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The Quality of Care Under a Managed-Care Program for Dual Eligibles

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Purpose: Our objective in this study was to compare the quality of care provided under the Minnesota Senior Health Options (MSHO), a special program designed to serve dually eligible older persons, to care provided to controls who received fee-for-service Medicare and Medicaid managed care. ***Design and Methods:*** Two control groups were used; one was drawn from nonenrollees living in the same area (Control–In) and another from comparable individuals living in another urban area where the program was not available (Control–Out). Cohorts living in the community and in nursing homes were included. Quality measures for both groups included mortality rates, preventable hospital admissions, and preventable emergency room (ER) visits. For the community group, nursing home admission rates were also tracked. For nursing home residents, quality measures included quality indicators derived from the Minimum Data Set. ***Results:*** There were no differences in mortality rates for either cohort. MSHO had fewer short-stay nursing home admissions but no difference for stays 90 days or longer. MSHO community and nursing home residents had fewer preventable hospital and ER visits compared to Control–In. There were no major differences in nursing home quality indicator rates. ***Implications:*** The cost of changing the model of care for dual eligibles from a mixture of fee-for-service and managed care to a merged managed-care approach cannot be readily justified by the improvements in quality observed.

Key Words: Medicare, Medicaid, Quality indicators, Activity of daily living, Mortality, Preventable hospitalizations

The dual eligible population presents a special challenge to Medicare and Medicaid. Because this subgroup represents the highest users of services for both programs, there has been great interest in finding ways to address their needs more effectively. One appealing approach has been managed care. The Program of All-Inclusive Care for the Elderly (PACE) program offered an approach that required enrollees to use defined medical care and make active use of day care (Eleazer & Fretwell, 1999; Kane, 1999). The evaluation of that effort yielded mixed findings (Chatterji, Burstein, Kidder, & White, 1998). A somewhat different approach was taken in the Minnesota Senior Health Options (MSHO) program, which contracted with managed-care plans to provide more typical managed care with more active case management. As indicated in its Waiver Report for 1997–1999, MSHO's primary goal was not to control cost but to improve the care provided to its enrollees, which included dual eligibles living in both the community and in nursing homes. The underlying rationale suggested that pooling funding would permit more coordinated care and thereby improve the quality of care delivered to enrollees. The proponents of MSHO recognized that the basis for the capitation system would not likely reduce costs for Medicare or Medicaid. Because the costs of care would be determined by the capitation rates established, there was no a priori reason to expect that such a step would save money. The primary rationale lay then in improving the care provided. In addition to coordinating funding streams and allowing more creative use of the polled funds, MSHO also mandated case management. All clients were screened, and those who were deemed to be frail (i.e., nursing home certifiable) were actively case managed. The MSHO program is described in greater detail in several prior publications (Kane, Homyak, Bershadsky,

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Flood, & Zhang, 2004; Kane, Homyak, Bershadsky, Lum, & Siadaty, 2003; Kane, Weiner, Homyak, & Bershadsky, 2001). These studies showed little evidence that MSHO clients had better outcomes.

In contrast to programs like PACE, MSHO uses a traditional managed-care approach that does not require beneficiaries to use a limited set of physicians. As a result each participating physician has only a small MSHO caseload and hence is not motivated to change his or her modus operandi. The power of the intervention lies in the ability to create an infrastructure that can facilitate proactive care. The actual operation of MSHO relied on health plans, which subcontracted to care systems, which in turn dealt with individual provider groups and organizations. Case management was a mandatory service for all enrollees but was primarily directed to those clients deemed at highest risk. The care of a substantial proportion of the nursing home subgroup was subcontracted to Evercare, a program that provides Medicare-covered managed care in other states. This model has been shown to produce substantial savings in hospital utilization, largely by treating many problems in the nursing home (Kane, Keckhafer, Flood, Bershadsky, & Siadaty, 2003).

As part of an evaluation funded by the Centers for Medicare and Medicaid Services (CMS) for this demonstration project, we examined the effects MSHO had on quality of care for both subpopulations. Assessing quality in the context of managed care poses some real challenges. Ideally for persons who frequently suffer from complex medical conditions, one would like to examine differences in outcomes. Previously reported studies showed little evidence that MSHO clients had better outcomes. The community-based beneficiaries did not show great changes in utilization, whereas those in nursing homes did (Kane, Homyak, et al., 2003; Kane, Homyak, et al., 2004). Measures of change over time in function and satisfaction showed few differences between MSHO and control survey sample groups in the community. Minimum Data Set (MDS) data did not reflect functional differences among nursing home residents (Kane et al., 2001). The work reported in this article extends those observations to examine a mixture of process and outcomes measures including utilization of resources and more direct outcomes such as mortality and nursing home admissions. Some questions could be applied to both the community and nursing home groups, but some are specific to only one group. For the community group, we studied mortality, nursing home admission rate, and preventable hospitalizations and emergency room (ER) visits. For nursing home residents we studied mortality, preventable hospitalization and ER rates, and quality indicators.

Methods

Because MSHO involves Medicare, participation in the demonstration is voluntary. Hence, randomization was not feasible. Instead a quasi-experimental design was employed in which MSHO enrollees were compared to two control groups: One group (called Control–In) was drawn from individuals who lived in the same geographic area but who opted not to enroll in MSHO, and a second group (called Control–Out) consisted of eligible persons living in urban areas where MSHO was not available. In this way the effects of possible selection bias could be at least partially addressed to the extent that one control group had an opportunity to participate and one did not. All non-MSHO persons covered by Medicaid in the areas of Minnesota involved in this study are mandatorily enrolled in a prepaid medical assistance program (PMAP). Control group individuals included in our study were also enrolled in fee-for-service Medicare. The sample "universe" consisted of all dual eligible individuals who satisfied these study criteria for at least one month between March 1997 and December 2000.

The overall evaluation of both the community and nursing home subgroups used claims data from two major sources—State of Minnesota Department of Human Services (DHS) for Medicaid services and CMS for Medicare services. The DHS data included encounter data for both MSHO and PMAP enrollees and fee-for-services claims for those services not covered by either program but covered under Medicaid (e.g., nursing home per diems). Health plans are required to submit to DHS on a quarterly basis claim-level encounter data specific to the individual enrollee detailing all medical and dental diagnostic and treatment encounters (inpatient and outpatient), all pharmaceuticals, supplies, and medical equipment, all home-care services and home- and community-based waiver-type services, and all placements in long-term-care facilities.

We also gathered nursing home data from MDS files from CMS. This data provided information on physical functioning and level of care needs for nursing home residents.

The analyses of mortality, service utilization, and movement into nursing homes from the community employed a matched cohort design based on pairwise selection with replacement that allows every control person to serve as a match for different study people. We selected this method of balancing because the control populations were relatively small; they had distributions of various variables clearly different from the MSHO cohort and the number of variables that we wanted to involve into the balancing process was relatively high. The control population consisted of people who had never been enrolled in MSHO and did not change their status (i.e., Control–In or Control–Out) during the course of the study. For matching, we sought to use as many meaningful variables as possible from the administrative data available. Both control groups were matched to the corresponding study cohorts based on gender, race (White or non-White), age, original reason for

enrollment in Medicare (elder or disabled), duration of dual eligibility, time between MSHO enrollment of a study person and the virtual enrollment date of a control person, and 6-month history of health care utilization (inpatient admissions, inpatient days, emergency events). Each of these factors has been shown to affect utilization and was used in a previous study of utilization with these populations (Kane, Keckhafer, et al., 2003). When matching community populations, this list was supplemented with an indicator of frailty that was based on participation in the Elderly Waiver program for controls and eligibility for nursing home certifiability for MSHO enrollees. This variable provided another measure of frailty that might affect utilization. When matching nursing home samples, the duration of nursing home stay with correction for left censoring and Morris MDS score (Morris, Fries, & Morris, 1999) were taken into account. A virtual MSHO enrollment date was assigned to controls based on (but may not be equal to) the enrollment date of the matched study person. The Euclidian measure of proximity between study and control populations based on all described variables was computed, and a search algorithm was applied to select the control populations. Because matching on so many variables produced an incomplete match, we also used these variables as adjustors in our regression models. Preventable hospitalizations and ER visits were defined as ambulatory care-sensitive conditions based on the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) as used in work by Billings, Anderson, and Newman (1996). We added accidents and poisonings for the preventable emergency services to the analysis because we believed that these too were preventable.

In a separate analysis we used MDS data to examine quality indicators for nursing home residents in MSHO and the two control groups. These populations were not balanced and the analyses heavily relied on statistical adjustments. MDS records were only available between June 1998 and December 2000. Twenty-four indicators were constructed based on the algorithms developed by Zimmerman and colleagues (1995). We selected all quarterly and annual records from the MDS and excluded the admission records (quality indicators should not be affected by nursing home quality at admission) and discharge records (no quality indicator variables are available). We then matched these MDS records to either the MSHO group or one of the two control groups (Control–In or Control–Out), using enrollment information.

The next step involved selecting MDS records for analysis. We wanted to examine the quality of care at several different points in a resident's stay. Period 1 represents 6–9 months following enrollment in MSHO (or a comparable date for controls); period 2 represents 12–15 months following enrollment; and period 3 represents 18–21 months following enrollment.

Statistical Analysis

Despite having pairs of control and experimental people, the analyses of mortality, services utilization, and nursing home admissions were implemented assuming independent samples. MSHO enrollment (virtual enrollment) date was used as a start-time point for all beneficiaries. Each person–month was treated equally in the analysis. When analyzing resources utilization the results were averaged for the first 6, 12, and 18 months (only the 18-month results are reported here) and reported as mean monthly rates per 100 enrollees. A more detailed analysis was implemented using a logistic regression for discrete events with dummy variables that allowed comparing control groups directly with the corresponding experimental group. Regression models were calculated with risk adjustment. The risk adjustors included demographic variables, duration of dual eligibility, an indicator of frailty, and prior utilization (the same variables that were applied during matching). The role of risk adjustment was to eliminate effects of the intragroup variation and to improve the sensitivity of the comparison. Results are reported as odds ratios for binary dependent variables (e.g., hospital admissions) and regression coefficients for continuous variables (e.g., ER visits). We have reported two measures of mortality and nursing home admission: (a) percentage of the different study groups dying or entering a nursing home at anytime, and (b) a proportional hazard time-to-event model that calculates the adjusted risk of death or entering a nursing home over time during the study period for each of the comparison groups relative to MSHO. In these analyses the risk adjustment had minimal impact on the results because (as the result of the balancing procedure) the populations in the control and study groups were almost identical from the viewpoint of the multivariate distribution of the factors included into the adjustment.

In the MDS-based analysis the original quality indicators were presented without adjustment, and no attempts were made to balance the samples. Therefore, statistical adjustment for differences in resident characteristics had much greater potential to obtain meaningful results than when using balanced cohorts. The challenge was to identify those resident characteristics that could affect the quality indicators but were not under the influence of the nursing home. Because this distinction was difficult, we opted to use two levels of adjustment. The comprehensive approach included a wide range of resident characteristics. The conservative approach used a much smaller subset of adjusters. With a few exceptions, data for the adjusters came from the same MDS assessment. In some instances we deliberately used lagged measures to minimize the chance of endogeneity. Not all diagnoses were collected at the quarterly assessment. If a diagnosis was missing, the value from the most recent full assessment before the targeted assessment date

Table 1. Demographics of the Matched Community-Dwelling Cohorts at Time of Matching

Variable	MSHO $N = 1285$	Control–In $N = 1285$	Control–Out $N = 1285$
Average age, years (*SD*)	74.2 (6.9)	74.1 (6.9)	73.9 (6.6)
Average length of dual eligibility, years (*SD*)	12.8 (12.5)	12.8 (12.5)	12.9 (12.3)
Elderly waiver of rate Cell B (%)	10	10	10
Male (%)	26	26	26
White (%)	50	50	50
Originally enrolled into Medicare as disabled (%)	12	12	12
Admitted to hospital in 6 months before enrollment (%)	14	14	16
Received ER services in 6 months before enrollment (%)	21	21	21

Notes: MSHO = Minnesota Senior Health Options; ER = emergency room. At 12 months after enrollment, MSHO = 868, Control–In = 875, and Control–Out = 846. Significance was tested by chi square or independent *t* tests comparing each control group to MSHO separately; Bonferroni correction for multiple comparisons was not applied.

Table 2. Demographics in the Matched Nursing Home-Dwelling Cohorts at Time of Matching

Variable	MSHO $N = 1,985$	Control–In $N = 1,985$	Control–Out $N = 1,985$
Average age, years (*SD*)	83.9 (8.7)	83.8 (8.6)	84.0 (8.4)
Average length of dual eligibility, years (*SD*)	10.7 (12.8)	10.7 (12.7)	10.7 (12.6)
Average time in nursing home, years (*SD*)	9.7 (12.0)	9.8 (11.9)	9.8 (11.9)
Average Morris ADL score (*SD*)	13.9 (9.3)	13.9 (8.9)	14.5 (8.3)*
Male (%)	25	25	25
White (%)	96	96	96
Originally enrolled into Medicare as disabled (%)	14	14	14
Admitted to hospital in 6 months before enrollment (%)	23	22	23
Received ER services in 6 months before enrollment (%)	29	27	28

Notes: MSHO = Minnesota Senior Health Options; ADL = activity of daily living; ER = emergency room. At 12 months after enrollment, MSHO = 939, Control–In = 981, and Control–Out = 876. Significance was tested by chi square or independent *t* tests comparing each control group to MSHO separately; Bonferroni correction for multiple comparisons was not applied.

*$p < .05$.

was used. History of resolved ulcers and demographic information were treated similarly; the values from the most recent full assessment before the targeted assessment date were used. Many quarterly records also contained no information on the admission date. We obtained the admission date information from the MDS data. If there was more than one admission date per resident, the most recent admission date to the assessment date was assigned as the admission date for that record. For each quality-indicator measure and each time period, a logistic regression was carried out using the comprehensive adjustors plus dummy variables identifying the Control–In and the Control–Out individuals. The same process was repeated using the minimal adjustors plus the dummy variables defining study groups. A total of six logistic regressions (three time periods and two levels of adjustment) were carried out on each of the 24 quality indicators.

Results

Sample

Tables 1 and 2 indicate that the matching procedure was successful and the community and nursing home control cohorts were balanced with the MSHO cohorts at the time of enrollment (and virtual enrollment for the controls). The only difference (average Morris ADL score, nursing home-dwelling Control–Out cohort) that was significant did not sustain Bonferroni correction for multiple comparisons and, therefore, could have resulted from chance. These balanced cohorts were used for the utilization, nursing home admission, and mortality analyses. Table 3 shows the characteristics of the samples used for the nursing home quality indicator analyses at each period.

Mortality

Table 4 presents the overall mortality rates and the regression coefficients of the time-to-events models for the community and nursing home balanced cohorts. There was no difference with or without adjustment in the predicted time to death between MSHO enrollees and either control group for either the community or nursing home balanced cohort. Figures 1 and 2 show the hazard functions for the community and nursing home balanced cohorts, respectively. The mortality curves for the two community controls were virtually identical. There were no significant differences among control and study groups in mortality rates for the community and nursing home populations.

Nursing Home Admissions

Using the community cohort, we examined the rates of nursing home admissions for individuals

Table 3. Characteristics of the Samples by Study Groups in Periods 1, 2, and 3: Nursing Home Quality Indicators Analysis

	Period 1			Period 2			Period 3		
Variable	MSHO	Control–In	Control–Out	MSHO	Control–In	Control–Out	MSHO	Control–In	Control–Out
Sample size	1,213	982	424	1,503	1,346	642	1,589	1,676	798
Average age, years	84.6	83.0	84.5	84.9	83.6	85.1	84.89	84.14	85.9
Female (%)	78	74	68	80	75	73	79	76	77
White (%)	95	95	95	95	95	95	95	95	95
Average time in nursing home, years	3.9	2.2	1.7	4.4	2.6	2.2	5.3	4.1	3.7
No. of facilities	110	138	43	114	146	46	118	243	46
Average no. of residents per nursing home	11.0	7.1	9.9	13.2	9.2	14.0	13.5	6.9	17.3

Note: MSHO = Minnesota Senior Health Options. Period 1 is defined as 6–9 months following enrollment; Period 2 is defined as 12–15 months following enrollment; Period 3 is defined as 18–21 months following enrollment.

enrolled in MSHO while living in the community. We looked separately at the risk of admissions with varying lengths of nursing home stay (i.e., <30 days, >60 days, and >90 days).

The overall nursing home admission rates and the regression coefficients of the time-to-events models for the community and nursing home balanced cohorts are shown in Table 5. The MSHO cohort had significantly fewer short-stay admissions (<30 days) than either the Control–In or Control–Out groups. MSHO had significantly fewer nursing home admissions of 60 days or longer compared to the Control–Out group after adjustment. There was no difference among the groups for nursing home admissions of 90 days or longer.

Preventable Hospital and ER Admissions

As seen in Table 6, MSHO community enrollees had significantly fewer preventable hospital admissions than the Control–In group after 18 months of enrollment with adjustment. The adjusted odds ratio of the Control–In group having a preventable admission compared to the MSHO group was 1.31. There was a similar pattern (not shown) at 12 months. The MSHO cohort also had significantly fewer preventable emergency services than the Control–In group after 12 months and 18 months of enrollment with and without adjustment. (Only the 18-month results are shown in the table.)

For the nursing home population, the MSHO cohort had significantly fewer preventable hospitalizations after 18 months of enrollment than the Control–In group and significantly fewer preventable emergency room visits than either control group after 18 months of enrollment.

Nursing Home Quality Indicators

Nursing home quality indicators have been widely used as markers of quality. They rely on a combination of nursing care and primary care. Both could have been affected by MSHO. Table 7 shows the odds ratios from the quality indicator regression model using the comprehensive adjustment. The MSHO group was used as the reference group in these regression analyses. An odds ratio greater than 1 indicates that one was more likely to see that quality indicator in the control group than in MSHO, and an odds ratio less than 1 indicates that one was less likely to see that quality indicator in the control group. Since quality indicators indicate either potentially poor care practices or outcomes of care, an odds ratio greater than 1 favored MSHO (i.e., MSHO had better quality), while an odds ratio less than 1 favored the controls. Overall there was no significant difference between MSHO and the two control groups in quality indicators. Of the 21 significant differences (out of 144 possible), only 6 favored MSHO. The rate of significant differences was about what might be expected by chance. In

Table 4. Comparison of Rates of Death

Variable	MSHO	Control–In	Control–Out
Community sample			
Died during observation period (%)	8.4	9.8	9.3
Odds ratio (adjusted hazard functions)		1.25	1.25
Nursing home sample			
Died during observation period (%)	21.3	31.8	29.5
Odds ratio (adjusted hazard functions)		1.03	0.91

Note: MSHO = Minnesota Senior Health Options. Odds Ratios should be read as the comparison of the control to MSHO; therefore, a high odds ratio means the rate is higher for the control group.

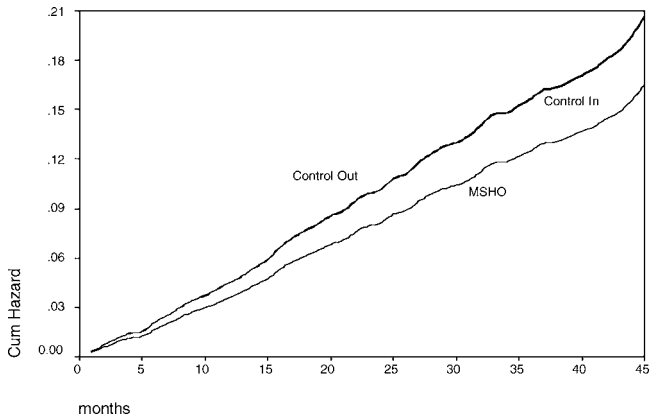

Figure 1. Adjusted hazard function for deaths in the community-dwelling cohort.

general, the level of adjustment did not have a substantial impact on the results.

Discussion

The community sample, where a difference in quality was found, favored MSHO. There was no difference in mortality. There was some decline in nursing home admission rates for short stays but no difference for long stays. The community residents experienced fewer preventable hospital and ER admissions compared to the Control–In group but not when compared to the Control–Out group.

The quality impact is somewhat more apparent among nursing home residents. Although there was no mortality effect, there were fewer preventable hospital admissions compared to the Control–In group and fewer ER visits compared to both control groups. In general, the quality-indicator results suggest that there were no impressive quality differences between the MSHO clients and those in the control groups. The quality indicators did not show strong differences, and differences that did emerge

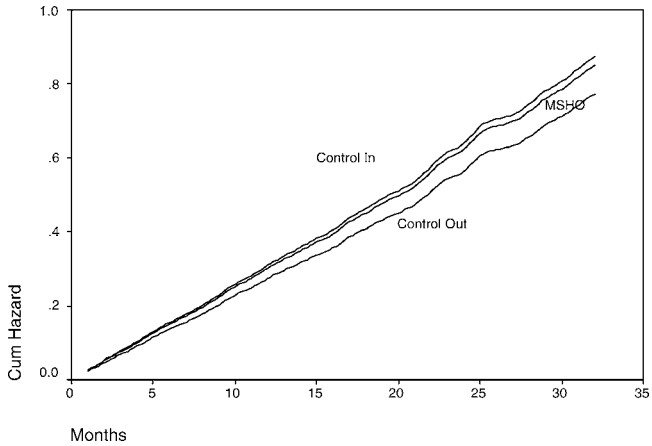

Figure 2. Adjusted hazard function for deaths in the nursing home cohort.

Table 5. Comparison of Rates of Nursing Home Admission for Community Cohort by Length of Nursing Home Stay

Variable	MSHO	Control–In	Control–Out
Nursing home stay <30 days			
Admitted during observation period (%)	4.0	6.0	7.5
Odds ratio (adjusted hazard functions)		1.49*	1.96**
Nursing home stay >60 days			
Admitted during observation period (%)	5.9	5.7	7.6
Odds ratio (adjusted hazard functions)		−0.98	1.42*
Nursing home stay >90 days			
Admitted during observation period (%)	5.4	4.7	6.1
Odds ratio (adjusted hazard functions)		−0.86	1.25

Note: MSHO = Minnesota Senior Health Option. Odds ratios should be read as the comparison of the control to MSHO; therefore, a high odds ratio means the rate is higher for the control group.
*$p < .05$; **$p < .001$.

generally did not favor MSHO. The generally low rate of significant differences likely reflects, in part, the low incidence or prevalence of some adverse events. The minimal underlying rationale for using managed care is either to control costs, which is a function of how the capitated payment rates are set, or to improve quality; ideally both could be accomplished through greater efficiencies. The major goal of MSHO focused on quality and coordination. It appears to have succeeded to a modest degree. The measures available are only proxies for quality and may miss some effects that more detailed analyses might unearth.

It may be too much to expect an impact on mortality. The pattern of preventable utilization is encouraging, but one might expect that such an effect would be reflected in the short-term use of nursing homes. However, the pattern for these two effects in community residents is different. The effect on hospitalizations is greater compared to Control–In, whereas the short-stay nursing home admission effect is greater compared to Control–Out.

The effects on preventable admissions are greater for the nursing home sample. This pattern was also seen in other studies of Evercare, which provided much of the medical care to the nursing home residents in the study, without the setting of MSHO (Kane, Flood, Bershadsky, & Keckhafer, 2004).

Limitations

This evaluation had to rely on quasi-experimental design, which introduced the possibility of selection

bias. We tried to address it by using two control groups, but such a strategy could not completely preclude the problem. No instrumental variables that might have made further adjustments could be identified.

The quality indicators have been widely used but do present some problems. We tried to address the issue of adjustment, but other problems remained. Some quality indicators are weak markers because they refer to infrequent events that require very large samples to detect differences. Moreover, it is impossible to completely separate the effects of poor nursing care from those of poor primary care. We attempted to classify the quality indicators on the basis of primary responsibility but abandoned the effort after we found considerable overlap.

As with many evaluations, one can always question whether enough time was allowed for the program to mature fully. As is often the case, the press for indications of program effectiveness as the basis for decisions about program continuation weighed against prolonged delays.

Table 6. Preventable Hospital Admissions and ER Visit at 18 Months

	Average Monthly Number per 100 Enrollees		
Cohort	MSHO	Control–In	Control–Out
Community			
Preventable hospital admissions			
Unadjusted mean monthly rates per 100 enrollees	0.71	0.92	0.76
Adjusted odds ratio of control group to MSHO		1.31*	1.51
Preventable ER visits			
Unadjusted mean monthly rates per 100 enrollees	1.89	2.42	1.71
Regression coefficient[a]		0.006***	−0.001
Nursing home			
Preventable hospital admissions			
Unadjusted mean monthly rates per 100 enrollees	0.44	0.73	0.56
Adjusted odds ratio of control group to MSHO		1.43**	1.21
Preventable ER visits			
Unadjusted mean monthly rates per 100 enrollees	1.73	2.59	2.34
Regression coefficient[a]		0.007***	0.620***

Notes: MSHO = Minnesota Senior Health Option; ER = emergency room.

[a]Coefficient is positive when the control is greater than MSHO.

*$p < .05$; **$p < .01$; ***$p < .001$.

Policy Implications

The rationale for combining Medicare and Medicaid coverage under one umbrella program is to create efficiencies and improve care coordination. The merger can result in different models. The PACE version effectively requires that the beneficiary enroll in a new system of care with a new physician (Kane, 1999). The MSHO approach requires less of a shift in service, but as a result most participating physicians have few MSHO clients each. With such a modest penetration into a given practice, it is unlikely physicians will change their modus operandi. MSHO does provide some case management, but that alone may not suffice to produce major quality effects. The one aspect of MSHO where the care model is changed is the substantial proportion of MSHO nursing home enrollees who are cared for under Evercare. That model of care, which makes active use of nurse practitioners in addition to physicians, has been shown to produce substantial reductions in hospital use (Kane, Keckhafer, et al., 2003), with no dramatic effects on quality (Kane, Flood, et al., 2004).

Putting dual eligible beneficiaries into a managed care system requires considerable effort. The policy question rests in the value of such an undertaking. The earlier, albeit incomplete, evaluation of PACE could not find strong evidence of quality benefits from this dramatic change in care provision (Chatterji et al., 1998). Nonetheless, the program was incorporated in Medicare + Choice (now called Medicare Advantage). Ideally, a managed-care program would improve quality and reduce costs. The potential for the latter is determined by the capitation rate. In the case of MSHO this rate was strongly influenced by the existing Medicaid capitation payment approach and the Medicare capitation rate-setting approach. Any gains in efficiency (and hence, reduced utilization) accrued to the managed care organization, not to the sponsoring public programs. Overall, we found little evidence that the MSHO model produced substantially higher quality. Taken together with the modest effects on utilization and other outcomes reported earlier, one has to question whether the coordination of funding streams has produced a new program that adequately addresses the problems of the dual eligible high-risk population.

One can always argue that it takes many years for a program to consolidate its effects in order to show an impact. Certainly demonstration projects are notorious for being evaluated prematurely. On the other hand, if the results of the evaluation go unheeded, demonstrations may become operational. This pattern has been seen in other programs for older

Table 7. Adjusted Odds Ratios from Quality Indicator Comprehensive Regression Model

	Period 1		Period 2		Period 3	
Quality Indicator	CI	CO	CI	CO	CI	CO
New fractures	0.74	1.66	0.77	0.25*	1.84	1.95
Prevalence of falls	1.28	1.00	1.08	1.17	1.07	1.11
Behavioral symptoms affecting others	0.83	0.98	0.80*	0.75*	0.89	0.80*
Symptoms of depression	0.84	0.71	0.73**	0.67**	0.80*	0.61***
Depression without antidepressant therapy	1.24	1.20	0.89	0.74	0.73*	0.62**
Use of $\geq$ 9 different medications	0.92	0.51***	0.83	0.70**	1.08	0.86
Incidence of new diagnosis of cognitive impairment	1.04	0.25*	1.13	0.93	1.30	1.01
Prevalence of bladder or bowel incontinence	0.79	0.73	1.06	0.81	0.86	0.75*
Occasional incontinence without toileting plan	1.21	1.05	1.21	1.19	1.01	0.79
Prevalence of indwelling catheters	1.00	0.76	1.29	1.03	1.48	1.28
Prevalence of fecal impaction	2.46	5.84	0.42	0.62	2.09	0.97
Prevalence of urinary tract infections	1.41	1.09	1.33	1.29	0.99	0.93
Prevalence of weight loss	1.39	1.28	0.92	0.66*	1.25	1.05
Prevalence of tube feeding	1.13	0.56	0.72	0.73	1.04	0.78
Prevalence of dehydration	0.74	1.83	1.73	1.02	1.22	0.70
Prevalence of bedfast residents	0.72	1.01	0.83	0.26	1.36	0.95
Incidence of decline in late-loss ADLs	0.91	0.88	0.96	0.91	0.97	0.92
Incidence of decline in range of motion	1.14	1.55	1.42*	1.60*	1.30	1.45*
Antipsychotic use with no psychotic related conditions	0.83	0.95	0.99	0.97	1.07	0.79
Prevalence of anti-anxiety or antihypnotic use	1.39*	1.78**	0.93	1.05	0.96	0.98
Hypnotic use > 2 times in the last week	2.07	2.56	0.71	0.68	1.36	1.48
Daily physical restraints	1.23	0.82	0.80	1.16	1.01	1.01
Prevalence of little or no activity	1.17	1.20	1.10	1.04	1.04	1.35*
Prevalence of Stage 1–4 pressure ulcers	1.19	2.26	0.82	1.09	0.78	0.56

Notes: CI = Control–In; CO = Control–Out; ADLs = activities of daily living. Period 1 is defined as 6–9 months after enrollment; Period 2 is defined as 12–15 months after enrollment; Period 3 is defined as 18–21 months after enrollment. Comprehensive model results are adjusted for age, gender, race, and baseline ADLs (Morris et al., 1999), length of stay, and difference between assessment dates and facilities. Odds ratios should be read as the comparison of the control to Minnesota Senior Health Option; therefore, a high odds ratio means the rate is higher for the control group. Because the quality indicators reflect quality problems, higher rates imply poorer quality.

*$p < .05$; **$p < .01$; ***$p < .001$.

people, like the Social HMOs, which continued to operate long after their evaluation suggested that they made only modest effects at best. It took more than a decade before their privileged status was removed.

The current administration has demonstrated a strong belief in the role of capitation as at least a partial response to the growing costs of public medical programs like Medicare and Medicaid. The provisions of the Medicare Modernization Act of 2003, which subsidize Medicare managed care, reflect that commitment but also suggest that managed care will not save Medicare money. Savings for any efficiencies produced go to the managed-care organization. The cost to the government is determined by the fees negotiated.

In theory, managed care should serve as a viable vehicle to achieve the objectives of chronic disease care. It allows for investment in assessment and more aggressive primary care that should produce subsequent savings through reduced hospital utilization. It facilitates the use of different staffing mixes, including greater use of nurse practitioners. However, this potential remains unrealized. (Kane, 1998; Kane, Priester, & Totten, 2005) Indeed, observers of the chronic care scene have argued that there is not yet a strong business case for good chronic care (Bringewatt, 2001).

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