-I NHC category are assigned to the appropriate community categories (Medicaid and non-Medicaid) under the risk plan methodology.

[c] The three S/HMO I plans have separate payment cells for individuals who are nursing home certifiable. The S/HMO II plan receives payment that is determined by a regression-estimated formula. Appendix Table B.3 gives the payment formula.

2. S/HMOs Do Not Spend Five Percent of Revenues on the Additional Benefits and Care Coordination

Although the S/HMOs are paid an augmented base rate to cover the cost of the expanded benefits and care coordination, they do not all spend 5 percent of revenues on these services (see Table II.14).

Medicare risk plans are not required to offer these types of long-term care benefits and do not systematically do so. There are isolated instances in which these services have been provided by risk plans, and some large medical groups provide transportation as an efficiency measure. As described in the next chapter, some risk plans do provide coordinated care.

TABLE II.14

EXPENDITURES ON EXPANDED CARE BENEFITS AND CARE COORDINATION
AS A PERCENTAGE OF MEDICARE REVENUES

Model and Plan	Expanded Care	Care Coordination	Total
S/HMO I Model			
Elderplan (1997)	1.2 %	1.0 %	2.2 %
Kaiser	11.0%	3.8%	14.8%
SCAN (FY 1998)	1.6 %	Not available	Not available
S/HMO II Model: HPN	Less than projected expenditures	Not available	Less than 5% of expenditures

SOURCES: SCAN: Information provided by the site; Elderplan: audited financial statement for 1997. Kaiser: Information provided by the site. Kaiser is the only S/HMO to charge member premiums. If these are included in revenues, the total percentage drops to 11 percent.

III. MANAGEMENT AND INTEGRATION OF CARE IN THE S/HMO

All managed care organizations have financial incentives to promote preventive medical care and to limit inappropriate medical care. The social health maintenance organizations (S/HMOs) were also designed to integrate acute and long-term care through the coordination of the expanded home- and community-based long-term care benefit with medical care. An additional intent of the S/HMO II model was to implement geriatric approaches to care. All these approaches constitute aspects of "managed care." This chapter reviews the current status of managed care in the S/HMOs, addressing coordination of the expanded care benefit, its integration with medical care, the development of geriatric approaches, and the infrastructure for managing care. The chapter includes a brief discussion of Medicare risk plans that have initiated innovations in care coordination.

In accordance with the S/HMO II design, HPN, the sole S/HMO II plan, has implemented an interdisciplinary team approach to insure integration of medical care with the expanded care benefits, has established a variety of geriatric approaches, and is developing the necessary information systems and other infrastructure needed to manage care. This well-orchestrated approach should help to improve the management of care for frail elderly members. Of the three S/HMO I plans, the Kaiser plan comes closest to HPN in its approaches to managing care. Kaiser is a strong group model HMO, which has developed innovative geriatric approaches for improving the integration of medical and expanded care benefits and has well-developed infrastructure. These two organizations both operate S/HMOs and risk plans side by side and have, as staff/group HMO models, more influence over their physicians' behavior than IPA/network HMOs can hope for. Moreover, the S/HMO developments are being used to improve care in the risk plans. In contrast, the other two S/HMO I plans, Elderplan and SCAN, have less well-developed integration of medical care and

expanded care benefits, geriatric approaches, and infrastructure. SCAN has made little progress in implementing these approaches. Indeed, relative to some S/HMO plans, some Medicare risk plans have comparable or better integration mechanisms and geriatric approaches, yet receive no augmented payments.

To manage care successfully, all managed care organizations must establish effective infrastructures. Nevertheless, some S/HMOs have poorly developed management information systems and little ability to modify physician behavior. The structural and procedural features required to manage care are most highly developed in Kaiser and HPN and are least developed in SCAN and Elderplan.

A. MANAGED CARE PRACTICES AMONG RISK PLANS

Plans that manage care effectively have certain characteristics in common. For example:

- They collect and use information on members to target treatment.
- They promote communication among providers and interdisciplinary team practices to ensure coordination of different providers and services.
- They promote evidence-based practices.
- They use effective approaches to control the behavior of providers, especially of physicians.
- They monitor quality and outcomes.

Some of these processes are mandated for Medicare + Choice plans (for example, quality monitoring has long been required), and the mandated processes are modified over time. For example, the Balanced Budget Act added a requirement that all Medicare + Choice plans conduct an initial care assessment of new members (*Federal Register* 1999).

A recent case study of innovative care management practices for elderly people enrolled in Medicare risk plans found extensive coordination in four plans from different regions of the United States and one medical group that contracts with one of the plans (Fox et al. 1998a, 1998b, and 1998c; and Thornton et al. 1998). These coordination processes include the following four innovative approaches:

- Identification of members at risk for health problems, through initial screening when members join the plan and from referrals from primary care providers, hospitals, nursing homes, and home care agencies

- Case management by nurses, either by telephone or in person, including initial assessments; care planning, including authorization of such non-Medicare services as safety equipment for the home; referrals to medical and community services; patient education; and monitoring for periods varying from short, intensive ones after hospital stays to several years

- Disease management programs focused especially on high-cost diseases, such as diabetes, congestive heart failure, chronic obstructive pulmonary disease, and asthma, and including patient education in self-care

- Nursing home care by dedicated geriatricians and nurse practitioners

Both independent practice association (IPA) and group model HMOs implemented these programs.

These four features are found among the S/HMO plans, though not all features are found in all S/HMOs. All S/HMOs conduct initial screening of members and ongoing screening of referrals from providers. All S/HMOs offer case management of the expanded care benefit and ongoing monitoring (though nurses are less common than social workers in the case manager role). There is wide variation in the development and use of disease management among the S/HMOs and in the use of geriatricians and geriatric approaches.

B. COORDINATION OF THE S/HMO EXPANDED CARE BENEFIT

All the S/HMO plans coordinate the expanded care services. However, the two models differ in important ways in their structure and approach.

1. Structure

S/HMO models differ in that care coordination is performed by a single individual in the S/HMO I plans and by a team in the S/HMO II plan. In all the S/HMO I plans, the care managers are located in a separate department and each is responsible for her own cases. The S/HMO II care coordination is conducted by teams that include a nurse coordinator, social worker, and care coordination assistant; most teams are located in primary care medical clinics, thereby improving the opportunities for coordination (see Table III.1).

2. Approach

The S/HMO I plans follow a community-based, long-term care model, whereas the S/HMO II plan is a time-limited intervention. Care managers in S/HMO I plans develop a care plan, authorize services from the expanded care benefit for targeted members, coordinate members' expanded chronic care benefits, and monitor targeted members' needs. They maintain a case as active as long as the member receives these services. Nursing home certifiable members who are not receiving services are monitored but remain on the caseload, as are some non-nursing home certifiable members thought to be particularly at risk for medical crises. The plans use an ad hoc problem-solving approach to coordinate expanded care benefits with medical care; however, the availability of an electronic medical record at Kaiser improves the potential at that plan for coordination with medical care.

TABLE III.1

KEY FEATURES OF CARE COORDINATION

Characteristic	Elderplan	Kaiser	SCAN	HPN
Organization	One director, one team of six care coordinators	One director with one assistant; two geographic teams, each with one supervisor, five or seven resource coordinators, and one and a half assistants	Four teams, each with manager, supervisor, care coordinators	Seven interdisciplinary teams composed of core group (see below) and additional clinicians (such as pharmacists, physical therapists, and dietitians, plus physicians)
Location	Central office, with other departments	In Center for Health Research (central office)	In four regional service area offices	Staff-model clinics: within each clinic Network clinics: teams based in central corporate office
Professional Background of Care Coordinators	Social workers	Nurses, social workers, other human service background	Primarily social workers, a few nurses	Each core care coordination team consists of a nurse care manager, social worker, care coordination assistant
Caseload Size	120 to 250	102 (Average)	100 to 150	80 to 90
Coordination with Medical Care	Limited to problem solving	Electronic medical record	Limited to problem solving	On-site, regular meetings, care coordination includes disease management, electronic medical record in staff-model clinics
Responsibilities	Care management for nursing home certifiable members, authorize expanded services, monitor needs			Care coordination for all S/HMO members identified as needing it, authorize expanded services to anyone meeting service-specific criteria

SOURCE: Visits to the S/HMO I plans, Newcomer et al. 1999, and followup discussions with the plans.

The target group in the S/HMO I plans consists of the small group of members identified as appropriate for a nursing home level of care (that is, identified as nursing home certifiable). The designation triggers both a higher reimbursement to the health plan and member eligibility for care management and expanded services. Members are discharged from care coordination infrequently and are monitored at least every 90 days. Each of the S/HMO I plans organizes care coordination somewhat differently.

At the S/HMO II plan, an interdisciplinary care management team coordinates all responses to targeted high-risk members. The S/HMO II care management team at each clinic has care management responsibility for any members in the clinic needing care coordination and may coordinate with all health plan services.[1] This process includes authorizing services covered under the expanded care benefit, when appropriate. An initial and an annual health status screen of each member identifies the member's risk factors for high health care use or disability and possible needs for care coordination. No one level of care triggers expanded care benefits. All risk factors have designated interventions, some of which indicate the need for care coordination (see Table II.10). The initial and annual screening process also provides the data used to calculate a risk-adjusted payment to the health plan.

The S/HMO II care coordination approach is designed to be a time-limited intervention, rather than a long-term or permanent one. The care coordination team prepares a care plan, listing problems and actions to be taken. This plan could include coordinating with other benefits and services the health plan offers, such as working with disease-specific case managers in the specialty clinics, home health, the primary care team in the medical clinic, requests for geriatric assessment, health education activities, and services available in the community. A summary of the care plan

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[1]S/HMO model II eligibility criteria for expanded care services are defined for each service, with a member's eligibility established through a comprehensive assessment.

that presents problems, recommended actions, and planned service, is sent to the primary care physician as part of the electronic medical record or is faxed to the network's physicians. The physician and care coordination team authorize expanded care services for a member who needs one or more of these services and who meets the criteria for each service. The case is considered active (called "chronic/at risk") while the care plan is being developed and implemented, generally for about 60 days. It then is given monitoring status; almost all cases of 90 days' duration or longer are in this category. The member is discharged from care coordination after all problems have been addressed and the situation is deemed stable.

C. ACUTE AND LONG-TERM CARE INTEGRATION

Acute care and the long-term expanded care benefits are not well integrated through the S/HMO care coordination approach. However, regardless of S/HMO model, the staff/group plans are more integrated than are the IPA/network plans. To integrate acute and long-term care, physicians, other health care providers, and care managers must be involved in joint planning of and problem solving for the care of individual members. Possible mechanisms for enhancing integration include:

- Interdisciplinary teams that include nurses, social workers, physicians, pharmacists, and others
- Frequent regular communication through:
  - Co-location
  - Team meetings
- Shared access to clinical records
- Jointly developed care guidelines and protocols by interdisciplinary teams

The absence of these mechanisms can result in less effective care, as each group of providers or caregivers lacks important information about the shared "patient."

1. Interdiscplinary Teams

The plans that employ both nurse and social worker care managers are more integrated than those that use social workers only. At Elderplan, all care managers are social workers and at SCAN most care managers are social workers, and these are the only social workers in the plan. They do not coordinate regularly with plan nurses and physicians. At Kaiser, both social workers and nurses are care managers, and the primary care clinics have employed social workers, pharmacists, and nurses for many years. In the Kaiser system, interdisciplinary teams (including nurses, physicians, social workers, pharmacists, and others) develop clinical models of care for the health plan. At HPN, each care coordination team is interdisciplinary, as is the geriatric resource team that conducts geriatric assessments.

2. Co-Location

In all the S/HMO I plans and in the IPAs of the S/HMO II plan, the care managers are located away from the primary care settings. This separation limits communications with the primary care providers. In the staff model clinics of the S/HMO II plan, the care coordination teams are located in the primary care clinics.

3. Team Meetings

The S/HMO II clinics hold regular interdisciplinary team meetings. In contrast, the S/HMO I plans rarely do so. Regular meetings between different care providers facilitate integration. At HPN, the S/HMO II plan, the geriatric department held interdisciplinary team meetings weekly to discuss patient care and invited physicians to attend. The weekly meetings subsequently evolved into weekly

conferences (rounds) in the staff clinics at which the care coordination team and primary care team report on complex cases. For each case, the two teams together generate problem lists, an action plan, and expected outcomes. The IPA physicians may attend weekly rounds to discuss care coordination, but the plan does not reimburse them for time spent in meetings. The S/HMO I plans held case conferences regularly in the early years of the demonstration; they now hold them infrequently, however, and only when they must address the needs of difficult cases. These conferences usually do not include primary care physicians.

4. Shared Access to Clinical Records

Use of computer technology to document and share clinical information enhances integration. In the staff and group model S/HMOs (at Kaiser and all the staff model HPN clinics), the electronic medical record forms a critical communication link between primary care providers, care managers, hospital discharge planners, and others in the system, such as pharmacists and utilization managers. The communications link permits information to be available immediately, to anyone in the system who needs it, and simplifies the regular sharing of forms, reports, and other information. Care managers maintain a separate system for their complete case records, but linkage to the electronic medical record is planned for the immediate future. Because the S/HMO I IPA-model plans and HPN's IPA/network have not created an electronic medical record, obtaining information about hospital discharge orders, scheduled medical appointments, health problems and complications, or authorized expanded services involves several telephone calls or faxes and the time of the responding staff member. At the two S/HMO I IPA model plans, no care management information (assessments, care plans, or monitoring information) is routinely shared with primary care providers.

D. NEW GERIATRIC APPROACHES

Geriatric approaches are models of medical practice adapted to the needs of elderly patients who frequently have multiple chronic health problems that adversely affect their day-to-day functioning. Moreover, these patients often have accompanying social and psychological issues that complicate their efforts to seek and receive adequate care. Geriatric approaches, which frequently are multidisciplinary, identify a wide variety of problems, facilitate access to different types of care, and specifically address such issues as functioning in the activities of daily living, the need for alternative care settings, and measures to enhance continuity of care. The discussion and Table III.2 in this section address the following types of geriatric approaches that S/HMO plans have used:

- Screen all elderly for risk factors at enrollment and annually to identify those who might require medical or other health-related intervention
- Include in the provider network geriatricians and geriatric nurse practitioners who are alert to the needs of and treatment for elderly patients
- Create interdisciplinary teams for comprehensive geriatric assessment of members
- Create primary care teams that include physician extenders to facilitate members' access
- Implement a rehabilitation focus to maintain or regain functioning of members after acute hospital stays
- Implement geriatric medication management to prevent adverse reactions resulting from polypharmacy
- Create a primary care team to ensure members in nursing homes receive preventive care and are not admitted to the hospital unnecessarily
- Provide geriatric care education for physicians to improve their provision of geriatric appropriate treatment

Geriatric approaches are a key element of the S/HMO II model. In response to criticisms in an evaluation of the S/HMO I plans' first five years of operation that the plans lacked geriatric

TABLE III.2

GERIATRIC APPROACHES USED BY THE S/HMOs

Characteristic	Elderplan	Kaiser	SCAN	HPN
Screen all elderly for risk factors at enrollment and annually	All S/HMO members (since demonstration began)	All S/HMO members (since demonstration began)	All S/HMO members (since demonstration began)	All S/HMO members (since demonstration began)
Provide interventions for identified at-risk members	New risk factors and interventions added during 1998	Extensive list of risk factors and interventions	No[a]	Extensive list of risk factors and interventions
Plan includes geriatric department?	No	Geriatric department with 3.6 geriatricians and 4 nurse practitioners is responsible for nursing home care and consultations to other physicians	No	Yes, plan includes a geriatrics department and geriatric resource teams and geriatric specialty clinics with 3 geriatricians and 2 geriatric nurse practitioners and 1 physician assistant
Provider network constituents	120 primary care physicians 9 additional geriatricians 2 geriatric nurse practitioners	233 primary care physicians 5-6 geriatricians among the PCPs 21 nurse practitioners	About 2,345 primary care providers 17 additional geriatricians	199 primary care physicians 4 staff model and network geriatricians
Interdisciplinary team for comprehensive geriatric assessment	At one contract hospital; limited use	No	No	Geriatric resource team in geriatric department (since April 1998) Geriatric assessment by team for all members considering nursing home placement

TABLE III.2 *(continued)*

Characteristic	Elderplan	Kaiser	SCAN	HPN
Primary care teams with physician extenders to facilitate members' access	Few	Each primary care service area has had advice nurses, social workers, and case/care managers for many years	No	Clinical nurse coordinators added in two clinics; see all new seniors (since March 1998) All staff model clinics now have clinical nurse coordinators
Rehabilitation focus to maintain/regain functioning	No	Yes, including physical and occupational therapy evaluations available under expanded benefit	No	Yes, including maintenance therapy
Geriatric medication management	Formulary modified for elders. Pharmacy benefits manager checks prescriptions at time of dispensing, using electronic guidelines. Refers to primary care provider if necessary	Available to all members Pharmacist located in clinics for many years Screening of all Medicare members for high-risk medication	Pharmacy and Therapeutics Committee reviews all drugs for geriatric use Case managers refer to pharmacist or physician for medication issues	Available to all members Consists of pharmacy component of geriatric specialty clinics, practice guidelines for polypharmacy, and review for drug interactions by contracted pharmacies
Primary care team for members in nursing homes	No	By long-term care department teams of geriatricians and nurse practitioners	No	In South of market area: by geriatrics department (preceded demonstration) In North of market area: regular primary care provider

TABLE III.2 *(continued)*

Characteristic	Elderplan	Kaiser	SCAN	HPN
Geriatric care education for physicians	No	Periodic, by Inter-regional Committee on Aging's "Geriatric Institutes"	No[b]	Ongoing program for staff physicians (preceded demonstration) Interdisciplinary team meetings with primary care provider, in staff model clinics
Geriatric specialty clinics	No	No	No	Yes

SOURCE: Visits to three S/HMO I sites and S/HMO site provider directories; Newcomer (1999) for the S/HMO II site.

NOTE: [a]SCAN introduced expanded risk identification in June 1999, with interventions scheduled for late summer 1999.

[b]SCAN is in final development stage of implementing a program for diabetes, dementia, and depression.

approaches, the S/HMO II demonstration site selection process considered only health plans that already had established extensive geriatric approaches. As Table III.2 indicates, HPN has extended and refined these approaches as the demonstration has continued. Ongoing efforts to improve screening criteria and regular, frequent interdisciplinary team meetings with primary care physicians are noteworthy examples of its geriatric approaches. HPN has established a geriatric department to provide specialty geriatric clinics for the diagnosis and treatment of cognitive dysfunction, falls and immobility, and incontinence. This department houses a geriatric resource team, which conducts comprehensive interdisciplinary geriatric assessments and provides consultation to other physicians. However, the geriatric approaches are slightly less accessible to the network model offices of the S/HMO, since physicians have to travel to the location of the interdisciplinary meetings, and are not reimbursed for time spent in continuing medical education.

The S/HMO I sites have responded to the criticism in the early evaluation by developing and incorporating additional geriatric approaches, with varying degrees of success. These efforts are described in Table III.2.

The variability in geriatric approaches across sites is illustrated by means of one feature from the table: the development of interventions for members identified as at risk. Although the S/HMOs have the potential to prompt physicians to intervene with members identified as at risk for medical problems, only three of the four do so (SCAN does not). In the S/HMO I plans, the information collected in the Health Status Form (HSF) screen originally was used primarily to refer members to care management (that is, coordination of the expanded care benefit). Now, in addition to care management, the screen can target people for services ranging from weight loss or smoking cessation classes to immediate appointments with the primary care provider. The types of risks identified have expanded over time, and two S/HMO I plans (Elderplan and Kaiser) have developed a broader range of potential interventions.[2] The S/HMO II screen continues to trigger the broadest array of interventions, but the Kaiser risk plan currently is implementing a program similar to the one in the S/HMO II plan.

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[2]The HSF screen at the S/HMO I plans prompts the following other actions at Elderplan and Kaiser. At Elderplan, the medical director reviews the HSF. When appropriate, a triage letter is sent to the primary care provider recommending initiation of elderly-appropriate management of any identified problems. However, after enrollment, follow through is uncertain, as it depends on the physicians in the contracted IPAs. In addition, "well" members are mailed wellness packets with information on social activities, classes, and volunteer opportunities. Members who are "well but with health conditions" receive a wellness packet plus information on classes, as appropriate (for example, smoking cessation, weight loss, or arthritis). Members with diabetes are referred to a newly established disease management program. Members who receive Supplemental Security Income are referred to a Medicaid counselor. At Kaiser, automated followup for prevention items, early detection, and immunization is provided. Members are referred to a nurse case manager for diabetes, cardiovascular disease, mental health issues, smoking, or high service utilization. Members are referred to a pharmacist for high-risk medications or if they take more than five medications. In a new program, a summary report of all risk factors for every Medicare member (not just S/HMO members) is sent to the clinic nurse coordinator, for development of a plan for senior and disabled people.

Of the S/HMO I plans, the group model S/HMO (Kaiser) has made the most progress in implementing geriatric approaches. The Kaiser S/HMO has acted as a catalyst for the development of an extensive risk screening program, which Kaiser's Medicare risk plan now is implementing. A committee on senior and disabled care has been designing and testing medical care models for all Medicare members, residents of adult foster care, and people with dementia. Elderplan has initiated several geriatric interventions, including a pharmacy intervention and prompting primary care physician review of identified member problems. At SCAN, geriatric approaches are still under development.

IPA and network HMO models, which have fewer mechanisms for influencing the physicians' practice of medicine, appear to act as a considerable barrier to the establishment of geriatric approaches. In contrast, the two staff/group model S/HMOs (Kaiser and HPN) have introduced geriatric approaches. Moreover, the S/HMOs have been catalysts in a process in which the risk plans under the same parent organization as the respective S/HMOs have also introduced geriatric approaches.

Many of the features of geriatric models have just recently been introduced or are still not fully operational. Consequently, research has yet to obtain evidence of the effects of these promising approaches in the S/HMOs.

E. STRUCTURAL ISSUES IN MANAGING CARE

Structural issues both within and outside the control of managed care plans affect the plans' ability to manage care effectively. For example, most managed care plans require members to select a primary care physician, who acts as the gatekeeper to specialty and hospital care. All the S/HMOs use gatekeepers and appear to have sufficient numbers of primary care physicians in their networks

to provide members with good access to this system.[3] Other more variable structural issues are the adequacy of management information systems and approaches to modifying physician behavior, without which plans cannot be effective managers. This section reviews the progress S/HMOs have made in implementing these structures.

1. Information Systems

Managed care plans need management information systems that enable them to identify at-risk members, manage care, monitor outcomes, profile physicians, and pay providers, among other activities. In an optimal system, all the components would be computerized and capable of being linked. Few plans have optimal systems, and the S/HMO plans are at varying levels of development. No S/HMO has developed a flexible management information system that easily captures and reports on data from all parts of the plan (such as member services, expanded benefit care coordination, medical records, encounter records from providers, and plan payments to providers). This section summarizes the status of three key components of a management information system: (1) medical records, (2) expanded care coordination, and (3) encounter data.

Electronic Medical Record. Only two of the S/HMOs, Kaiser and HPN, have developed electronic medical record systems that enhance provider ability to integrate clinical care. Kaiser operates a two-year-old electronic medical record system (EpicCare) that supports clinical coordination and is accessed by Kaiser's physicians, nurses, and hospitals; contracted community hospitals; and the S/HMO care coordinators (but not the home health agency staff).[4] For example, the system questions physicians who attempt to prescribe medications that geriatric practice

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[3]See Table III.2 for numbers of primary care physicians.

[4]Kaiser uses the system to support these practices in both its S/HMO and its Medicare risk plan. In principle, the system could be used to conduct outcomes analysis, but Kaiser has not yet done so.

guidelines consider inappropriate for elderly people. It also enables emergency room physicians to access medical records, thereby giving them substantially more information on members than is usually available in the emergency room. In this way, the system helps prevent unnecessary hospital admissions. In addition, staff report that the availability of an on-line hospital discharge summary improves coordination of posthospital care.

HPN first used its electronic medical record system (IDX) in 1993, before establishing the S/HMO. The system is less fully developed than Kaiser's and is available only to staff model physicians. Neither Elderplan nor SCAN has an electronic medical record, nor do they report plans to introduce one.

Computerized S/HMO Benefit Care Coordination. Three of the S/HMOs (Kaiser, HPN, and SCAN) use an on-line interactive computerized system for some or all of the care coordination process, but none has linked the electronic care coordination record to the electronic medical record system. At Kaiser and HPN, however, care coordinators can enter summary care plans into the electronic medical record and can review the medical record. Elderplan enters significant amounts of data required for care coordination but is unable to link different data sets. For example, Elderplan enters the Health Status Forms at intake, a summary of the comprehensive assessment forms, and the form indicating nursing home certifiability into separate systems; none of these is linked to the encounter record system.[5] Hence, staff who wish to share information depend heavily on paper tracking and personal relationships. As with Elderplan, SCAN cannot easily link care coordination information to other data.

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[5]Until recently, case managers had entered the complete comprehensive assessment form. However, after determining that they never used the information for clinical purposes, they decided to enter only a summary of the data.

Encounter Data from Providers. Three of the S/HMOs (Kaiser, Elderplan, and HPN) have developed operational encounter data systems but do not use them other than for routine reporting. For example, Elderplan's system for entering and storing encounter data is reliable, but old. Because it must be programmed for every run (as opposed to a management information system, which allows reports to be generated by nonprogrammer staff), encounter data cannot be linked easily with other plan data. SCAN has not developed an encounter database that would enable it to review the services its members receive, though it is working on one.

2. Features for Modifying Physician Behavior

Type of Plan. Elderplan and SCAN, as network S/HMOs that contract with IPAs (Elderplan) and both IPAs and groups (SCAN), have less control over their contracted physicians than staff and group model HMOs have over their salaried physicians and, therefore, more limited ability to affect the way in which physicians practice. This problem is especially acute for SCAN. In the Southern California market, all Medicare HMOs delegate medical management, including quality improvement and utilization management, to the medical groups, while retaining responsibility for monitoring medical group adherence to the quality improvement protocols.[6] Under these circumstances, it is difficult for plans to influence physicians' approaches to care. For example, even if SCAN were to disseminate a disease management protocol, physicians would not necessarily follow it.[7] Elderplan, which operates in a very different type of market than SCAN's, undertakes more "hands on" provider management (for example, concurrent utilization management at its contracted hospitals and nursing homes).

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[6]SCAN conducts some utilization management for a small number of hospitals that it pays on a per diem basis.

[7]The SCAN physicians whom we interviewed indicated that they do not follow plan disease management protocols. Rather, they follow their own groups' protocols.

Disease Management Protocols. Although SCAN is developing some disease management protocols and has plans to develop others, this process is still in an early stage. Elderplan has developed disease management protocols (for example, one for the treatment of deep vein thrombosis and one on behavioral health for elderly people) but has not yet established an approach to dissemination. Moreover, it is unclear how Elderplan will persuade physicians to adhere to the protocols.

Kaiser's clinical strategies integration group has generated initiatives to enhance service integration, including disease management programs for diabetes, cardiovascular disease, depression, and asthma, as well as many clinical protocols to promote evidence-based practice. Kaiser uses an Intranet system to disseminate and provide physician access to more than 100 clinical protocols. A recent Kaiser initiative is a project in which pharmacists and nurses use protocols to manage selected medications. The clinical integration group selected the needs of seniors and disabled members as the topic for development in 1998 and initiated work groups on dementia, foster care, Medicare member management, and adaptive equipment. S/HMO staff play a major role in developing these types of initiatives for elderly members throughout the Kaiser system. Like Kaiser, HPN has implemented eight clinical practice guidelines for geriatric medicine. Examples include guidelines for hypertension, diabetes, and polypharmacy.

IV. S/HMO ENROLLEES' CHARACTERISTICS AND SATISFACTION WITH CARE

Although S/HMO I members are older on average than the members of local Medicare risk plans, they are not typically any frailer (that is, less healthy or functionally impaired) for their age. The exception is the Kaiser S/HMO, whose members are frailer than those in local risk plans even after accounting for the age differential. Consistent with the high premiums charged by this plan and the rich benefits offered, Portland-area beneficiaries with high needs who enroll in Medicare health plans are much more likely than healthier beneficiaries to choose the Kaiser S/HMO over a risk plan. S/HMO I members' satisfaction with their plan, their healthcare, and various facets of healthcare delivery is very similar to that reported by members of local Medicare risk plans.

A. CHARACTERISTICS OF S/HMO ENROLLEES

Members of the three S/HMO I plans are considerably older than the members of local Medicare risk plans. As Table IV.1 shows, the S/HMO plans have considerably higher proportions of members older than age 80 than do the risk plans located in their market areas. In all three S/HMO I plans, more than half the members are older than age 75. In contrast, the age distribution of the S/HMO II members is similar to the age distribution of members of the local Medicare risk plans.

It is not surprising that the longer-running S/HMO I plans have older members. Because it was limited by the terms of the demonstration, membership in the S/HMOs has not grown as much as membership in local risk plans. Therefore, in the S/HMOs, the average age of members has risen over time (a phenomenon one of the plans refers to as "aging in place"). SCAN's membership has grown considerably since 1997, when the S/HMO enrollment cap was raised to 36,000 members, and this plan consequently has a younger age profile than do the other two S/HMO I plans.

However, these unadjusted age distributions of members do not tell us anything about the relative age-adjusted frailty of the members enrolled. Because the payment mechanism adjusts for age, having a more frail population simply because of members being older does not place a S/HMO at financial disadvantage. Only if S/HMO members in a particular age category are more frail than risk plan members in the same age category are S/HMOs at a financial disadvantage.

TABLE IV.1

AGE DISTRIBUTION: S/HMO AND RISK PLAN MEMBERS

	Market Area							
	Brooklyn, NY		Portland, OR		Long Beach, CA		Las Vegas and Reno, NV	
Age (Years)	Elderplan	Risk Plans	Kaiser	Risk Plans	SCAN	Risk Plans	HPN	Risk Plans
65-74	40.0	63.6	35.6	55.3	47.1	59.1	62.8	65.7
75-79	25.9	18.8	21.5	20.7	23.0	20.3	20.2	19.0
80-84	19.8	10.3	21.6	13.6	16.7	12.1	10.8	10.0
85+	14.3	7.3	21.3	10.4	13.2	8.5	6.2	5.3
Number of Members	4,608	36,907	4,001	77,347	27,746	573,184	22,456	37,958

SOURCE: HCFA's GHP file, October 1998.

NOTES: The distribution is for non-Medicaid, noninstitutionalized elderly members residing in the counties in which the S/HMOs operate. Risk plans operating in the S/HMO market areas are included in the comparison if they have at least one percent of the market share in the county. Risk plan members who are younger than 65 are excluded from these comparisons because S/HMO plans (except for HPN) serve only elderly beneficiaries.

Few S/HMO or risk plan members are institutionalized, though rates are somewhat higher in S/HMOs in three of the four market areas.[1] The proportion of the membership enrolled in Medicaid varies across the four S/HMOs, but still is far lower than the proportion of all Medicare beneficiaries who are enrolled in Medicaid (about 15 percent). Kaiser, in Oregon, is the only S/HMO to have fewer Medicaid members than do the local risk plans--this is because Kaiser has no Oregon Health Plan members. Kaiser's Medicaid members are mostly medically needy in "spend-down" status.

TABLE IV.2

PERCENTAGE OF MEMBERS IN INSTITUTIONS OR WHO ARE MEDICAID-COVERED

	Institutionalized		Medicaid	
Plan	S/HMO	Risk Plans	S/HMO	Risk Plans
Elderplan	1.6%	0.1%	4.6%	3.3%
Kaiser	1.5	1.3	3.4	7.0
SCAN	0.7	0.8	8.7	5.2
HPN	0.8	0.3	3.0	2.8

SOURCE: HCFA's GHP file, October 1998.

NOTES: The distribution is for members residing in the counties in which the S/HMOs operate. Risk plans operating in the S/HMO market areas are included in the comparison if they have at least one percent of the market share in any of the counties in the S/HMO market area.

B. COMPARISON OF FUNCTIONAL STATUS AND SEVERITY SCORES

To assess whether the higher payments received by S/HMO I plans (relative to the amount they would receive under risk contracting) are warranted, the functioning levels and health status of S/HMO enrollees were compared to those of enrollees in local Medicare risk plans. As Chapter II

[1]Institutional status is based on the status recorded in the GHP file for the member. S/HMO I plans and risk plans are reimbursed for these members using the same payment factors.

showed, the inclusion of a nursing home certifiable indicator in the payment rate structure increases payments to S/HMO I plans by 10 to 25 percent over what they would receive as Medicare risk contract plans (which combined with the 5.3 percent rate book augmentation to cover expanded benefits and care coordination results in payments that are 15 to 30 percent greater than the S/HMOs would receive as risk contract plans). If S/HMO I enrollees are frailer or have more chronic conditions or poorer health than risk plan enrollees, after accounting for the differences in age, sex, and Medicaid status that the risk payment methodology adjusts for, the higher payment may be warranted. If these payment rate factors fully account for any observed differences in health status, however, the higher payment to S/HMO I plans is not warranted. Payments received by the S/HMO II plan were virtually identical to the amount they would have received as a risk plan (excluding the augmented payment intended to cover the additional S/HMO services). Therefore, shifting to the risk program payment methodology, which does not account for functioning or health status, would not put the plan at a financial disadvantage. However, results for the S/HMO II plan are also included for comparison purposes.

Data from the Health Outcomes Survey conducted in 1998 were used to compare the functional and health status of enrollees in the S/HMOs with those of enrollees of local area Medicare risk plans.[2] The local risk plans included in this comparison were those that had participated in the survey and that served Medicare beneficiaries in the same counties served by the S/HMOs. Both Elderplan and Kaiser are compared with 5 local risk plans, SCAN is compared with 12 plans, and Health Plan of Nevada (HPN) with 3 plans. Only risk enrollees who resided in the S/HMO market area were included in the basic analysis (all respondents lived in the community).

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[2]The sample for each plan for the Health Outcomes Survey was drawn by the Health Care Financing Administration and then mailed to vendors the plans had hired. The vendors administered the survey.

The comparison of S/HMO and risk enrollees on health and functioning was conducted in two ways: (1) controlling only for characteristics that are included in the payment methodology for Medicare risk contracts (age, sex, and Medicaid status), and (2) controlling also for a proxy measure of nursing home certifiability (NHC). The first comparison indicates whether paying S/HMOs as risk plans would fail to account adequately for differences in health and functioning, thereby putting S/HMOs at a financial disadvantage relative to risk plans. The second comparison (not presented in this report) yields inferences about whether the actual S/HMO I payment mechanism adequately accounts for any differences between S/HMO I and local risk plans in the health and functioning of their members. The second set of analyses was not conducted for the S/HMO II plan because the health status, functioning, and chronic conditions being compared are accounted for by the S/HMO II payment methodology.

Under both approaches (as shown below), enrollees of the S/HMOs (except for Kaiser) do not appear to have greater functional limitations or to be in poorer health after controlling for age and other payment factors. Thus, except for Kaiser, paying S/HMOs as risk plans would adequately account for any differences between them in the functioning and health status of their members. [3] Furthermore, even the addition of NHC status in the S/HMO I payment mechanism does not adequately account for the greater impairment levels of Kaiser's S/HMO members. That is, although all three S/HMO I plans receive substantially more money than they would as risk plans, this payment is not warranted for two of the plans and not sufficient to cover the greater impairment of its members for the third plan (Kaiser). The findings are described more fully below. Descriptions of the data and the methods used in the analyses and additional analyses are given in Appendix C.

[3]The survey samples match the plan population in age distribution.

1. Functioning

Levels of functioning in the S/HMO I plans may have changed over time because the S/HMO I plans were allowed in the early years to queue the high-risk NHC eligible members in order to limit the financial risk associated with serving this population. (Kaiser never queued this group.) Elderplan and SCAN ceased queuing the NHC group after determining that they were not at high financial risk; SCAN now reports that it is targeting marketing to people who are likely to be NHC eligible.

Members of the three first-generation S/HMOs are more likely than members of local risk plans to have one or more limitations in activities of daily living, and more likely to have several such limitations (see Appendix Tables C.1 through C.4).[4] For example, in Oregon, 22 percent of enrollees in the Kaiser S/HMO have three or more limitations in six activities of daily living, compared with 15 percent of enrollees in five local risk plans (see Appendix Table C.2). In contrast, enrollees of the second-generation S/HMO in Nevada are only slightly more likely to have three or more limitations in the activities of daily living (18 percent compared with 17 percent; see Appendix Table C.4). These tabulations are available from MPR in the report, "Social Health Maintenance Organizations: Transition into Medicare + Choice."

These differences in limitations in activities of daily living may be attributable to the differences in the age distributions of the S/HMO and local risk plan memberships, which are accounted for by both the S/HMO and risk plan payment formulas.[5] Thus, the relevant question for assessing the

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[4]The survey asked whether an individual had difficulty performing six activities: (1) bathing, (2) dressing, (3) eating, (4) getting in or out of chairs, (5) walking, and (6) using the toilet. For each activity the response options were "I do not have difficulty," "I have difficulty," or "I am unable to do this activity."

[5]The payment formulas for both S/HMO I and risk plans include a separate set of rate cells for beneficiaries residing in nursing homes. The Health Outcomes Survey, however, only collects data (continued...)

appropriateness of payment levels is whether these differences persist after adjustments for age differences, as well as other factors used to determine the payment amount for the risk plans: gender and Medicaid status.

The analysis of functioning focuses on four summary scores, two for physical functioning and two for mental functioning. In all cases, the scores can range from 0 to 100, with higher scores indicating a higher level of functioning. The analysis examined both the differences in average scores and the differences in the proportions of scores below the 25th percentile to determine whether the S/HMOs serve a disproportionate number of individuals with low levels of functioning.

The Physical Functioning Score, which summarizes information about a person's limitations in 10 routine activities, such as lifting groceries or walking a few blocks, was used to measure physical functioning. The Physical Component Summary Score (PCS), which incorporates the Physical Functioning Score, is a global measure of physical functioning (Ware et al. 1994 and Ware et al. 1993). This measure summarizes information from all items in the SF-36 (Short Form with 36 items). It is a weighted composite of eight scores in which the Physical Functioning Score receives the greatest weight.

Mental functioning is measured in a similar manner. The Mental Health Score summarizes information about an individual's mental well-being in the preceding four weeks. The Mental Component Summary Score (MCS), which incorporates the Mental Health Score, is similar to the PCS in that it is a global measure. This measure also summarizes information from all items in the SF-36 by using a weighted composite of eight scores, with the greatest weight given to the Mental Health Score.

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[5](...continued)
from community-dwelling beneficiaries, so no adjustment is needed for place of residence. The proportion in nursing homes is extremely small, however, so this restriction should have minimal effect on these results.

The analyses of functioning indicate that for SCAN and Elderplan the risk plan payment factors account for observed differences in functioning between enrollees of the S/HMOs and enrollees in local risk plans (see Tables IV.3 through IV.6 and Appendix Tables C.5 through C.8).[6,7] Kaiser and HPN, however, appear to serve relatively frailer populations: the plans' members have levels of mental functioning and well-being similar to those of the local risk plans' members, but their level of physical functioning is lower by a margin significantly larger than is likely to have occurred by chance. For example, in Kaiser the adjusted average Physical Functioning Score of S/HMO enrollees is 13 percent lower, and the PCS score is approximately 9 percent lower. More important, the proportion of individuals with Physical Functioning scores at or below the 25th percentile is significantly higher (35 percent, compared with 24 percent in the risk plans).

The results for functioning are similar among S/HMO I plans when the NHC factor is also controlled for (see Appendix Tables C.9 through C.11) Only for Kaiser are any of the regression-adjusted differences between S/HMOs and risk plans statistically significant at the .05 level. The same physical functioning measures for which significant differences are seen in Table IV.4 appear as significant in Appendix Table C.10.

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[6]These analyses were conducted on the sample of plan enrollees living in the counties served by the S/HMOs. Analyses on the larger sample that also included individuals enrolled in the selected plans, but living in a county not served by the S/HMOs, yielded very similar results and the same conclusions.

[7]For each functioning index, a national mean or norm for individuals aged 65 and older has been estimated by the New England Medical Center. These estimates were based on responses to the 1990 National Survey of Functional Health Status. Respondents were drawn from the 1989 and 1990 sampling frames used by the General Social Survey, an annual survey of the noninstitutionalized adult population and conducted by the National Opinion Research Center (Ware et al. 1994; and Ware et al. 1993). The sample size for the group aged 65 and older was 706 individuals.

TABLE IV.3

COMPARISON OF ADJUSTED MEASURES OF FUNCTIONING:
ELDERPLAN

Adjusted Measures of Functioning[a]	Number of Observations	Elderplan	All Local Risk Plans[b]	*p*-Value
Physical Functioning Score[c]	979	62.3	61.4	.64
Physical Component Summary Score[d]	848	41.5	40.4	.52
Mental Health Score[e]	976	72.8	73.7	.78
Mental Component Summary Score[f]	848	49.8	50.8	.54
		Percent		
Physical Functioning Score at or Below 35[g]	979	23.4	20.9	.52
Physical Component Summary Score at or Below 30[g]	848	19.3	22.9	.39
Mental Health Score at or Below 64[g]	976	34.4	32.7	.71
Mental Component Summary Score at or Below 44[g]	848	29.8	25.9	.42

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk plan payment factors: gender, age, and Medicaid status. The survey is limited to community residents, so nursing home residence cannot be controlled for. Very small fractions of risk or S/HMO plan enrollees reside in nursing homes.

[b] Weighted by the size of the plan populations. Includes five risk plans operating in Brooklyn, New York.

[c] Summarizes limitations in 10 routine activities: vigorous and moderate activities, carrying groceries, climbing stairs (two items), bending, walking (three items), and bath or dressing. The national mean for all individuals aged 65 years and older is 63.3.

[d] A summary of all items in the SF-36 with heavier weight given to information about physical functioning. The national mean for all individuals aged 65 and older is 41.3.

[e] Summarizes current mental health status. The national mean for all individuals aged 65 years and older is 75.8.

[f] A summary of all items in the SF-36 with heavier weight given to information about mental health and well-being. The national mean for all individuals aged 65 and older is 51.8.

[g] The 25th percentile of the distribution of scores in this sample from the Health Outcomes Survey.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE IV.4

COMPARISON OF ADJUSTED MEASURES OF FUNCTIONING:
KAISER SENIOR ADVANTAGE II

Adjusted Measures of Functioning[a]	Number of Observations	Kaiser	All Local Risk Plans[b]	*p*-Value
Physical Functioning Score[c]	2,898	53.4	61.7**	.00
Physical Component Summary Score[d]	2,748	35.9	39.1	.07
Mental Health Score[e]	2,874	76.18	77.7	.21
Mental Component Summary Score[f]	2,748	52.3	52.7	.25
		Percent		
Physical Functioning Score at or Below 35[g]	2,898	34.5	23.9**	.00
Physical Component Summary Score at or Below 30[g]	2,748	32.0	25.2	.06
Mental Health Score at or Below 64[g]	2,874	27.6	23.0	.20
Mental Component Summary Score at or Below 44[g]	2,748	23.9	19.8	.24

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk plan payment factors: gender, age, and Medicaid status. The survey is limited to community residents, so nursing home residence cannot be controlled for. Very small fractions of risk or S/HMO plan enrollees reside in nursing homes.

[b] Weighted by the size of the plan populations. Includes five risk plans.

[c] Summarizes limitations in 10 routine activities: vigorous and moderate activities, carrying groceries, climbing stairs (two items), bending, walking (three items), and bath or dressing. The national mean for all individuals aged 65 years and older is 63.3.

[d] A summary of all items in the SF-36 with heavier weight given to information about physical functioning. The national mean for all individuals aged 65 and older is 41.3.

[e] Summarizes current mental health status. The national mean for all individuals aged 65 years and older is 75.8.

[f] A summary of all items in the SF-36 with heavier weight given to information about mental health and well-being. The national mean for all individuals aged 65 and older is 51.8.

[g] The 25th percentile of the distribution of scores in this sample from the Health Outcomes Survey.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE IV.5

COMPARISON OF ADJUSTED MEASURES OF FUNCTIONING:
SCAN

Adjusted Measures of Functioning[a]	Number of Observations	SCAN	All Local Risk Plans[b]	*p*-Value
Physical Functioning Score[c]	4,695	61.0	63.5	.09
Physical Component Summary Score[d]	4,459	40.4	41.5	.12
Mental Health Score[e]	4,696	75.9	77.7	.20
Mental Component Summary Score[f]	4,459	51.5	52.8	.08
		Percent		
Physical Functioning Score at or Below 35[g]	4,695	25.9	21.4	.10
Physical Component Summary Score at or Below 30[g]	4,459	25.7	21.3	.13
Mental Health Score at or Below 64[g]	4,696	26.9	23.2	.21
Mental Component Summary Score at or Below 44[g]	4,459	24.6	19.6	.08

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk plan payment factors: gender, age, and Medicaid status. The survey is limited to community residents, so nursing home residence cannot be controlled for. Very small fractions of risk or S/HMO plan enrollees reside in nursing homes.

[b] Weighted by the size of the plan populations. Includes 12 risk plans.

[c] Summarizes limitations in 10 routine activities: vigorous and moderate activities, carrying groceries, climbing stairs (two items), bending, walking (three items), and bath or dressing. The national mean for all individuals aged 65 years and older is 63.3.

[d] A summary of all items in the SF-36 with heavier weight given to information about physical functioning. The national mean for all individuals aged 65 and older is 41.3.

[e] Summarizes current mental health status. The national mean for all individuals aged 65 years and older is 75.8.

[f] A summary of all items in the SF-36 with heavier weight given to information about mental health and well-being. The national mean for all individuals aged 65 and older is 51.8.

[g] The 25th percentile of the distribution of scores in this sample from the Health Outcomes Survey.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE IV.6

COMPARISON OF ADJUSTED MEASURES OF FUNCTIONING:
HEALTH PLAN OF NEVADA

Adjusted Measures of Functioning[a]	Number of Observations	Health Plan of Nevada	All Local Risk Plans[b]	*p*-Value
Physical Functioning Score[c]	1,844	57.3	59.4	.13
Physical Component Summary Score[d]	1,769	39.4	40.3	.12
Mental Health Score[e]	1,838	75.3	74.0	.15
Mental Component Summary Score[f]	1,769	51.7	50.9	.09
		Percent		
Physical Functioning Score at or Below 35[g]	1,844	31.0	28.6	.23
Physical Component Summary Score at or Below 30[g]	1,769	29.7	24.4**	.01
Mental Health Score at or Below 64[g]	1,838	29.2	30.2	.63
Mental Component Summary Score at or Below 44[g]	1,769	24.3	26.8	.22

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk plan payment factors: gender, age, and Medicaid status. The survey is limited to community residents, so nursing home residence cannot be controlled for. Very small fractions of risk or S/HMO plan enrollees reside in nursing homes.

[b] Weighted by the size of the plan populations. Includes three risk plans.

[c] Summarizes limitations in 10 routine activities: vigorous and moderate activities, carrying groceries, climbing stairs (two items), bending, walking (three items), and bath or dressing. The national mean for all individuals aged 65 years and older is 63.3.

[d] A summary of all items in the SF-36 with heavier weight given to information about physical functioning. The national mean for all individuals aged 65 and older is 41.3.

[e] Summarizes current mental health status. The national mean for all individuals aged 65 years and older is 75.8.

[f] A summary of all items in the SF-36 with heavier weight given to information about mental health and well-being. The national mean for all individuals aged 65 and older is 51.8.

[g] The 25th percentile of the distribution of scores in this sample from the Health Outcomes Survey.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

2. Health Status

The analyses of differences between S/HMO and local risk plan enrollees also included a binary indicator of health status and three indicators of chronic conditions. The measure of health status reflected whether the person reported that his or her health status was either fair or poor. The other three measures indicated whether the individual had (1) heart disease, (2) chronic respiratory disease, and (3) at least one of several chronic conditions (heart disease, respiratory disease, stroke, cancer, chronic gastrointestinal disease, or diabetes).[8] Similar to the analyses of functioning, these comparisons controlled for factors included in the risk plan payment formula.

As with functional status, the health status of S/HMO enrollees does not differ from that of enrollees in risk plans, with the exception of Kaiser (see Tables IV.7 through IV.10). At Elderplan, SCAN, and HPN, reports of fair or poor health and chronic conditions are no more prevalent than at the local risk plans. In contrast, the members of the Kaiser S/HMO have a significantly higher rate of fair or poor health and chronic conditions. At Kaiser, 33 percent reported fair or poor health, much greater than the adjusted rate of 20 percent of risk plan members reporting fair or poor health (see Table IV.8). Approximately two-thirds of enrollees at Kaiser have a chronic condition, compared with only 55 percent of local risk plan enrollees, and 44 percent report heart disease, compared with 35 percent of local risk plan enrollees. The Kaiser plan has significantly less healthy enrollees than each of the risk plans in the Portland area, supporting the conclusion that the Kaiser

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[8]The survey asked whether the person had ever been told that he or she had each of a series of chronic conditions. Heart disease (which included high blood pressure, myocardial infarction, and congestive heart failure) was the most commonly reported condition. While chronic respiratory conditions were not reported as frequently, these conditions include emphysema, asthma, and chronic obstructive pulmonary disease. For some beneficiaries with these conditions, functioning may be severely limited.

TABLE IV.7

COMPARISON OF ADJUSTED MEASURES OF HEALTH STATUS: ELDERPLAN

Adjusted Measures of Health Status[a]	Number of Observations	Elderplan	All Local Risk Plans[b]	*p*-Value
Percentage Reporting Fair or Poor Health	980	35.7	31.8	.40
Percentage with a Chronic Condition[c]	980	45.6	51.1	.27
Percentage with Heart Disease	976	24.9	28.6	.39
Percentage with Respiratory Disease	961	9.3	12.9	.29

SOURCE: Health Outcomes Survey (1998).

[a]All measures have been adjusted for Medicare risk plan payment factors: gender, age, and Medicaid status. The survey is limited to community residents, so nursing home residence cannot be controlled for. Very small fractions of risk or S/HMO plan enrollees reside in nursing homes.

[b]Weighted by the size of the plan populations. Includes five risk plans operating in Brooklyn, New York.

[c]Heart disease, respiratory disease, chronic gastrointestinal disease, stroke, cancer, and diabetes.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE IV.8

COMPARISON OF ADJUSTED MEASURES OF HEALTH STATUS:
KAISER SENIOR ADVANTAGE II

Adjusted Measures of Health Status[a]	Number of Observations	Kaiser	All Local Risk Plans[b]	*p*-Value
Percentage Reporting Fair or Poor Health	2,905	32.9	19.7**	.00
Percentage with a Chronic Condition[c]	2,902	67.9	54.9**	.00
Percentage with Heart Disease	2,889	43.8	34.5*	.02
Percentage with Respiratory Disease	2,844	15.4	12.9	.40

SOURCE: Health Outcomes Survey (1998).

[a]All measures have been adjusted for Medicare risk plan payment factors: gender, age, and Medicaid status. The survey is limited to community residents, so nursing home residence cannot be controlled for. Very small fractions of risk or S/HMO plan enrollees reside in nursing homes.

[b]Weighted by the size of the plan populations. Includes five risk plans.

[c]Heart disease, respiratory disease, chronic gastrointestinal disease, stroke, cancer, and diabetes.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE IV.9

COMPARISON OF ADJUSTED MEASURES OF HEALTH STATUS:
SCAN

Adjusted Measures of Health Status[a]	Number of Observations	SCAN	All Local Risk Plans[b]	*p*-Value
Percentage Reporting Fair or Poor Health	4,717	24.5	20.3	.13
Percentage with a Chronic Condition[c]	4,711	54.9	50.9	.25
Percentage with Heart Disease	4,697	30.9	29.7	.69
Percentage with Respiratory Disease	4,656	10.7	12.8	.38

SOURCE: Health Outcomes Survey (1998).

[a]All measures have been adjusted for Medicare risk plan payment factors: gender, age, and Medicaid status. The survey is limited to community residents, so nursing home residence cannot be controlled for. Very small fractions of risk or S/HMO plan enrollees reside in nursing homes.

[b]Weighted by the size of the plan populations. Includes 12 risk plans.

[c]Heart disease, respiratory disease, chronic gastrointestinal disease, stroke, cancer, and diabetes.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE IV.10

COMPARISON OF ADJUSTED MEASURES OF HEALTH STATUS:
HEALTH PLAN OF NEVADA

Adjusted Measures of Health Status[a]	Number of Observations	Health Plan of Nevada	All Local Risk Plans[b]	*p*-Value
Percentage Reporting Fair or Poor Health	1,846	28.4	26.8	.45
Percentage with a Chronic Condition[c]	1,841	59.7	56.0	.11
Percentage with Heart Disease	1,837	34.0	33.5	.83
Percentage with Respiratory Disease	1,824	18.3	16.4	.29

SOURCE: Health Outcomes Survey (1998).

[a]All measures have been adjusted for Medicare risk plan payment factors: gender, age, and Medicaid status. The survey is limited to community residents, so nursing home residence cannot be controlled for. Very small fractions of risk or S/HMO plan enrollees reside in nursing homes.

[b]Weighted by the size of the plan populations. Includes three risk plans.

[c]Heart disease, respiratory disease, chronic gastrointestinal disease, stroke, cancer, and diabetes.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

S/HMO serves a population that is frailer and has poorer health status (see Appendix Tables C.12 through C.15).

These results are mimicked when the NHC risk factor is also controlled for. Appendix Tables C.16 through C.18 show that the risk plan factors adequately account for any unadjusted differences between the S/HMO I plans and local risk plans in chronic conditions or health status for SCAN and Elderplan, but not for Kaiser.

C. S/HMO I EFFECTS ON SATISFACTION

Because of the expanded care benefits and care coordination that S/HMOs offer their frail and elderly enrollees, their members may be more satisfied than enrollees of other risk plans with various aspects of their health care and insurance. The analysis used data from the Medicare version of the Consumer Assessments of Health Plans Study (CAHPS) to compare various measures of satisfaction of S/HMO I enrollees with those of risk plan enrollees in the same market areas. CAHPS is administered to a 600-person sample of enrollees of each managed care plan whose Medicare contract was in effect on or before January 1, 1996.[9,10] The comparison group for a particular S/HMO included all sample members who resided in a county served by the S/HMO and belonged to a risk plan drawing at least 10 percent of its enrollees from the S/HMO's counties (the eligibility criterion was lowered to 5 percent for the county served by Elderplan to generate an adequate sample size). In addition, the sample was restricted to CAHPS respondents aged 65 or older, to match the S/HMO I eligibility criterion. Weighted logit models were used to estimate the effects of S/HMO I

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[9]HCFA, which requires eligible Section 1876 Medicare risk plans to participate in CAHPS, drew the sample for each plan. The survey was then administered for all plans by a single independent vendor.

[10]The CAHPS survey could not be used to estimate the satisfaction of S/HMO II model enrollees because the S/HMO II plan had not been implemented at that time.

enrollment on the ten measures of satisfaction listed in Tables IV.11 to IV.13. See Appendix C for a detailed discussion of variable construction and methodology, and for a list of 11 other satisfaction measures that were examined. Appendix Table C.19 contains the logit model and coefficient estimates for a representative outcome measure.

The analysis indicates that S/HMO enrollees are no more satisfied than risk plan enrollees with their health care or health insurance. Among the numerous measures of satisfaction reviewed, a few show significantly *lower* satisfaction among S/HMO enrollees than among risk-enrollees, but such evidence is not systematic or pervasive (see Tables IV.11 to IV.13, plus additional measures listed in Appendix C). The largest difference between enrollees in S/HMOs and those in risk plans, adjusted for demographic characteristics and health status, shows that SCAN enrollees were 9 percentage points less likely to give the highest possible rating to their personal doctor or nurse, and 12 percentage points less likely to give the highest possible rating to their specialists (Table IV.13). This indication of lower satisfaction persisted under various specifications of the logit model.[11] On the other hand, SCAN enrollees were as satisfied as risk plan enrollees on each of the more specific measures of doctor-patient interaction, and on overall satisfaction with their "healthcare." Thus, the observed difference seems more likely to be due to chance than to poorer care by the doctors with whom SCAN contracts. In any case, none of the S/HMO I plans had the expected *higher* satisfaction levels than local risk plans.

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[11]The basic regression model was specified in three different ways to test its sensitivity: (1) controlling for additional variables thought to be associated with satisfaction but initially excluded because they could be endogenous; (2) comparing the S/HMOs with individual risk plans in their area to see the S/HMO plans' relative ranking; and (3) with dependent variables defined to capture low levels of satisfaction instead of the highest levels. Tabulations of the tests, which uphold the findings presented here, are presented in Appendix C.

TABLE IV.11

ESTIMATED S/HMO I EFFECTS ON SATISFACTION :
ELDERPLAN

Outcome	Mean Predicted Probabilities: S/HMO I (Percentage)	Mean Predicted Probabilities: Risk Plan (Percentage)	Estimated Effects[a] (Percentage Points)	*p*-Value[b]	N (Both Groups)
Summary Measures					
Best Possible Rating of Health Insurance Plan	50.3	47.5	2.8	.612	428
Best Possible Rating of Personal Health Care in Last 6 Months	41.5	45.5	-4.0	.548	316
Best Possible Rating of Personal Doctor or Nurse	55.8	51.9	3.9	.530	325
Best Possible Rating of Specialist Seen Most in Last 6 Months	35.8	38.3	-2.5	.757	196
Specific Aspects of Care					
Doctor Always Explained Things Well in Last 6 Months	63.1	67.9	-4.8	.437	314
Doctor Always Showed Enrollee Respect in Last 6 Months	64.3	69.8	-5.5	.387	318
Always in Involved in Health Care Decisions in Last 6 Months	59.5	56.9	2.6	.777	173
Access Measures					
Always Got Desired Tests or Treatment in Last 6 Months	70.5	64.9	5.6	.523	186
Doctor Always Spent Enough Time with Enrollee in Last 6 Months	53.0	71.6	-18.6*	.003	317
Always Got Routine Care Appointment When Desired in Last 6 Months	60.3	60.1	0.2	.979	284

SOURCE: Medicare Version of the Consumer Assessments of Health Plans Study, 1997.

NOTE: The mean predicted probabilities for risk plan and S/HMO I enrollees were calculated from estimated logit models. See Appendix C for the model specifications.

[a] The estimated effects are the difference between the average predicted probability of the outcome if enrolled in a S/HMO versus the average if enrolled in a risk plan, each calculated over all sample members.

[b] The level of statistical significance is based on a chi-square test that the S/HMO effect on the odds of the outcome occurring is equal to zero.

*Significantly different from zero at the .01 level, two-tailed test.

TABLE IV.12

ESTIMATED S/HMO I EFFECTS ON SATISFACTION:
KAISER

Outcome	Mean Predicted Probabilities S/HMO I (Percentage)	Mean Predicted Probabilities Risk Plan (Percentage)	Estimated Effects[a] (Percentage Points)	p-Value[b]	N (Both Groups)
Summary Measures					
Best Possible Rating of Health Insurance Plan	52.7	48.9	3.8	.262	1,915
Best Possible Rating of Personal Health Care in Last 6 Months	45.9	47.1	-1.2	.757	1,492
Best Possible Rating of Personal Doctor or Nurse	47.9	49.0	-1.1	.770	1,666
Best Possible Rating of Specialist Seen Most in Last 6 Months	55.5	53.6	1.9	.727	841
Specific Aspects of Care					
Doctor Always Explained Things Well in Last 6 Months	68.1	68.0	0.1	.952	1,509
Doctor Always Showed Enrollee Respect in Last 6 Months	71.5	73.7	-2.2	.517	1,505
Always in Involved in Health Care Decisions in Last 6 Months	61.4	68.9	-7.5	.090	1,006
Access Measures					
Always Got Desired Tests or Treatment in Last 6 Months	72.6	74.0	-1.4	.745	937
Doctor Always Spent Enough Time with Enrollee in Last 6 Months	60.2	60.0	0.2	.957	1,495
Always Got Routine Care Appointment When Desired in Last 6 Months	49.2	57.1	-7.9	.071	1,143

SOURCE: Medicare Version of the Consumer Assessments of Health Plans Study, 1997.

NOTE: The mean predicted probabilities for risk plan and S/HMO I enrollees were calculated from estimated logit models. See Appendix C for the model specifications.

[a] The estimated effects are the difference between the average predicted probability of the outcome if enrolled in a S/HMO versus the average if enrolled in a risk plan, each calculated over all sample members.

[b] The level of statistical significance is based on a chi-square test that the S/HMO effect on the odds of the outcome occurring is equal to zero.

TABLE IV.13

ESTIMATED S/HMO I EFFECTS ON SATISFACTION:
SCAN

Outcome	Mean Predicted Probabilities: S/HMO I (Percentage)	Mean Predicted Probabilities: Risk Plan (Percentage)	Estimated Effects[a] (Percentage Points)	*p*-Value[b]	N (Both Groups)
Summary Measures					
Best Possible Rating of Health Insurance Plan	41.7	42.5	-0.8	.821	2,413
Best Possible Rating of Personal Health Care in Last 6 Months	38.9	40.1	-1.2	.758	1,850
Best Possible Rating of Personal Doctor or Nurse	39.4	48.1	-8.7*	.026	2,035
Best Possible Rating of Specialist Seen Most in Last 6 Months	35.4	47.6	-12.2*	.020	1,183
Specific Aspects of Care					
Doctor Always Explained Things Well in Last 6 Months	66.5	63.9	2.6	.504	1,868
Doctor Always Showed Enrollee Respect in Last 6 Months	68.6	68.8	-0.2	.962	1,866
Always in Involved in Health Care Decisions in Last 6 Months	61.6	64.7	-3.1	.535	1,217
Access Measures					
Always Got Desired Tests or Treatment in Last 6 Months	66.2	67.0	-0.8	.878	1,259
Doctor Always Spent Enough Time with Enrollee in Last 6 Months	55.2	57.2	-2.0	.645	1,594
Always Got Routine Care Appointment When Desired in Last 6 Months	52.4	53.9	1.5	.698	1,862

SOURCE: Medicare Version of the Consumer Assessments of Health Plans Study, 1997.

NOTE: The mean predicted probabilities for risk plan and S/HMO I enrollees were calculated from estimated logit models. See Appendix C for the model specifications.

[a] The estimated effects are the difference between the average predicted probability of the outcome if enrolled in a S/HMO versus the average if enrolled in a risk plan, each calculated over all sample members.

[b] The level of statistical significance is based on a chi-square test that the S/HMO effect on the odds of the outcome occurring is equal to zero.

*Significantly different from zero at the .05 level, two-tailed test.

V. HOW DO OUTCOMES DIFFER FOR S/HMO II AND RISK PLAN BENEFICIARIES?

An analysis of the effect of the social health maintenance organization (S/HMO) model II benefit relative to the Medicare risk plan benefit compared one-year changes in the health, functioning, and service use of HPN's S/HMO model II enrollees with changes of HPN's risk plan enrollees. Similar data on the outcomes of S/HMO model I beneficiaries are not available.

There is no consistent evidence that the S/HMO II benefit had any meaningful impact on health, functioning, or service use over this one-year period. However, the analysis compared changes occurring over a period during which HPN was still implementing new geriatric approaches to benefit S/HMO II enrollees. These new geriatric approaches may have started too late to affect the health and functioning of some S/HMO II enrollees. Moreover, HPN's risk plan primary care physicians may have adopted the same geriatric approaches successfully employed by S/HMO II primary care physicians, which would further reduce any observable differences in outcomes between the two groups. Thus, although little evidence was found of a S/HMO II effect on key outcome measures, it may be inadvisable to interpret these results to mean that S/HMO II benefits have no favorable effects.

A. OBJECTIVES

One could hypothesize that, over time, HPN's S/HMO II enrollees will be healthier, have higher levels of functioning, and use medical services more effectively than regular risk plan enrollees, owing to the enhanced services available to the S/HMO enrollees. Greater integration of health and social services has the potential to deliver more appropriate and more highly coordinated health care to S/HMO II enrollees, relative to the care delivered to risk plan enrollees. The objective of this analysis was to determine whether any evidence supported this hypothesis. The analysis compares

the outcomes of HPN's S/HMO II enrollees with the outcomes of HPN's Medicare risk plan enrollees.[1,2]

B. DATA AND METHODS

1. Survey Data

Most of the data used for this analysis were obtained from a panel survey of HPN's SHMO II and Medicare risk plan members.[3] The survey included measures of health, functioning, and service use, including the receipt of some preventive services (for example, an influenza vaccination). The same survey instrument was administered to S/HMO II and risk plan members at baseline (that is, at plan enrollment for beneficiaries enrolling after November 1996, and soon after November 1996 for those already enrolled) and at annual follow-up interviews.

The analysis sample comprises all S/HMO II and risk plan enrollees with a follow-up, or "second," interview administered between November 1998 and February 1999.[4] For some of these

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[1]HPN and the Health Care Financing Administration (HCFA) selected certain clinics as sites that would provide the S/HMO II benefit. See Appendix D for a discussion of how clinic sites were selected. Members whose primary care physician was in one of these clinics received the S/HMO II benefit automatically (beginning in November 1996). The availability of the benefit was not publicized, however, so few beneficiaries were aware of the difference in benefits across clinics. Beneficiaries knew only that they were enrolling in HPN, a Medicare risk plan, and were selecting a primary care provider.

[2]In addition to the benefits available to HPN's risk plan enrollees, S/HMO II beneficiaries received prescription drug coverage, and, if they met the appropriate criteria, expanded community care (homemaker, medical transportation, respite care, and home health services), and long-term care benefits (such as nursing home and care management) and care coordination. After November 1996, all HPN enrollees whose primary care physician was affiliated with the eligible clinic sites received the enhanced S/HMO II benefits.

[3]Information from HPN's enrollee tracking system was used to identify enrollment dates and to distinguish between S/HMO II and risk plan enrollees.

[4]This date was chosen to ensure an analysis period during which the full benefit (with geriatric approaches) had been implemented.

sample members, the "second" interview was the second follow-up interview; for others, it was the first follow-up interview. Their prior, or "first," interview was administered one year previously.[5] Using observations from enrollees' "first" and "second" interviews enabled comparison of changes in the health, functioning, and service use of S/HMO II and risk plan enrollees over periods of equal duration. The analysis sample included the 5,494 S/HMO II enrollees and 2,848 risk plan enrollees who completed both "first" and "second" interviews.

The purpose of the analysis was to estimate the effect of the S/HMO II benefit on enrollees' health, functioning, and service use over the course of one year. Some of the measures of change are based on information obtained from both the "first" and "second" interviews; others are based on information obtained only from the "second" interview (see Table V.1). For example, the measures of relative change in general health status (compared with health status change in others of the same age) are based on self-reports of health status obtained at both interviews. All the measures of service use are based on reports of the receipt of health services during the 12 months preceding the date of the "second" interview. The sample for each outcome measure varied according to the item response rate and the subsample criteria used for the analysis. For example, in measuring improvement in the general health of enrollees relative to improvement in the general health of others of the same age, the analysis excluded enrollees who reported "excellent" health at the "first"

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[5]To ensure comparability of the data, the only interviews used in the analysis were those conducted by Mathematica Policy Research, Inc. (MPR) under contract to the Health Care Financing Administration. These interviews were conducted to collect information needed to pay the plan. Refer to Appendix D for a more thorough discussion of the data, methods, and sample frame.

TABLE V.1

HEALTH, FUNCTIONING, AND SERVICE USE OUTCOMES

Outcome	Source of Information	Subsample Criteria
Health		
General health improved	"First" and "second" interviews	Excludes enrollees reporting excellent health relative to others of the same age, at the "first" interview
General health improved or did not worsen	"First" and "second" interviews	Excludes enrollees reporting poor health relative to others of the same age, at the first interview
Difficulty remembering improved	"First" and "second" interviews	Excludes enrollees reporting no difficulty remembering in the past month
Difficulty remembering improved or did not worsen	"First" and "second" interviews	Excludes enrollees reporting a lot of difficulty remembering in the past month
Frequency of emotional problems improved	"First" and "second" interviews	Excludes enrollees reporting not at all bothered by emotional problems in the past month
Frequency of emotional problems improved or did not worsen	"First" and "second" interviews	Excludes enrollees reporting extremely or always bothered by emotional problems in the past month
General health compared with the previous 12 months	"Second" interview only	All enrollees
Functioning		
Difficulty bathing, at the "second" interview	"Second" interview	(1) Enrollees reporting no difficulty bathing, at the "first" interview only (2) Enrollees reporting difficulty bathing, at the "first" interview only
Difficulty walking, at the "second" interview	"Second" interview	(1) Enrollees reporting no difficulty walking, at the "first" interview only (2) Enrollees reporting difficulty walking, at the "first" interview only
Difficulty shopping, at the "second" interview	"Second" interview	(1) Enrollees reporting no difficulty shopping, at the "first" interview only (2) Enrollees reporting difficulty shopping, at the "first" interview only
Difficulty preparing meals, at the "second" interview	"Second" interview	(1) Enrollees reporting no difficulty preparing meals, at the "first" interview only (2) Enrollees reporting difficulty preparing meals, at the "first" interview only
The number of activities of daily living (ADLs) performed with difficulty increased, decreased, or remained the same	"First" and "second" interviews	All enrollees answering six ADL questions
The number of instrumental activities of daily living (IADLs) performed with difficulty increased, decreased, or remained the same	"First" and "second" interviews	All enrollees answering seven IADL questions

TABLE V.1 *(continued)*

Outcome	Source of Information	Subsample Criteria
Service Use		
Number of physician visits	"Second" interview only	All enrollees
Number of hospital admissions	"Second" interview only	All enrollees
Any home care admissions	"Second" interview only	All enrollees
Any nursing home admissions	"Second" interview only	All enrollees
Any emergency room visit	"Second" interview only	All enrollees
Received influenza vaccination in the past 12 months	"Second" interview only	All enrollees

interview, as these enrollees could not report a higher, or improved, level of functioning at the "second" interview.

2. Analysis

The effects of S/HMO II were estimated by comparing outcomes of S/HMO II enrollees with those of risk plan enrollees. In drawing these comparisons, regression analysis was used to adjust for possible differences between the two groups' characteristics at the "first" interview that would cause outcomes to differ for the two groups and that would generate bias in estimates of S/HMO II effects.[6] Each outcome measure was regressed on a variable identifying whether an HPN enrollee was a S/HMO II member and on variables measuring the health, functioning, and sociodemographic characteristics of enrollees at the "first" interview. Using regression estimates, the expected outcomes for each sample member were calculated twice, first assuming they were a S/HMO II enrollee and then assuming they were a risk plan enrollee. The estimated S/HMO II effect is the difference between these two expected values of the outcome measure over all sample members.[7]

C. RESULTS

The following sections describe the S/HMO II effects on enrollees' health, functioning, and service use.

1. Health and Functioning

The incorporation of geriatric care approaches by S/HMO II medical providers and the availability of the chronic care benefit to S/HMO II enrollees should induce greater improvements

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[6]Depending on whether the outcome measure was continuous, binary or categorical, ordinary least squares, logistic, or multinomial logistic regression was used, respectively.

[7]In Appendix D, a detailed description of the empirical specification and methods used are presented in greater detail.

in or maintenance of health and functioning outcomes for S/HMO II enrollees relative to risk plan enrollees. There are two reasons for this expectation. First, the geriatric approaches that S/HMO II medical providers use should help minimize iatrogenic problems and prevent complications, such as memory problems, caused when patients take multiple medications. They should also lead to better medical decision making and discharge planning, which might reduce the likelihood of poor posthospitalization health outcomes. Furthermore, providers with geriatric training may be better able to evaluate and prevent common geriatric conditions, such as falls, incontinence, and confusion, that could reduce levels of physical, emotional, and cognitive health and functioning.

Second, the availability of personal care attendants, homemaker services, and other chronic care benefits after hospital discharge could speed the recovery of S/HMO II enrollees who have had acute medical emergencies or could help chronically ill enrollees adapt to their physical illnesses. Thus, these services might help S/HMO II enrollees who have difficulty performing activities of daily living (ADLs) or instrumental activities of daily living (IADLs) to improve relative to plan enrollees, at least over the short periods they typically receive services.

Physical, Cognitive, and Emotional Health. The effects of the S/HMO II benefit on enrollees' self-reported physical, cognitive, and emotional health were assessed using three types of health measures (see Tables V.2 and V.3). The first type indicates whether enrollees whose self-ratings of health could improve actually reported any improvement. For example, the first column of Table V.2 shows that approximately 28 percent of S/HMO enrollees reported a higher rating of their

TABLE V.2

ESTIMATED S/HMO II EFFECTS ON PHYSICAL, COGNITIVE, AND EMOTIONAL HEALTH

Outcome[a]	Adjusted SHMO II (Percent)	Adjusted Risk Plan (Percent)	Estimated S/HMO II Effect[b]	*p*-Value	N
Physical Health					
General Health Improved	27.8	30.1	! 2.3*	0.044	6,564
General Health Improved or Did Not Worsen	70.7	71.1	! 0.4	0.710	7,687
Cognitive Health					
Difficulty Remembering Improved	34.7	32.0	2.7	0.073	4,210
Difficulty Remembering Improved or Did Not Worsen	75.7	73.7	2.0	0.055	7,889
Emotional Health					
Frequency of Emotional Problems Improved	43.3	44.0	! 0.7	0.678	3,659
Frequency of Emotional Problems Improved or Did Not Worsen	75.8	75.1	0.7	0.471	7,971

SOURCE: Survey of Health Plan of Nevada's risk plan and S/HMO II beneficiaries.

NOTE: All mean outcomes are adjusted for differences between S/HMO II and risk plan enrollees' demographic and health characteristics at "first" interview. Adjusted means are estimated using logit models. Out of a total sample of 8,342 (5,494 S/HMO II enrollees and 2,848 risk plan enrollees), 139 cases were dropped because of missing information on any one independent variable. Sample sizes for each outcome varied depending on the item response rate and the outcome's relevant sample.

[a]The analysis sample for health outcomes that improved excludes enrollees who initially reported the highest level of health for the outcome because it could not improve for these individuals. Similarly, the analysis sample for health outcomes that improved or did not worsen excludes enrollees who reported the lowest level of health for the outcome.

[b]The estimated effects are the difference between the adjusted percentage of S/HMO II enrollees with the outcome and the adjusted percentage of risk plan enrollees with the outcome.

*Significantly different from zero at the .05 level, two-tailed test.

TABLE V.3

ESTIMATED S/HMO II EFFECTS ON RESPONDENTS' SELF-ASSESSMENTS OF HEALTH STATUS RELATIVE TO STATUS IN THE PREVIOUS 12 MONTHS, REPORTED AT THE "SECOND" INTERVIEW

Health Status Relative to Previous 12 Months	Adjusted S/HMO II Distribution (Percent)	Adjusted Risk Plan Distribution (Percent)	Estimated Effects (Percent)[a]	*p*-Value[b]	N (Both Groups)
Much or Somewhat Better	13.3	15.4	-2.1*	0.018	8,173
About the Same	69.1	66.6	2.5*		
Much or Somewhat Worse	17.6	18.0	-0.4		

SOURCE: Survey of Health Plan of Nevada's risk plan and S/HMO II beneficiaries.

NOTE: The distributions are adjusted for differences between risk plan and S/HMO II enrollees in demographic and health characteristics at baseline. The adjusted distributions are estimated using multinomial logistic regression.

[a]The estimated effects are the difference between the adjusted percentage of S/HMO II enrollees with the health status outcome and the adjusted percentage of risk plan enrollees with the health status outcome.

[b]The level of statistical significance is based on a χ^2 test that the S/HMO II effect on the outcome is equal to zero.

*Significantly different from zero at the .05 level, two-tailed test.

physical health (relative to the health of others of the same age) than they did one year earlier.[8] Corresponding measures for cognitive health and emotional health were also constructed.

The second type of indicator assesses whether physical, cognitive, or emotional health improved or did not worsen (that is, stabilized) among those who did not rate their health at the lowest level initially. A favorable outcome would be an improvement or no worsening of health over one year in the self-reported health of enrollees whose health could have gotten worse. For example, the first column of Table V.2 shows that slightly more than 75 percent of S/HMO enrollees reported frequency of emotional problems at the "second" interview that was the same or lower than the level reported one year earlier.[9] Because it requires only that enrollees' health not worsen, this indicator is a less conservative indicator of program performance than is the first indicator.

The third type of measure is based on respondents' recollections of how their physical health changed during the 12 months preceding their "second" interviews. There are no corresponding measures of perceived change for cognitive and emotional health, and, unlike the other two measures, this measure does not exclude any enrollees from the sample. Even though the measure could potentially suffer from recall bias, it is included in the analysis as a way of verifying the results from the two other measures of physical health.

The analysis yielded consistent evidence that the physical, cognitive, or emotional health of S/HMO II enrollees was no more likely than that of risk plan enrollees either to improve or to remain stable. The only two estimated effects that are statistically significant at the 5 percent level are the

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[8]This percentage is based on a sample of 6,564 S/HMO and risk plan enrollees who reported that their physical health was very good, good, fair, or poor at the "first" interview. The sample excludes 1,639 enrollees who reported their health as excellent at their "first" interview (or who did not respond to the survey question), because an enrollee reporting excellent health at the "first" interview could not report any further improvement at the "second."

[9]This percentage is based on a sample of 7,971 enrollees whose frequency of emotional problems could have increased by the time of the "second" interview.

effects of the S/HMO II benefit on physical health--and they are in the direction opposite from what had been hypothesized (see Tables V.2 and V.3). The adjusted proportion of S/HMO II enrollees reporting an improvement in physical health was 2.3 percentage points lower than the adjusted proportion of risk plan enrollees reporting this improvement (see Table V.2). There was no statistically significant difference, however, between the adjusted proportions of S/HMO II enrollees and risk plan enrollees reporting that their health stabilized or improved. Thus, it seems likely that the observed significant differences are due to chance, rather than to the S/HMO II program not improving enrollees' health as much as the risk plan did.

The results from the analysis of the third measure--enrollees' perceived changes in physical health--are consistent with the findings from the analysis of how reported health at the second interview differs from reported health at the first interview. The adjusted proportion reporting that health status was much better or somewhat better than it had been is 2.1 percentage points lower among S/HMO II enrollees than among risk plan enrollees (see Table V.3). This is offset by a higher proportion of S/HMO II enrollees reporting that their physical health had remained the same (see Table V.3). The (adjusted) proportion reporting that their health worsened was very similar (17.6 percent versus 18.0 percent) for S/HMO II enrollees and risk enrollees. This result is also consistent with the earlier finding of no difference between S/HMO II and risk plan enrollees in the proportion reporting the same or higher level of health status at the second interview as they reported at the first interview.

Although the findings on improvement in general physical health are consistent across the two types of measures, they are not likely to be due to the effects of the S/HMO II intervention. There is no plausible reason for access to additional services to lead to less improvement over time in health status. Furthermore, there is no difference between the proportions of S/HMO and risk plan

enrollees who stabilize or improve. Hence, for the observed difference to be interpretable as an effect of the S/HMO II program, one would have to argue that the availability of additional services held constant the health of some beneficiaries whose health would have improved had they not had access to the additional S/HMO II services. The estimated difference in the proportion with improved health is also small; thus, it is probably a statistical anomaly rather than a true program effect. The small and statistically insignificant estimates of differences between S/HMO and risk plan enrollees on cognitive and emotional health outcomes casts further doubt on the interpretation of the observed difference in physical health measures as evidence that the S/HMO II intervention is responsible for the lower proportion of S/HMO II enrollees reporting improvement in general health.

Functioning. The S/HMO II benefit was found to have no effect on the ability of enrollees to perform ADLs or IADLs. This analysis assessed changes in respondents' difficulty in performing two ADLs (bathing and walking) and two IADLs (shopping and preparing meals).[10] Adjusted ADL and IADL outcomes were estimated using two separate subsamples: (1) respondents who had no difficulty performing the activity at the time of the "first" interview, and (2) respondents who had difficulty performing the activity at that time. Regardless of the subsample, having fewer S/HMO II enrollees than risk plan enrollees report difficulty at the "second" interview is a favorable outcome. For example, approximately 5 percent of the 7,543 S/HMO II and risk plan enrollees reporting at their "first" interview that they had no difficulty bathing reported at the "second" interview that they

[10]The analysis assessed only two of the six measures of ADL performance that the survey provided and only two of the seven measures of IADL performance because only a small number of cases reported having difficulty performing the remaining ADLs and IADLs. For example, only 50 enrollees in the entire sample reported at the "first" interview that they had difficulty eating. Thus, among enrollees who had reported difficulty eating, it was not possible to accurately estimate the impact of the S/HMO II benefit on changes in this measure that occurred between the "first" and "second" interviews.

did have difficulty with this activity (see Table V.4). However, an estimated difference of only two-tenths of a percentage point was observed between the adjusted proportion of S/HMO II enrollees and risk plan enrollees reporting at the "second" interview that they had difficulty; this difference is not statistically significant. The S/HMO II benefit had an even smaller effect on bathing among those reporting at the "first" interview that they had difficulty with this activity. Together, these results show that the S/HMO II benefit had no effect on enrollees' ability to bathe. Likewise, no effect of the S/HMO II benefit on the ability to walk was detected.

The analysis did not uncover any measurable effects of the S/HMO II benefit on changes in the number of ADLs that enrollees could perform (see Table V.5). At the "first" interview, enrollees could have reported difficulty performing as many as six ADLs. About 80 percent of both groups (S/HMO enrollees and risk plan enrollees) reported at the "second" interview that the number of ADLs performed with difficulty had not changed. About 12 percent of enrollees in each group experienced an increase in the number of ADLs performed with difficulty, and about 8 percent experienced a decrease; the differences between S/HMO II and risk plan enrollees are small and not statistically significant. This finding is further evidence that the S/HMO II benefit did not have an effect on performance of ADLs.

Slightly fewer S/HMO II enrollees than risk plan enrollees reported difficulty in performing IADLs by the time of the "second" interview, but the differences are not statistically significant. Among HPN enrollees who reported at the "first" interview that they had difficulty shopping or preparing meals, fewer S/HMO II enrollees than risk plan enrollees reported having difficulty performing these activities by the "second" interview. Although these differences are not trivial in size (as much as 6 percentage points, in the case of preparing meals), they are not statistically

TABLE V.4

ESTIMATED S/HMO II EFFECTS ON FUNCTIONING

Outcome[a]	Adjusted SHMO II (Percent)	Adjusted Risk Plan (Percent)	Estimated S/HMO II Effects[b]	*p*-Value	N
Activities of Daily Living					
Difficulty Bathing, Reported at the "Second" Interview By Respondents with No Difficulty at "First" Interview	4.9	5.1	-0.2	0.789	7,543
Respondents with Difficulty at "First" Interview	64.6	64.6	! 0.0	0.999	656
Difficulty Walking at the "Second" Interview By Respondents with No Difficulty at "First" Interview	7.9	7.0	0.9	0.178	6,993
Respondents with Difficulty at "First" Interview	72.5	71.3	1.2	0.642	1,200
Instrumental Activities of Daily Living					
Difficulty Shopping at "Second" Interview By Respondents with No Difficulty at "First" Interview	5.4	5.8	! 0.4	0.486	7,323
Respondents with Difficulty at "First" Interview	65.4	69.7	! 4.3	0.188	865
Difficulty Preparing Meals at "Second" Interview By Respondents with No Difficulty at "First" Interview	4.1	5.0	! 0.9	0.073	7,518
Respondents with Difficulty at "First" Interview	56.2	61.9	! 5.7	0.108	672

SOURCE: Survey of Health Plan of Nevada's Risk plan and S/HMO II beneficiaries.

NOTE: All mean outcomes are adjusted for differences between S/HMO II and risk plan enrollees' demographic and health characteristics at "first" interview. Adjusted means are estimated using logit models. Out of a total sample of 8,342 (5,494 S/HMO II enrollees and 2,848 risk plan enrollees), 139 cases were dropped because of missing information on one or more independent variable. Sample sizes for each outcome varied depending on the item response rate.

[a] Enrollees were assumed to have difficulty with an activity of daily living or instrumental activity of daily living if they reported difficulty performing the activity by themselves and either (1) reported difficulty because of a health or physical problem, or (2) received help from another person to perform the activity.

[b] The estimated effects represent the difference between the adjusted percentage of S/HMO II enrollees with the outcome and the adjusted percentage of risk plan enrollees with the outcome. All figures are rounded to the nearest tenth of a percent.

TABLE V.5

ESTIMATED S/HMO II EFFECTS ON THE CHANGE IN THE NUMBER OF ACTIVITIES OF DAILY LIVING OR INSTRUMENTAL ACTIVITIES OF DAILY LIVING PERFORMED WITH DIFFICULTY

Outcome	Adjusted S/HMO II Distribution (Percent)[a]	Adjusted Risk Plan Distribution (Percent)	Estimated S/HMO II Effect (Percent)	*p*-Value[b]	N (Both Groups)
Activities of Daily Living					
Increased Number	12.3	12.5	! 0.2	0.390	8,185
No Change in the Number	79.9	79.1	0.8		
Decreased Number	7.8	8.4	! 0.6		
Instrumental Activities of Daily Living					
Increased Number	11.3	13.0	! 1.7	0.053	8,145
No Change in the Number	77.2	76.2	1.0		
Decreased Number	11.5	10.8	0.7		

SOURCE: Survey of Health Plan of Nevada's risk plan and S/HMO II beneficiaries.

NOTE: The distributions are adjusted for differences between risk plan and S/HMO II enrollees in demographic and health characteristics at baseline. The adjusted distributions are estimated using multinomial model logistic regression estimates of whether there was an increase, decrease, or no change between the first and second interview in the number of activities of daily living (ADL) or instrumental activities of daily living (IADL) tasks with which the sample member reported difficulty. The sample for ADL effect includes 5,398 S/HMO II enrollees, and the sample for IADL effect includes 5,375 S/HMO II enrollees. Enrollees could potentially have difficulty with the following six ADLs: (1) bathing or showering, (2) dressing, (3) getting in or out of a bed or chair, (4) eating, (5) walking, and (6) toileting. Enrollees could potentially have difficulty with the following seven IADLs: (1) shopping, (2) using the telephone, (3) doing light housework, (4) preparing meals, (5) using public transport or riding in a private automobile, (6) taking medications, and (7) managing finances or balancing a checkbook.

[a] The estimated effect is the difference between the adjusted percentage of S/HMO II enrollees with the ADL or IADL outcome and the adjusted percentage of risk plan enrollees with the ADL or IADL outcome. Percentages may not add to 100 due to rounding.

[b] The level of statistical significance is based on a $\div^2$ test that the S/HMO II effect on the odds of each outcome is equal to zero.

significant. However, these effects appeared in small samples, and it is possible that the S/HMO II benefit could have a real effect on the ability of enrollees to perform IADLs. Furthermore, among enrollees with no difficulty performing these tasks at the time of the first interview, S/HMO II enrollees were less likely than risk plan enrollees to report a problem performing them at the time of the second interview (4.1 percent versus 5.0 percent, for preparing meals).

Other evidence supports the possibility that the S/HMO II benefits led to modest reductions in IADL problems. Whereas 11.3 percent of S/HMO enrollees reported difficulties with more IADLs at the second interview than at the first interview, 13 percent of risk plan enrollees reported difficulties with more IADLs at the second interview (see Table V.5). Although the difference is relatively small, the fact that it is close to being statistically significant at the 5 percent level of probability suggests that the S/HMO II benefit might have a limited positive effect on social functioning, as measured by difficulty performing IADLs.[11]

2. Service Use

The expected impact of the S/HMO II benefit on the use of some health services is unclear. Services examined included whether an enrollee was admitted to a nursing home or hospital, received any home health care, visited the emergency room, or received an influenza vaccination. If, relative to the risk program, the S/HMO II program provides more highly coordinated and more appropriate care, then enrollees from the two groups should use different amounts of services. However, some services may increase while others decrease.

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[11]The effect of the S/HMO II benefit on cognitive health reported in Table V.2 was in the expected direction and would be statistically significant if tests were conducted at the .10 level. This result is consistent with evidence suggesting a beneficial S/HMO II effect on IADL performance, as IADL performance requires good cognitive health.

Better community-based care for and early attention that focuses on patients who are at high risk of hospitalization should reduce the use of this expensive service, and may also reduce the need for other expensive services, such as home health care and skilled nursing facilities.[12] However, the S/HMO II plan may increase, for some patients, the amounts of home health care and of skilled nursing care it provides its enrollees in order to reduce hospital stays, reduce patients' risk of adverse outcomes, or improve their level of functioning.[13] For example, S/HMO II care coordinators may request assessments of frail elderly enrollees' home environments to find ways to reduce the risk of falls in the home. Thus, relative to risk plan enrollees, S/HMO II enrollees might be expected to have a higher likelihood of having a home health care visit and correspondingly fewer hospital admissions for preventable health events (for example, hip fractures caused by falls).

The hypothesized direction of the effect on the number of physician visits is ambiguous as well. On the one hand, relative to risk plan enrollees, S/HMO II enrollees could have a greater number of physician visits, after controlling for demographic and health characteristics. For example, care coordinators might suggest that patients contact their physicians when they would not have done so otherwise, and S/HMO II providers might encourage more frequent physician visits for prevention or early diagnosis of chronic diseases. On the other hand, if the care S/HMO II enrollees receive

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[12]S/HMO II physicians might admit patients to the hospital more frequently (relative to admissions by risk plan physicians) in order to diagnose and treat early signs of disabling chronic conditions (for example, cardiac catheterization of patients with chest pain). Overall, however, one would expect hospital admissions of S/HMO II enrollees to decrease.

[13]The available measure of any nursing home admissions does not differentiate between admissions to a skilled nursing facility and admissions to some other level of care. However, most of the admissions in the sample are probably admissions to skilled nursing facilities.

decreases the likelihood of adverse health events, then these enrollees should have fewer physician visits, on average, than risk plan enrollees.[14]

Emergency room visits and influenza vaccinations, two service use measures, may also be viewed as quality indicators. The hypothesized effects of the S/HMO II benefit on the likelihood of an emergency room visit or of the receipt of an important preventive service (an influenza vaccination) are unambiguous. S/HMO II enrollees should have been less likely than risk plan enrollees to visit the emergency room during the 12 months preceding the interview and should have been more likely to have received an influenza vaccination during that time. The respective geriatric care practices of the providers would be expected to explain these differences. For example, S/HMO II providers may be more likely to focus closely on patients' use of prescription drugs, which might reduce the risk of an emergency room visit for complications arising from drug interactions. Furthermore, these providers might pay closer attention to whether their patients had received annual influenza vaccinations, as this preventive measure is important for maintaining the health of older enrollees who have respiratory ailments or other chronic conditions. Risk plan providers should also provide this service; however, one could hypothesize that the S/HMO II providers and care coordinators would more aggressively seek to ensure that their highest-risk enrollees receive the vaccination.

All the estimated service use differences between S/HMO II enrollees and risk plan enrollees are small in magnitude, and five of the six effects measured are not statistically significant. The S/HMO II benefit appears to have had no effect on the number of physician visits, or on whether an

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[14]Geriatric models of care promote the use of geriatric nurse practitioners, whose services could substitute for physician services. However, HPN does not use geriatric nurse practitioners extensively.

enrollee had any hospital admission, home care visit, nursing home admission, or emergency room visit during the 12 months preceding the interview (see Table V.6).

However, S/HMO II enrollees were significantly more likely than risk plan enrollees to have received an influenza vaccination during that 12-month period. The estimated difference of 3.7 percentage points in the adjusted proportions of S/HMO II enrollees and risk plan enrollees receiving this service, although small, may be evidence that S/HMO II care providers are paying closer attention to prevention than are their counterparts in the risk plan (see Table V.6). S/HMO II enrollees are more likely than risk plan enrollees to have reported respiratory ailments, such as asthma and emphysema (see Appendix D). Because influenza can be fatal, especially for the oldest enrollees reporting these respiratory ailments, S/HMO II providers who increased their efforts to have their patients receive annual influenza vaccinations could have had a beneficial effect on these enrollees. Although the S/HMO II enrollees were more likely to receive this important preventive service (and quality indicator), the effects were relatively small and may have been due to inherent differences between the S/HMO II and risk plan physicians in their attention to this service. There is no evidence that the greater rate of flu vaccinations resulted in reduced need for expensive hospital, home health, skilled nursing facility, or emergency room care.

D. DISCUSSION AND CONCLUSION

There is no consistent evidence that the S/HMO II benefit affected enrollees' physical health or service use, nor that it improved the ability of enrollees to perform activities of daily living. The S/HMO II benefit might have a positive effect on the ability of enrollees to perform instrumental activities of daily living, and S/HMO II enrollees were more likely than risk plan enrollees to have

TABLE V.6

ESTIMATED S/HMO II EFFECTS ON SERVICE USE

Outcome	Adjusted SHMO II Mean (or Percent)	Adjusted Risk Plan Mean (or Percent)	Estimated S/HMO-II Effect[a]	*p*-Value	N
Number of Physicians Visits	4.7	4.6	! 0.1	0.358	7,982
Any Hospital Admissions	14.9	14.6	0.3	0.680	8,162
Any Home Care Visits	2.5	2.5	! 0.0	0.924	8,203
Any Nursing Home Admissions	2.8	2.5	0.3	0.393	8,188
Any Emergency Room Visits	18.9	20.3	! 1.4	0.129	8,129
Received Influenza Vaccination in the Past 12 Months	62.3	58.6	3.7**	0.001	8,182

SOURCE: Survey of Health Plan of Nevada's risk plan and S/HMO II beneficiaries.

NOTE: All mean outcomes are adjusted for differences between S/HMO II and risk plan enrollees' demographic and health characteristics at "first" interview. The adjusted means of physician visits are estimated using ordinary least squares regression, and all other adjusted service use means are estimated using logit models. Out of a total sample of 8,342 (5,494 S/HMO II enrollees and 2,848 risk plan enrollees), 139 cases were dropped because of missing information on one independent variable. Sample sizes for each outcome varied depending on the item response rate.

[a]For physician visits, the estimated effect is the difference between the S/HMO and risk plan enrollees' adjusted mean numbers of physician visits. For all other services use outcomes, the estimated effects are the difference in the adjusted percentage of S/HMO II enrollees with the outcome and the adjusted percentage of risk plan enrollees with the outcome.

**Significantly different from zero at the .01 level, two-tailed test.

received an influenza vaccination in the past 12 months. Nevertheless, these effects were small in magnitude, and it is uncertain whether they can be attributed to the influence of the S/HMO. At this point, no evidence exists of effects of the S/HMO II benefit on a variety of health, functioning, and service use measures.

Interpretation of these findings should be tempered by the limitations to the study. First, the analysis focused on impacts over an approximate one-year period. It may take longer than one year before effects on some measures become evident. For example, installing grab bars in bathtubs or changing medication may ultimately prevent a fall or hospital stay, but not necessarily in a one-year interval. Had changes over a two-year interval been measured, more favorable S/HMO II effects might have been observed. Second, the analysis measured changes occurring during the developmental stages of the S/HMO II intervention. HPN was still implementing geriatric approaches during the analysis period. For example, in April 1998 the geriatric department (established in January 1998) organized a geriatric resource team, which conducts comprehensive interdisciplinary geriatric assessments and provides consultation to other physicians. These additional geriatric measures, however, may have started too late to help restore or stabilize the functioning of some S/HMO II enrollees who were included in the sample.

Third, the sample size available was not large. Consequently, there was no assessment of S/HMO II effects on subgroups of enrollees, such as those with chronic conditions, who might be more likely than risk plan enrollees with the same conditions to report improvements in health. Because this analysis estimated the net S/HMO II impact for enrollees as a whole, it cannot determine whether there was an impact for some small subsets of enrollees.

A final problem with the study design is that spillover effects on the control group may bias our estimates downward. For example, S/HMO II medical providers potentially could share their

knowledge about drug interactions with risk plan providers. This analysis estimated S/HMO II impacts by comparing HPN's S/HMO II enrollees and risk plan enrollees, after controlling for observable differences in health, functioning, and sociodemographic characteristics at the "first" interview. This design reduced the likelihood that other differences between the two groups would be confounded with S/HMO II impacts, but it could not control for the possibility that the risk plan providers adopted ways to achieve the same outcomes as were produced by the S/HMO II providers.

The Final Report to Congress on the S/HMO demonstration will address some of these limitations because the survey data will contain a larger sample of enrollees than were available for this Transition Report. The sample will include members interviewed over three additional months, which should increase the sample size sufficiently to permit analysis of a greater array of outcome variables and subgroups. For example, the report will include an analysis of improvements in the performance of all six ADLs and all seven IADLs.

In addition, the Final Report will include an analysis of claims and encounter data that were unavailable for the Transition Report. The claims and encounter data will include more highly refined measures of service use, and permit calculation of the impact of the S/HMO II benefit on program costs. For example, the claims and encounter data will provide a measure of hospital length of stay, which was not available in the survey data. The claims and encounter data will also provide additional measures of quality of care, such as the number of hospital readmissions for complications from previous hospital treatments.

Nevertheless, the Final Report to Congress will suffer from the same primary limitation as this study--restriction of the observation period to the early stages of the intervention. Furthermore, it is not possible to extend the sample period greatly, because the project's comparison group was dissolved on April 30, 1999, at the request of HPN. Thus, only limited future analysis will be possible.

VI. SUMMARY OF FINDINGS AND THEIR IMPLICATIONS

Options for transitioning the S/HMO into the Medicare + Choice program should be based on information available about the operations, costs, and impacts of the two S/HMO models in their various sites. This chapter summarizes the findings from the report and their implications for transition options. Chapter VII contains the transition options, a transition plan for each option, and a recommendation.

A. THE SOCIAL HMO AND CURRENT ALTERNATIVES

1. Background

S/HMOs are hybrid organizations incorporating elements of both (1) a regular Medicare managed care plan and (2) a modest community-based, long term care insurance package that covers expanded home- and community-based services and coordination of those services for targeted frail members. As such, S/HMOs provided an opportunity to develop innovative, integrated geriatric approaches that any Medicare risk plan could use to provide high-quality care. Some of the S/HMO plans developed and implemented such approaches. Some Medicare risk plans are developing innovative care coordination approaches to chronic care outside of the S/HMO context, but it is not clear how many such innovations will occur or become widespread among Medicare risk plans without encouragement.

An early evaluation found that four S/HMO I model plans had all implemented a case management system for the expanded community-based long term care services (Newcomer et al. 1995a). However, the evaluators reported a lack of physician involvement in the process and of geriatric approaches to care for the frail elderly. They also reported little evidence of effects on beneficiary outcomes, which they speculated resulted from these shortcomings in care coordination.

As a result, the evaluators recommended that geriatric approaches be developed and implemented. A new S/HMO model (the S/HMO II model) was developed (with the participation of the S/HMO I plans) to increase physician involvement and focus more on the special needs of elderly members. Only one S/HMO II model plan has ever been implemented (HPN in Nevada).

HPN has implemented innovative, team-based interdisciplinary coordination of care that involves primary care physicians, and employs extensive geriatric approaches (such as medication management to avoid the adverse effects of taking multiple prescription drugs). However, implementing these approaches takes time. After receiving a planning grant in 1995, HPN began enrolling members in November 1996 and had not fully implemented the integrated team approach until 1998. This relatively lengthy process is indicative of the difficulty of making substantial changes in the ways that health care is delivered.

None of the three S/HMO I plans chose to convert to the S/HMO II model, and only one of them--the Kaiser S/HMO in Portland, Oregon--has introduced extensive geriatric and interdisciplinary approaches. Although six plans were authorized to implement a S/HMO II model in 1995, HPN is the only one to have done so (although one S/HMO II plan is still in the planning stage). In 1998, HCFA funded two states to plan S/HMO programs for dual eligibles (people eligible for both Medicare and Medicaid), but neither state has yet implemented its program. Sites have not implemented S/HMO II plans for several reasons, including lack of infrastructure, loss of personnel, and concern about the payment level.

2. Alternative Managed Care Options for Medicare Beneficiaries

S/HMOs represent an intermediate option between Medicare risk plans and Program of All-Inclusive Care for the Elderly (PACE) plans. Currently, the PACE program is the only permanent option in the Medicare + Choice program that focuses on serving community-dwelling frail elders.

Unlike in S/HMO demonstrations, which enroll members similar to those in Medicare risk plans, all PACE enrollees are frail. PACE is available in 13 sites in the United States but has a much lower total enrollment than S/HMOs (4,400 PACE enrollees compared to 68,000 S/HMO enrollees in October 1998). Although PACE has been evolving as it is implemented in different sites, it has a core set of services, integrated care approach, and its own augmented payment system.

States are becoming more interested in developing programs that integrate acute and long-term care for dual eligibles (people enrolled in both Medicare and Medicaid), many of whom are in long term care institutions. As mentioned earlier, two states were authorized in 1998 to implement a dual eligible S/HMO but have not done so.

Three end-stage renal disease S/HMO demonstrations operate under separate regulations and payment approaches. This report does not present findings or recommendations on these specialized S/HMOs. A separate transition plan for them will be presented to Congress after completion of an evaluation in May 2002.

B. OPERATIONAL FINDINGS

New data on S/HMO plan operations were collected through visits to the S/HMO I plans early in 1999 and through a visit to the S/HMO II plan in 1998 and ongoing monitoring.

1. The S/HMOs Offer a Richer Set of Benefits than Medicare Risk Plans

The package of benefits available to S/HMO members includes extra services, generally at a lower cost to members than they would be to risk plan or fee-for-service beneficiaries. The S/HMOs offer expanded home-and community-based long-term care benefits and care coordination for targeted frail members to help them live at home (this S/HMO-specific benefit is subject to annual limits among S/HMO I plans and member copayments among all S/HMO plans). They also offer

supplementary medical care benefits (such as prescription drug coverage) that are as rich as or richer than those local Medicare risk plans offer. Finally, the S/HMOs charge members no premiums for medical care (except for the Kaiser S/HMO in Portland, Oregon, and an enhanced option offered by HPN in Nevada).

2. S/HMOs Vary Widely in Care Integration

As the experience of the few existing S/HMO demonstrations shows, with sufficient initial support, experience providing care to elderly people, and the appropriate infrastructure, S/HMOs can be implemented and maintained under the current regulations. Three S/HMO I plans and one S/HMO II plan provided and coordinated the expanded community-based long term care services to targeted frail members. (Coordination includes screening, assessment, care planning, and member monitoring.) However, there was considerable variation both across the two S/HMO models and among the three S/HMO I plans in use of new geriatric approaches and integration of acute and long-term care. Three plans have introduced innovative geriatric approaches (one had introduced only minimal geriatric approaches), with the S/HMO II model providing the most comprehensive intervention. Only one S/HMO I and the single S/HMO II plan integrate acute care and the expanded benefit extensively. These two plans are staff and group model HMOs, whereas the other two S/HMOs are IPA and network model HMOs. Staff and group model HMOs have greater control over their salaried providers, which enhances the likelihood that they can make changes in physician practices.

3. In Three S/HMOs, Case-Mix Is Comparable to Medicare Risk Plans in the Same Areas

With one exception, the overall case-mix of the S/HMOs, as measured by functional and health status and chronic disease prevalence, is comparable to that of the Medicare risk plans operating in

the S/HMO market areas. This is not surprising, since the S/HMO model was never intended to serve frail elders exclusively, but rather was expected to enroll a representative cross-section of Medicare beneficiaries and provide intensive integration and services to the frailest. All the S/HMO I plans enroll older populations, but the payment rate adjustments for age should compensate them adequately for the higher expected medical expenses associated with aging. The exception is the Kaiser S/HMO in Portland, Oregon. This plan, which offers a rich benefit at a high premium to the consumer, has a much frailer membership (based on functional and health status and chronic disease prevalence) than local risk plans, even controlling for age.

4. Medicare Payments Are Higher for S/HMOs than for Medicare Risk Plans

The S/HMOs are paid at the published Medicare county rate book amount for Medicare risk plans, augmented by the implicit 5 percent discount built into that rate. The base rate augmentation is intended to cover the costs of providing the expanded benefits and coordinating care. Payment also includes model-specific risk adjustors for member case-mix. The risk adjustment is intended to compensate S/HMOs for the higher expected need for Medicare services among the most frail and chronically ill. It results in substantially higher payments to the three S/HMO I plans than they would receive as Medicare risk plans, because of the large proportion of members classified as nursing home certifiable (the highest rate cells). However, once adjustments for differences in age, sex, and Medicaid status are made, as reflected in the Medicare risk program's payment method, enrollees in two of the three S/HMO plans are no more functionally limited, health impaired, or chronically ill than local risk plan enrollees. Thus the substantial additional payment received by two of the S/HMO I plans under the S/HMO I risk adjustment method does not appear to be warranted. Furthermore, for the third S/HMO I plan (Kaiser), the augmented rate for nursing home certifiable cases may be insufficient to account for the greater impairment levels and poorer health

status of the enrollees. Thus, the S/HMO I risk adjuster does not appear to do a good job of paying plans with the most impaired case-mix, and the standard for assigning nursing home certifiable status appears to be imprecise. In contrast, the S/HMO II plan does not receive more compensation under the demonstration payment method than it would receive as a risk plan, commensurate with the similar case-mix it serves.

5. S/HMOs Do Not Spend the Full Extra Payment on S/HMO Services and Coordination

Two S/HMO I plans spent considerably less than the supplemental payment on providing and coordinating expanded long term care services, partly because modest use is made of the extra benefit. One S/HMO I plan (Kaiser) reports that it spends considerably more than 5 percent on the extra benefits. (Kaiser also has the highest rate of providing care coordination and expanded benefits.)

Across all four S/HMOs, at any given time, a minority of members (10 to 25 percent) are monitored by case managers, and only 7 to 15 percent receive such expanded services as personal care, transportation, and home-delivered meals. The S/HMO I plans vary widely in these rates of use, both because the nursing home certifiable criteria that result in higher payments for eligible members are state-specific and because of variations in member case-mix.

C. IMPACT ANALYSIS FINDINGS

1. Data Limitations

Although ample information exists about how the S/HMOs operate, far less information is available about how they affect beneficiary outcomes. There are no current data available on outcomes for S/HMO I plans except for satisfaction and access measures from the Consumer Assessment of Health Plans Survey. Data are available for analysis of the S/HMO II plan, and these annual survey data on HPN's S/HMO II and risk plan members have been compared in this report.

The S/HMO II survey data were limited by several factors: (1) small sample size--which precluded analysis of subgroups for whom the S/HMO intervention might be more effective; (2) the sample was drawn from an early period in the intervention; (3) the analysis was of effects over a one-year period; (4) the potential for spillover effects resulting from physicians in the risk plan adopting approaches used by physicians in the S/HMO--all of which may reduce the likelihood of finding effects if they exist; and (5) the availability of only one S/HMO II plan to test S/HMO II effects. These problems will not be eliminated even in a new analysis now being conducted. Analysis of additional data sets is currently being conducted to assess the effects of the S/HMO II model compared to both Medicare risk plans and the fee-for-service program. However, the scope for analysis of long-term effects will still be limited by the relatively short period over which the model has been fully implemented and by the conversion of much of the comparison group (HPN's risk plan) into the S/HMO II plan in May 1999, which limits the potential to measure any impacts that take several years to occur. The analysis of the impacts of the S/HMO II model, using larger samples and more data sets and exploring differences in impacts across clinics and other subgroups, will be completed in 2001. The results will be provided to Congress in a final report on the S/HMO demonstrations.

2. Earlier Evaluation Results Found No Difference in Outcomes Between S/HMO I Plans and the Medicare Fee-for-Service Program

An evaluation of the S/HMO I model, as it operated in the 1980s, found reduced hospital costs, increased nursing home costs, and wide variations across plans in total costs for S/HMO I enrollees compared with Medicare fee-for-service enrollees. If the S/HMO program was preventing or delaying illness progression or accidents, reduced use of these types of services among S/HMO enrollees should have been observed. Since reduced service use was not observed, the evaluation

concluded that the S/HMO did not have these effects. This lack of clear and consistent overall effects is in contrast to the findings for the PACE model of care for frail elders, in which there were large reductions in the use of these services.

3. Preliminary Analysis of S/HMO II Effects Suggests No Large Differences Between the S/HMO II Site and a Medicare Risk Plan

Preliminary analysis of the S/HMO II model shows no consistent evidence of differences in health, functioning, or use of hospitals and nursing homes between members of the S/HMO plan and those of a regular Medicare risk plan operated by the same organization in the same market area.

4. S/HMO Sites and S/HMO Providers Believe the S/HMO Benefit Improves Beneficiaries' Quality of Life, but There Is No Evidence That It Does

While no evidence exists that beneficiary quality of life is improved (beyond the anecdotal testimonials of benefit recipients to their providers), it is plausible that S/HMO members who receive the extra benefits would have improved quality of life. The only evidence available--member satisfaction with their managed care plans--is only distantly related. If quality of life were related to members' satisfaction with their plans, satisfaction could be used as a proxy for quality of life. In that case, increased satisfaction with the S/HMO plans would indicate greater quality of life. In fact, an analysis of S/HMO I enrollees' satisfaction with their plans relative to local Medicare risk plans found no differences in satisfaction.

D. IMPLICATIONS

The findings may be grouped into three categories related to (1) program effects on beneficiaries, (2) program costs and case-mix, and (3) replicability of the S/HMO II design. Each

set of findings has implications for the types of options Congress should consider for the transition plan.

1. There Is No Consistent Evidence That S/HMOs Improve Beneficiary Outcomes

All the evidence on beneficiary effects suggests consistently that the S/HMOs have not had the expected positive effects.[1] Some of that evidence is from an evaluation of the S/HMO I program as it operated over 10 years ago, and some is from the preliminary analysis of the sole S/HMO II plan described in this report.

Implication: S/HMO models have not proven that they are worth the substantial additional cost to Medicare.

2. Despite Comparable Case-Mix, S/HMO Plans Are Paid More than Risk Plans

The S/HMO I payment method results in two of the three S/HMO I plans being paid excessively--both relative to their case-mix and relative to the amount of expanded S/HMO benefits they provide. They receive substantially more than they would if they held risk contracts because of the higher payment for the nursing home certifiable rate cell, yet only one of the three plans (Kaiser) experiences adverse selection warranting higher payment. Furthermore, only this one plan reports expending the full 5.3 augmented base payment on expanded community care benefits and care coordination, as intended. The S/HMO II payment method of adjusting for health risk does not

[1]In our analyses of health, functioning, satisfaction, and utilization, we estimated about 59 differences between S/HMO and risk plan enrollees that might be interpreted as impacts. Only 6 of the differences were statistically significant at the .10 level--about what would be expected by chance. Furthermore, for five of the six differences SHMO outcomes were *worse* than those of Medicare risk plans. Thus, our findings suggest that S/HMO enrollees did not fare better than risk plan enrollees. Earlier analyses of the S/HMO I demonstration plans (Newcomer et al., 1995) also found no evidence of beneficial effects on service use or satisfaction.

lead to total payments higher than risk payments would be, but it requires collection of survey data, which increases program costs by about 0.5 percent.

Implication: The payment method should be modified (both the risk adjustors and the 5.3 percent augmentation) if the S/HMO program becomes a permanent option.

3. The Innovative S/HMO II Design Has Been Implemented in Only One Site

The S/HMO II model requires that plans implement intensive interdisciplinary care coordination with the participation of geriatricians and primary care physicians in the process. This requirement was developed in response to earlier findings that the S/HMO I plans did not involve physicians and the speculation that this lack of involvement was the reason that the S/HMO I plans did not have the expected positive effects on beneficiary outcomes. However, only one S/HMO II plan, Health Plan of Nevada, has ever been implemented.

HPN has implemented innovative interdisciplinary coordination of care, involving primary care physicians, and employs extensive geriatric approaches, such as identifying high risk patients and intervening to reduce their likelihood of needing a hospital or nursing home stay. However, limited ability of other organizations to implement a S/HMO II plan has been evident. Of the three remaining S/HMO I plans, none chose to convert to the S/HMO II model, and only one of them, the Kaiser S/HMO in Portland, Oregon, has introduced extensive geriatric and interdisciplinary approaches. Five other plans were authorized to implement a S/HMO II plan in 1995, but none has done so (though one is still in the planning stage). In 1998, HCFA funded two states to plan S/HMO programs for dual eligibles (people eligible for both Medicare and Medicaid). Neither state has yet implemented its S/HMO II program. The reasons why approved sites have not implemented S/HMO II plans include lack of infrastructure, loss of personnel, and concern about the payment level.

The S/HMO program requires separate risk adjustors, payment approaches, and monitoring efforts. These requirements add a considerable fixed cost to HCFA to operate the program.

Implication: Few managed care plans have shown interest in the S/HMO II approach, suggesting that the program might never be large enough to justify the administrative expense of operating it as a separate program.

VII. OPTIONS AND RECOMMENDATIONS FOR TRANSITIONING THE S/HMOs INTO MEDICARE + CHOICE

This chapter presents options for transitioning the social health maintenance organization (S/HMO) demonstration plans into the Medicare + Choice program, and recommends one of the options, as required by Congress. As discussed in Chapter VI, ample information exists about how S/HMO demonstration plans were implemented and operate, yet much less information exists about how the S/HMOs affect beneficiary outcomes relative to the Medicare + Choice plans. While the lack of direct information on beneficiary outcomes challenges the development of a transition recommendation, inferences based on the available analyses of outcomes and knowledge of site operations can be used in place of stronger evidence on outcomes. Therefore, this chapter draws on the summary of findings and their implications to develop two distinct options that are open to Congress and describes plans for implementing each of these options. The options are:

1. Convert the S/HMOs into standard Medicare + Choice plans.
2. Add the S/HMO model as an alternative managed care option under Medicare + Choice.

Both options could be implemented in varying ways. The following sections describe alternative approaches to each option, the pros and cons of each approach, and a plan for their implementation. The chapter concludes by recommending a variant of option 1.

A. OPTION 1: CONVERT S/HMOs INTO MEDICARE + CHOICE PLANS

1. The Option

The lack of evidence to date that S/HMOs produce the expected effects on beneficiary outcomes, together with overpayment of S/HMO I plans relative to Medicare + Choice plans, suggests that they be converted into standard Medicare + Choice plans. Converting S/HMO plans to Medicare + Choice plans requires elimination of the supplemental payment for care coordination and long term care services, and shifting from the S/HMO risk adjustment method to the one used in the Medicare + Choice program. These changes could take effect immediately at the conclusion of the S/HMO demonstration or be phased in over several years. If the conversion is phased in, the benefits S/HMOs are required to cover during the transition must be specified. Only the four currently implemented S/HMOs would be allowed to operate during the transition. Options for the transition of the S/HMOs into Medicare + Choice plans include the following:

Option 1a: Immediate conversion to standard Medicare + Choice plans at the conclusion of the demonstration

Option 1b: Conversion to Medicare + Choice plans in 2007 after a transition period, during which the S/HMO payment factors are phased out (the current augmented payment would be eliminated at the end of the demonstration). During the transition period, the S/HMO payment amount would be based on the transition percentage for the comprehensive risk adjustment specified in the Benefits Improvement and Protection Act of 2000.

Option 1c: Conversion in 2007 after a transition period during which the current augmented payment and the S/HMO payment factors are phased out

Table VII.1 provides specifications for implementing each of these options. Table VII.2 supplements Table VII.1 by specifying the features of care coordination under these options.

TABLE VII.1

SPECIFICATION OF S/HMO TRANSITION VARIANTS FOR OPTION 1

Feature	Option 1a: Immediate Conversion	Option 1b: Partial Conversion	Option 1c: Phased in Conversion
Year by which S/HMOs would complete transition to standard Medicare + Choice plans	At the conclusion of the demonstration	2007	2007
Percentage of Medicare payment rate to be paid in the transition period	100%	100%	2004: 104% 2005: 102.7% 2006: 101.4% 2007: 100%
Payment factors to be used in the transition period	Medicare + Choice plan payment factors	Current S/HMO payment factors	Current S/HMO payment factors
Comprehensive risk factors to be phased into payment over:	By 2007 2004: 30%[a] 2005: 50% 2006: 75% 2007: 100%	By 2007 2004: 30%[a] 2005: 50% 2006: 75% 2007: 100%	By 2007 2004: 30%[a] 2005: 50% 2006: 75% 2007: 100%
Availability of care coordination during transition	Optional	Required (see Table VII.2)	Required (see Table VII.2)
Availability of expanded care benefits during transition	Optional	Required (see Table VII.2)	Required (see Table VII.2)
Eligibility for care coordination and expanded care benefits	Can specify own standards	Can specify own standards	Can specify own standards
Maximum annual expanded care benefit amounts cannot be less than:	Can specify own standards	Can specify own standards	Can specify own standards
New S/HMO sites permitted?	No	No	No
Membership limits per S/HMO	None	Aggregate cap of not less than 324,000 for all sites	Aggregate cap of not less than 324,000 for all sites

[a]By 2004, HCFA plans to implement a comprehensive payment methodology for paying Medicare + Choice plans. This will replace the PIP/DCG factors.

Transition Option 1a: Immediate Conversion to Standard Medicare + Choice Plans. This option requires immediate and complete conversion of the S/HMO plans to standard Medicare + Choice plans at the conclusion of the demonstration. This would entail:

- Eliminating the supplemental payment augmenting the Medicare payment rate
- Converting the payment factors from the current S/HMO I and S/HMO II factors to the Medicare + Choice plan factors,
- Phase in the comprehensive payment methodology between 2004 and 2007

Transition Option 1b: Immediately Drop Supplement to the Medicare Payment Rate. Under this option, payment to the S/HMOs would convert partially to that used for Medicare + Choice plans after a transition period, during which S/HMO payment factors are phased out (the current augmented payment would be eliminated at the end of the demonstration). This partial conversion would entail:

- Eliminating the supplemental payment that augments the Medicare payment rate
- Phase in the comprehensive payment methodology between 2004 and 2007
- Continuing the requirement that the S/HMOs provide care coordination and the extra community-based services

Transition Option 1c: Phase out the Supplement to the Medicare Payment Rate; Phase in the Standard Medicare + Choice Plan Payment Formula. Under this option, the payment changes would be phased in after a transition period during which the current augmented payment and the S/HMO payment factors are phased out. The conversion would entail:

TABLE VII.2

SPECIFICATIONS FOR THE SPECIAL COMPONENTS OF THE S/HMO:
SCREENING, CARE COORDINATION, AND EXPANDED CARE BENEFITS

Activity	**Standards for S/HMO Transition Period or For a Permanent Program**
Screening	All members to be screened for problems annually. Screening results indicating potential problems to be referred to primary care provider.
Comprehensive clinical assessment to target members needing specific services	All members with potential problems to be assessed for unmet needs and need for geriatric care coordination. Assessment results to be referred to the primary care provider and other providers as appropriate. High risk members eligible for specific expanded care benefits.
Care Coordination	Team approach to care coordination that includes the primary care practitioner, geriatricians, and geriatric nurse practitioners, as well as a care coordinator for expanded care benefits.
Expanded Care Benefits	Benefits to include but not be limited to: personal care, homemaker, medication management, medical transportation.

- Reducing in annual stages the supplemental payment that augments the Medicare payment rate until it is eliminated

- Phase in the comprehensive payment methodology between 2004 and 2007

- Continuing the requirement that the S/HMOs provide care coordination and the extra community-based services

2. The Arguments for Converting S/HMOs into Standard Medicare + Choice Plans (Option 1)

Arguments in favor of this option include: (1) lack of evidence of S/HMO effectiveness; (2) high program costs of the S/HMO I model relative to the case-mix and the expenditures on the special S/HMO benefits; (3) administrative complexity of adding the S/HMO to the Medicare + Choice program; and (4) availability of integrated approaches in risk plans.

The lack of evidence that S/HMO models improve outcomes, coupled with the substantially higher costs of S/HMOs relative to risk contracting, is the strongest argument in favor of converting the S/HMOs into Medicare + Choice plans. The S/HMO I risk adjustors pay plans considerably more than they would receive as Medicare + Choice plans, yet case-mix does not differ from local Medicare + Choice plans for two of the three S/HMO I plans. Furthermore, some of the plans are not spending the full extra payment amount on care coordination and extra benefits, so the supplemental payment is too high as well.

The high administrative cost of operating the separate S/HMO program also argues for converting the S/HMO plans into Medicare + Choice plans. Finally, some Medicare + Choice plans already offer innovative care coordination for disabled and frail elders, suggesting that some Medicare + Choice plans will provide care coordination even in the absence of the S/HMO model. Over time, more Medicare + Choice plans may offer care coordination, as their payment formula is refined on the basis of patients' diagnoses.

Arguments in favor of a transition period for the conversion to Medicare + Choice plan status (options 1b and 1c) are that these options: (1) retain the payment factors that

plans believe reflect a beneficiary's frailty until a comprehensive payment methodology becomes available, and (2) provide more transition time than immediate conversion (option 1a).

The S/HMOs believe that the current S/HMO plan payment factors reflect the increased risk a plan faces when it enrolls a frail member, whereas the current Medicare + Choice plan payment adjustors do not. Furthermore, the S/HMOs' main objection to the proposed Medicare + Choice plan adjustors is that HCFA's Diagnostic Cost Group approach ignores functional status and its implications for resource use. Deferring the complete S/HMO conversion until a comprehensive payment methodology has been implemented will help to prevent plans that enrolled the frailest and most functionally impaired populations from being penalized for having done so.

The transition described in these options is preferable to the plan in option 1a (immediate conversion) because it would give the S/HMOs a longer period in which to plan and implement an orderly conversion, thus minimizing potential harm to members from an immediate withdrawal of the additional S/HMO services.

3. The Arguments Against Converting S/HMOs into Standard Medicare + Choice Plans (Option 1)

An argument against this option is that the S/HMOs may be producing an effect that has not yet been measured systematically.

Despite the lack of evidence of beneficial S/HMO effects on most beneficiary outcomes, S/HMOs may have beneficial effects that have not yet been measured systematically. For example, the effect of S/HMO II on functioning or quality of life may not be evident over the one-year interval examined, or at such an early stage in the development of the intervention. For S/HMO I plans, even less current information is available, with measures of enrollee satisfaction being the only data on

recent experience in the program. If such beneficial effects really do occur and if they result from the extra S/HMO benefits, Congress might want to continue the S/HMOs rather than convert them.

The argument against immediate conversion to standard Medicare + Choice plans at the end of the demonstration period (option 1a) is that the transition time frame is short.

The S/HMOs would have relatively little time to plan the conversion under option 1a. Given the loss of augmented funding for care coordination and the expanded community care benefit under this option, it is likely that the S/HMOs would remove or scale back these services. Moreover, if transition planning indicated that they could not afford to operate in their current markets at the (lower) Medicare payment rate, and that they would therefore close rather than convert, enrollees using the additional S/HMO services may have relatively little time to make alternative arrangements.

An argument against converting to standard Medicare + Choice plans over a transition period (options 1b and 1c) is that most S/HMO plans are not enrolling significantly more frail members than Medicare + Choice plans; hence, deferral of complete conversion until a comprehensive payment methodology is available is not necessary.

Only one S/HMO plan has a membership significantly more frail than local Medicare + Choice plans, suggesting that the other plans do not need a special risk adjustor for frailty to be implemented before they convert to Medicare + Choice plan status. Continuation of the current S/HMO I payment system, in whole or in part, perpetuates the overpayment currently occurring.

B. OPTION 2: ADD THE S/HMO MODEL AS AN ALTERNATIVE MANAGED CARE OPTION UNDER MEDICARE + CHOICE

1. The Option

Despite the lack of evidence that the S/HMO model is cost-effective, or that it improves beneficiary health, functional outcomes, or satisfaction, Congress may wish to consider making the S/HMO an alternative under the Medicare + Choice program. This option could be implemented in any of a variety of ways--such as allowing both current S/HMO models to operate, allowing only one model to operate, or allowing a single composite version of both models to operate. Table VII.3 summarizes a plan for a transition of this kind.

The recommended S/HMO model would be the S/HMO II version. This option would be implemented in 2007 after a transition period. This model requires the introduction of geriatric approaches and use of a multidisciplinary care coordination team to establish member requirements and plan care. This option would specify some of the geriatric approaches that should be used, such as medication management. Eligibility for the special S/HMO services would be based on need for the service rather than on a nursing home certifiable standard. During the transition period, the current S/HMO payment methods would be used. After the transition period, the Medicare + Choice payment method would be used. Under this option, S/HMO plans would be entitled to receive up to 105.3 percent of the Medicare + Choice rate if they can document this additional amount was actually spent by the plan on care coordination and benefits that are not in the traditional Medicare benefit package. Once the program became permanent, the current membership limits would be removed.

TABLE VII.3

SPECIFICATION OF S/HMO TRANSITION FOR OPTION 2

Feature	When and How Implemented?	Justification
Year by which S/HMOs would covert to permanent Medicare + Choice Option	2004, following a 2-year transition period	The demonstration ends in December 2000, and a transition period will be required during which regulations would be developed
Percentage of Medicare payment rate to be paid as a Medicare + Choice Option	105.3% of the Medicare + Choice payment rate during transition period, following the BIPA-mandated blend and using S/HMO demographic factors. Subsequently, 100% of the Medicare + Choice payment rate, with up to 105.3% if expenditures are documented.	Given that some S/HMOs are not spending the full 5 percent of extra payments on care coordination and benefits, this plan reduces the initial payment but pays the full amount when the plan documents its expenses
Payment factors to be used by S/HMOs in an alternative Medicare + Choice Option	Comprehensive risk factors	Eliminates the overpayment built into the S/HMO I model and reduces administrative costs of a separate payment system
Availability of care coordination under alternative Medicare + Choice option	Required	See Table VII.2 for a summary of required features
Availability of expanded care benefits under alternative Medicare + Choice option	Required	See Table VII.2 for a summary of required features
Eligibility for care coordination and expanded care benefits	Current S/HMO II standards	S/HMO II eligibility is based on needs for individual services, and hence is more highly targeted
Maximum annual expanded care benefit amounts cannot be less than:	For existing S/HMOs: benefit limit in 2000; for new S/HMOs: $7500, adjusted annually by the amount of the Medicare payment factor increase	S/HMO plans should not provide less than current S/HMOs. S/HMO I plans vary but $7,500 is the smallest maximum
Membership limits per S/HMO	None	Permanent programs do not usually have membership limits

2. The Arguments for Making S/HMO an Alternative (Option 2)

Arguments in favor of this option are: (1) the possibility that the S/HMO plans, through care coordination and the expanded community care benefit, may have important unmeasured effects on the quality of members' lives; (2) that mandated benefits within the S/HMO model increase the likelihood that the unmeasured benefits would continue; (3) it permits definition of entry requirements and mandated benefits for other plans; and (4) it would support continued innovation in care integration for the Medicare population.

In favor of this option of keeping S/HMOs as an alternative option under the Medicare + Choice program are several arguments, some of which are the same arguments against the option of converting the S/HMOs to Medicare risk plans. First, if the S/HMOs do provide unmeasured benefits (such as improvements in the quality of life or reductions in nursing home admissions), then Congress may wish to give weight to this potential as it selects a transition option. Second, if care coordination and community-based chronic care benefits are producing these unmeasured but beneficial effects, it is possible that plans will not provide these benefits unless they are mandated. Therefore, defining a S/HMO model under Medicare + Choice that includes mandated minimum benefits and an augmented payment would maximize the chances that the unmeasured benefits would continue to result. Third, by defining a S/HMO model, HCFA could establish new entry requirements to increase the likelihood that the plans are implemented promptly, as intended. Fourth, this type of model can generate innovations that may benefit the Medicare population if adopted by risk HMOs--at least those associated with the S/HMOs through their shared parent organizations.

3. The Arguments Against Making S/HMO an Alternative (Option 2)

Arguments against this option are: (1) evidence to support the S/HMO program's effectiveness is lacking; (2) a few risk plans are making innovations in integration and care coordination without benefit of the augmented S/HMO payments; and (3) alternative ways of encouraging innovation exist.

Arguments against this option are those that generally support conversion of the S/HMOs to Medicare + Choice risk plan status. These arguments include the lack of evidence of effectiveness and the fact that a few Medicare + Choice plans already provide innovative care coordination of disabled and frail elders. The evidence on Medicare + Choice plan innovations in this area suggests that the S/HMO model may not be required to ensure that care coordination is offered by Medicare + Choice plans, especially as the payment factors change over time and create enhanced incentives for plans to attract and retain beneficiaries with chronic illnesses.

D. RECOMMENDATION

Based on the information currently available, the recommendation to Congress is to convert the S/HMOs to standard Medicare + Choice plans by phasing out the supplemental payment that augments the Medicare payment rate and phasing in the Medicare + Choice plan formula. This option would continue the S/HMO payment factors until 2007 rather than introduce the Medicare + Choice plan payment factors (option 1c).

The strongest argument in favor of this option is that the current evidence does not support making the S/HMO an alternative program option because of the high program and administrative costs. Of the variants considered, option 1c is recommended over the others because it has the following advantages: (1) it provides for an orderly transition period for the S/HMO demonstration during which the plans could conduct careful planning to minimize negative transition effects on their members; and (2) it would be relatively inexpensive to implement, because only the four currently implemented S/HMO sites could operate.

The S/HMO plans would continue to operate under current rules (with the exceptions listed below). Thus the S/HMOs would continue to enroll members (subject to the aggregate membership cap of not less than 324,000 for all sites), assess member eligibility for the special S/HMO benefits (care coordination and expanded community-based chronic care benefits), and provide these services to eligible members. The difference would be that the special payments would be phased out and standard Medicare + Choice plan payment would be phased in.

The Health Care Financing Administration is in the process of studying refinements to the Medicare + Choice payment methodology for certain plans that provide care to special populations such as the frail elderly. Payment approaches that rely upon a number of possible data sources are under consideration. Encounter data and survey-based data from these demonstration projects are being analyzed to assess the appropriateness of payment refinements.

We recommend that the social HMO sites be converted to standard Medicare + Choice plans in 2004 after a transition period. At that time we recommend that the social HMO payment methodology should be replaced by the prevailing Medicare + Choice payment system (subject to the phase-in of the comprehensive risk adjustment provided for in BIPA. Our recommendation is based on the data presented in this report which indicate that (with the exception of one small plan) social HMO members are not significantly different than the beneficiaries enrolled in standard Medicare + Choice plans.

Since the social HMOs are not currently serving a special population we believe they should be subject to the same payment methodology as other standard Medicare + Choice plans. However, HCFA should assess their case-mix to determine if it merits subsequent reconsideration for any modified payment methodology HCFA develops for plans that serve special populations.

- Transition would begin at the conclusion of the demonstration.

- Transition to standard Medicare + Choice status would be completed in 2007.

- During the transition period the supplemental payment received by S/HMOs would be reduced in even annual steps from the current 5.3 percent of the Medicare risk payment rate (2004 = 4%; 2005 = 2.7%; 2006 = 1.4%; 2007 = 0%)

- During the transition period the current S/HMO payment factors would be used (subject to the blending in of the comprehensive risk adjustment specified in the Benefits Improvement and Protection Act of 2000 (BIPA): 2004 = 30% of comprehensive payment model; 2005 = 50% of the comprehensive model; 2006 = 75% of the comprehensive model. In 2007, the comprehensive payment methodology would be used.)

- Only the four currently implemented S/HMO plans can operate during the transition period.

REFERENCES

Boult, Chad, et al. "Screening Elders for Risk of Hospital Admission." *Journal of the American Geriatric Society,* vol. 41, 1993, pp. 811-817.

Burstein, Nancy R., Alan J. White, and David Kidder. " Evaluation of All Inclusive Care for the Elderly (PACE) Demonstration: The Impact of PACE on Outcomes." Report submitted to the Health Care Financing Administration. Cambridge, MA: Abt Associates, November 1996.

Federal Register. "Medicare Program: Changes to the Medicare + Choice Program." Vol. 64, no. 31, February 27, 1999, pp. 7967-7982.

Finch, Michael, Rosalie A. Kane, Robert Kane, Jon Christianson, and Bryan Dowd. "Design of the 2nd Generation S/HMO Demonstration: An Analysis of Multiple Incentives." Final report prepared for the Health Care Financing Administration. University of Minnesota, May 1999

Fischer, Lucy Rose, Walter Leutz, Annice Miller, Thomas L. von Sternberg, and Jeanne M. Ripley. "The Closing of a Social HMO: A Case Study." *Journal of Aging and Social Policy,* vol. 10, no. 1, 1998, pp. 57-74.

Fox, Peter, Sheldon Retchin, and Craig Thornton. "Frail Elders in Medicare Managed Care: Site Visit Report on Keystone Health Plan East." Draft report submitted to the Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy. Princeton, NJ: Mathematica Policy Research, Inc., February 1998a.

Fox, Peter, Sheldon Retchin, and Craig Thornton. "Frail Elders in Medicare Managed Care: Site Visit Report on Regence HMO Oregon." Draft report submitted to the Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy. Princeton, NJ: Mathematica Policy Research, Inc., March 1998b.

Fox, Peter, Sheldon Retchin, and Craig Thornton. "Frail Elders in Medicare Managed Care: Site Visit Report on Kaiser Foundation Health Plan of Colorado." Draft report submitted to the Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy. Princeton, NJ: Mathematica Policy Research, Inc., April 1998c.

Gruenberg, Leonard, Ajith Silva, Kirsten N. Corazzini, and Jocelyn K. Malone. "An Examination of the Impact of the Proposed New Medical Capitation Methods on Programs for the Frail Elderly." Draft Report. Cambridge, MA: The Long Term Care Data Institute, January, 1999.

Hallfors, D., W. Leutz, J. Capitman, and G. Ritter. "Stability of Frailty in the Social/Health Maintenance Organization." *Health Care Financing Review*, vol. 15, no.3, 1994, pp. 105-116.

Harrington, Charlene, Marty Lynch, and Robert Newcomer. "Medical Services in Social Health Maintenance Organizations." *The Gerontologist*, vol. 33, no. 6, 1993, pp. 790-800.

Health Care Financing Administration Medicare Compare website: http:/32.97.224.58/comparison/default.asp; accessed May 1999 (1999a).

Health Care Financing Administration web site: http://www.hcfa.gov/quality/30.htm; accessed 7/7/99 (1999b).

Kane, Robert L., Rosalie Kane, Michael Finch, Charlene Harrington, Robert Newcomer, Nancy Miller, and Melissa Hulbert. "S/HMO's, the Second Generation: Building on the Experience of the First Social Health Maintenance Organization Demonstrations." *Journal of the American Geriatric Society,* vol. 45, no. 1, 1997, pp. 101-107.

Kemper, P., et al. "The Evaluation of the National Long Term Care Demonstration." *Health Services Research: Special Issue*, vol. 23, no. 1, April 1988.

Leutz, Walter, Merwyn Greenlick, Jeanne Ripley, Sam Ervin, and Eli Feldman. "Medical Services in Social HMOs: A Reply to Harrington et al." Letter to the editor. *The Gerontologist*, vol. 35, no. 1, 1995.

Manton, Kenneth, Robert Newcomer, Gene Lowrimore, James Vertrees, and Charlene Harrington. "Social Health Maintenance Organizations and Fee-for-Service Health Outcomes Over Time." *Health Care Financing Review,* vol. 15, no. 2, winter 1993, pp. 173-202.

Manton, Kenneth, Robert Newcomer, James Vertrees, Gene Lowrimore, and Charlene Harrington. "A Method of Adjusting Payments to Managed Care Plans Using Multivariate Patterns of Health and Functioning: The Experience of the Social Health Maintenance Organizations." *Medical Care,* vol. 32, no. 3, winter 1994, pp. 277-297.

"Medicare Program; Changes to the Medicare + Choice Program. Final Rule." *Federal Register*, vol. 64, no. 31, February 27, 1999, pp. 7967-7982.

Newcomer, Robert, Charlene Harrington, Colleen Lawrence, and Robert Kane. "Implementation of the Social Health Maintenance Organization: A Case Study of the Health Plan Of Nevada 1996-1999." Draft report prepared for the Health Care Financing Administration. University of California, San Francisco and University of Minnesota, July 1999.

Newcomer, Robert, S. Preston, and Charlene Harrington. "Health Plan Satisfaction and Risk of Disenrollment Among Social/HMO and Fee-for-Service Recipients." *Inquiry,* summer 1996, vol. 33, no. 2, pp. 144-154.

Newcomer, Robert, Kenneth Manton, Charlene Harrington, Cathleen Yordi, and James Vertrees. "Case Mix Controlled Service Use and Expenditures in the Social Health Maintenance Organization Demonstration." *Journal of Gerontology: Medical Sciences*, vol. 50A, no. 1, 1995a, pp. 111-119.

Newcomer, Robert, Charlene Harrington, Kenneth Manton, and Marty Lynch. "A Response to Representatives from the Social HMOs Regarding Program Evaluation." *The Gerontologist,* vol. 35, no. 3, 1995b, pp. 292-294.

Schore, Jennifer, Randall Brown, Valerie Cheh, and Barbara Schneider. "Costs and Consequences of Case Management for Medicare Beneficiaries." Report submitted to the Health Care Financing Administration. Princeton, NJ: Mathematica Policy Research, Inc., April 1997.

Thornton, Craig, Peter Fox, and Sheldon Retchin. "Frail Elders in Medicare Managed Care: Site Visit Report on Aspen Medical Group and Medica Health Plan." Draft report submitted to the Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy. Princeton, NJ: Mathematica Policy Research, Inc., May 1998.

U.S. Department of Health and Human Services. *Status Report on the Implementation and Evaluation of the Social Health Maintenance Organization Demonstration: Report to the Congress.* Washington, DC: DHHS, 1996.

Ware, John E., Mark Kosinski, and Susan D. Keller. *SF-36 Physical and Mental Health Summary Scales: A User's Manual*. Boston, MA: Health Assessment Lab, 1994.

Ware, John E., Kristen K. Snow, Mark Kosinski, and Barbara Gandek. *SF-36 Health Survey Manual and Interpretation Guide.* Boston, MA: Nimrod Press, 1993.

APPENDIX A

AUTHORIZING LEGISLATION

A. TEXT OF THE BALANCED BUDGET ACT REQUIRING THE TRANSITION REPORT TO CONGRESS: PUBLIC LAW 105-33, SECTION 4104(C), AUGUST 5, 1997

(c) REPORT ON INTEGRATION AND TRANSITION

(1) IN GENERAL.--The Secretary of Health and Human Services shall submit to Congress...a plan for the integration of health plans offered by the social health maintenance organizations (including SHMO I and SHMO II sites...and similar plans as an option under part C of title XVIII of the Social Security Act.

(2) PROVISION FOR TRANSITION.--Such plan shall include a transition for social health maintenance organizations operating under the demonstration project authority...

(3) PAYMENT POLICY.--The report shall also include recommendations on appropriate payment levels for plans offered by such organizations, including an analysis of the application of the risk adjustment factors appropriate to the population served by such organizations.

B. SUMMARY OF AUTHORIZING LEGISLATION

TABLE A.1

LEGISLATIVE HISTORY OF THE S/HMO DEMONSTRATIONS

Year	Title of Legislation	Section of Legislation	Salient Provisions of the Legislation
1984	Deficit Reduction Act	Section 2355 of P.L. 98-369	Established guidelines for the first demonstration of the social health maintenance concept
1987	Omnibus Budget Reconciliation Act	Section 4018(b) of P.L.100-203	Extended the demonstration for an additional four years, through September 30, 1992
1990	Omnibus Budget Reconciliation Act	Section 4207(b)(4) of P.L.101-508	Extended the demonstration for another three years, through December 31, 1995, and established guidelines for the second demonstration of the social health maintenance concept
1993	Omnibus Budget Reconciliation Act	Section 5079 of P.L.103-66	Extended the demonstration of both generations of social health maintenance organizations for two more years, through December 31, 1997, increased the limit on enrollment to 12,000 members per site, and allowed for a demonstration focused on beneficiaries with end-stage renal disease
1997	Balanced Budget Act	Section 4014 of P.L.105-33	Extended the demonstration of both generations of social health maintenance organizations for another three years, through December 31, 2000, and increased the limit on the number of enrollees per site from 12,000 to 36,000
1999	Balanced Budget Refinement Act	Section 531 of P.L. 106-113	Extended the demonstration of both generations of social health maintenance organizations 18 months after this report is submitted to Congress, and replaced the site cap with an aggregate limit on the number of individuals who may participate in this project of not less than 324,000 for all sites
2000	Benefits Improvement and Protection Act	Section 631 of P.L. 106-554	Extended the demonstration of both generations of social health maintenance organizations from 18 months to 30 months after this report is submitted to Congress.

APPENDIX B

SUPPLEMENTARY TABLES FOR CHAPTER II

The rates paid to S/HMO I and II plans for a particular beneficiary residing in a given county are equal to the Medicare risk plan payment rate for that county, inflated to eliminate the implicit 5 percent discount, and multiplied by the risk factor for the individual. Separate county rates are specified for Medicare Part A (primarily hospital and other institutional services) and Part B (mainly physician services and laboratory tests). Table B.1 gives the 1998 payment rates for the counties served by the four S/HMO plans. Rates paid to Elderplan are shown to be nearly twice the rate paid to Kaiser, reflecting the major differences between New York City and Portland, Oregon, in the cost of services and practice patterns.

The risk factors, described in Chapter II, differ for S/HMO I and S/HMO II. Risk factors for S/HMO I plans depend on the beneficiaries' age and sex, plus a third dimension that categorizes beneficiaries by whether they (1) reside in an institution, (2) reside in the community but meet the state's nursing home certifiable (NHC) criteria for waiver services, (3) reside in the community and are on Medicaid, (4) reside in the community and are not on Medicaid, or (5) are still working, with Medicare not being the primary payer for health care (the first four categories all are for individuals for whom Medicare is the primary payer). Table B.2 provides the payment factors (separate factors for Part A and Part B). For example, the Part A factor for an enrollee who is NHC (2.88) is two to six times the rate for a beneficiary of comparable age and sex who is not NHC and not on Medicaid (ranging from .51 to 1.14).

The risk factors for S/HMO II plans are determined from a regression model that predicts the effect of various indicators of health status and functioning on relative costs. Enrollees are

TABLE B.1

1998 AVERAGE ADJUSTED PER CAPITA COSTS,
BY COUNTY, FOR S/HMO I AND S/HMO II PLANS[a]

		Aged		ESRD		Disability	
Plan Name	County	Part A	Part B	Part A	Part B	Part A	Part B
S/HMO I Plan Rates							
Elderplan	Kings (NY)	$413.34	$306.14	$1,417.40	$2,941.15	--	--
Kaiser	Clark (WA)	$215.36	$159.51	$1,140.72	$2,367.03	--	--
	Clackamas (OR)	$219.94	$162.89	$1,135.64	$2,356.50	--	--
	Multnomah (OR)	$226.67	$167.89	$1,135.64	$2,356.50	--	--
	Washington (OR)	$236.46	$175.14	$1,135.64	$2,356.50	--	--
SCAN	Los Angeles (CA)	$364.81	$270.19	$1,347.65	$2,796.40	--	--
	Orange (CA)	$335.59	$248.55	$1,347.65	$2,796.40	--	--
	Riverside (CA)	$302.46	$224.01	$1,347.65	$2,796.40	--	--
	San Bernardino (CA)	$312.29	$231.30	$1,347.65	$2,796.40	--	--
S/HMO II Plan Rates							
HPN	Clark (NV)	$298.54	$221.11	$1,121.86	$2,327.90	$257.37	$202.87
	Esmeralda (NV)	$295.43	$218.81	$1,121.86	$2,327.90	$273.02	$215.22
	Lyon (NV)	$221.44	$164.00	$1,121.86	$2,327.90	$205.23	$161.77
	Mineral (NV)	$265.86	$196.90	$1,121.86	$2,327.90	$205.23	$161.77
	Nye (NV)	$269.72	$199.76	$1,121.86	$2,327.90	$205.23	$161.77
	Washoe (NV)	$255.09	$188.93	$1,121.86	$2,327.90	$205.23	$161.77
	Mohave (AZ)	$278.04	$205.93	$1,200.53	$2,491.13	$205.23	$161.77

SOURCE: Health Care Financing Administration. "Historical AAPCC Payment Rates, 1998 Medicare + Choice Rates." Accessed May 18, 1999. Available on-line at: http://www.hcfa.gov/stats/hmorates/aapccflt.htm.

[a]These are the Medicare risk plan AAPCC rates.

ESRD = End-stage renal disease.

TABLE B.2

1998 MEDICARE DEMOGRAPHIC ADJUSTMENT FACTORS[a]

		Institutional		NHC Community		Non-NHC Medicaid		Non-NHC, Non-Medicaid		Working Aged	
Sex	Age Group	Part A	Part B	Part A	Part B	Part A	Part B	Part A	Part B	Part A	Part B
S/HMO I PAYMENT FACTORS											
Male	85+	2.25	1.95	2.88	2.49	2.54	1.54	1.14	0.97	0.90	1.00
	80-84	2.25	1.95	2.88	2.49	2.27	1.57	1.08	1.06	0.80	0.90
	75-79	2.25	1.95	2.88	2.49	1.83	1.43	0.98	1.05	0.70	0.80
	70-74	2.25	1.80	2.88	2.49	1.36	1.23	0.81	0.92	0.45	0.65
	65-69	1.75	1.60	2.88	2.49	1.02	0.99	0.61	0.77	0.40	0.45
Female	85+	2.10	1.65	2.88	1.79	1.84	1.07	0.91	0.87	0.80	0.85
	80-84	2.10	1.65	2.88	1.79	1.50	1.16	0.90	0.88	0.70	0.75
	75-79	2.10	1.65	2.88	1.79	1.30	1.19	0.76	0.91	0.55	0.70
	70-74	1.80	1.65	2.88	1.79	0.93	1.11	0.65	0.83	0.45	0.55
	65-69	1.45	1.50	2.88	1.79	0.69	1.01	0.51	0.68	0.35	0.40
RISK PLAN FACTORS FOR THE AGED											
Male	85+	2.25	1.95	--[b]	--	2.60	1.70	1.35	1.15	0.90	1.00
	80-84	2.25	1.95	--	--	2.35	1.70	1.20	1.15	0.80	0.90
	75-79	2.25	1.95	--	--	1.95	1.55	1.05	1.10	0.70	0.80
	70-74	2.25	1.80	--	--	1.50	1.35	0.85	0.95	0.45	0.65
	65-69	1.75	1.60	--	--	1.15	1.10	0.65	0.80	0.40	0.45
Female	85+	2.10	1.65	--	--	2.10	1.25	1.20	1.00	0.80	0.85
	80-84	2.10	1.65	--	--	1.70	1.25	1.05	0.95	0.70	0.75
	75-79	2.10	1.65	--	--	1.45	1.25	0.85	0.95	0.55	0.70
	70-74	1.80	1.65	--	--	1.05	1.15	0.70	0.85	0.45	0.55
	65-69	1.45	1.50	--	--	0.80	1.05	0.55	0.70	0.35	0.40

SOURCE: Health Care Financing Administration. "Historical AAPCC Payment Rates, 1998 Medicare + Choice Rates, Conversion of County Per Capita Costs Into Rates." Accessed May 18, 1999. Available on-line at: http://www.hcfa.gov/stats/hmorates/aapccflt.htm.

[a]Demographic adjustments are not made for enrollees with end-stage renal disease; plans are paid 100 percent of the average adjusted per capita cost for individuals in this category.

[b]There is no NHC category for risk plans.

NHC = Nursing home certifiable.

interviewed once each year to obtain data on these indicators, which are then inserted into the regression model to determine monthly payments for the subsequent year. Table B.3 lists the variables and coefficients of the model. The "Base Case" refers to a female who reports being in excellent health; having no difficulty walking a quarter mile; no difficulty bathing, dressing, walking, or shopping; and no history of any of the 10 chronic conditions listed in Table B.3. The rating factor for an individual is the base case rate plus the rating factor for any of the indicators of health problems in the model. For example, a male in fair health who has difficulty bathing and a history of diabetes (but none of the other risk factors) would have a rate factor of .23960 + .18018 + .37215 + .31209 + .28261 = 1.38660, over five times the rate for the base case.

TABLE B.3

S/HMO II RATING METHODOLOGY

Survey Question/Response	Rating Factor
Base Case	.23960
Male	.18018
Self Reported General Health	
1 = Excellent	0
2 = Very Good	.13969
3 = Good	.27445
4 = Fair	.37215
5 = Poor	.77094
Walking a Quarter Mile	
1 = No Difficulty At All	0
2 = A Little Difficulty	.41178
3 = Some Difficulty	.41178
4 = A Lot of Difficulty	.41178
5 = Not Able to Do This At All	.41178
ADL/IADL	
Bathing	
Has difficulty, receives help or uses special equipment	.31209
All other combinations	0
Dressing	
Has difficulty, receives help or uses special equipment	.07644
All other combinations	0
Walking	
Has difficulty, receives help or uses special equipment	.07426
All other combinations	0
Shopping	
Has difficulty, receives help or uses special equipment	.07238
All other combinations	0

TABLE B.3 *(continued)*

Survey Question/Response	Rating Factor
Chronic Diseases (Ever Been Told Had...)	
Coronary artery disease	.03964
Other heart problems	.28798
High blood pressure	.05854
Heart attack	.47526
Cancer	.12143
Diabetes	.28261
Mental retardation	.47161
Psychiatric disorder	.41307
Emphysema	.17856
Amputation	.32759

SOURCE: HCFA.

APPENDIX C

SUPPLEMENT TO CHAPTER IV

A. THE DATA FOR THE ANALYSIS OF FUNCTIONING AND HEALTH STATUS

The analysis of functioning and health status between the membership of the social/health maintenance organizations (S/HMOs) and local Medicare risk plans was based on data from the Health Outcomes Survey (previously known as the Health of Seniors Survey). The Health Outcomes Survey began collecting data from the first cohort of Medicare beneficiaries in May 1998. This survey instrument was mailed to approximately 279,000 members of 268 Medicare risk plans, including the three first-generation S/HMO plans (S/HMO I) and the single second-generation S/HMO plan (S/HMO II). The Health Care Financing Administration drew sample members randomly from the membership of each risk plan.

The Health Outcomes Survey was fielded to measure the physical and mental health functioning of Medicare beneficiaries in Medicare risk plans. Eventually two cohorts of individuals will be surveyed twice, so that functioning can be measured over time. At the time of this analysis, the only data available were from the first interview of the first cohort.

The core of the Health Outcomes Survey is the set of survey questions known as the 36-Item Short Form Health Survey, or the SF-36. The SF-36 is a widely accepted instrument that is used to collect self-reported information on functioning and health status. Data from the 36 items can be summarized into eight measures of physical and mental health functioning. This analysis examined two of these measures, the Physical Functioning Score and the Mental Health Score. The eight measures can be further summarized into two global measures of physical and mental health functioning, the Physical Component Summary Scale (PCS) and Mental Component Summary Scale (MCS).

B. METHODS FOR THE ANALYSIS OF FUNCTIONING AND HEALTH STATUS

The analysis sample was based on all individuals in the four S/HMOs and the risk plans operating in the S/HMOs' market areas who completed the Health Outcomes Survey. Depending on the risk plan, response rates ranged from 46 percent to 63 percent.

The risk plans included in the analysis were selected based on information in the Health Outcomes Survey data. If a risk plan had at least 10 percent of its enrollees (100 of its 1,000 sample members) residing in the counties served by the S/HMO, it was included in the analysis. This selection method identified 5 risk plans operating in the same area as Elderplan in Brooklyn, New York, 5 plans in the same area as Kaiser's Senior Advantage II plan in Portland, Oregon, 12 plans in the same area as SCAN in Long Beach, California, and 3 plans in the same area as Health Plan of Nevada's S/HMO plan in Las Vegas, Nevada. Only risk plan enrollees residing in the counties served by the S/HMO were included in the analysis.

With the exception of members of Health Plan of Nevada (HPN, the S/HMO II plan), Medicare beneficiaries younger than age 65 were excluded from the analysis. The S/HMO I plans do not enroll members under age 65. This aspect of the demonstration was eliminated from the design of the second-generation S/HMO.

The analysis included a comparison between the S/HMO and each local risk plan, as well as a comparison between the S/HMO and the pooled sample of local risk plans. When pooled, the observations were weighted for the size of each risk plan's population. The comparisons were based on eight measures of functioning and health status. The functioning measures include:

- The Physical Functioning Scale, a summary measure of limitations in 10 daily activities (limitations in vigorous and moderate activities, lifting, climbing stairs [two items], bending, walking [three items], and bathing, or dressing oneself)

- The Mental Health Scale, a summary measure of mental functioning and well-being during the previous four weeks

- The PCS, a measure of physical functioning based on a summary of eight scores of functioning, well-being, disability, and health status, including the Physical Functioning Scale

- The MCS, a measure of mental functioning and well-being based on a summary of eight scores of functioning, well-being, disability, and health status, including the Mental Health Scale.

The health status measures included:

- An indicator of fair or poor health status as reported by the individual

- An indicator that the individual reported at least one chronic condition (heart disease, chronic respiratory disease, chronic gastrointestinal disease, stroke, diabetes, or cancer)

- An indicator of heart disease

- An indicator of chronic respiratory disease.

These measures were compared between the S/HMO members and the members of each local risk plan, as well as with the pooled sample of members of local risk plans, to determine whether the S/HMOs have been serving a frailer population with lower levels of health and higher rates of chronic conditions. The comparisons were based on two sets of multivariate analyses: first controlling for factors incorporated in the Medicare risk payment methodology: gender, age, and Medicaid eligibility, and second including an additional factor for nursing home certifiable status (for the S/HMO I sites).[1] Because nursing home certifiable status was not available in the data, a single proxy indicator was included for S/HMO I plans. This proxy indicator identified individuals who reported that they were unable to perform at least one of six activities of daily living (bathing,

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[1]The risk plan payment methodology also accounts for whether the enrollee resides in a nursing home, but the data source used for the analysis here, the Health of Seniors survey, does not include data on nursing home residents.

dressing, eating, getting in or out of chairs, walking, or using the toilet), or had difficulty bathing, eating, or using the toilet. The comparisons were therefore on measures of functioning and health status after adjusting for the influence of Medicare risk or S/HMO I payment factors.

The body of the report (Chapter IV) contains estimates of regression-adjusted differences between the S/HMO and aggregate local risk plan enrollees, controlling for the factors included in the Medicare risk program payment methodology. This appendix presents four types of supplementary tables:

- Unadjusted differences in demographic characteristics between each S/HMO plan and each Medicare risk plan operating in the S/HMO plan's market area (Tables C.1 through C.4)

- Regression-adjusted differences between each S/HMO plan and each Medicare risk plan operating in its area on measures of physical and mental functioning, controlling for factors included in the Medicare risk payment methodology (Tables C.5 through C.8)

- Regression-adjusted differences between each S/HMO plan and each Medicare risk plan operating in its area on measures of health status and chronic conditions (Tables C.12 through C.15), controlling for factors included in the Medicare risk payment methodology

- Regression-adjusted estimates of differences between S/HMO I and local area risk plan enrollees on functioning (Tables C.9 through C.11) and health status (Tables C.16 through C.18), controlling for factors accounted for in the S/HMO I payment methodology--age, sex, Medicaid buy-in status, and nursing home certifiability

The results when the nursing home certifiability measure is included as a control variable (Tables C.9 through C.11 and C.16 through C.18) are very similar to the results shown in Chapter IV in which only factors from the Medicare risk payment formula are controlled for (Tables IV.3 through IV.5 and IV.7 through IV.9). That is, despite the substantially higher rate of nursing home certifiability among enrollees in the S/HMO plans, controlling for it does not account for the

TABLE C.1

DEMOGRAPHIC CHARACTERISTICS:
ELDERPLAN

		Local Medicare Risk Plans					
Characteristic	ElderPlan	All Local Risk Plans[a]	A	B	C	D	E
Female (Percent)	63.2	54.9	56.1	54.8	59.1	62.5	56.7
Age (Percent Distribution)							
65 through 69	9.1	30.3	29.0	31.0	30.9	23.3	32.2
70 through 74	25.2	33.8	31.2	31.7	28.4	22.9	31.6
75 through 79	28.4	20.6	20.1	24.7	18.1	19.3	18.0
80 through 84	21.0	11.0	11.9	7.6	12.8	17.6	12.5
85 and older	16.3	4.3	7.8	5.0	9.8	16.9	5.7
Average Age (Years)	77.8	73.4	74.0	73.2	74.3	76.3	73.4
Race/Ethnicity (Percent Distribution)							
White non-Hispanic	87.6	62.6	77.1	64.0	34.7	80.3	83.8
African American	5.4	22.5	8.5	27.0	47.0	9.7	9.3
Non-Hispanic	3.5	7.5	6.6	5.6	12.8	7.0	5.3
Hispanic	3.5	7.4	7.6	3.4	5.6	3.0	1.6
Other							
Education (Percent Distribution)							
Less than high school	54.0	44.4	37.0	28.7	49.9	43.2	38.9
High school graduate	29.8	31.2	32.8	39.0	29.4	35.1	34.9
Some college	16.2	24.4	30.2	32.2	20.7	21.7	26.2
Activities of Daily Living (Percent							
Distribution)	50.6	59.4	64.3	60.4	54.4	59.4	63.7
0 limitations	17.8	17.3	14.3	15.5	14.9	13.8	17.5
1 limitation	10.0	8.3	7.7	9.9	12.1	8.7	8.4
2 limitations	21.6	15.1	13.7	14.2	18.6	18.0	10.4
3 or more limitations							
Number of Observations	**571**	**2,466**	**503**	**555**	**430**	**472**	**506**

SOURCE: Health Outcomes Survey (1998).

[a]Weighted by size of plan population.

TABLE C.2

DEMOGRAPHIC CHARACTERISTICS:
KAISER SENIOR ADVANTAGE II

Characteristic	Kaiser	Local Medicare Risk Plans					
		All Local Risk Plans[a]	A	B	C	D	E
Female (Percent)	63.0	62.4	58.5	62.2	67.8	61.2	63.3
Age (Percent Distribution)							
65 through 69	16.4	21.9	25.5	24.4	13.6	20.2	19.6
70 through 74	17.6	28.3	31.5	29.2	18.3	29.0	26.8
75 through 79	21.6	23.0	22.9	21.1	23.8	24.7	26.4
80 through 84	23.1	15.1	12.5	14.8	20.9	15.2	14.6
85 and older	21.3	11.7	7.6	10.5	23.4	11.0	12.6
Average Age (Years)	78.1	75.5	74.4	75.0	78.3	75.5	75.8
Race/Ethnicity (Percent Distribution)							
White non-Hispanic	96.7	94.8	96.6	95.6	98.0	94.1	94.1
African American	1.1	1.1	0.7	0.9	0.0	1.0	1.4
Non-Hispanic	0.6	0.8	0.2	0.9	0.5	1.0	0.9
Hispanic	1.6	3.3	2.4	2.6	1.5	3.8	3.6
Other							
Education (Percent Distribution)							
Less than high school	31.1	23.1	19.5	18.7	26.5	28.6	25.6
High school graduate	35.2	33.4	35.4	30.3	40.3	36.5	34.9
Some college	33.7	43.5	45.0	51.0	33.1	34.9	39.5
Activities of Daily Living (Percent							
Distribution)	45.7	56.2	56.8	58.6	49.6	56.6	52.8
0 limitations	16.7	16.1	16.4	15.0	16.8	19.3	15.9
1 limitation	15.6	12.4	12.7	12.0	16.7	11.1	14.1
2 limitations	22.0	14.8	14.0	14.4	16.8	13.0	17.3
3 or more limitations							
Number of Observations	**629**	**2,788**	**537**	**569**	**546**	**580**	**556**

SOURCE: Health Outcomes Survey (1998).

[a]Weighted by size of plan population.

TABLE C.3

DEMOGRAPHIC CHARACTERISTICS:
SCAN

Characteristic	SCAN	Local Medicare Risk Plans												
		All Local Risk Plans[a]	A	B	C	D	E	F	G	H	I	J	K	L
Female (Percent)	62.7	56.4	52.8	58.2	57.7	60.3	54.8	55.8	54.6	56.5	55.0	57.5	56.5	55.4
Age (Percent Distribution)														
65 through 69	16.4	23.8	51.5	17.4	15.6	27.6	35.2	31.9	45.2	30.3	29.9	12.7	23.1	34.4
70 through 74	26.4	28.3	27.2	29.8	26.5	31.5	28.9	30.5	23.6	26.0	26.4	33.3	28.4	27.0
75 through 79	23.5	24.2	11.7	25.5	27.0	19.8	19.3	19.9	18.0	20.7	20.5	29.9	25.9	22.0
80 through 84	20.7	15.3	6.2	17.0	18.5	14.4	10.0	11.2	8.4	14.3	12.2	14.2	13.2	11.7
85 and older	13.0	8.1	3.4	10.2	12.4	6.6	6.6	6.5	4.8	8.7	11.0	10.0	9.4	5.0
Average Age (Years)	76.6	74.9	71.1	75.8	76.5	74.1	73.3	73.7	72.0	74.4	74.6	76.0	74.9	73.2
Race/Ethnicity (Percent Distribution)														
White non-Hispanic	75.5	60.6	70.2	76.0	85.8	73.0	60.9	82.2	76.7	89.3	73.6	44.3	85.3	68.5
African American	4.9	14.1	6.2	5.0	2.5	2.7	7.3	3.0	3.6	3.2	9.7	17.7	2.6	9.9
Non-Hispanic	12.2	10.7	12.6	13.1	8.3	18.9	23.2	9.6	12.2	4.1	10.2	30.1	7.5	12.2
Hispanic	7.4	14.6	10.9	5.9	3.4	5.4	8.6	5.2	7.5	3.4	6.6	8.0	4.6	9.4
Other														
Education (Percent Distribution)														
Less than high school	26.8	24.8	17.2	27.2	24.7	34.4	32.7	20.9	23.6	18.6	20.2	48.8	25.4	20.0
High school graduate	31.5	30.5	29.8	32.0	28.3	29.7	29.1	27.8	26.0	32.4	26.5	27.6	32.3	28.3
Some college	41.8	44.7	53.0	40.8	47.0	36.0	38.2	51.3	50.4	49.0	53.2	23.5	42.4	51.8
Activities of Daily Living (Percent Distribution)	51.6	60.6	66.8	60.1	57.0	57.4	58.3	60.3	64.0	59.7	60.3	57.0	57.3	61.7
0 limitations	14.6	14.1	15.8	13.7	14.6	15.6	14.7	15.0	13.4	13.7	16.4	15.7	14.7	16.0
1 limitation	12.6	10.7	8.3	10.2	11.9	11.7	12.3	12.2	9.6	11.7	9.1	8.5	13.3	10.8
2 limitations	21.2	14.6	9.1	15.9	16.4	15.2	14.7	12.4	13.0	14.9	14.1	18.9	14.7	11.5
3 or more limitations														
Number of Observations	**609**	**6,179**	**530**	**459**	**563**	**514**	**409**	**573**	**584**	**531**	**546**	**402**	**545**	**523**

SOURCE: Health Outcomes Survey (1998).

[a]Weighted by size of plan population.

TABLE C.4

DEMOGRAPHIC CHARACTERISTICS:
HEALTH PLAN OF NEVADA

		Local Medicare Risk Plans			
Characteristic	Nevada Health Plan	All Local Risk Plans[a]	A	B	C
Female (Percent)	54.8	55.8	53.6	55.6	53.2
Age (Percent Distribution)					
Less than 65 years	6.9	9.3	7.7	10.5	12.6
65 through 69	26.4	29.2	34.0	26.9	32.4
70 through 74	27.2	30.5	23.9	31.5	26.1
75 through 79	23.6	17.3	19.9	17.5	15.9
80 through 84	9.0	9.3	9.3	9.8	8.8
85 and older	6.9	4.4	5.2	3.9	4.3
Average Age (Years)	72.7	71.5	71.8	71.4	70.6
Race/Ethnicity (Percent Distribution)					
White non-Hispanic	86.4	85.7	88.5	88.2	81.5
African American	5.1	3.7	3.6	1.5	7.1
Non-Hispanic	5.4	5.8	4.4	5.9	5.9
Hispanic	3.0	4.8	3.5	4.4	5.5
Other					
Education (Percent Distribution)					
Less than high school	31.3	30.4	29.9	32.9	30.4
High school graduate	34.3	39.0	37.8	38.7	36.9
Some college	34.3	30.6	32.3	28.4	32.7
Activities of Daily Living (Percent Distribution)					
0 limitations	56.1	55.8	58.6	55.2	52.1
1 limitation	14.6	15.0	14.8	14.0	17.3
2 limitations	11.1	11.9	10.3	13.5	13.2
3 or more limitations	18.2	17.2	16.3	17.3	17.3
Number of Observations	**624**	**1,667**	**633**	**543**	**491**

SOURCE: Health Outcomes Survey (1998).

[a]Weighted by size of plan population.

TABLE C.5

COMPARISON OF ADJUSTED MEASURES OF FUNCTIONING:
ELDERPLAN

Adjusted Measures of Functioning[a]	Elderplan	Local Medicare Risk Plans				
		A	B	C	D	E
Physical Functioning Score[b]	62.3	60.0	62.8	56.6	63.8	59.7
Physical Component Summary Score[c]	41.5	40.4	40.1	40.5	43.5	39.7
Mental Health Score[d]	72.8	75.0	74.1	72.7	71.6	77.1
Mental Component Summary Score[e]	49.8	51.4	49.5	50.0	49.7	54.1*
	Percent					
Physical Functioning Score at or Below 35[f]	26.4	26.6	19.8	21.5	20.0	23.9
Physical Component Summary Score at or Below 30[f]	22.6	28.6	22.8	25.6	15.7	31.7
Mental Health Score at or Below 64[f]	38.2	35.3	34.1	34.8	41.1	35.3
Mental Component Summary Score at or Below 44[f]	32.5	28.4	29.4	36.6	31.0	17.9

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk program payment factors: gender, age, and Medicaid status.

[b] Summarizes limitations in 10 routine activities: vigorous and moderate activities, carrying groceries, climbing stairs (two items), bending, walking (three items), and bathing or dressing. The national mean for all individuals aged 65 years and older is 63.3.

[c] A summary of all items in the SF-36 with heavier weight given to information about physical functioning. The national mean for all individuals aged 65 and older is 41.3.

[d] Summarizes current mental health status. The national mean for all individuals aged 65 years and older is 75.8.

[e] A summary of all items in the SF-36 with heavier weight given to information about mental health and well-being. The national mean for all individuals aged 65 and older is 51.8.

[f] The 25th percentile of the distribution of scores in this sample from The Health Outcomes Survey.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.6

COMPARISON OF ADJUSTED MEASURES OF FUNCTIONING:
KAISER

Adjusted Measures of Functioning[a]	Kaiser	Local Medicare Risk Plans A	B	C	D	E
Physical Functioning Score[b]	53.4	60.0**	64.2**	58.8**	61.1**	61.8**
Physical Component Summary Score[c]	35.9	38.7**	40.1**	37.5*	38.8**	38.7**
Mental Health Score[d]	76.2	78.4	76.6	76.7	78.7*	77.8
Mental Component Summary Score[e]	52.3	53.3	51.9	52.3	53.4	52.5
	Percent					
Physical Functioning Score at or Below 35[f]	36.2	28.3**	26.7**	25.9**	27.2**	20.4**
Physical Component Summary Score at or Below 30[f]	33.3	28.5	28.1	26.0**	28.7	21.6**
Mental Health Score at or Below 64[f]	28.5	24.5	23.0*	23.4*	22.0*	25.1
Mental Component Summary Score at or Below 44[f]	24.6	21.1	17.6**	21.6	17.1*	25.1

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk program payment factors: gender, age, and Medicaid status.

[b] Summarizes limitations in 10 routine activities: vigorous and moderate activities, carrying groceries, climbing stairs (two items), bending, walking (three items), and bathing or dressing. The national mean for all individuals aged 65 years and older is 63.3.

[c] A summary of all items in the SF-36 with heavier weight given to information about physical functioning. The national mean for all individuals aged 65 and older is 41.3.

[d] Summarizes current mental health status. The national mean for all individuals aged 65 years and older is 75.8.

[e] A summary of all items in the SF-36 with heavier weight given to information about mental health and well-being. The national mean for all individuals aged 65 and older is 51.8.

[f] The 25th percentile of the distribution of scores in this sample from the Health Outcomes Survey.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.7

COMPARISON OF ADJUSTED MEASURES OF FUNCTIONING:
SCAN

Adjusted Measures of Functioning[a]	SCAN	Local Medicare Risk Plans											
		A	B	C	D	E	F	G	H	I	J	K	L
Physical Functioning Score[b]	61.0	66.9**	64.4	63.7	58.4	62.9	63.1	62.7	65.4*	64.2	58.7	61.2	65.1*
Physical Component Summary Score[c]	40.4	42.5**	41.9	41.3	39.4	41.1	41.1	41.2	42.3*	41.4	39.7	40.6	42.1*
Mental Health Score[d]	75.9	77.1	78.4*	78.9*	75.3	76.6	76.9	77.1	77.6	77.8	74.6	77.1	78.4*
Mental Component Summary Score[e]	51.5	52.6	53.1*	52.7	51.7	51.8	52.2	52.1	52.9	52.6	50.8	52.8	53.3**
	Percent												
Physical Functioning Score at or Below 35[f]	26.3	18.6**	25.0	20.3*	21.0	22.0	28.3	24.4	27.9	19.0*	20.8*	25.1	20.1
Physical Component Summary Score at or Below 30[f]	25.7	19.4*	22.1	20.0*	20.7	21.1	28.7	21.9	28.6	17.1**	23.9	23.8	21.1
Mental Health Score at or Below 64[f]	28.0	24.2	24.4	22.2*	23.5	21.8*	28.6	24.8	25.1	25.1	24.8	30.2	24.6
Mental Component Summary Score at or Below 44[f]	25.0	20.3	20.5	19.2*	18.9*	19.6	25.4	22.7	21.8	19.3	21.3	28.7	21.9

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk program payment factors: gender, age, and Medicaid status.

[b] Summarizes limitations in 10 routine activities: vigorous and moderate activities, carrying groceries, climbing stairs (two items), bending, walking (three items), and bathing or dressing. The national mean for all individuals aged 65 years and older is 63.3.

[c] A summary of all items in the SF-36 with heavier weight given to information about physical functioning. The national mean for all individuals aged 65 and older is 41.3.

[d] Summarizes current mental health status. The national mean for all individuals aged 65 and older is 75.8.

TABLE C.7 *(continued)*

[e] A summary of all items in the SF-36 with heavier weight given to information about mental health and well-being. The national mean for all individuals aged 65 and older is 51.8.

[f] The 25th percentile of the distribution of scores in this sample from the Health Outcomes Survey.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.8

COMPARISON OF ADJUSTED MEASURES OF FUNCTIONING:
HEALTH PLAN OF NEVADA

Adjusted Measures of Functioning[a]	Nevada Health Plan	Local Medicare Risk Plans		
		A	B	C
Physical Functioning Score[b]	57.3	59.8	59.7	58.8
Physical Component Summary Score[c]	39.4	40.8	40.1	40.5
Mental Health Score[d]	75.3	74.7	74.6	71.9**
Mental Component Summary Score[e]	51.7	51.4	50.9	50.1*
	Percent			
Physical Functioning Score at or Below 35[f]	31.1	29.2	27.5	30.1
Physical Component Summary Score at or Below 30[f]	29.7	24.4	24.4	24.3
Mental Health Score at or Below 64[f]	29.1	29.5	28.6	34.7
Mental Component Summary Score at or Below 44[f]	24.1	25.8	26.4	28.5

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk program payment factors: gender, age, and Medicaid status.

[b] Summarizes limitations in 10 routine activities: vigorous and moderate activities, carrying groceries, climbing stairs (two items), bending, walking (three items), and bathing or dressing. The national mean for all individuals aged 65 years and older is 63.3.

[c] A summary of all items in the SF-36 with heavier weight given to information about physical functioning. The national mean for all individuals aged 65 and older is 41.3.

[d] Summarizes current mental health status. The national mean for all individuals aged 65 and older is 75.8.

[e] A summary of all items in the SF-36 with heavier weight given to information about mental health and well-being. The national mean for all individuals aged 65 and older is 51.8.

[f] The 25th percentile of the distribution of scores for this sample from the Health Outcomes Survey.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.9

COMPARISON OF ADJUSTED MEASURES OF FUNCTIONING:
ELDERPLAN

Adjusted Measures of Functioning[a]	Number of Observations	ElderPlan	All Local Risk Plans[b]
Physical Functioning Score[c]	979	61.1	59.4
Physical Component Summary Score[d]	848	40.8	39.7
Mental Health Score[e]	976	71.9	72.5
Mental Component Summary Score[f]	848	49.4	50.2
		Percent	
Physical Functioning Score at or Below 35[g]	979	20.4	18.2
Physical Component Summary Score at or Below 30[g]	848	14.4	18.8
Mental Health Score at or Below 64[g]	976	33.5	32.6
Mental Component Summary Score at or Below 44[g]	848	21.4	18.6

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for S/HMO I payment factors: gender, age, Medicaid status, and a proxy for nursing home certifiable status. The proxy for nursing home certifiable status is based on either inability to perform at least one of six activities of daily living or difficulty bathing, eating, or using the toilet.

[b] Weighted by the size of the plan populations. Includes five risk plans operating in Brooklyn, New York.

[c] Summarizes limitations in 10 routine activities: vigorous and moderate activities, carrying groceries, climbing stairs (two items), bending, walking (three items), and bath or dressing. The national mean for all individuals aged 65 years and older is 63.3.

[d] A summary of all items in the SF-36 with heavier weight given to information about physical functioning. The national mean for all individuals aged 65 and older is 41.3.

[e] Summarizes current mental health status. The national mean for all individuals aged 65 years and older is 75.8.

[f] A summary of all items in the SF-36 with heavier weight given to information about mental health and well-being. The national mean for all individuals aged 65 and older is 51.8.

[g] The 25th percentile of the distribution of scores in this sample from the Health Outcomes Survey.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.10

COMPARISON OF ADJUSTED MEASURES OF FUNCTIONING:
KAISER SENIOR ADVANTAGE II

Adjusted Measures of Functioning[a]	Number of Observations	Kaiser	All Local Risk Plans[b]
Physical Functioning Score[c]	2,898	55.9	61.5**
Physical Component Summary Score[d]	2,748	37.7	39.9*
Mental Health Score[e]	2,874	77.0	77.9
Mental Component Summary Score[f]	2,748	52.7	52.9
		Percent	
Physical Functioning Score at or Below 35[g]	2,898	30.0	19.8**
Physical Component Summary Score at or Below 30[g]	2,748	28.0	22.0
Mental Health Score at or Below 64[g]	2,874	25.1	21.8
Mental Component Summary Score at or Below 44[g]	2,748	21.2	18.3

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for S/HMO I payment factors: gender, age, Medicaid status, and a proxy for nursing home certifiable status. The proxy for nursing home certifiable status is based on either inability to perform at least one of six activities of daily living or difficulty bathing, eating, or using the toilet.

[b] Weighted by the size of the plan populations. Includes five risk plans.

[c] Summarizes limitations in 10 routine activities: vigorous and moderate activities, carrying groceries, climbing stairs (two items), bending, walking (three items), and bath or dressing. The national mean for all individuals aged 65 years and older is 63.3.

[d] A summary of all items in the SF-36 with heavier weight given to information about physical functioning. The national mean for all individuals aged 65 and older is 41.3.

[e] Summarizes current mental health status. The national mean for all individuals aged 65 years and older is 75.8.

[f] A summary of all items in the SF-36 with heavier weight given to information about mental health and well-being. The national mean for all individuals aged 65 and older is 51.8.

[g] The 25th percentile of the distribution of scores in this sample from the Health Outcomes Survey.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.11

COMPARISON OF ADJUSTED MEASURES OF FUNCTIONING:
SCAN

Adjusted Measures of Functioning[a]	Number of Observations	SCAN	All Local Risk Plans[b]
Physical Functioning Score[c]	4,695	61.7	63.4
Physical Component Summary Score[d]	4,459	40.7	41.5
Mental Health Score[e]	4,696	76.2	77.7
Mental Component Summary Score[f]	4,459	51.7	52.8
		Percent	
Physical Functioning Score at or Below 35[g]	4,695	20.8	16.9
Physical Component Summary Score at or Below 30[g]	4,459	21.8	17.8
Mental Health Score at or Below 64[g]	4,696	24.9	21.7
Mental Component Summary Score at or Below 44[g]	4,459	21.9	17.4

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for S/HMO I payment factors: gender, age, Medicaid status, and a proxy for nursing home certifiable status. The proxy for nursing home certifiable status is based on either inability to perform at least one of six activities of daily living or difficulty bathing, eating, or using the toilet.

[b] Weighted by the size of the plan populations. Includes 12 risk plans.

[c] Summarizes limitations in 10 routine activities: vigorous and moderate activities, carrying groceries, climbing stairs (two items), bending, walking (three items), and bath or dressing. The national mean for all individuals aged 65 years and older is 63.3.

[d] A summary of all items in the SF-36 with heavier weight given to information about physical functioning. The national mean for all individuals aged 65 and older is 41.3.

[e] Summarizes current mental health status. The national mean for all individuals aged 65 years and older is 75.8.

[f] A summary of all items in the SF-36 with heavier weight given to information about mental health and well-being. The national mean for all individuals aged 65 and older is 51.8.

[g] The 25th percentile of the distribution of scores in this sample from the Health Outcomes Survey.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.12

COMPARISON OF ADJUSTED MEASURES OF HEALTH STATUS:
ELDERPLAN

Adjusted Measures of Health Status[a]	Elderplan	Local Medicare Risk Plans				
		A	B	C	D	E
Percentage Reporting Fair or Poor Health	37.9	36.2	31.0	37.3	34.5	45.8
Percentage with a Chronic Condition[b]	48.1	45.8	63.0**	50.4	48.4	48.1
Percentage with Heart Disease	27.3	24.7	41.6**	30.8	27.5	23.0
Percentage with Respiratory Disease	9.1	14.9	11.1	9.3	6.5	12.6

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk program payment factors: gender, age, and Medicaid status.

[b] Heart disease, respiratory disease, chronic gastrointestinal disease, stroke, cancer, and diabetes.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.13

COMPARISON OF ADJUSTED MEASURES OF HEALTH STATUS:
KAISER SENIOR ADVANTAGE II

		Local Medicare Risk Plans				
Adjusted Measures of Health Status[a]	Kaiser	A	B	C	D	E
Percentage Reporting Fair or Poor Health	33.2	23.7**	20.3**	24.2**	19.0**	16.5**
Percentage with a Chronic Condition[b]	68.0	63.3	52.1**	57.5**	57.9**	53.2**
Percentage with Heart Disease	44.4	38.3*	31.5**	37.0*	37.4*	35.1**
Percentage with Respiratory Disease	15.1	16.1	12.0	14.9	11.7	11.9

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk program payment factors: gender, age, and Medicaid status.

[b] Heart disease, respiratory disease, chronic gastrointestinal disease, stroke, cancer, and diabetes.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.14

COMPARISON OF ADJUSTED HEALTH STATUS MEASURES:
SCAN

		Local Medicare Risk Plans											
Adjusted Measures of Health Status[a]	SCAN	A	B	C	D	E	F	G	H	I	J	K	L
Percentage Reporting Fair or Poor Health	25.9	16.7**	18.4**	21.2	19.2*	21.4	26.3	22.9	24.3	16.4**	21.9	32.4*	20.5
Percentage with a Chronic Condition[b]	54.8	46.4*	54.8	51.1	48.2	52.7	60.1	58.3	46.3*	50.7	57.4	58.7	51.1
Percentage with Heart Disease	30.2	29.0	29.6	28.6	28.9	30.4	35.5	28.6	28.4	27.4	31.1	31.1	28.9
Percentage with Respiratory Disease	10.8	7.8	15.8*	10.2	14.5	11.0	13.3	10.9	10.4	7.4	13.1	9.1	11.0

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk program payment factors: gender, age, and Medicaid status.

[b] Heart disease, respiratory disease, chronic gastrointestinal disease, stroke, cancer, and diabetes.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.15

COMPARISON OF HEALTH STATUS:
HEALTH PLAN OF NEVADA

Adjusted Measures of Health Status[a]	Health Plan of Nevada	Local Medicare Risk Plans		
		A	B	C
Percentage Reporting Fair or Poor Health	28.5	25.5	26.0	30.0
Percentage with a Chronic Condition[b]	59.8	53.0*	56.7	56.9
Percentage with Heart Disease	34.1	31.7	35.2	30.6
Percentage with Respiratory Disease	18.4	16.6	15.5	18.1

SOURCE: Health Outcomes Survey (1998).

[a] All measures have been adjusted for Medicare risk program payment factors: gender, age, and Medicaid status.

[b] Heart disease, respiratory disease, chronic gastrointestinal disease, stroke, cancer, and diabetes.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.16

COMPARISON OF ADJUSTED MEASURES OF HEALTH STATUS:
ELDERPLAN

Adjusted Measures of Health Status[a]	Number of Observations	ElderPlan	All Local Risk Plans[b]
Percentage Reporting Fair or Poor Health	980	34.7	31.9
Percentage with a Chronic Condition[c]	980	47.2	52.7
Percentage with Heart Disease	976	25.8	30.0
Percentage with Respiratory Disease	961	8.2	11.4

SOURCE: Health Outcomes Survey (1998).

[a]All measures have been adjusted for S/HMO I payment factors: gender, age, Medicaid status, and a proxy for nursing home certifiable status. The proxy for nursing home certifiable status is based on either inability to perform at least one of six activities of daily living or difficulty bathing, eating, or using the toilet.

[b]Weighted by the size of the plan populations. Includes five risk plans operating in Brooklyn, New York.

[c]Heart disease, respiratory disease, chronic gastrointestinal disease, stroke, cancer, and diabetes.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.17

COMPARISON OF ADJUSTED MEASURES OF HEALTH STATUS:
KAISER SENIOR ADVANTAGE II

Adjusted Measures of Health Status[a]	Number of Observations	Kaiser	All Local Risk Plans[b]
Percentage Reporting Fair or Poor Health	2,905	29.4	17.3**
Percentage with a Chronic Condition[c]	2,902	67.8	55.3**
Percentage with Heart Disease	2,889	43.2	34.0*
Percentage with Respiratory Disease	2,844	14.0	12.3

SOURCE: Health Outcomes Survey (1998).

[a]All measures have been adjusted for S/HMO I payment factors: gender, age, Medicaid status, and a proxy for nursing home certifiable status. The proxy for nursing home certifiable status is based on either inability to perform at least one of six activities of daily living or difficulty bathing, eating, or using the toilet.

[b]Weighted by the size of the plan populations. Includes five risk plans.

[c]Heart disease, respiratory disease, chronic gastrointestinal disease, stroke, cancer, and diabetes.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

TABLE C.18

COMPARISON OF ADJUSTED MEASURES OF HEALTH STATUS
SCAN

Adjusted Measures of Health Status[a]	Number of Observations	SCAN	All Local Risk Plans[b]
Percentage Reporting Fair or Poor Health	4,717	21.2	17.5
Percentage with a Chronic Condition[c]	4,711	54.8	51.0
Percentage with Heart Disease	4,697	30.3	29.2
Percentage with Respiratory Disease	4,656	10.1	12.3

SOURCE: Health Outcomes Survey (1998).

[a]All measures have been adjusted for S/HMO I payment factors: gender, age, Medicaid status, and a proxy for nursing home certifiable status. The proxy for nursing home certifiable status is based on either inability to perform at least one of six activities of daily living or difficulty bathing, eating, or using the toilet.

[b]Weighted by the size of the plan populations. Includes 12 risk plans.

[c]Heart disease, respiratory disease, chronic gastrointestinal disease, stroke, cancer, and diabetes.

*Significantly different from the S/HMO at the .05 level, two-tailed test.
**Significantly different from the S/HMO at the .01 level, two-tailed test.

observed difference between the Kaiser plan and the local risk plans in functioning and health status measures. For the other two S/HMO I plans, controlling for age alone is sufficient to eliminate the unadjusted differences between them and risk plans in functioning.

D. THE DATA FOR THE ANALYSIS OF SATISFACTION

The data for the satisfaction analysis were drawn from the Medicare version of the Consumer Assessments of Health Plans (CAHPS) Survey. CAHPS collects information on beneficiaries' access to, use of, and satisfaction with their health care and health insurance. The survey is intended to help beneficiaries choose among health plans and help health plans identify areas for quality improvement.

E. METHODS FOR THE ANALYSIS OF SATISFACTION

In estimating the effects of SCAN and Kaiser on satisfaction, a risk plan was included in the sample if at least 10 percent of its sample members resided in a county served by the S/HMOs. To draw a sample large enough to estimate the effects of Elderplan, risk plans that had at least 5 percent of their sample members in the county served by Elderplan were included. This selection method identified 3 plans operating in the same area as Elderplan, 7 plans operating in the same area as Kaiser, and 11 risk plans operating in the same area as SCAN. Only risk plan enrollees residing in the counties served by the S/HMO were included in the analysis.

The analysis used logit models, with observations from a given plan weighted by the relative size of that plan's enrollment, to isolate the effects of S/HMO enrollment on satisfaction. Using logit estimates, the differences between the mean of the predicted probabilities over all sample members were calculated under two alternatives--first treating each sample member as belonging to the S/HMO plan, and then treating each case as belonging to the risk plan.

Initially the effects of S/HMO membership were estimated for 10 key measures of satisfaction. For one set of measures, beneficiaries were asked to rate their health insurance plan, their overall health care, their personal doctor or nurse, and the specialist they had seen most in the last six months on a scale from 0 (worst possible) to 10 (best possible). For a second group of measures, respondents were asked how often (on a scale of always, usually, sometimes or never) doctors and other health professionals explained things in a way they could understand, and how often they showed respect for or spent enough time with the beneficiary, in the last six months. Using the same scale, respondents were also asked how often they were involved as much as they wanted to be in their health care decisions, how often they got the tests and treatments they thought they needed, and how often they got an appointment for routine care as soon as they wanted.[2,3] Because responses were consistently concentrated at the high end of the rating scales, binary variables were constructed to indicate whether the respondent gave the best possible rating (that is, 10 on a numeric scale or "always" on a frequency scale) to the provider or service in question.

The analysis controls for sex; age; race/ethnicity; education; self-reported health status; whether or not the beneficiary requires the help of others for personal care needs such as eating, dressing, or getting around the house; and whether the beneficiary had ever been diagnosed with heart disease, stroke, cancer, chronic obstructive pulmonary disease (COPD), or diabetes. To illustrate, Table C.19

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[2]The CAHPS survey instrument's skip patterns precluded sizable portions of respondents from answering some questions about satisfaction with services received in the last six months. This factor, combined with item nonresponse, contributes to widely varying numbers of observations for the outcome measures.

[3]This analysis also attempted to examine the effects of variables that indicate whether plan members had registered a complaint with their health insurance plan in the last six months and whether the complaint had been resolved satisfactorily. The proportions of respondents who filed complaints and reported the resolution status were so small (less than 10 percent), that they prohibited accurate estimates.

TABLE C.19

ESTIMATED EFFECT OF EXPLANATORY VARIABLES ON RATING OF PERSONAL DOCTOR OR NURSE SCAN (N = 2,035)

Characteristic	Predicted Probabilities: Those with the Characteristic (Percentage)	Predicted Probabilities: Reference Group (Percentage)	Estimated Effects[a] (Percentage Points)	p-Value[b]
Intercept	n.a.	n.a.	-1.8	.697
S/HMO Enrollee	39.4	48.1	-8.7*	.026
Age (Years)				
65 through 69	43.2	52.5	-9.3**	.006
70 through 74	45.8	52.5	-6.7*	.032
75 through 79	48.9	52.5	-3.6	.279
Female	47.8	46.8	1.0	.673
White	47.3	47.6	-0.3	.908
Of Hispanic Descent	54.6	46.7	7.9*	.046
Education				
Less than high school	57.6	46.1	11.5**	.000
At least some college	43.7	46.1	-2.4	.366
Need Help of Others with Personal Care	35.0	48.0	-13.0*	.014
Self-Reported Health Status				
Excellent or very good	52.3	45.9	6.4*	.012
Fair or poor	42.5	45.9	-3.4	.248
Ever Diagnosed with Heart Disease	49.4	46.7	2.7	.308
Ever Diagnosed with Cancer	46.4	47.6	-1.2	.698
Ever Diagnosed with Stroke	55.4	46.7	8.7*	.038
Ever Diagnosed with COPD	55.8	47.0	8.8	.109
Ever Diagnosed with Diabetes	49.5	47.0	2.5	.428

SOURCE: Medicare Version of the Consumer Assessments of Health Plans Survey, 1997.

[a] All control variables are categorical, so the estimated effects are the difference between the mean predicted probability if someone has the specific characteristic and the mean predicted probability for the reference group, each calculated over all sample members. For example, the mean predicted probability if someone is age 65-69 is 43.2 percent for the sample, compared to 52.5 percent for the reference group of those age 80 or older.

[b] The level of statistical significance is based on a chi-square test that the effect on the control variable on the odds of the outcome occurring is equal to zero.

*Significantly different from zero at the .05 level, two-tailed test.
**Significantly different from zero at the .01 level, two-tailed test.

shows the estimated effects of these characteristics on "best possible rating of personal doctor or nurse" (for the comparison of SCAN to local risk plans). As the table shows, and as was true in most of the models specified, age, education and self-reported health status tend to be significantly related to satisfaction. While age and self-reported health status were positively related to satisfaction, more highly educated enrollees tended to be less satisfied with their health care and health insurance. The effects of other control characteristics were statistically significant only in isolated instances.

F. SENSITIVITY TESTS: ANALYSIS OF SATISFACTION

The sensitivity of the basic regression model was tested by specifying it in three different ways. The first variation controlled for the effects of two additional variables thought to be associated with satisfaction, but considered to be endogenous: length of plan membership, and the presence of a medical condition that interferes with independence or quality of life. The inclusion of these variables did not substantially alter the estimated effect of S/HMO membership on any outcome measure.

The second variation compared the S/HMOs with individual rather than pooled local risk plans to determine whether significant effects were attributable to any one plan. Consistent with the results of the original model, SCAN fared worse than each of the other California plans on the rating of personal doctors, and worse than most of the other plans on the rating of specialists. On the other outcome measures, S/HMO plans were better than some risk plans and worse than others, but differences were rarely significant.

The third variation of the basic model helped determine whether S/HMO members were more likely than risk plan members to give negative satisfaction ratings (7 or less on the 11-point scale, or "sometimes" or "never" on the frequency scale). This analysis would detect differences that might be masked by the binary measures presented in Chapter IV on whether enrollees gave their care the

highest rating. However, the results were quite consistent with the earlier findings. With one exception, the S/HMOs had no effect on the likelihood that members would feel dissatisfied with their health care and health insurance. SCAN enrollees were 8.0 percentage points more likely than other risk enrollees to give their personal doctor or nurse a rating of 7 or less. This difference reinforces the initial findings, in which SCAN enrollees were less likely than risk enrollees to give their personal doctor or nurse the best rating. However, the earlier negative finding for SCAN on enrollees' rating of their specialists was not supported by the analysis of the S/HMO effect on the proportion with low ratings for specialists.

G. ADDITIONAL SATISFACTION MEASURES

Finally, in addition to the 10 key outcome measures given in Tables IV.11 to IV.13, 11 other measures from the CAHPS data were examined to assess the robustness of the findings and explore potential reasons for the few negative findings for SCAN:

- Enrollee easily found a personal doctor or nurse he or she was happy with, given the choices provided by the health insurance plan.
- Enrollee never had to see someone instead of personal doctor or nurse in the last six months.
- Enrollee always saw a specialist when he or she thought it was necessary in the last six months.
- Enrollee easily obtained a referral when needed in the last six months.
- Enrollee always got medical help or advice upon telephoning the doctor's office during the day Monday through Friday in the last six months.
- Enrollee always got help during the day Monday through Friday without a long wait in the last six months.
- Enrollee always saw doctor or other health professional for treatment of an illness or injury as soon as desired in the last six months.

- Enrollee never waited in a doctor's office or clinic more than 30 minutes in the last six months.
- Doctors always listened carefully to enrollee in the last six months.
- Doctors always knew what enrollee thought they should know about enrollee's medical history in the last six months.
- Customer service personnel at health insurance plan were as helpful as enrollee thought they should be in the last six months.

Results for these variables were similar to those for the measures presented in the text. Of the 33 differences estimated (11 outcomes for three plans) between S/HMO and risk plan enrollees in the logit models, only one was statistically significant at the .05 level (in the analysis that included Kaiser). The isolated significant difference is about what would be expected to occur by chance, given the number of measures, if the S/HMO plans had no effect. Thus, although the sensitivity tests described above uphold the finding that SCAN enrollees are significantly less likely than risk plan enrollees to give their personal doctor the highest possible rating, none of the satisfaction measures included in the CAHPS survey seem to identify a more specific, underlying reason for their dissatisfaction. Overall, these additional measures confirm the conclusion of no effects of the S/HMOs on enrollee satisfaction (relative to risk plans).

APPENDIX D

KEY FEATURES OF THE ANALYSIS OF S/HMO II SURVEY DATA

The abbreviated discussion of the analytic approach in the body of this report provides few details on the study design, data, and methodology. This appendix provides a more comprehensive discussion of these issues.

A. DEMONSTRATION STUDY DESIGN

A key component of the S/HMO II demonstration design was identification of and data collection on a comparison group of risk plan enrollees to which the experience of S/HMO enrollees could be compared. Accordingly, HPN assigned some clinics and IPA provider groups to implement the S/HMO II model, while other clinics and groups continued to provide only the regular Medicare risk plan benefits. HPN enrollees whose primary care physician was in a clinic site or IPA assigned to the S/HMO II model were assigned to the S/HMO plan, and, if eligible, received all S/HMO II benefits, which include care coordination, access to geriatric specialty services, and expanded chronic care benefits. Enrollees whose physician was in a clinic site or IPA that was not selected to provide S/HMO benefits received only HPN's regular risk plan benefits.

Physician panels assigned to the S/HMO model were chosen to reflect a mix of different geographic locations and practice arrangements. HPN uses a mixture of urban physicians who were salaried HPN staff (Southwest Medical Associates), and urban and rural physicians who were in independent practice. (See Table D.1.) This design allows for a comparison of S/HMO II effects by type of physician practice arrangement (HPN staff physicians versus independent physicians), but only limited urban/rural comparisons, because there were no HPN-staffed clinics in rural areas.

TABLE D.1

DISTRIBUTION OF S/HMO II AND RISK PLAN CLINIC SITES

Practice Location and Type	S/HMO II	Risk Plan
Urban		
HPN Staff	East Charleston/North Las Vegas[a]	Boulder City
	Southeastern (includes East Flamingo)	Green Valley
	Tenaya Clinic	
	West Charleston/Rancho	
	West Flamingo	
Independent Practice (network)	CHC Cannon/Villaluz[a]	All urban network primary care physicians not assigned to S/HMO
	Fremont Clinic	
	Hogan Clinic	
	Summit Medical[b]	
	Rancho Internal Medicine	
Rural		
HPN Staff	None	None
Independent Practice	Pahrump	Mohave Valley
		All other rural network physicians

SOURCE: Newcomer et al. (1999). Distribution is as of January 1999.

[a]Clinic sites merged.

[b]Includes SHMO II enrollees transferred to Summit Medical upon Nevada Medical's closure.

S/HMO II enrollees who changed clinics could continue to receive S/HMO II benefits even if their new clinic was not assigned to the S/HMO model.[1] Risk plan enrollees who switched to a S/HMO clinic became eligible for S/HMO II benefits. For purposes of these analyses, however, enrollees were classified as S/HMO or risk enrollees on the basis of the initial assignment (that is, the clinic they were in at enrollment or S/HMO II model start-up).

B. SURVEY DATA

The data used to estimate the effect of S/HMO II benefits on health, functioning, and service use are from a longitudinal survey of HPN's S/HMO II and risk plan enrollees.[2] The survey is used as an initial screening interview at enrollment (and annually thereafter) to identify patients with a high risk of repeated hospitalization or disability. It includes measures of service use, health and functioning, and sociodemographic characteristics. Health and functioning information from the survey is used to set risk-adjusted payments for S/HMO II enrollees.

1. Survey Measures

In the analysis presented in Chapter V, health, functioning, and service use outcome measures were constructed from responses to each respondent's latest follow-up interviews or (for outcomes indicating change) from the responses to the same question across the latest two interviews. Table D.2 links the outcome measures presented in Chapter V with the survey questions from which they

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[1]Patients of S/HMO II primary care physicians might follow their primary care physicians to a non-S/HMO II site if their primary care physician moves from the S/HMO II site to a non-S/HMO II site.

[2]Data from HPN's enrollee tracking system, the IDX system, were linked to the survey in order to distinguish between S/HMO II and risk plan enrollees.

TABLE D.2

OUTCOME MEASURES LINKED TO SURVEY QUESTIONS

Survey Question	Associated Outcome Measure
The next questions are about (your/SAMPLE MEMBER's) health. In general, compared to other people (your/his/her) age, would you say (your/his/her) health is excellent, very good, good, fair, or poor?	General Health Improved General Health Improved or Did Not Worsen
During the past month, how much difficulty (have you/has she/has he) had remembering things? **PROBE:** Would you say none, a little, some, or a lot of difficulty remembering things?	Difficulty Remembering Improved Difficulty Remembering Improved or Did Not Worsen
During the past month, how much (have you/has she/has he) been bothered by emotional problems, such as feeling unhappy, anxious, depressed, or irritable? Would you say not at all, slightly, moderately, quite a bit, or extremely bothered?	Frequency of Emotional Problems Improved Frequency of Emotional Problems Improved or Did Not Worsen
Compared to one year ago, would you say (your/SAMPLE MEMBER's) health is much better, somewhat better, about the same, somewhat worse, or much worse than one year ago?	General Health Compared with the Previous 12 Months (1) Improved, (2) Remained the Same, or (3) Worsened[a]
Next, I would like to ask about some other everyday activities and whether (you have/ SAMPLE MEMBER has) difficulty doing them by (yourself/herself/himself). (Do you/Does she/Does he) have **difficulty** taking a bath or shower by (yourself/herself/ himself)? **PROBE:** Difficulty includes using safety rails, grab bars, transfer benches, shower chairs, hand-held shower sprayers, or other special equipment to bathe. Is this difficulty taking a bath or shower because of a health or physical problem? (Do you/Does she/Does he) receive help taking a bath or shower from another person? (Do you/Does she/Does he) use special equipment to help (you/her/him) with taking a bath or shower? **PROBE:** Please include safety rails, grab bars, transfer benches, shower chairs, and hand-held shower sprayers.	Difficulty Bathing, at the Second Interview[a] Number of ADLs Performed with Difficulty (1) Increased, (2) Decreased, or (3) Remained the Same

TABLE D.2 *(continued)*

Survey Question	Associated Outcome Measure
(Do you/Does she/Does he) have **difficulty** walking by (yourself/herself/himself)? **PROBE:** Difficulty includes using a cane, hemi-walker, folding walker, rigid walker, wheeled walker, wheel chair, or other special equipment to walk. Is this difficulty walking because of a health or physical problem? (Do you/Does she/Does he) receive help with walking from another person? (Do you/Does she/Does he) use special equipment to help (you/her/him) with walking? **PROBE:** Please include canes, hemi-walkers, folding walkers, rigid walkers, wheeled walkers, and wheel chairs.	Difficulty Walking at the Second Interview[a] Number of ADLs Performed with Difficulty (1) Increased, (2) Decreased, or (3) Remained the Same
(Do you/Does she/Does he) have **difficulty** dressing (yourself/herself/himself)? **PROBE:** Difficulty includes using stocking aides, button holers, no-tie shoelaces, or other special equipment to dress. Is this difficulty dressing because of a health or physical problem? (Do you/Does she/Does he) receive help with dressing from another person? (Do you/Does she/Does he) use special equipment to help (you/her/him) with dressing? **PROBE:** Please include stocking aids, button holers, and no-tie shoelaces.	Number of ADLs Performed with Difficulty (1) Increased, (2) Decreased, or (3) Remained the Same

TABLE D.2 *(continued)*

Survey Question	Associated Outcome Measure
(Do you/Does she/Does he) have **difficulty** getting in or out of a bed or a chair by (yourself/herself/himself)? **PROBE:** Difficulty includes using geriatric chairs, seat lift chairs, stairway lifts, patient lifters, Hoyer lifts, or other special equipment to get in or out of a bed or chair. Is this difficulty getting in or out of a bed or a chair because of a health or physical problem? (Do you/Does she/Does he) receive help getting in or out of a bed or a chair from another person? (Do you/Does she/Does he) use special equipment to help (you/her/him) with getting in or out of a bed or chair? **PROBE:** Please include geriatric chairs or "geri-chairs," seat lift chairs, stairway lifts, and patient lifters or Hoyer lifts.	Number of ADLs Performed with Difficulty (1) Increased, (2) Decreased, or (3) Remained the Same
(Do you/Does she/Does he) have **difficulty** using the toilet by (yourself/herself/himself)? **PROBE:** Difficulty includes using a toilet raiser, safety rail, grab bars, a commode, or other special equipment to use the toilet. Is this difficulty using the toilet because of a health or physical problem? (Do you/Does she/Does he) receive help using the toilet from another person? (Do you/Does she/Does he) use special equipment to help (you/her/him) with using the toilet? **PROBE:** Please include toilet raisers, safety rails, grab bars, and commodes.	Number of ADLs Performed with Difficulty (1) Increased, (2) Decreased, or (3) Remained the Same

TABLE D.2 *(continued)*

<table>
<tr><th>Survey Question</th><th>Associated Outcome Measure</th></tr>
<tr><td>Next, I would like to ask about some everyday activities and whether (you have/ SAMPLE MEMBER has) difficulty doing them by (yourself/herself/himself). (Do you/Does she/Does he) have difficulty shopping for personal items such as toilet items or medicine?

[You said that shopping is something that (you do/she does/he does) not do.] Is this because of a health or physical problem?

(Do you/Does she/Does he) receive help with shopping from another person?</td><td>Difficulty Shopping at the Second Interview[a]

Number of IADLs Performed with Difficulty
(1) Increased, (2) Decreased, or (3) Remained the Same</td></tr>
<tr><td>(Do you/Does she/Does he) have difficulty preparing meals?

[You said that preparing meals is something that (you do/she does/he does) not do.] Is this because of a health or physical problem?

(Do you/Does she/Does he) receive help preparing meals from another person?

PROBE: Please include help provided by Meals-on-Wheels or a similar agency or organization.</td><td>Difficulty Preparing Meals at the Second Interview[a]

Number of IADLs Performed with Difficulty
(1) Increased, (2) Decreased, or (3) Remained the Same</td></tr>
<tr><td>(Do you/Does she/Does he) have difficulty using the telephone?

[You said that using the telephone is something that (you do/she does/he does) not do.] Is this because of a health or physical problem?

(Do you/Does she/Does he) receive help with using the telephone from another person?</td><td>Number of IADLs Performed with Difficulty
(1) Increased, (2) Decreased, or (3) Remained the Same</td></tr>
<tr><td>(Do you/Does she/Does he) have difficulty doing light housework, such as washing the dishes?

[You said that light housework is something that (you do/she does/he does) not do.] Is this because of a health or physical problem?

(Do you/Does she/Does he) receive help with light housework from another person?</td><td>Number of IADLs Performed with Difficulty
(1) Increased, (2) Decreased, or (3) Remained the Same</td></tr>
</table>

TABLE D.2 *(continued)*

<table>
<tr><th>Survey Question</th><th>Associated Outcome Measure</th></tr>
<tr><td>(Do you/Does she/Does he) have difficulty using public transportation or riding in a private automobile?

[You said that using public transportation or riding in a private automobile is something that (you do/she does/he does) not do.] Is this because of a health or physical problem?

(Do you/Does she/Does he) receive help using public transportation or riding in a private automobile from another person?</td><td>Number of IADLs Performed with Difficulty
(1) Increased, (2) Decreased, or (3) Remained the Same</td></tr>
<tr><td>(Do you/Does she/Does he) have difficulty taking medications?

Is this difficulty taking medications because of a health or physical problem?

(Do you/Does she/Does he) receive help taking medications from another person?</td><td>Number of IADLs Performed with Difficulty
(1) Increased, (2) Decreased, or (3) Remained the Same</td></tr>
<tr><td>(Do you/Does she/Does he) have difficulty managing finances or balancing a checkbook?

[You mentioned that managing finances is something that (you do/she does/he does) not do.] Is this because of a health or physical problem?

(Do you/Does she/Does he) receive help managing finances or balancing a checkbook from another person?</td><td>Number of IADLs Performed with Difficulty
(1) Increased, (2) Decreased, or (3) Remained the Same</td></tr>
<tr><td>You mentioned that (you/SAMPLE MEMBER) visited a physician. How many times did (you/she/he) visit a physician or clinic in the past 12 months? (Please do not count physician visits while (you were/she was/he was) an [overnight patient in a hospital/(or)(,) in a hospital emergency room/(or)(,) in a nursing home]).

PROBE: Your best estimate would be fine.

PROBE: Include osteopathic doctors and psychiatrists.

PROBE: Include outpatient visits.

PROBE: Include visits by physicians in your home.

PROBE: Include physician visits in “urgent care” centers.

PROBE: Exclude dentist visits, chiropractor visits, and telephone calls to doctors.</td><td>Number of Physician Visits[a]</td></tr>
</table>

TABLE D.2 *(continued)*

Survey Question	Associated Outcome Measure
During the past 12 months, (have you/has SAMPLE MEMBER) stayed overnight as a patient in a hospital?	Any Hospital Admissions[a]
During the past 12 months, did (you/SAMPLE MEMBER) go to an emergency room for medical care? Please do not include visits to an urgent care center. **PROBE:** Please include times (you/SAMPLE MEMBER) went to the emergency room, when (you/she/he) received a brief exam, but were sent elsewhere.	Any Emergency Room Visits[a]
During the past 12 months, (were you/was SAMPLE MEMBER) admitted to a nursing home and stayed overnight? **PROBE:** Nursing homes are places where licensed nurses are on staff. **PROBE:** Include skilled nursing facilities, intermediate care facilities, long-term care rooms in wards or buildings on the grounds of hospitals, long-term care rooms or nursing wings of congregate housing facilities, and sub-acute rehabilitation facilities. **PROBE:** Exclude "rest" or "retirement" homes that do not have nurses on staff.	Any Nursing Home Admissions[a]
(Are you/Is SAMPLE MEMBER) currently receiving health care in (your/her/his) home? Please include care provided by a visiting nurse, home health aide, therapist, or other health care professional. **PROBE:** Please do not include nursing services received in a nursing home. **PROBE:** Please include care provided by friends or relatives only if they are paid to help (you/her/him).	Any Home Care Visits[a]

NOTE: Unless otherwise specified, outcome measures were constructed as the change between the first and second interview, based on individuals' responses to survey questions on the two interviews. For ADL and IADL outcome measures, individuals are assumed to have difficulty performing the activity if they reported using special equipment or receiving help from another person.

[a]The outcome measure was constructed from survey responses from the second interview.

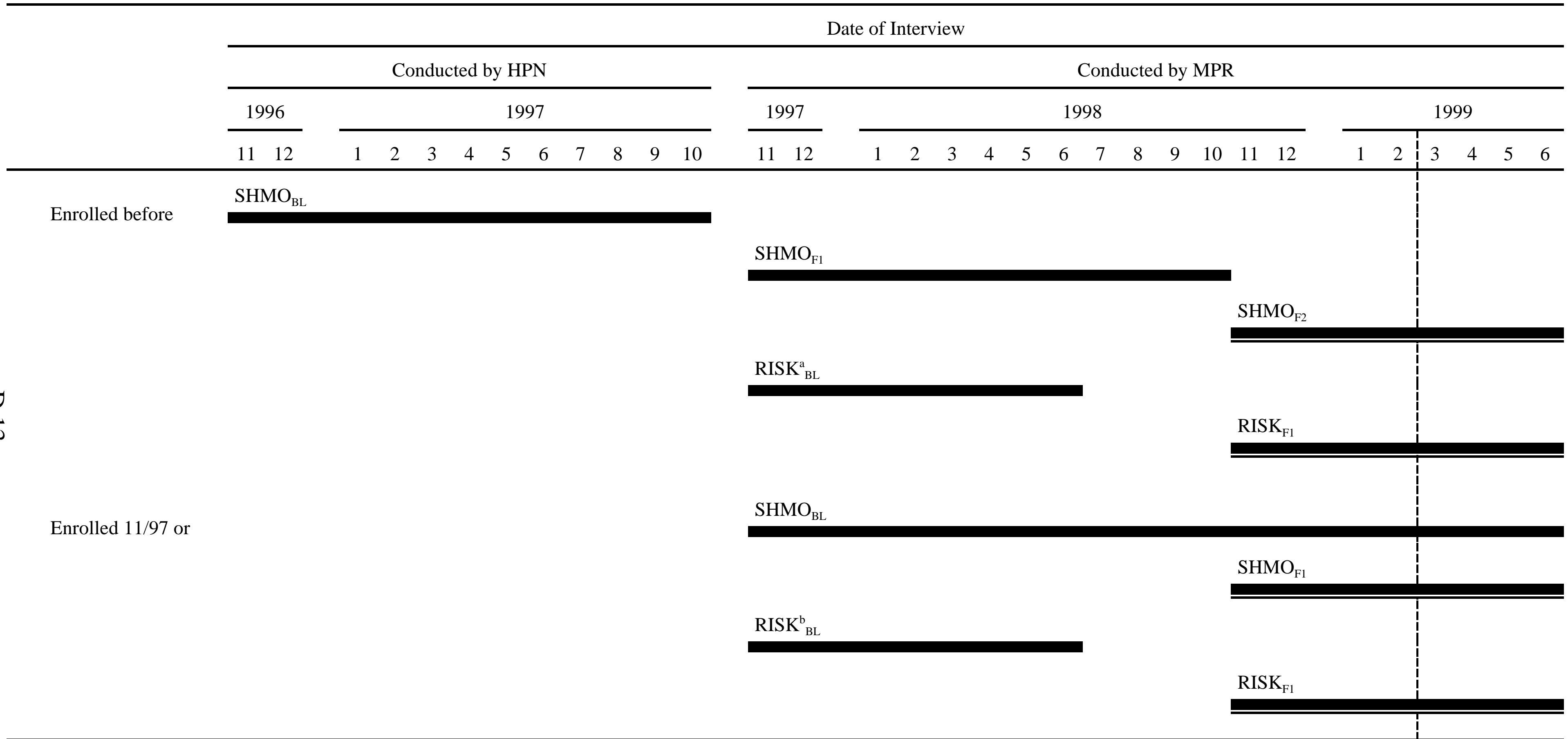
were constructed. Outcome variables measuring a respondent's ability to perform activities of daily living (for example, walking), were each based on responses from multiple survey items and probes (see Table D.2). For instance, respondents were coded as having difficulty performing the activity of daily living (ADL) only if they reported either (1) having difficulty because of a health problem, or (2) receiving help from another person or using special equipment. Similarly, respondents were coded as having difficulty performing instrumental activities of daily living (IADLs) if they reported difficulty because of a health problem or if they received help with an IADL.

2. Data Collection

As noted in Chapter V, the data used in the analyses were drawn from follow-up surveys conducted between November 1998 and February 1999, plus the preceding survey on these same individuals conducted 12 months earlier. The collection of survey data actually started earlier for the S/HMO enrollees than for the risk plan members. But these early baseline interviews were not used in this analysis. The early interviews were conducted by HPN rather than the independent third party contractor Mathematica Policy Research [MPR], and included all baseline screening interviews of S/HMO II members enrolled between November 1996 and October 1997, when OMB clearance was received to administer the survey. (See Figure D.1.) MPR's data collection effort, which began in November 1997, included baseline interviews (BL) with newly enrolled S/HMO II and risk plan beneficiaries and first annual follow-up interviews (F1) approximately one year after each enrollee's baseline interview date. MPR also administered first follow-up interviews to the S/HMO II enrollees whose baseline interviews had been conducted by HPN. These enrollees received their second annual follow-up interview (F2) approximately one year after their first follow-up interview date. The latest (second) interview completed by MPR (occurring between November 1, 1997 and

FIGURE D.1

SURVEY DATA COLLECTION BY DATE OF ENROLLMENT, DATE OF INTERVIEW, AND COLLECTOR



SHMO = S/HMO II enrollees.

RISK = Risk plan enrollees.

BL = Baseline screening interview, administered at time of enrollment in the S/HMO for all enrollees joining after program start date (November 1996). For S/HMO enrollees who joined HPN prior to November 1996, baseline interviews were conducted in November 1996.

F1 = One-year follow-up interview.

F2 = Two-year follow-up interview.

FIGURE D.1 *(continued)*

NOTE: Double lines at far right designate the follow-up observations used in the research sample. The dotted line indicates the last month for which data were available for this report. The final report will include all followups through June 1999. Beginning May 1999, the S/HMO II benefits became available to most of HPN's risk enrollees, but are not likely to have been implemented for previous risk plan members until after their next annual interview.

[a] Beneficiaries enrolled in HPN's Las Vegas area risk plan as of November 1997 were given baseline interviews between November 1997 and Spring 1998.

[b] Beneficiaries who enrolled in HPN's risk plan after November 1997 were given baseline interviews at the time of enrollment. Baseline interviews of risk plan members completed after June 1998 will not be used for the final report because they do not have a follow-up interview by June 1999. For this interim report, only risk plan enrollees with baseline interviews between November 1997 and February 1998 are used.

February 28, 1999) with each enrollee is the source of outcome data for this analysis, and the first MPR interview with each enrollee is the source of information for control variables. This "second" interview was therefore either the beneficiary's second follow-up interview (for S/HMO II enrollees enrolling before November 1997), or the first follow-up interview (for everyone else).

Study Sample. The study sample comprises all S/HMO II and risk plan enrollees with an MPR-administered follow-up interview (either F1 or F2) conducted between November 1998 and February 1999.[3] About 12 months prior to the follow-up interview conducted during this period, study sample enrollees received their first MPR interview. Thus, all of the change-based outcome variables in the analysis measure changes occurring over a 12-month period falling between November 1997 and February 1999. The total study sample includes 5,494 S/HMO II enrollees and 2,848 risk plan enrollees.

Measuring outcomes for the early enrollees as the change between the first and second follow-up interviews, rather than between the baseline and first follow-up interviews, could lead to underestimation of the S/HMO effects on these individuals if the S/HMO intervention affected outcomes during the first year of program operations (November 1996 to October 1997). However, S/HMO interventions did not begin in earnest until mid-1997 or later and have continued to strengthen as the program developed and providers gained more experience. Thus, measuring impacts over the most recent year of program operations was deemed more likely to detect any true program effects on enrollees, and outweighs any concerns about bias.

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[3]By including only MPR-administered interviews, we eliminate differences between the groups that could arise from non-comparable data collection efforts.

C. SAMPLE CHARACTERISTICS

Analysis of the study sample reveals that S/HMO II enrollees differed slightly from risk plan enrollees on initial health and sociodemographic characteristics. Based on information from the first interview administered by MPR, S/HMO II enrollees in the sample are statistically more likely than risk plan enrollees (at the 5 percent level of significance) to be age 70 or older, female, African-American, lack Medigap coverage, and have low income--characteristics that are sometimes associated with poorer health outcomes.[4] (See Table D.3.) Moreover, S/HMO enrollees are statistically more likely than risk plan enrollees to report their health as poor compared to others the same age, score high on an index measuring the probability of repeated hospital admission (the PRHA), have difficulty lifting heavy objects or walking a quarter of a mile, and report being extremely bothered by emotional problems in the past month (see Table D.4). (Risk plan enrollees, though, are statistically more likely to be heavy drinkers or report having bowel accidents.) Furthermore, S/HMO II enrollees are statistically more likely to report a physician diagnosis of hypertension, myocardial infarction, diabetes, emphysema (and other related conditions), vision problems, and arthritis (see Table D.5).

These differences in the two groups' health and sociodemographic differences, though statistically significant, are quite small in magnitude, with only a few exceptions. The differences are small enough that controlling for them in the regression model should provide adequate protection from bias in estimates of the effects of the S/HMO II model. However, the variety of

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[4]Although Medigap coverage is irrelevant for S/HMO enrollees while they are in the S/HMO, it is a useful measure of socioconomic status, because Medigap coverage reduces the cost of leaving a Medicare risk plan or S/HMO and returning to fee-for-service.

TABLE D.3

COMPARISON OF HPN's S/HMO AND RISK PLAN MEMBERS AT "FIRST" INTERVIEW:
SOCIODEMOGRAPHIC CHARACTERISTICS (ALL BENEFICIARIES)

	S/HMO Beneficiaries		Risk Plan Beneficiaries			
Characteristics at First Interview[a]	Percent[b] (or Mean)	Sample Size	Percent (or Mean)	Sample Size	SHMO-Risk Plan Difference	*p*-value
Age (Mean)	73.0	5,489	72.4	2,839	0.7	0.001
Under 65 (percent)	6.2		7.4		-1.2	0.016
65 to 69	27.6		29.6		-1.9	
70 to 74	30.2		29.2		1.0	
75 to 79	21.3		19.7		1.59	
80 to 84	10.1		10.5		-0.4	
85 and over	4.7		3.7		1.0	
Sex (Percent Female)	56.6	5,494	53.9	2,848	2.7	0.017
Race/Ethnicity						
White non-Hispanic (Percent)	88.3	5,452	87.2	2,811	1.1	0.001
African American non-Hispanic	6.2		3.2		3.0	
Hispanic	2.4		4.5		-2.0	
Native American	1.0		1.0		0.0	
Asian	0.6		2.0		-1.4	
Other	1.5		2.1		-0.7	
Marital Status (Percent)						
Single	2.7	5,487	2.6	2,842	0.1	0.192
Married (or consensual union)	57.9		60.0		-2.0	
Widowed/divorced	39.4		37.4		2.0	
Living Arrangements (Percent)						
Alone	25.1	5,491	23.2	2,841	1.9	0.119
With spouse only	50.7		52.2		-1.5	
With other relative	19.5		19.4		0.0	
With nonrelative, private residence	4.3		4.8		-0.5	
Group home	0.3		0.1		0.2	
Nursing home	0.0		0.1		-0.0	
Other	0.2		0.3		-0.1	
Health Insurance						
Medicaid (percent)	5.8	5,361	5.9	2,778	-0.2	0.772
Medigap (percent)	5.0	5,397	7.5	2,788	-2.6	0.001
VA (percent)	4.5	5,410	3.7	2,818	0.8	0.079
Income (Mean)	22,969	4,623	24,495	2,360	-1,526	0.011
Less than $10,000 (percent)	20.1		17.8		2.3	0.001
$10,001 to $20,000	37.4		35.9		1.6	
$20,001 to $40,000	31.9		33.5		-1.6	
$40,001 to $50,000	5.2		5.1		0.1	
$50,001 and over	5.4		7.8		-2.4	

SOURCE: Survey of Health Plan of Nevada's Risk Plan and S/HMO enrollees.

NOTE: The *p*-values are based on two-tailed t-tests of comparisons of means or proportions, or, for a comparison of distributions, a $\div^2$ test of homogeneity.

[a] The "first" interview for each sample member was the one completed between November 1997 and May 1998. The sample is limited to individuals with a 12-month follow-up interview between November 1998 and May 1999.

[b] Percentages may not add to 100 due to rounding.

TABLE D.4

COMPARISON OF HPN'S S/HMO AND RISK PLAN MEMBERS AT "FIRST" INTERVIEW: HEALTH AND FUNCTIONING (ALL BENEFICIARIES)

First Interview Characteristic[b]	S/HMO Beneficiaries (N = 5,494)[a] Percent[c] (or Mean)	Risk Plan Beneficiaries (N = 2,848)[a] Percent[c] (or Mean)	S/HMO-Risk Plan Difference	*p*-Value
Health Compared to Others of Same Age (Percent)				
Excellent	18.1	21.4	-3.3	0.002
Very good	29.2	29.2	0.0	
Good	31.4	29.6	1.8	
Fair	15.4	14.9	0.5	
Poor	5.9	4.8	1.1	
ADLs and IADLs				
Number of ADLS Has Difficulty Performing (Because of Health) (Percent)				
0	80.4	81.4	-1.0	0.916
1	10.3	9.8	0.5	
2	4.4	4.5	-0.1	
3 or more	4.9	4.3	0.6	
Number of IADLs Has Difficulty Performing (Because of Health) (Percent)				
0	77.8	79.4	-1.6	0.707
1	10.6	10.5	0.1	
2	5.1	4.4	0.7	
3 or more	6.5	5.7	0.8	
PRHA Score				
Mean	.254	.248	.006	0.023
Less than .25 (percent)	59.2	60.7	-1.5	0.249
.25 to .49 (percent)	38.0	35.9	2.1	
.50 and over (percent)	2.9	3.5	-0.6	
Physical Functioning				
Difficulty Lifting Heavy Objects (Percent)				
None	75.3	78.3	-3.0	0.002
A little	8.5	6.5	2.0	
Some	5.4	5.9	-0.5	
A lot	3.2	2.6	0.6	
Not able at all	7.6	6.7	0.9	
Difficulty Walking a Quarter Mile (Percent)				
None	65.3	68.2	-2.9	0.051
A little	10.5	10.6	-0.1	
Some	7.5	7.0	0.5	
A lot	6.0	5.3	0.7	
Not able at all	10.6	9.0	1.6	
Fallen One or More Times in Past Month (Percent)	6.4	5.6	0.8	0.137
Cognitive Functioning				
Difficulty Remembering Past Month (Percent)				
None	48.1	48.5	-0.4	0.852
A little	35.8	34.9	0.9	
Some	12.9	13.4	-0.5	
A lot	3.3	3.2	0.1	
Has Been "Lost" in Past Month (Percent)	0.7	0.8	-0.1	0.750
Became *More* Forgetful or Confused in Past Month (Percent)	5.0	4.8	0.2	0.759

TABLE D.4 *(continued)*

First Interview Characteristic[b]	S/HMO Beneficiaries (N = 5,494)[a] Percent[c] (or Mean)	Risk Plan Beneficiaries (N = 2,848)[a] Percent[c] (or Mean)	S/HMO-Risk Plan Difference	*p*-Value
Emotional Health				
How Much Bothered by Emotional Problem in Past Month (Percent)				
Not at all	54.0	56.2	-2.2	0.048
Slightly	26.3	24.7	1.6	
Moderately	12.0	12.2	-0.2	
Quite a bit	5.8	5.5	0.3	
Extremely or all the time	2.1	1.3	0.8	
How Much Felt Blue (Percent)				
None	51.8	53.9	-2.1	0.129
A little	30.0	29.1	0.9	
Some	12.5	12.1	0.4	
A good bit	2.7	2.8	-0.1	
Most of the time	1.9	1.2	0.7	
All of the time	1.1	0.8	0.3	
Risky Behavior or Events				
Sudden Weight Gains or Losses (Percent)	14.8	14.2	0.6	0.414
Smoker (Percent)	20.0	19.3	0.7	0.443
Drinks 3 or More Glasses of Alcohol Per Day (Percent)	11.0	12.3	-1.3	0.067
Other				
Urine Accidents (Percent)	12.8	12.0	0.8	0.285
Bowel Accidents (Percent)	5.8	6.8	-1.0	0.054

SOURCE: Survey of Health Plan of Nevada's Risk Plan and S/HMO enrollees.

NOTE: Level of significance: based on a t-test of comparisons of means or proportions, or, for a comparison of distributions, a $\div^2$ test of homogeneity.

[a] Actual sample sizes are slightly smaller for most outcomes, due to item non-response.

[b] The "first" interview for each sample member was the one completed between November 1997 and May 1998. The sample is limited to individuals with a 12-month follow-up interview between November 1998 and May 1999.

[c] Percentages may not add to 100 due to rounding.

TABLE D.5

COMPARISON OF HPN'S S/HMO AND RISK PLAN MEMBERS AT "FIRST" INTERVIEW:
CHRONIC CONDITIONS (ALL BENEFICIARIES)

	S/HMO Beneficiaries (N=5,494)[a]	Risk Plan Beneficiaries (N=2,848)[a]		
First Interview Characteristic[b]	Percent[c] (or Mean)	Percent[c] (or Mean)	S/HMO-Risk Plan Difference	*p*-value
Hypertension; High Blood Pressure	51.3	45.4	5.89	0.001
Myocardial Infarction	12.2	10.4	1.78	0.016
Angina, Heart Problems, or Coronary Heart Disease	11.3	11.0	0.33	0.651
Congestive Heart Failure, Problems with Heart Valve, or Arrhythmia	18.2	18.9	-0.74	0.409
Cancer (Excluding Skin Tumors)	13.8	13.1	0.62	0.437
Diabetes	15.8	14.0	1.83	0.027
Mental Retardation	0.5	0.4	0.14	0.360
Alzheimer's/Dementia	0.9	1.0	-0.07	0.740
Other Mental/Psychiatric Disorders	1.9	2.4	-0.53	0.102
Emphysema, Asthma, or Chronic Obstructive Pulmonary Disease	14.6	12.9	1.66	0.039
Vision Problems, Cataracts, Glaucoma	42.8	38.2	4.52	0.001
Hearing Loss	20.7	21.4	-0.69	0.460
Parkinson's Disease	0.7	0.6	0.10	0.617
Stroke	8.5	7.4	1.11	0.080
Arthritis	46.7	43.8	2.91	0.012
Hip Fracture	3.0	3.6	-0.06	0.141
Major Limb Amputation	0.5	0.5	0.00	0.944
Number of Chronic Conditions				0.004
0	9.5	11.8	-2.29	
1	19.9	22.0	-2.02	
2	22.9	22.7	0.27	
3	20.3	18.8	1.49	
4 or more	27.3	24.8	2.55	

SOURCE: Survey of Health Plan of Nevada's Risk Plan and S/HMO enrollees.

NOTE: The level of significance is based on a t-test of comparisons of means or proportions, or, for a comparison of distributions, a $\div^2$ test of homogeneity.

[a] Actual sample sizes are slightly smaller for most outcomes, due to item non-response.

[b] The "first" interview for each sample member was the one completed between November 1997 and May 1998. The sample is limited to individuals with a 12-month follow-up interview between November 1998 and May 1999.

[c] Percentages may not add to 100 due to rounding.

health differences across the two groups suggests that S/HMO II enrollees are marginally less healthy on average than risk plan enrollees.

D. ESTIMATING S/HMO II EFFECTS

The approach to estimating S/HMO II effects focuses on measuring the effect of S/HMO II benefits on service use and health and functioning changes occurring between "first" and "second" interviews, after controlling for health, functioning, and sociodemographic characteristics at the "first" interview. Measuring the effect of the S/HMO II benefit on *changes* in health, functioning, and service use outcomes, rather than *levels*, reduces the effects of preexisting differences between S/HMO II and risk plan enrollees on characteristics that could affect outcomes at the second interview. However, some of the preexisting differences between the two groups of enrollees could still affect the rates of change in outcomes. Thus, the analysis controls for characteristics at the first interview in order to reduce potential biases remaining in the estimates of the effect of the S/HMO II benefit on health, functioning, and service use.

For binary outcomes, which comprised the great majority of our estimates, logit analysis was used to test the hypothesis that the S/HMO benefit had no statistically significant effect on the change in enrollees' health, functioning, and service use. The models included a binary variable indicating whether the sample member was a S/HMO II enrollee, and control variables measuring enrollees' health, functioning, and sociodemographic characteristics at the first interview (see Table D.6.). Wald tests were performed to determine whether the effect of being a S/HMO II enrollee had a statistically significant effect (at the 5 percent level) on the odds that the outcome occurred (for example, improvement in functioning).

Although the tests are for whether the S/HMO II intervention affected the odds of a binary outcome occurring, such as improvement in functioning, estimates of the *magnitude* of effects are

TABLE D.6

EMPIRICAL SPECIFICATION: INDEPENDENT VARIABLES INCLUDED IN ALL REGRESSION MODELS

Independent Variables (reference category in parentheses)	Sample Mean (or percent)[a]
Enrolled in the S/HMO Plan	66.0
Demographic Characteristics	
Age	
Under 65	6.6
(65 to 69)	28.4
70 to 74	29.9
75 to 79	20.7
80 to 84	10.2
85 and over	4.2
Female	55.7
Race	
African-American Non-Hispanic	5.2
Hispanic	3.2
(White)	87.8
Other	3.8
Married	58.7
Living Arrangements	
Lives with spouse or other relatives	70.7
Lives with non-relatives in group home, or nursing home	4.8
(Lives alone)	24.5
Income and Insurance	
Income	
Natural Logarithm of Income	8.2
Square of Natural Logarithm of Income	80.3
Income Missing (percent)	16.0
Insurance Coverage	
Covered by Medicaid	5.6
Covered by Medigap	5.7
Covered by CHAMPUS or CHAMP-VA	4.1

TABLE D.6 *(continued)*

Independent Variables (reference category in parentheses)	Sample Mean (or percent)[a]
Health Status	
Self-Rating of General Health	
(Excellent)	19.2
Very Good	29.3
Good	30.7
Fair	15.2
Poor	5.6
Functioning Measures	
Number of ADLs Performed with Difficulty	0.4
Number of IADLs Performed with Difficulty	0.5
Has "A Lot" of Difficulty Carrying Heavy Objects	2.9
Not at All Able to Carry Heavy Objects	7.1
Has "A Lot" of Difficulty Walking a Quarter of a Mile	5.8
Not at All Able to Walk a Quarter of a Mile	9.9
Has Some or A lot of Difficulty with Memory	16.2
Has Some or A lot of Emotional Problems	7.4
Behavior	
Smokes Cigarettes	19.7
Drinks Alcohol	11.5
Chronic Conditions	
Angina Pectoris, Coronary Heart Disease	11.1
Congestive Heart Failure, Problems with Heart Valve, Arrhythmia	11.4
Hypertension	49.0
Myocardial Infarction	18.3
Cancer (Excluding Skin)	13.5
Diabetes	15.1
Emphysema, Asthma, Chronic Obstructive Pulmonary Disease	14.0
Vision Problems	41.1
Hearing Problems	70.9
Stroke	8.0
Arthritis	45.5
Mental Retardation, Dementia or Parkinson's Disease	3.2

[a] All variables except the two natural logarithm variables and the number of ADLs and IADLs are binary. Their means are expressed as percentages.

presented in terms of the predicted probabilities of the event occurring. For each equation estimated, the predicted probability of the outcome for each individual in the sample was calculated, first assuming that all enrollees in the sample were S/HMO II enrollees, and then assuming that all were risk plan enrollees.

The estimated S/HMO II impact is calculated as the difference between the mean predicted probability from the two sets of probabilities. For example, using the logistic regression estimates of the likelihood of an improvement in general health (among those 7,687 sample enrollees whose health could further improve), predicted probabilities of a general health improvement were estimated. When everyone is assumed to be a risk plan enrollee, the predicted probability of a general health improvement, with a mean of 71.1 percent, ranges from 9.1 percent to 97.7 percent. When everyone is assumed to be a S/HMO II enrollee, the predicted probability of a general health improvement, with a mean of 70.7 percent, ranges from 9.1 percent to 97.7 percent. The estimated S/HMO II effect, the difference in means of these two sets of predicted probabilities, meant that risk plan enrollees' probability of an improvement in health would have been 0.4 percentage points lower, on average, had they received S/HMO II benefits (or that a S/HMO enrollee's probability would have been 0.4 percentage point higher had they not had S/HMO benefits). However, because the estimated effect of S/HMO II enrollee status on the odds of a general health improvement, based on the logit results, was not significantly different from zero, the conclusion is that the S/HMO has no effect on the probability that general health is improved.

Multinomial logit models are used to estimate program effects on outcomes that were measured as categorical variables with more than two possible values (such as whether functioning improved, stayed the same, or worsened). For the multinomial logit models, the conclusion whether the S/HMO affected the probability of a given value occurring (e.g., functioning increased), relative to

the reference category, is measured by testing whether the corresponding coefficient on S/HMO status is significantly different from zero. Mean predicted probabilities over all sample members were calculated as for the binary logit models, yielding estimates of how the distribution of beneficiaries on the outcome variable would be expected to change if all HPN enrollees were in the S/HMO II instead of the HPN risk plan.[5]

A regression model was used to estimate program effects on the number of physician visits, the only non-categorical outcome variable in the analysis. The statistical significance of program effects was assessed by testing for whether the regression coefficient on S/HMO status was significantly different from zero. The coefficient also provides the estimated size of the effect of the S/HMO on the number of visits.

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[5]Ordered logit models could have been used for categorical variables that were ordered, but this approach could mask important effects if S/HMO enrollees had a higher proportion (say) of cases at both the top and bottom end of the scale, and fewer cases in the middle categories. Thus, multinomial logit models are used when the outcome variable can take more than two possible values, because this model makes no assumption about the relative ranking of values of the dependent variable.