
Use of HOS Data in Florida

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The Medicare Health Outcomes Survey (HOS) is a longitudinal cohort study that assesses physical and mental functioning of Medicare enrollees in MCPs. Realizing the potential of HOS data to improve health care, the Florida Medicare Quality Improvement Organization (QIO) analyzed HOS scores and shared them with M+COs to assist in evaluating the efficacy of their disease management programs. The QIO also discusses additional uses for HOS data such as cross-linking with a patient satisfaction survey and sharing with health care organizations that collaborate with the QIO.

INTRODUCTION

Process and outcome are measures used to evaluate quality in health care. Due to the appropriateness of severity adjustment and the long wait times for outcomes, these measures are not always valid for health care quality improvement, especially when comparisons are used. Process measures are easier to measure and compare, but their validity is harder to prove. Although mortality has been used as an important outcome measure, life is not just a measurement of years between life and death. The quality of life should also be measured. Functional assessment can partially measure quality of life. The HOS provides a way to describe the general quality of life of Medicare beneficiaries.

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HOS uses a set of survey questions known as the SF-36[®] to measure the physical functioning and mental well-being of a group of Medicare beneficiaries over 2-year periods of time (Bierman et al., 2001). The survey yields a mental component summary (MCS) and a physical component summary (PCS), which are reliable and valid measures of mental and physical health. These functional assessment scores are measures that can be used to evaluate M+CO disease management programs and national quality improvement projects.

HOS is the first Medicare managed care survey to measure functional outcomes over time (Haffer et al., 2003). Since its inception in 1998, HOS has provided one of the largest cohort studies available studying the Medicare population and managed care. HOS was launched by CMS in collaboration with the National Committee for Quality Assurance (NCQA) under 2003 HEDIS[®]. HOS measures whether enrollees in a particular M+CO maintained, improved, or declined in physical and mental health. Additional items included in HOS allow for case-mix adjustment and were necessary for reliable M+CO-to-M+CO comparisons of health outcomes.

The HOS sample is taken each year from approximately 1,000 Medicare enrollees from each M+CO throughout the United States. Enrollees remaining in the same plan are resampled after 2 years and measured for changes in their perceived health outcomes. The outcomes measured over the 2-year period are described as change scores. The first group of enrollees (Cohort I) was sampled in 1998. Change

scores for Cohort I were obtained by resampling Cohort I enrollees in 2000. The sample size makes HOS an extremely large longitudinal cohort study that can be useful in assessing the quality and performance of M+COs. The Florida Cohort IV sample (2001 data) comprises 18,505 randomly selected Medicare beneficiaries from 16 M+COs, and 19 market areas with a total of 9,513 completed surveys and a valid response rate of 51.4 percent. Results can be compared nationally and with other State M+COs.

A major function of M+COs is to promote high quality health care. Disease management programs and health care quality improvement projects have been a major effort in achieving this quality. Proper evaluation of these programs and projects with sharing of best practices will help M+COs to maintain and consolidate their achievements.

QIOs are organizations of health care professionals dedicated to monitoring and improving the quality of health care. Florida Medical Quality Assurance, Inc. (FMQAI) is the Medicare QIO in Florida under contract with CMS to monitor, assess, and improve quality in all settings using data from a variety of sources.

CMS has been collecting HOS and CAHPS®, (Agency for Healthcare Research and Quality, 2003) a patient satisfaction survey to evaluate overall trends for the M+COs, since 1998 (Centers for Medicare & Medicaid Services, 2003). QIOs are encouraged to analyze these data sets to identify opportunities to improve care in the managed care setting.

M+COs in the State were educated about HOS data and were given examples demonstrating how to measure and trend the effectiveness of their disease management programs. The MCS, PCS, and change scores for diabetes and congestive heart failure (CHF) were trended and

linked with M+COs who submitted information about their diabetes and CHF programs. Plan-level HOS scores were also matched with plan-level CAHPS®, scores. In addition, demographics (age, race, sex) and comorbidity data were trended aggregately as an aside to demonstrate the different kinds of data available to the M+COs and other health care organizations. This article will summarize how the QIO analyzes and uses HOS scores for evaluating M+CO disease management programs, and will also discuss additional uses of the data.

HOS DATA AND M+CO DISEASE MANAGEMENT PROGRAMS

The number of M+COs eligible for HOS participation has changed dramatically in Florida from 29 in 1998 to 16 in 2001. Medicare enrollees for the 16 M+COs in the most recent sample ranged from approximately 4,000 to 240,000 per plan. Even with fewer M+COs participating, Florida still had a large sample of enrollees with chronic diseases to examine for outcomes (Table 1). With this in mind, the QIO felt this rich data set could be used by M+COs to evaluate the outcome that their disease management programs had on enrollees.

FMQAI introduced the study during its monthly teleconferences with the M+COs. Discussions about HOS were periodically introduced at these teleconferences to the M+CO participants. Enthusiasm and spirited discussions ensued among participants about finding ways in which HOS data could be utilized within their organizations. As a result, a series of HOS presentations were developed to stimulate ideas and bring about discussion. At the initial teleconference, overall HOS scores for the State including general demographic data and MCS and PCS scores were also presented. A previous depression project that

Table 1

Florida Cohort IV Mental Component Summary (MCS) and Physical Component Summary (PCS) Scores, by Comorbidities: 2001

Comorbidity	N	(Percent) ¹	MCS		Adjusted MCS		Specified Disease		PCS		Adjusted PCS	
			With	Without	With	Without	With	Without	With	Without	With	Without
Hypertension	6,061	58.3	50.5	52.2	51.2	52.7	40.4	44.7	40.4	44.4	40.4	44.5
Arthritis	5,378	51.5	49.9	52.5	50.7	53.0	38.3	46.1	38.2	46.2	38.2	46.2
Sciatica	2,675	26.0	48.3	52.2	49.4	52.6	37.0	43.9	36.9	43.8	36.9	43.8
Other Heart Conditions	2,412	23.4	48.7	52.0	49.8	52.4	37.9	43.5	38.0	43.3	38.0	43.3
Diabetes	2,162	20.9	49.5	51.7	49.8	52.3	38.3	43.2	38.2	43.1	38.2	43.1
Angina/CAD	1,796	17.5	48.4	51.9	49.3	52.3	36.3	42.7	36.5	43.3	36.5	43.3
Cancer	1,579	15.2	50.1	51.4	50.6	52.0	39.2	45.2	39.6	42.6	39.6	42.6
COPD	1,463	14.2	48.5	51.7	49.2	52.2	36.4	43.1	36.2	43.1	36.2	43.1
AMI	1,229	12.0	48.2	51.7	49.2	52.1	36.8	43.0	36.7	42.8	36.7	42.8
Stroke	947	9.2	46.8	51.7	47.2	52.2	34.8	43.0	34.8	42.8	34.8	42.8
CHF	883	8.6	46.4	51.7	46.9	52.2	33.7	43.0	33.1	42.9	33.1	42.9

¹ N (percent) = number (percentage) of respondents reported having the specified chronic disease, out of the respondents who answered the specific disease question. Since the calculation of MCS, PCS, adjusted MCS, and adjusted PCS involves several factors, the numbers of respondents with these scores may change.

NOTES: CAD is coronary artery disease. COPD is chronic obstructive pulmonary disease. AMI is acute myocardial infarction. CHF is congestive heart failure.

SOURCE: Centers for Medicare & Medicaid Services: Data from the Medicare Health Outcomes Survey (Cohort IV), 2001.

had been conducted at FMQAI was reviewed as an example of how the HOS scores could be used to measure and improve outcomes. Subsequent presentations eventually led to a discussion of disease management programs and the importance of evaluating the efficacy of these programs. The participants were interested in using HOS scores to determine the effect a disease management program had on enrollees with a particular disease by analyzing their MCS and PCS scores. M+COs primarily rely on HEDIS® data as a means to measure the quality of the products they deliver to their enrollees. M+COs were interested in utilizing HOS as another reliable data set to measure their performance. M+COs involved in the teleconferences agreed that they would need the assistance of the QIO in order to complete the process of evaluating their disease management programs using HOS data.

The QIO requested that interested M+COs submit information about all disease management programs they offered. In addition, start dates and dates of any significant changes made to the programs were requested. Although it was difficult for some M+COs to determine an exact implementation date for their programs, most agreed that programs had been enhanced over time. Nine M+COs chose to participate and mailed the requested information to the QIO. Because the two most common programs were CHF and diabetes, FMQAI focused its analyses on these two comorbidities. CHF and diabetes programs were also selected due to M+CO participation in the national CHF and diabetes projects.

There were nine M+COs that submitted disease management program information. All nine had CHF programs and eight had diabetes programs. M+COs that were eligible to participate, but did not submit disease management program information

were still invited to learn about how HOS data could be utilized to improve their programs.

FINDINGS

Analyses were performed for enrollees with CHF and diabetes for all 16 M+COs regardless of participation in the study. Individual and aggregate M+CO scores were trended over time from 1998 to 2001 (Cohorts I-IV). Results were variable and showed that only PCS scores for CHF had improvement over time. MCS scores for all M+COs declined for both CHF as well as diabetes. Improvement in PCS scores was not correlated with improvement in MCS scores. M+COs with the highest CHF MCS scores did not necessarily have the highest PCS scores and vice versa. The same results were true for diabetes.

Cohort II change scores (1999 baseline and 2001 remeasurement) were analyzed in order to study overall changes in outcomes over time for all M+CO enrollees regardless of having comorbidities. Change scores were evaluated for individual M+COs and compared with each other (Table 2). All M+COs had negative change scores for Cohort II over the 2-year period. When comparing M+CO change scores to each other, it was noted that one particular M+CO had the largest decline in PCS scores, but the smallest decline in its MCS scores. Overall PCS change scores ranged from -0.5 to -3.2. The MCS change scores ranged from -0.3 to -2.7. CHF and diabetes change scores were variable when compared with other comorbidities; however, there was a greater decline in MCS scores when compared to the diabetes scores.

Cohort IV diabetes scores from the eight M+COs with diabetes programs were compared with the one M+CO without a diabetes program. Results found no significant differences in MCS or PCS scores.

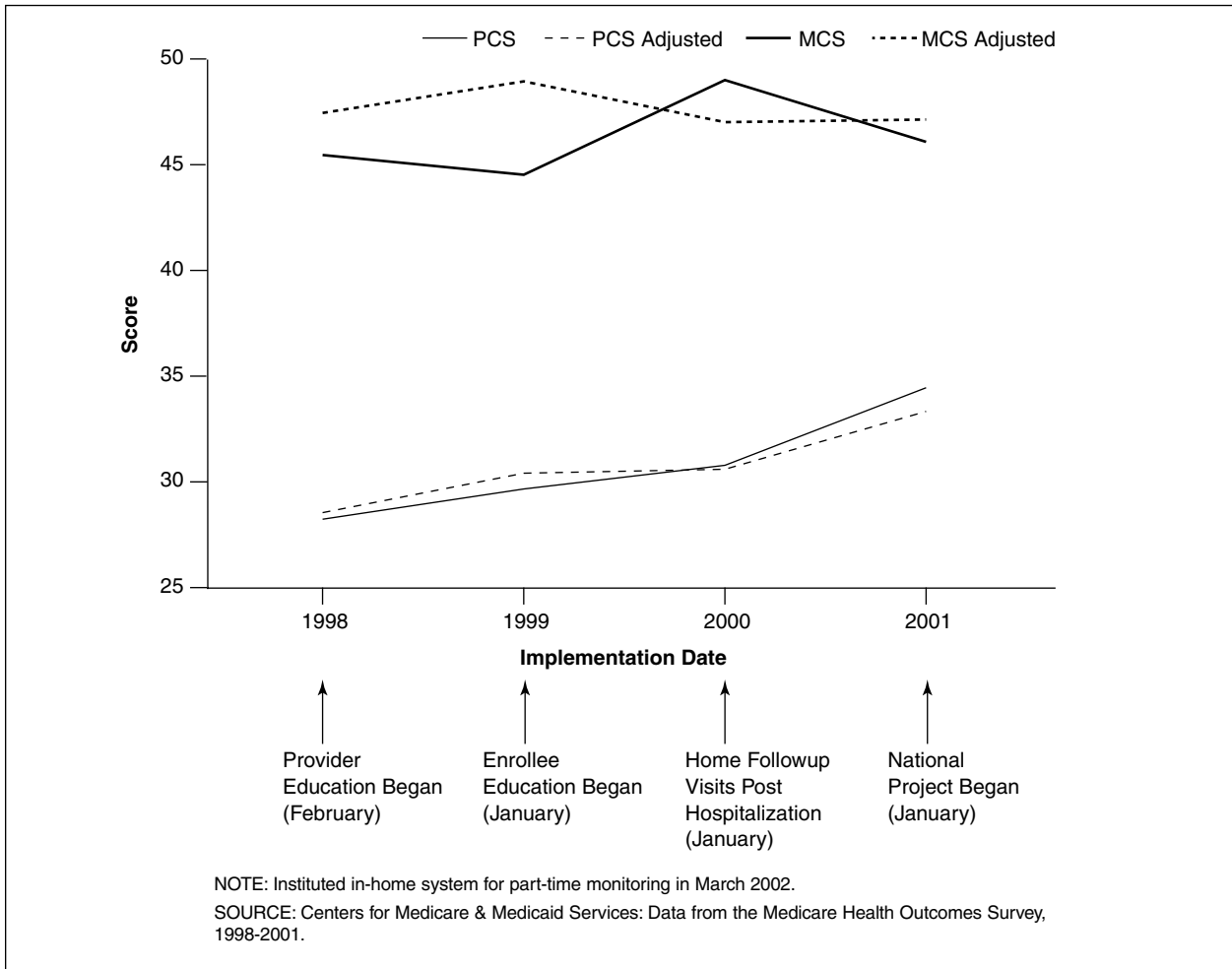
Table 2
Florida Cohort II Mental Component Summary (MCS) and Physical Component Summary (PCS) Change Scores and 2001 CAHPS® for All Managed Care Organizations (M+COs): 2001

M+CO	A	B	C	D	F	I	J	K	L	M	N	O	PQ	R	S
N	539	180	341	157	247	387	611	209	390	175	142	230	793	423	83
MCS	-1.5	-1.4	-2.7	-0.9	-0.3	-1.1	-1.5	-1.6	-0.3	-2.7	-1.3	-0.3	-1.0	-1.2	-1.6
PCS	-1.4	-1.1	-2.3	-1.1	-2.4	-1.6	-1.9	-1.3	-3.2	-2.3	-0.5	-1.2	-1.8	-2.3	-1.0
CAHPS®	9.1	8.2	8.2	8.2	8.2	8.7	8.2	8.2	8.3	8.1	9.0	8.1	7.9	8.5	8.1

NOTES: CAHPS® is Consumer Assessment of Health Plan Scores. Medicare+Choice Organization (M+COs) listed A-S were eligible for Cohort II re-sampling and included in this table. M+COs E, G, and H were not eligible and are not listed. M+CO PQ was a plan with two market areas.

SOURCE: Centers for Medicare & Medicaid Services: Data from the Medicare Health Outcomes Survey (Cohort IV), 2001.

Figure 1
Congestive Heart Failure (CHF) Mental Component Summary (MCS) and Physical Component Summary (PCS) Scores for Florida's Medicare+Choice Organization-I: 1998-2001



This finding raised the question of the effectiveness of diabetes management programs. Since all M+COs either had CHF management programs and/or participated in the CHF national project, only overall trends for CHF were analyzed. As previously stated, improvement was only noted in PCS scores.

One particular M+CO with good documentation of its CHF and diabetes program, start dates, and specific intervention dates was analyzed separately. MCS and PCS scores were examined over time for this M+CO, which was identified as M+CO-I. A significant improvement was seen in CHF PCS scores over time for M+CO-I

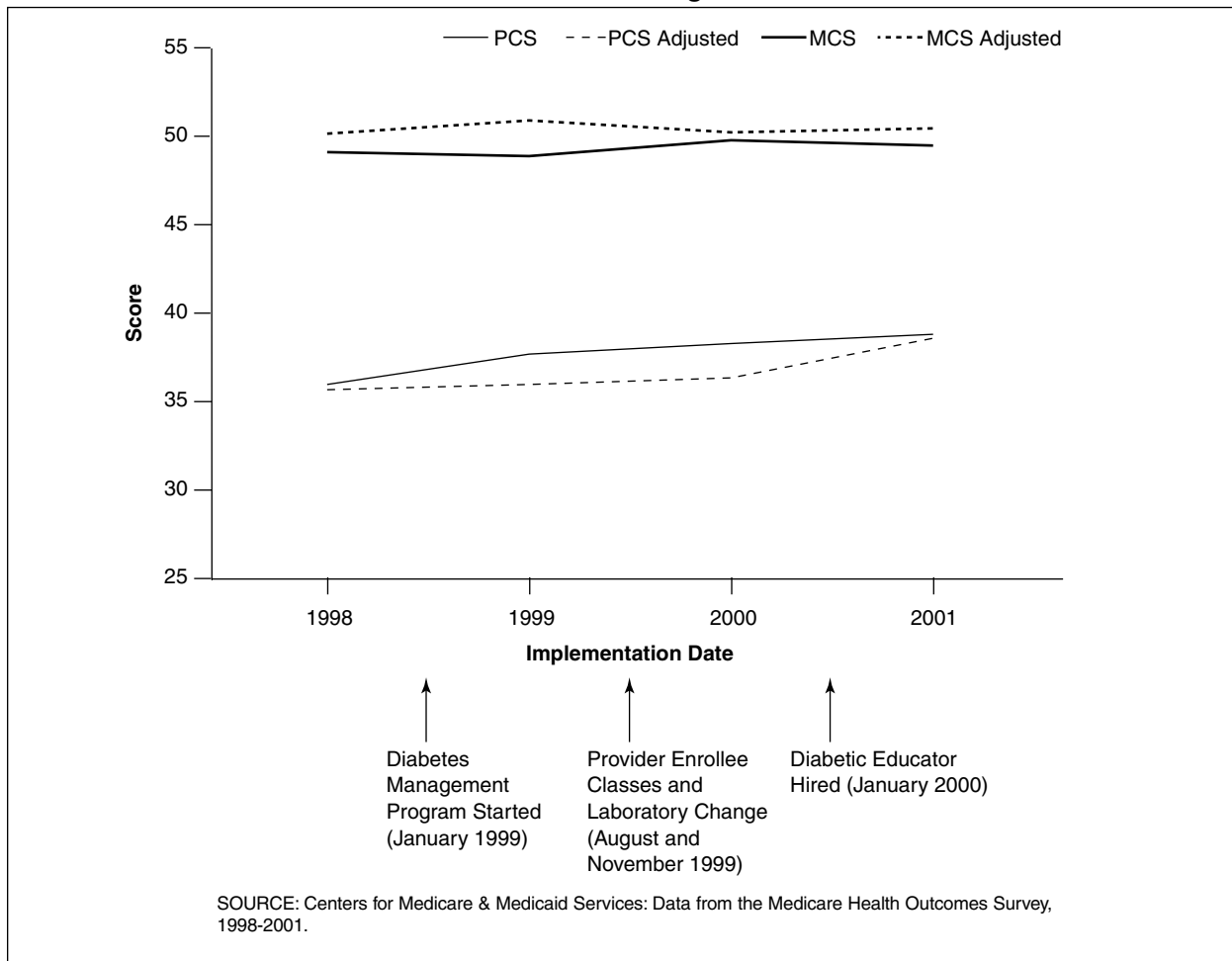
(Figure 1), as noted with most of the M+COs. CHF MCS scores for M+CO-I showed no significant improvement, nor did the MCS CHF scores for most of the other M+COs. Diabetes scores for M+CO-I showed a slight improvement in PCS, but no improvement for MCS (Figure 2).

DISCUSSION

The results were shared with M+COs and attributed to several different factors. Variations in MCS and PCS scores for M+COs with diabetic management programs could be correlated with the implementation of the national diabetes project

Figure 2

Diabetes Mental Component Summary (MCS) and Physical Component Summary (PCS) Scores for Florida's Medicare+Choice Organization-I: 1998-2001



conducted in 1999. During this time, M+COs also had the choice of substituting their own measures in place of the national measures without CMS pre-approval; however, M+COs that chose to use their own diabetes measures did not benefit from participation in a national standardized measurement system. Another factor contributing to these variations may lie in patient compliance with the disease management programs. Repeating the national diabetes project for M+COs should standardize diabetes measures, reduce variation, and improve MCS and PCS diabetes scores over time.

FMQAI examined specific interventions that were implemented by each of the M+COs and discussed these interventions with the M+COs in relation to their HOS scores. For example, M+CO-I, which began its diabetes management program in January 1999 along with the national diabetes project, initiated educational classes for both clinical staff and enrollees with diabetes. It also distributed a diabetic flow sheet developed for its providers and educational materials for its diabetic enrollees. Then in 2000, it hired a diabetic educator. As a result, Figure 2 shows that M+CO-I diabetic PCS scores improved slightly over

time, so the program may have been somewhat effective in improving physical outcomes for its enrollees with diabetes. The diabetes MCS scores for M+CO-I remained the same. Based on the lack of improvement over time in mental outcomes for its enrollees, FMQAI shared with M+CO-I the benefits of incorporating a mechanism to address the mental health status of its diabetic enrollees such as adopting a depression-screening tool.

In looking at CHF for M+CO-I, HOS scores can be used as an example of measurable outcomes that can be tracked according to the timing of interventions implemented. Its CHF program began February 1998 by implementing provider education. In January 1999 it began educating its CHF enrollees and held monthly support group meetings. Then in 2000, M+CO-I began providing two home follow-up visits to enrollees who were discharged from the hospital with CHF. Then in January 2001, the national CHF project began. M+CO-I continued to work on improving CHF outcomes for its enrollees, and in March 2002 it contracted with a company to provide electronic scales for placement in the homes of its CHF enrollees to assist them in the monitoring of any worsening of CHF symptoms.

When explaining the overall improvements in CHF PCS scores to the M+COs, several external factors were reviewed that could have accounted for the improvements over time. Because CHF has been the most prevalent DRG claim according to the Medicare inpatient claims data in Florida, it has been a long-time focus of quality improvement efforts, possibly leading to standardization in treatment. HOS data show that when CHF is combined with other heart diseases, it ranks third after hypertension and arthritis. M+COs had focused much effort in improving CHF

management for their enrollees prior to the implementation of the 2001 CHF national project.

FMQAI also had discussions with the M+COs about the low MCS scores for CHF enrollees, which contrasted with the improvement efforts directed towards physical outcomes for CHF enrollees. The CHF management program information sent to FMQAI from the nine M+COs noted a clear lack of focus on depression screening, which may have accounted for lower MCS scores. In an effort to improve mental health outcomes, FMQAI again encouraged M+COs to implement depression screening and treatment for these enrollees.

M+COs can also benefit from information provided by other rich data sources that can assist in identifying areas for improvement and insights into how well an M+CO is doing with respect to the enrollee perceptions. For example, when HOS data is linked with CAHPS® data, it not only provides valuable information about the enrollees' physical and mental outcomes, but also about their perception of care. QIOs can educate M+COs about measuring their disease management program effectiveness along with enrollee satisfaction by examining HOS and CAHPS® scores linked together.

FMQAI analyzed HOS data linked with CAHPS®, data at the plan level (Table 2) in order to analyze both the effectiveness of disease management programs, and the overall ratings on the M+CO. CAHPS® scores were categorized by three areas of general satisfaction: plan/personal doctor/all doctors, access to care and quality of care. Results were analyzed using Pearson correlation for relationships between general satisfaction, access to care, and quality of service. Correlation between MCS and PCS scores and

CAHPS® were calculated and shared with the M+COs. Generally, combining HOS and CAHPS®, revealed that after adjusting for comorbidities and demographic characteristics, higher scores for quality of service, and access to care can be correlated with improved enrollee outcomes.

FMQAI will continue to analyze HOS data for M+COs to monitor changes over time as their disease management program offerings change. FMQAI will continue to offer ongoing feedback to M+COs on HOS and CAHPS® analysis to individual M+COs as a measure of efficacy for the programs they offer, and to support their quality improvement efforts.

Other Uses for HOS Data

Most national organizations devoted to chronic diseases provide excellent statistics and demographics about persons with those diseases. However, it is difficult for these organizations to provide statistics about quality of life and functional outcomes. By using HOS data, these organizations can examine statistics on their senior patients' functional outcomes and quality of life and study whether certain interventions improved these outcomes.

Arthritis is the second ranked comorbidity for the Florida HOS with 5,378 (52 percent) of enrollees responding "yes" to having arthritis. For health care providers interested in arthritis, MCS and PCS scores for these enrollees could yield valuable insights to their clients' quality of life over time when compared to enrollees without arthritis. The QIO shares this information with the Florida Arthritis Partnership and Department of Health (DOH) on request. If future national projects are devoted to arthritis, HOS scores can provide valuable outcome information as a way of measuring the effectiveness of arthritis interventions.

Because of the large available sample in Florida, similar information on diabetes, CHF, acute myocardial infarction (AMI), and other comorbidities were shared with organizations devoted to these chronic diseases. For example, there were 2,162 enrollees who responded to having diabetes, resulting in a large sample of diabetics in the State to examine for various outcomes such as disparities between black and white beneficiaries. The Florida DOH has an active diabetes program of which FMQAI is a stakeholder. HOS data have been shared with the DOH on request as a data source available to measure outcomes for diabetics and to validate the estimated number of elderly diabetics in the State.

Another example for HOS use is on AMI. Florida had 1,229 enrollees who responded "yes" to having an AMI. This respectable sample could be studied for differences in male versus female outcomes. FMQAI is also a stakeholder with the Florida DOH Cardiovascular Steering Committee, and has shared AMI and CHF HOS data.

The effect of multiple comorbidities on MCS and PCS scores is also an area of interest for M+COs. HOS participants had a large number of comorbidities with 89 percent having one or more, 19 percent had 5 or more, 13 percent had 4, 17 percent had 3, 20 percent had 2, and 20 percent had 1. Both scores declined in correlation with increasing number of comorbidities. PCS scores showed greater declines than MCS scores (Table 1).

Comorbidities and cancers were linked for their impact on MCS and PCS scores compared with scores from enrollees without these conditions (Table 1). In all cases, having a comorbidity resulted in lower scores than for persons without the comorbidity. The lowest scores were seen in the PCS of CHF enrollees. This shows there is much more opportunity for improvement related to the quality of life for the CHF population.

Table 3**Florida Cohort IV Mental Component Summary (MCS) and Physical Component Summary (PCS) Scores, by Number of Comorbidities and Demographic Characteristics: 2001**

Characteristic	N (Percent)	MCS	Adjusted MCS	PCS	Adjusted PCS
Coexisting Conditions					
None	1035 (10.9)	54.6	55.0	51.6	50.5
1	1841 (19.5)	53.9	54.1	48.1	47.7
2	1912 (20.2)	52.3	52.9	44.2	44.4
3	1638 (17.3)	51.4	51.8	40.6	41.3
4	1264 (13.4)	49.2	50.2	37.3	37.9
5 or More	1765 (18.7)	46.4	47.5	33.2	32.6
Race					
White	8128 (85.6)	42.3	52.0	42.4	51.4
Black	913 (9.6)	40.2	50.4	40.2	49.9
Others	454 (4.8)	42.0	50.5	42.3	49.2
Age					
65-69 Years	2406 (25.3)	45.0	52.8	44.7	52.4
70-74 Years	2827 (29.7)	43.2	52.2	43.5	51.9
75-79 Years	2120 (22.3)	40.7	51.5	41.3	50.9
80 Years or Over	2152 (22.6)	38.1	50.2	38.4	49.0
Sex					
Male	3871 (40.7)	43.1	52.2	43.5	51.7
Female	5634 (59.3)	41.4	51.5	41.3	50.8

SOURCE: Centers for Medicare & Medicaid Services: Data from the Medicare Health Outcomes Survey (Cohort IV) PCS, 2001.

Table 4**Florida Cohort IV Mental Component Summary (MCS) and Physical Component Summary (PCS) Scores, by Cancer Type: 2001**

Type of Cancer	N (Percent)	MCS	Adjusted MCS	PCS	Adjusted PCS
Breast	194 (2.0)	49.8	50	37.3	38.6
Prostate	331 (3.5)	49.8	50.8	38.8	39.8
Colon	128 (1.3)	46.8	49.6	36.7	38.9
Lung	70 (0.7)	46.7	49.9	32.4	37.9

SOURCE: Centers for Medicare & Medicaid Services: Data from the Medicare Health Outcomes Survey (Cohort IV) PCS, 2001.

General demographic data on enrollees can be of interest to many organizations including the M+COs. Age, race, and sex data (Table 3) were linked with MCS and PCS scores to examine outcome trends and showed decline with age. Although males generally had higher scores than females, age was a contributing factor since there were more females in the older groups. Race scores, distributed between white, black, and other enrollees, showed MCS and PCS scores were highest in white enrollees. Further analysis of MCS and PCS scores of specific comorbidities linked with race or sex can study correlations within areas known to have disparities in health care such as black enrollees with diabetes. In general, larger variations were seen among PCS rather than MCS

scores. This could be a result of comorbidities affecting physical abilities more directly than mental well-being.

Of particular interest to stakeholders devoted to cancer, were the outcome data on lung, prostate, breast, and colon cancer (Table 4). HOS cancer scores were shared with the Florida Chapter of the American Cancer Society (ACS) that is a stakeholder at FMQAI and is interested in outcome data for enrollees with cancer. Change scores showed significant MCS decline ($N=767,-1.7$) and PCS decline ($N=762,-2.5$) for these four cancers. Although enrollees with prostate cancer initially had higher MCS and PCS scores than breast cancer, over a 2-year period they had lower PCS scores. Enrollees with lung cancers had the lowest MCS, PCS, and change scores with colon

Table 5

Florida Cohort II Mental Component Summary (MCS) and Physical Component Summary (PCS) Change-Scores, by Cancer Type: 2001

Type of Cancer	N	MCS			PCS		
		Base	Change of Score	95% CI	Base	Change of Score	95% CI
Breast	108	51.4	-1.6	(-3.9, 0.6)	40.4	***-3.6	(-5.6, -1.6)
Prostate	183	50.8	-0.6	(-2.1, 0.8)	42.5	*-1.6	(-2.9, -0.3)
Colon	64	49.8	-3.1	(-6.4, 0.2)	41.9	***-5.1	(-7.6, -2.7)
Lung	38	52.9	** -7.1	(-11.6, -2.7)	38.0	***-7.4	(-10.9, -4.0)

* Significant at 0.05 level.

** Significant at 0.01 level.

*** Significant at 0.001 level.

NOTES: CI is confidence interval. Change of score = score in 2001 – score in 1999, 95 percent CI for the change.

SOURCE: Centers for Medicare & Medicaid Services: Data from the Medicare Health Outcomes Survey (Cohort IV) PCS, 2001.

cancer second lowest, and prostate and breast cancers with the least decline (Table 5). Overall, PCS change scores were much more significant than MCS. For breast, prostate and colon cancers, the MCS change scores were not significant. According to Florida vital statistics for 2001, cancer was a major cause of death in the elderly resulting in 22 percent mortality for the age group 65 or over. When lung, colorectal, prostate and breast cancer are combined, these four cancers account for 53 percent of the cancer-related deaths for this group (Florida Department of Health, 2001). Since such large declines in functional outcomes were seen in lung cancer patients, organizations and health care providers devoted to cancer should plan their approaches to care with these outcomes in mind. The Florida ACS has expressed interested in working with FMQAI on an insert about cancer and the elderly for its cancer facts and figures publication. The HOS data on cancers as described could be very useful for this.

CONCLUSIONS

HOS data is currently underutilized by M+COs. QIOs can take the lead in introducing and educating M+COs about the value of HOS data and how HOS scores

can measure disease management program effectiveness and enrollee outcomes. If HOS scores were incorporated as a measure of outcome for M+CO projects, HOS would be utilized further and awareness about its merits would increase.

When analyzing both HOS and CAHPS® scores for associations, a more complete assessment regarding the status of care for enrollees with a specific disease such as CHF or diabetes is at hand. Subsequently, this would give a full perspective of the care processes and effectiveness of disease management programs in improving the enrollees' quality of life.

As previously mentioned, the physical functioning for enrollees with CHF has improved since 1998, and the variation between programs and care offered by M+COs has been reduced. Indeed, reduction in the variation of disease management programs offered by M+COs will lead to standardized and improved care (Deming Electronic Network, 2003).

The M+COs that participated in this study all had CHF disease management programs and participated in the national CHF project. This unified participation resulted in an overall improvement in physical functioning and satisfaction for CHF enrollees as portrayed by their HOS and CAHPS® scores.

Diabetes management programs did not show as much improvement in MCS and PCS scores as CHF. Over time, a large variation in PCS scores was observed among M+CO enrollees. Lack of standardization may have led to this large variation. Due to the prevalence of diabetes and the great opportunity for improvement, diabetes is the M+CO national project topic for year 2004. With this increased emphasis on M+CO diabetes through a unified national improvement project in 2004, HOS scores can be used to measure whether any positive changes result from these standardized M+CO efforts.

If public reporting of HOS scores becomes available, it could assist Medicare enrollees in choosing an M+CO based on its outcomes. If HOS provided information in a user-friendly format, enrollees with specific comorbidities could potentially research which M+CO had the best scores for persons with their disease. Public reporting would also encourage M+COs to promote activities toward improving their enrollees' physical and mental status and to improve their disease management programs.

Lastly, HOS scores are currently being used to evaluate M+COs, but could also be used in the FFS arena. As previously mentioned, if certain process measures are proven effective in improving HOS results, then these same process measures could be replicated in the FFS area with similar results.

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