Primary Care Quality in the Medicare Program

Comparing the Performance of Medicare Health Maintenance Organizations and Traditional Fee-for-Service Medicare

Dana Gelb Safran, ScD; Ira B. Wilson, MD, MSc; William H. Rogers, PhD; Jana E. Montgomery, ScM; Hong Chang, PhD

Background: Since 1972, Medicare beneficiaries have had the option of enrolling in a Medicare-qualified health maintenance organization (HMO). Little information exists to inform beneficiaries’ choices between the traditional fee-for-service (FFS) Medicare program and an HMO.

Objectives: To compare the primary care received by seniors in Medicare HMOs with that of seniors in the traditional FFS Medicare program, and among HMOs, and to examine performance differences associated with HMO model-type and profit status.

Methods: Data were derived from a cross-sectional observational survey of Medicare beneficiaries 65 years or older in the 13 states with mature, substantial Medicare HMO markets. Only beneficiaries continuously enrolled for 12 months or more in traditional FFS Medicare or a qualified Medicare HMO were eligible. Data were obtained using a 5-stage protocol involving mail and telephone (64% response rate). Analyses included respondents who identified a primary physician and had all required data elements (N=8828). We compared FFS and HMO performance on 11 summary scales measuring 7 defining characteristics of primary care: (1) access, (2) continuity, (3) integration, (4) comprehensiveness, (5) “whole-person” orientation, (6) clinical interaction, and (7) sustained clinician-patient partnership.

Results: For 9 of 11 indicators, performance favored traditional FFS Medicare over HMOs (P<.001). Financial access favored HMOs (P<.001). Preventive counseling did not differ by system. Network-model HMOs performed more favorably than staff/group–model HMOs on 9 of 11 indicators (P<.001). Few differences were associated with HMO profit status.

Conclusions: The findings are consistent with previous comparisons of indemnity insurance and network-model and staff/group–model HMOs in elderly and nonelderly populations. The stability of results across time, geography, and populations suggests that the relative strengths and weaknesses of each system are enduring attributes of their care. Medicare enrollees seem to face the perennial cost-quality trade-off: that is, deciding whether the advantages of primary care under traditional FFS Medicare are worth the higher out-of-pocket costs.

Arch Intern Med. 2002;162:757-765
METHODS

Data for these analyses are the first to be published from the Study of Choice and Quality in Senior Health Care, a longitudinal observational study of elderly Medicare beneficiaries in 13 states (Arizona, California, Colorado, Florida, Illinois, Massachusetts, Minnesota, New Mexico, New York, Oregon, Pennsylvania, Texas, and Washington). The study compared the primary care performance and outcomes of the traditional Medicare and Medicare HMO systems. These analyses use baseline data (1998).

STUDY DESIGN AND SAMPLING

Sampling for the study occurred in 3 consecutive stages: first, the states were selected; second, we selected HMOs within the chosen states; and finally, beneficiaries were selected from qualifying HMOs and from the traditional FFS Medicare program. Because the study goal was to evaluate Medicare HMOs in their mature—not nascent—stages, we excluded states and plans within states where managed Medicare was newly emerging.

The inclusion criteria for states were that there be at least 5% enrollment in managed Medicare as of 1994 or earlier, and that there be at least 1 market containing 2 or more mature Medicare HMOs. All states meeting these criteria were included (n = 13). Nationwide, 80% of Medicare HMO enrollees and 28% of FFS Medicare enrollees reside in these 13 states.

The inclusion criteria for Medicare HMOs within qualifying states were as follows: (1) a risk contract with the Health Care Financing Administration (HCFA) (now called the Centers for Medicare and Medicaid Services); (2) substantial enrollment (≥2500 enrollees) since 1994 or before; and (3) at least 3000 enrollees at the time of sampling (September 1998). All Medicare HMOs meeting these criteria (n = 121) were included. These HMOs cover 99.2% of Medicare HMO enrollees in the 13 study states. Rural areas were almost entirely excluded from the study owing to the absence of any such areas with 2 or more well-established Medicare HMOs.

Eligibility criteria for beneficiaries were the following: (1) age 65 years or older; (2) payment of Medicare Part B premium (by beneficiary or other payee); (3) residence in one of the 13 qualifying states; and (4) continuous enrollment for 1 year or more in the traditional FFS Medicare program or in one of the qualifying Medicare HMOs. The latter criterion was imposed to assure that study participants had experience on which to evaluate their care and to avoid the high rates of disenrollment that occur during the initial months of participation in a Medicare HMO,13,21 which would impede longitudinal analyses. In addition, because data collection was primarily by self-administered questionnaires, we excluded patients meeting any of the following 3 criteria indicated on the HCFA data file: (1) principal language other than English; (2) residence in a skilled nursing facility; or (3) representative payee listed, indicating that the patient did not manage his or her own affairs.

The HCFA provided data files for sampling. The files included listings for all elderly beneficiaries from the 13 study states who had been continuously enrolled for 1 year or more in the traditional FFS Medicare program (n = 6,236,793) or in their current HMO (n = 2,903,002). From these files, a starting sample of 10,666 Medicare HMO enrollees and 5,332 traditional FFS Medicare enrollees was drawn (n = 15,998). The HMO enrollees were randomly selected from the 121 qualifying plans, with sample sizes defined in accordance with the study’s allocation model results. An allocation model is a sampling method that assigns the exact numbers of individuals to be sampled from each entity (eg, HMO) by simulating the study’s principal regression analyses and minimizing the estimation variance for these analyses.21 Using this method, the largest HMOs contributed approximately 0.2% of their members to the sample, and the smallest HMOs contributed approximately 0.4% of their members. Under straight proportional sampling, each plan would have contributed roughly 0.26% of its members to the sample.

Once the HMO sample was drawn, FFS beneficiaries were matched to HMO beneficiaries based on age, sex, and residential ZIP code, and then randomly sampled in a 1:2 ratio (1 FFS enrollee to 2 HMO enrollees). Matching at baseline enabled the study to more appropriately compare enrollees in the FFS and HMO systems in certain types of analyses, including outcomes over the ensuing years.

DATA COLLECTION

Baseline data were obtained using a standard 5-stage survey protocol involving mail and telephone.23 The protocol included (1) an advance letter signed by the HCFA administrator; (2) an initial survey mailing; (3) a reminder postcard; (4) a second survey mailing; and (5) telephone follow-up using up to 10 attempts. An abbreviated survey was administered in telephone interviews. The abbreviated survey was mailed to nonrespondents with no telephone number available. Long-form surveys were completed between October 1998 and December 1998, and short-form surveys were completed between January 1999 and March 1999. This protocol yielded 9,625 responses—8,118 long-forms and 1,507 short-forms (404 by mail and 1,103 by telephone)—for a baseline response rate of 64% after deceased beneficiaries and bad addresses were removed (9,625/15,140). Administrative data from the HCFA revealed that nonrespondents were older and included more nonwhites and women than respondents (data available at: http://www.nemc.org/general; accessed January 29, 2002). Similarly, delayed respondents (short-form mail and telephone)—whose characteristics are presumed to approximate those of nonrespondents—were more likely than early respondents to have specific characteristics: (1) accessibility, (2) continuity, (3) comprehensiveness, (4) integration, (5) clinical management, (6) a “whole-person” orientation, (7) and a sustained clinician-patient partnership.7,12 Numerous studies have compared performance of indemnity and managed care systems on 1 or more of these attributes, and some have...
The long-form survey contained 190 items covering 7 topic areas: (1) primary care quality, (2) health care coverage, (3) health care spending, (4) medication regimen, (5) health status, (6) health care utilization, and (7) socioeconomic characteristics. The short-form survey contained 103 items covering the same 7-topic areas in a more limited way. All modules derived from instruments that had been extensively tested and validated.24,30 The primary care module included the Primary Care Assessment Survey (PCAS), a validated questionnaire that uses 11 summary scales to measure 7 defining characteristics of primary care named by the Institute of Medicine and others7-12: (1) accessibility, (2) continuity, (3) integration, (4) comprehensiveness, (5) a whole-person orientation, (6) clinical management, and (7) a sustained clinician-patient partnership. These analyses group the 11 PCAS scales into 2 categories: structural features of care and quality of physician-patient interactions. Table 1 summarizes the item content for the PCAS scales. The PCAS does not assess technical aspects of clinical quality because of limitations of patient-provided information about these issues.31-34 Further detail about the development and validation of the PCAS is available elsewhere.26,33

STATISTICAL ANALYSES

Analyses included all baseline respondents who reported having a primary physician and who had all required data elements (n=8828). Analyses excluded those without a primary physician (n=245 from FFS; n=408 from HMOs) and those for whom essential data were missing (n=144). Beneficiaries’ enrollment status (traditional FFS Medicare vs Medicare HMO) was known from administrative data provided by the HCFA; and for HMO enrollees, HCFA administrative data indicated the HMO model-type (IPA/network vs staff/group) and tax status (for-profit vs not-for-profit). All other data for analyses were obtained from beneficiaries through their completed questionnaires.

We compared the sociodemographic and health profiles of beneficiaries in traditional FFS Medicare with those in Medicare HMOs overall and by HMO model-type and tax status. Next, we used multivariable linear regression to model performance on each of the 11 PCAS scales as a function of Medicare delivery system (traditional FFS Medicare vs Medicare HMO), controlling for beneficiaries’ sociodemographic profile (age, sex, race, and years of education), state, and 11 chronic conditions that are sensitive to good primary care management and that are highly prevalent among US adults 65 years and older (hypertension, angina, congestive heart failure, recent myocardial infarction, stroke, asthma, emphysema, chronic obstructive pulmonary disease, diabetes, arthritis, and cancer).25

The effect of HMO model-type was tested in separate models with binary indicators of HMO model-type (IPA/network, staff/group) and traditional FFS Medicare as the reference group, with control variables as noted above. We tested for interactions between state and system (FFS, IPA/network, staff/group). For each HMO model-type (IPA/network, staff/group), we tested for individual plan effects using analysis of variance methods, modeling each PCAS scale as a function of patient characteristics and plan identifiers. The effect of HMO tax status was tested in models with binary indicators of for-profit and not-for-profit HMOs controlling for HMO model-type and the set of variables noted above.

We tested the sensitivity of the analytic results to patients’ years of experience with their current primary care physician (relationship duration) and years of enrollment in their current Medicare delivery system (FFS or current HMO) by adding indicators of these 2 characteristics to all regression models.

To test for effects of the long-form vs short-form PCAS scales, all analyses were performed in 3 ways, and the results compared: (1) long-form scales with long-form respondents only; (2) short-form scales with the full analytic sample; and (3) long-form scales with the full analytic sample, where long-form values for short-form respondents were estimated using seemingly unrelated regression methods.35 The results were the same in all 3 methods. We therefore report the results from the third method to make use of the full analytic sample and to permit comparison of the study data to other published studies that have used the long-form scales.28,29,36-40

Finally, for each model, we tested the sensitivity of the system effects to patient health status through the use of interaction terms. We tested 2 sets of models including interactions between system (traditional FFS Medicare, IPA/network-model HMO, or staff/group-model HMO) and health status. The first set evaluated the interaction between the system and the count of chronic medical conditions (a binary indicator differentiating patients with 2 or more conditions from those with 1 or no conditions). The second set evaluated the interaction between the system and a summary indicator of health status from the Short-Form 36-Item Survey24 (a binary indicator differentiating patients with physical health index scores below the national mean for adults 65 years and older [41 points]44 from those at or above the national mean for this age cohort).

Probability sampling weights, derived as the inverse of sampling probabilities, were applied to all analyses to correct for the effects of differences across the strata. The statistical software used in our analyses (STATA 6.0) takes these weights into account when computing the SE. P values in regression analyses were corrected for multiple comparison by means of the Bonferroni method for individual t tests to account for analysis of 11 dependent variables.
Table 2 summarizes the sociodemographic and health characteristics of the analytic sample, comparing those in the traditional FFS Medicare program (n = 2545) with those in Medicare HMOs (n = 6283), and among HMO enrollees, comparing those in IPA/network–model HMOs (n = 3913) with those in staff/group–model HMOs (n = 2370). On average, HMO enrollees were younger, more likely to be poor (yearly household income <$20,000), more likely to be Hispanic, and healthier than their counterparts in traditional FFS Medicare. Traditional FFS Medicare enrollees had more chronic health conditions (P < .001) and lower functional status as measured by basic activities of daily living (P < .001), instrumental activities of daily living (P < .001), and the physical component summary index of the SF-36 (P < .05). There were few demographic or health differences between the 2 HMO model-types, except with respect to race.

Primary care performance comparisons among the Medicare delivery systems are summarized in Table 3. Overall, performance favored traditional FFS Medicare over Medicare HMOs on 9 of 11 PCAS scales in analyses that did not differentiate between HMO model-type. Financial access to care was significantly better among Medicare HMO enrollees (P < .001), and preventive counseling did not differ by delivery system. The traditional FFS Medicare system performed significantly better on organizational access to care, duration of primary care relationships, visit-based continuity, and all scales pertaining to the quality of the physician-patient interaction (P < .001). The magnitude of the differences between systems—measured by the standardized effect size (ES) —ranged from 0.17 to 0.38 for structural features of care and from 0.16 to 0.25 for scales measuring the quality of the physician-patient interaction (ES = [mean FFS score – mean HMO score]/scale SD). Overall, the largest differences were those associated with financial access (ES = 0.38 favoring HMO), relationship duration (ES = 0.30 favoring FFS), and visit-based continuity (ES = 0.28 favoring FFS). The smallest significant differences were those associated with the thoroughness of physical examinations (ES = 0.16 favoring FFS), organizational access to care (ES = 0.17 favoring FFS), and trust (ES = 0.17 favoring FFS). The results were unchanged when probability sampling weights were excluded from analyses and were insensitive to controls for primary care relationship duration and tenure in current Medicare de-
Association; ADL, activities of daily living; and CS, component summary. Sampling probability weights were applied to all calculations.

Interactions between delivery system and staff/group (formed significantly better on 9 of 11 PCAS scales when compared with the other model HMOs) and FFS were in favor of IPA/networks. Comparing IPA/network models with FFS, the effect sizes associated with tax status were in visit-based continuity (ES=0.26 favoring for-profit HMOs) and relationship duration (ES=0.17 favoring not-for-profit HMOs). For organizational access, financial access, and preventive counseling, the effect sizes associated with tax status were small (ES=0.09, 0.08, and 0.08, respectively).

**COMMENT**

In the year 2000, nearly 20% of elderly Medicare beneficiaries were enrolled in a Medicare HMO compared with 6% in 1990. While new initiatives provide comparative data about individual Medicare HMOs to inform beneficiaries’ choices, there is little information comparing the performance of Medicare HMOs with the traditional FFS Medicare program. Two large-scale evaluations of Medicare HMOs vs traditional FFS Medicare (NMCE and TEFRA) were conducted more than a decade ago, when there were only a few dozen Medicare HMOs nationwide and enrollment in them was limited to select populations in select geographic areas. In this context, the present study affords the first comparison of the Medicare HMO in Arizona, which scored significantly higher than FFS (and IPA/networks) in that geographic area on 3 dimensions of care (organizational access, integration, and thoroughness of physical examinations).

Health maintenance organization tax status was associated with significant performance differences for 4 of 5 structural features of primary care and 1 element of the physician-patient interaction (Table 4). The largest differences associated with tax status were in visit-based continuity (ES=0.26 favoring for-profit HMOs) and relationship duration (ES=0.17 favoring not-for-profit HMOs). For organizational access, financial access, and preventive counseling, the effect sizes associated with tax status were small (ES=0.09, 0.08, and 0.08, respectively).

**Table 2. Characteristics of the Analytic Sample**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Traditional FFS Medicare (n = 2545)</th>
<th>All Types (n = 6283)</th>
<th>IPA/Network Model (n = 3913)</th>
<th>Staff/Group Model (n = 2370)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sociodemographic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>75.7 (6.5)</td>
<td>74.8 (6.3)</td>
<td>74.9 (6.4)</td>
<td>74.7 (6.1)</td>
</tr>
<tr>
<td>Female</td>
<td>61</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>86</td>
<td>84</td>
<td>85</td>
<td>82</td>
</tr>
<tr>
<td>Black</td>
<td>5</td>
<td>5</td>
<td>4‡</td>
<td>7#</td>
</tr>
<tr>
<td>Asian</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4</td>
<td>4¶</td>
<td>7¶</td>
<td>5</td>
</tr>
<tr>
<td>Low yearly income, &lt; $20,000</td>
<td>39</td>
<td>48‡</td>
<td>49¶</td>
<td>45#</td>
</tr>
<tr>
<td>Married</td>
<td>57</td>
<td>58</td>
<td>57</td>
<td>60</td>
</tr>
<tr>
<td>Employed, full or part time</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>High school diploma</td>
<td>79</td>
<td>77</td>
<td>76#</td>
<td>78</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic conditions‡</td>
<td>2.1 (1.6)</td>
<td>1.8 (1.4)</td>
<td>1.8 (1.4)</td>
<td>1.8 (1.4)</td>
</tr>
<tr>
<td>Basic ADL¶</td>
<td>97.7 (9.4)</td>
<td>98.9 (6.2)</td>
<td>99.0 (5.9)</td>
<td>98.8 (6.6)</td>
</tr>
<tr>
<td>Instrumental ADL¶</td>
<td>90.5 (19.3)</td>
<td>93.7 (14.7)</td>
<td>93.8 (14.5)</td>
<td>93.6 (15.0)</td>
</tr>
<tr>
<td>Physical CS§</td>
<td>41.5 (11.8)</td>
<td>42.8 (11.3)</td>
<td>42.8 (11.4)</td>
<td>42.8 (11.3)</td>
</tr>
<tr>
<td>Mental CS§</td>
<td>51.6 (9.4)</td>
<td>51.7 (9.2)</td>
<td>51.9 (9.2)</td>
<td>51.4 (9.3)</td>
</tr>
<tr>
<td>Overall health, rated as “poor”</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

*All data are mean (SD) or percentage of analytic sample. FFS indicates fee-for-service; HMO, health maintenance organization; IPA, independent practice association; ADL, activities of daily living; and CS, component summary. Sampling probability weights were applied to all calculations.

†Scores range from 0 (cannot perform any ADL, even with help) to 100 (complete independence).
‡From a checklist of 11 chronic conditions with high prevalence among US adults aged 65 years or older.
§From the MOS (Medical Outcomes Study) Short-Form 36-Item Health Survey (SF-36).
¶P<.001 in comparison with the traditional FFS Medicare program.
#P<.01 in comparison with the traditional FFS Medicare program.
P<.05 in comparison with the traditional FFS Medicare program.

livery system. Interactions between delivery system and patient health status showed no significant effects.

Differences between the 2 HMO model-types and traditional FFS Medicare showed the identical pattern in terms of direction and statistical significance of effects, although the magnitude of the differences between IPA/network–model HMOs and FFS were consistently smaller than the differences between staff/group–model HMOs and FFS. The most substantial difference between IPA/network–model HMOs and FFS was in the areas of financial access to care (ES=0.33 favoring HMO) and duration of primary care relationships (ES=0.27 favoring FFS). The largest differences between staff/group–model HMOs and FFS were in financial access (ES=0.47 favoring FFS), visit-based continuity (ES=0.45 favoring FFS), and physician’s knowledge of the patient (ES=0.37 favoring FFS). Comparing IPA/network–model HMOs and staff/group–model HMOs with each other, the IPA/network models performed significantly better on 9 of 11 PCAS scales (P<.001). Financial access to care was more favorable in staff/group–model HMOs (P<.001), and the model-types did not differ with respect to preventive counseling.

Analysis of variance results revealed no significant plan effects within HMO model-type. Models including state-system interaction terms revealed no significant state-system interactions in IPA/network vs FFS comparisons and limited state-system interactions in staff/group vs FFS analyses. The latter interactions were accounted for almost exclusively by the performance of 1 staff/group–model HMO in Arizona, which scored significantly higher than FFS (and IPA/networks) in that geographic area on 3 dimensions of care (organizational access, integration, and thoroughness of physical examinations).
Traditional and managed Medicare systems since Medicare HMOs have become a substantial player in the US health care delivery system.

Overall, the findings reveal that primary care performance favors the traditional FFS Medicare system over Medicare HMOs for 9 of 11 features of care that were examined. A salient advantage of Medicare HMOs was their superior financial access to care (ie, fewer cost-related barriers to care). Among HMOs, IPA/networks emerged with more favorable performance than staff/group—

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Traditional FFS Medicare (n = 2545)</th>
<th>Medicare HMOs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>All Types (n = 6283)</td>
<td>IPA/Network-Model (n = 3913)</td>
</tr>
<tr>
<td>Structural features</td>
<td>0.17-0.38 †</td>
<td>0.10-0.33 †</td>
<td>0.28-0.47 †</td>
</tr>
<tr>
<td>Access to care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational</td>
<td>67.7</td>
<td>64.7 ‡</td>
<td>66.0 §</td>
</tr>
<tr>
<td>Financial</td>
<td>37.5</td>
<td>45.2 ‡</td>
<td>44.1 §</td>
</tr>
<tr>
<td>Continuity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship duration</td>
<td>81.6</td>
<td>73.4 ‡</td>
<td>74.1 §</td>
</tr>
<tr>
<td>Visit-based</td>
<td>94.6</td>
<td>90.7 ‡</td>
<td>92.1 §</td>
</tr>
<tr>
<td>Integration</td>
<td>75.6</td>
<td>72.4 ‡</td>
<td>73.6 §</td>
</tr>
<tr>
<td>Quality of physician-patient interaction</td>
<td>0.16-0.25 †</td>
<td>0.11-0.18 †</td>
<td>0.23-0.37 †</td>
</tr>
<tr>
<td>Whole-person orientation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician knowledge of the patient</td>
<td>68.8</td>
<td>63.8 ‡</td>
<td>65.2 §</td>
</tr>
<tr>
<td>Preventive counseling</td>
<td>57.6</td>
<td>56.0</td>
<td>55.7</td>
</tr>
<tr>
<td>Clinical interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thoroughness of physical examinations</td>
<td>76.2</td>
<td>73.1 ‡</td>
<td>73.9 §</td>
</tr>
<tr>
<td>Communication quality</td>
<td>79.8</td>
<td>76.4 ‡</td>
<td>77.2 §</td>
</tr>
<tr>
<td>Interpersonal treatment</td>
<td>76.5</td>
<td>72.7 ‡</td>
<td>73.9 §</td>
</tr>
<tr>
<td>Patient trust</td>
<td>78.5</td>
<td>76.0 ‡</td>
<td>74.6 §</td>
</tr>
</tbody>
</table>

*FFS indicates fee-for-service; HMO, health maintenance organization; and IPA, independent practice association.
†Range of standardized effect sizes (ES) relative to traditional FFS Medicare for all scales within that measurement domain for which systems differed significantly (P<.01); ES = difference in mean scores/scale SD.
‡P<.001 for FFS vs HMO.
§P<.001 for FFS vs IPA.
¶P<.001 for FFS vs staff/group.
||P<.001 for IPA vs staff/group.

Table 4. Adjusted Comparison of Not-for-Profit and For-Profit Medicare HMOs*

<table>
<thead>
<tr>
<th>Structural Features</th>
<th>Not-for-Profit HMO (n = 2601)</th>
<th>For-Profit HMO (n = 3682)</th>
<th>Standardized Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to care</td>
<td>63.7</td>
<td>65.3 †</td>
<td>0.09</td>
</tr>
<tr>
<td>Organizational</td>
<td>46.1</td>
<td>44.4 ‡</td>
<td>0.08</td>
</tr>
<tr>
<td>Continuity</td>
<td>88.5</td>
<td>92.3 §</td>
<td>0.26</td>
</tr>
<tr>
<td>Visit-based</td>
<td>76.1</td>
<td>71.3 §</td>
<td>0.17</td>
</tr>
<tr>
<td>Relationship duration</td>
<td>72.2</td>
<td>72.3</td>
<td>NS</td>
</tr>
</tbody>
</table>

*Unless otherwise indicated, data are adjusted mean scores (0-100) from the Primary Care Assessment Survey (PCAS). For further explanation of PCAS, see the Data Collection subsection of the “Methods” box herein. HMO indicates health maintenance organization; NS, not significant.
†P<.01.
‡P<.05.
§P<.001.
||Standardized effect size = (mean_not-for-profit score − mean_for-profit score)/scale SD.
model HMOs on 9 features of care, but performed less favorably than traditional FFS Medicare on those same features. The results did not differ for patients in better or worse health, and the relative performance of the systems was the same in all 13 states, with the exception of 1 staff/group–model HMO that outperformed FFS and IPA/networks in its area (Arizona) on 3 aspects of care. The findings are markedly consistent—in both direction and magnitude of effect—with previous comparisons of indemnity and managed care systems’ performance on the defining elements of primary care. We summarize this literature below.

STRUCTURAL FEATURES OF CARE

Like the present study, previous studies of access and continuity have consistently found HMO enrollees to report more favorable financial access than patients with indemnity insurance, while organizational access and continuity of care have favored indemnity insurance over HMOs.\textsuperscript{1,5-20,31,43-48} Studies that have differentiated HMOs by model-type have found, as we did, that financial access favored staff/group–model HMOs, while organizational access and primary care relationship duration were least favorable in staff/group–model HMOs.\textsuperscript{7,18,47,48} Although few studies have examined visit-based continuity, the present study replicates findings from a study of commercially insured adults, which found visit-based continuity to be highest among those with indemnity insurance, intermediate in IPA/network–model HMOs, and the lowest in staff/group–model HMOs.\textsuperscript{19}

Previous studies’ findings regarding integration of care also accord with our observations. The TEFRA evaluation found higher levels of integration in traditional FFS Medicare than in Medicare HMOs among patients seen for joint pain (n=4252) or chest pain (n=1080).\textsuperscript{16} The TEFRA evaluation did not differentiate among HMO model-types. Recent studies of commercially insured adults found better integration of care reported by patients with indemnity insurance than by HMO enrollees.\textsuperscript{18,50} and when HMO model-type was distinguished, found more integrated care reported by IPA/network–model HMO members than by those in staff/group–model HMOs.\textsuperscript{18}

QUALITY OF PHYSICIAN-PATIENT INTERACTIONS

Our findings with respect to the quality of physician-patient interactions are also consistent with previous research in Medicare and non-Medicare study populations. Both the NMCE and TEFRA evaluations found that communication quality favored traditional FFS Medicare over Medicare HMOs—with Medicare HMO enrollees more likely to report that clinicians did not explain medical problems sufficiently.\textsuperscript{15} and that explanations were poor.\textsuperscript{15} The TEFRA study found less favorable interpersonal treatment reported by Medicare HMO enrollees than by those in traditional FFS Medicare.\textsuperscript{15} Among non-Medicare study populations, patients’ assessments of both communication quality and interpersonal treatment have consistently favored patients in indemnity ins-

surance over those in HMOs, and among HMO members, have found those in staff/group–model HMOs to report significantly less favorable communication and interpersonal treatment than their counterparts in IPA/network–model HMOs.\textsuperscript{17,18,20,31,44,45} Only 1 previous study has compared system performance with regard to a whole-person orientation and patient trust.\textsuperscript{18} and that study’s findings in a commercially insured adult population mirrored those observed here among Medicare enrollees.

Finally, evidence regarding preventive care remains mixed. In 1985-1986, the NMCE found higher rates of preventive screening in staff/group–model HMOs than in IPA/systems or in traditional FFS Medicare.\textsuperscript{14} while in 1990, the TEFRA evaluation found more preventive counseling reported among traditional FFS Medicare enrollees than among those in Medicare HMOs.\textsuperscript{15} The present study found no significant differences in the rates of preventive counseling (smoking, alcohol use, diet, exercise) among Medicare beneficiaries by delivery system, although rates of counseling seemed low in all systems.

LIMITATIONS

There are several relevant limitations to this study. First, we did not evaluate technical elements of clinical quality. Studies comparing system performance on technical elements of quality are needed to further our understanding of the relative strengths and weaknesses of the systems.

Second, because of nonresponse, the study under-represents seniors from racial and ethnic minority groups, those who are in frail health, and those who are socio-economically disadvantaged because of low levels of education and/or income. Detailed assessment of the primary care experiences and views of Medicare beneficiaries in these vulnerable population subgroups would provide a fuller understanding of the relative performance of the traditional and managed Medicare systems.

Third, there are only limited benchmarks available with which to frame the observed system differences in terms of their clinical and/or market significance. While the PCAS scales have been shown to predict outcomes, including patients’ adherence to medical advice and voluntary disenrollment from a primary care physician’s practice,\textsuperscript{50-51,52} we do not yet know whether the magnitude of the observed differences between Medicare systems will be associated with clinically important outcome differences. In absolute terms, however, the magnitude of the observed system differences (ie, standardized effect sizes averaging 0.17 for traditional FFS Medicare vs IPA/network–model HMO comparisons and 0.32 for traditional FFS Medicare vs staff/group–model HMOs) are comparable with the effect sizes observed for common pharmacologic therapies on patients’ functional health status. For example, the effect sizes associated with omeprazole (vs placebo) in the treatment of reflux symptoms, fluticasone (vs placebo) in the treatment of asthma, and salmeterol (vs placebo) in the treatment of chronic obstructive pulmonary disease are 0.30, 0.27, and 0.17, respectively, when net changes in physical health status are assessed.\textsuperscript{33-35}
Finally, the study is restricted to states and areas within states with at least 2 large, mature Medicare HMOs. While 99% of Medicare HMO enrollees nationally reside in the states and plans studied, only 28% of traditional FFS Medicare beneficiaries reside here. It is unclear whether the observed performance of the traditional FFS Medicare system generalizes to areas in which Medicare HMO presence in the market is more limited or is altogether absent.

CONCLUSIONS

The results of this study, together with 25 years of research evaluating performance differences among delivery systems, suggest that the observed differences between indemnity insurance and HMOs (and within HMOs, between IPA/network– and staff/group–model plans) are enduring features of primary care performance that persist across time, geography, and population. The consistent findings across multiple studies suggest that there is something structurally different about the way primary care is provided in HMOs and, in particular, in staff/group–model HMOs, that leads to these differences. Members of our group have previously hypothesized that the observed performance differences arise from multiple factors including a different orientation toward the role of the “team” in open- vs closed-model practice settings, and differences in the professional expectations and preferences of physicians attracted to practice in these different types of organizations. Closed-model practice settings refer to those in which physicians work exclusively for 1 health plan (ie, staff/group–model HMOs), while open-model settings refer to those in which physicians accept patients from multiple health plans (eg, indemnity insurance, IPA/network–model HMOs, and preferred provider organizations). For whatever combination of reasons, open- and closed-model practices seem to consistently produce very different rates of visit-based continuity, and perhaps related to that, patients in closed-model settings consistently report less rich and less enduring clinician-patient relationships (as measured by shorter primary care relationships, lower scores on interpersonal treatment, physician's knowledge of the patient, quality of communication, and patient trust).17

The perennial question remains: are the differences in the quality of relationships, quality of the clinical encounter, organizational access, and integration worth the higher out-of-pocket costs paid by beneficiaries in traditional FFS Medicare vs Medicare HMOs? What individuals are willing to spend on quality will continue to depend on their individual values and preferences. At a minimum, society can offer information to inform beneficiaries about the trade-offs. At a maximum, policymakers can intervene if quality does not meet an agreed-on standard. These data suggest that we can reliably tell patients what key differences in primary care will be in indemnity insurance arrangements, IPA/network–model HMOs, and staff/group–model HMOs. The advantage of the traditional FFS Medicare system—as discerned from the experiences of enrollees—is more personalized, patient-oriented, integrated primary care. The advantages of Medicare HMOs are lower out-of-pocket costs, minimal paperwork, and in some cases expanded benefit package (eg, drug coverage, eyeglasses, and dental care). The latter advantage has been eroding in the wake of the 1997 Balanced Budget Amendment because Medicare HMOs face declining margins with which to offer discretionary benefits. As the benefit packages of traditional FFS Medicare and Medicare HMOs converge, our results suggest that beneficiaries are increasingly left with a trade-off involving differences in cost and quality.

Accepted for publication August 2, 2001.

This research was supported by grant R01 HS09622 from the Agency for Healthcare Research and Quality, Rockville, Md, and the National Institute on Aging, Bethesda, Md. We gratefully acknowledge Renee Mentneh, Kim Elmo, and Russ Patterson at HCFA, whose commitment to this research and facilitation of our data requests have made the study possible. We are also indebted to Carlos Zarabozo (HCFA) and Joseph P. Newhouse, PhD (Harvard Medical School), who have been invaluable resources and offered keen insights throughout the project.

We also gratefully acknowledge Brian Claridge, PhD (Center for Survey Research, University of Massachusetts), and Tim Nanneman, PhD (Roper Starch Worldwide), and their colleagues for their technical expertise and commitment to excellence in obtaining the data from Medicare enrollees, and Barbara Seltzer for her dedicated assistance in preparing the manuscript.

Corresponding author and reprints: Dana Gelb Safran, ScD, The Health Institute, 750 Washington St, Box 345, Boston, MA 02111 (e-mail: dsafran@lifespan.org).

REFERENCES


