RESEARCH

Quality Compensation Programs: Are They Worth All the Hype? A Comparison of Outcomes Within a Medicare Advantage Heart Failure Population

Tara Esse, PharmD, BCACP; Omar Serna, PharmD, BCACP; Abhishek Chitnis, PhD; Michael Johnson, PhD; and Nelson Fernandez, MD

ABSTRACT

BACKGROUND: Quality compensation programs (QCPs), also known as pay-for-performance programs, are becoming more common within managed care entities. QCPs are believed to yield better patient outcomes, yet the programs lack the evidence needed to support these claims. We evaluated a QCP offered to network primary care physicians (PCPs) within a Medicare managed care plan to determine if a positive correlation between outcomes and the program exists.

OBJECTIVE: To compare outcomes of heart failure members under the care of PCPs enrolled in a Medicare Advantage Prescription Drug (MAPD) Plan QCP with those who are not affiliated with a QCP.

METHODS: Retrospective analysis was conducted on the heart failure population of a MAPD in Texas. Heart failure members were identified using ICD-9-CM codes from inpatient and outpatient claims for 2010. These members must have been continuously eligible all 12 months of the year to be included in the analysis. The primary intervention was enrollment by the member's PCP into the QCP. Measurable outcomes included acute (hospital) admits, emergency room (ER) visits, appropriate laboratory tests, and prescriptions of medications that are evidence based and guideline driven. Centers for Medicare and Medicaid Services (CMS) risk scores and comorbidities were used to risk-adjust outcomes.

RESULTS: A total of 4,240 members was included in the analysis. From that population, 1,225 members (28.8%) were followed by PCPs enrolled in a QCP; 3,015 members (71.1%) were followed by PCPs not enrolled in a QCP. The adjusted analysis showed that none of the drug comparisons statistically differed between the QCP and non-QCP groups, whereas all of the lab tests, including low-density lipoprotein cholesterol (LDL-C), hemoglobin A1c, creatinine, and microalbumin, as well as the acquisition of the flu vaccine, occurred more frequently in the QCP group. Acute admits and ER visits in the QCP and non-QCP groups were similar before and after adjustment. The QCP group was significantly older with a statistically significant higher prevalence of renal failure and higher CMS risk scores.

CONCLUSIONS: After evaluation of our QCP's impact on the quality of care provided to our Medicare beneficiaries, we have concluded that there is potential for health care improvement through pay-for-performance programs. We have observed in our MAPD heart failure population, enrolled in a QCP during the year of 2010, an increase in age and CMS risk scores, a decline in renal function, and noted the group to have a more female presence. Yet, the outcomes of this group (hospitalizations, ER visits, acquisition of lab tests, etc.) were similar when compared with younger, healthier members not enrolled in a QCP. We feel the clinical relevance of the data indicates that, overall, the quality of care is somewhat improved for QCP-enrolled providers when compared with non-QCP providers in regards to achieving certain quality metrics. (i.e., immunizations, HgA1c, LDL-C, etc.) Further research is definitely needed to determine if health care costs and clinical outcomes, in the long term, are improved for members enrolled in these QCP programs, as well as their impact upon a health plan's Medicare Star rating.

J Manag Care Pharm. 2013;19(4):317-24

What is already known about this subject

- The purpose of a quality compensation program, or QCP, is to provide incentives to enrolled physicians for meeting measurable goals set forth by a heath plan and/or Centers for Medicare and Medicaid Services, with the intention of improving clinical outcomes and reducing overall health care costs.
- Though positive in theory, QCPs have yet to yield encouraging results and have been the topic of many health care debates.
- The American Heart Association estimated that the direct and indirect cost of heart failure in the United States for 2010 was $39.2 billion, making heart failure a significant focus for health care organizations.

What this study adds

- Few significant differences in prescribing patterns of heart failure specific, evidence-based medications were observed between the QCP and non-QCP groups, before adjusting.
- Lab tests were performed more frequently in the QCP group (i.e., low-density lipoprotein cholesterol, hemoglobin A1c, serum creatinine, and microalbumin) as they correlate with performance metrics.
- Members in the QCP group were more likely to have received the flu vaccine, potentially an impact not only from physician engagement, but perhaps also through the enhancement of patient education.

Quality compensation programs (QCPs), also known as pay-for-performance programs, are becoming more common within managed care entities. By definition, a QCP is a means to offer provider compensation in proportion to achieved results, based on quality indicators.[1] One might reason that paying for better care should promote enhancements in quality and, ideally, produce improved patient outcomes.[2] However, the observed implementation of a QCP has yet to yield positive results.[1] This fact is particularly troubling

to many in health care, as much time is spent on improving quality in all realms within the field. Do QCPs significantly improve long-term clinical outcomes? Is the QCP worth it? Where might a QCP fit into the picture?

On average, patients in the United States receive only 55% of recommended care; this includes regular screenings, reasonable follow-up, and appropriate management of chronic disease states.[3,4] Compared with our healthier international counterparts, medical expenditures in the United States are significantly higher despite poorer outcomes.[5] The Institute of Medicine's (IOM) Committee on Quality of Health Care in America acknowledges that the quality of medical care in the United States, which should be effective, timely, safe, equitable, efficient, and patient centered, has the potential for improvement. Inconsistency in health care quality has become such a burden that managed care entities can no longer ignore it; the cost of care increases as members are admitted to and from the hospital. In 2006, the IOM recommended that Medicare incorporate QCPs into their reimbursement structure.[6] Historically, the Medicare payment system placed no emphasis on the type of care delivered to members, raising concerns that Medicare was not receiving the best value for the services it purchased.[6] The highly variable and often fragmented health care provided to Medicare members led, among other things, to the design and implementation of QCPs.

The premise behind a QCP is to provide physician incentives to encourage focus on the quality measures intended to improve outcomes and reduce overall health care costs.[1] Essentially, QCPs are a means for payers to decrease expenditures through the improvement of outcomes in their members but should be rooted in guidelines established from clinical evidence and developed in collaboration with purchasers, policymakers, and practitioners.[7] Many managed care and health system entities are seeking these types of programs to help counteract the high cost of providing care for such chronic conditions as heart failure, asthma, and diabetes.[8-11] More than half of commercial health maintenance organizations (HMOs) are utilizing QCPs.[12] However, the Centers for Medicare and Medicaid Services (CMS) conducted a 6-year Premier Hospital Quality Incentive Demonstration (HQID) and found no evidence that large hospital-based QCPs led to a 30-day mortality decrease.[2] Regardless, the Affordable Care Act included an expansion of the programs modeled after the HQID program to all hospitals within the 2012 year, placing national priority on reducing disparities in health care quality within the Medicare population.[2,13] Two hypotheses strengthen the application of QCPs in Medicare: primary responsibility for care of a beneficiary can be assigned to a primary care physician (PCP), and Medicare can link performance to meaningful financial incentives for those providers.[14] In a 2007 survey, almost three fourths of responding physicians agreed that "if the measures are accurate, physicians should be given financial incentives for quality."[15] QCPs have now become a widely adopted opportunity for organizations throughout the health care spectrum to reduce costs of care for chronic conditions, although the benefits are largely perceived as conceptual.

Cardiovascular disease is the most costly disease in the United States, accounting for more emergency, inpatient, and outpatient costs than any other diagnostic group. Unfortunately, the risk of heart failure increases with advancing age, leading to a higher probability for hospital admissions and readmissions in the geriatric population, as well as morbidity and mortality.[16] In 2008, the risk-adjusted 1-year mortality with heart failure hospitalization was 29.6%, a decline from 31.7% in 1999.[16] However, according to the American Heart Association (AHA), the estimated direct cost (medical services, prescription drugs) and indirect cost (readmissions, decreased quality of life) of heart failure in the United States for 2010 was $39.2 billion.[17] Because of the financial burden of treating heart failure, managed care entities have been confronted with how to address this high expenditure and debilitating disease. As a result, the QCPs, in addition to chronic care improvement programs with a heart failure focus, have been initiated. The core of these programs is to identify if a member has had a left ventricular ejection fraction (LVEF) assessment and has been prescribed evidence-based therapies, such as an angiotensin-converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) and a beta blocker (BB). These quality indicators are based on guideline-driven consensus statements placed by notable organizations, such as the American College of Cardiology Foundation (ACCF) and the AHA, in an attempt to help improve patient outcomes, and are the key points for a QCP to address.

Current heart failure guidelines stem from the 2009 Focused Update produced by the ACCF and AHA.[18] Coronary artery disease (CAD), hypertension, and dilated cardiomyopathy are noted as the most common causes of heart failure in the Western world; thus, recommended therapies are focused on reducing the progression of the disease by tackling these predisposing factors. In addition, reducing such symptoms as edema, exercise intolerance, and shortness of breath is also stressed. Controlling certain risk factors, such as obesity and insulin resistance, is highly important, as these can also lead to the development of heart failure; the presence of diabetes alone markedly increases the likelihood of a patient progressing to heart failure even without structural heart disease.[18] To further bring to light the importance of evidence-based therapy and appropriate disease follow-up, the ACCF/AHA/American Medical Association-Physician Consortium developed the 2011 Performance Measures for Adults with Heart Failure, an update from the previous measures published in 2005.[19] Released in May 2012, this document outlines both inpatient as well as outpatient measures to be exercised in an effort to improve care for patients with heart failure. Included in these measures are recommendations for symptom management, ACEI/ARB as well as BB utilization, and an LVEF assessment.

QCPs will view these updated performance measures as a means to improve upon their current pay-for-performance model with regards to the treatment of heart failure patients. Some of the notable interventions health plans can address through a QCP are as follows: ensuring physicians are investigating the cause of heart failure, treating patients based on disease progression, ordering appropriate laboratory tests, and monitoring patient outcomes.

We evaluated a QCP within a Medicare Advantage Prescription Drug Plan (MAPD) heart failure population in Texas. Our objective was to compare outcomes of members under the care of network PCPs enrolled in a QCP with those who are not affiliated with a QCP to determine if a positive correlation between outcomes and the program exists. The QCP identified focused not only on the utilization of evidence-based therapy, but also on appropriate laboratory monitoring (serum creatinine, low-density lipoprotein cholesterol [LDL-C], hemoglobin A1c [HbA1c], microalbuminuria) and the acquisition of the yearly influenza vaccine.

Methods

Data Source and Patient Selection

A retrospective analysis of heart failure members from an MAPD plan in Texas for the year 2010 was conducted. Several computerized data files, including the membership file, member summary file, institutional claims file, professional claims file, Quest lab, and pharmacy claims file, were utilized. Membership and member summary files include demographic data, severity scores, and cost data for beneficiaries for each year. Institutional claims include information on all inpatient claims. The files contain diagnostic information in the form of *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) codes and procedure information in the form of Current Procedural Terminology (CPT) codes. Professional claims contain information on all outpatient encounters. The files contain diagnostic information in the form of ICD-9-CM codes and procedure information in the form of CPT codes. Quest lab files contain 153 applicable lab tests that include LDL-C, HbA1c, creatinine, and microalbumin. Pharmacy claim files contain Part D pharmacy data provided by the health plan's pharmacy benefits manager. The pharmacy records include patient- and drug-identifying information, fill dates, days of supply, quantity dispensed, and dosing information for each prescription filled.

Members were included in the study sample if they met the following criteria: age 65 and over, continuous eligibility in the 12 months of 2010, and had at least 1 claim for heart failure from inpatient and outpatient claims (ICD-9-CM 402.01, 402.11, 402.91, 415.0X, 416.9X, 425.4X-425.9X, 428.XX, 429.4X, 785.51) between January 1, 2010, and December 31, 2010. Members were excluded if they had a diagnosis of end-stage renal disease, had secondary insurance, or Veterans Affairs coverage.

Outcome Measures

Prescriptions of evidence-based and guideline-driven medications, which included ACEI/ARB, statins, and BB taken between January 1, 2010, and December 31, 2010, were analyzed. Members were classified as "yes" or "no" for the aforementioned medications. Appropriate laboratory monitoring of these heart failure members, which included 1 code captured for serum creatinine, LDL-C, HbA1c, and microalbumin in the measurement year, and the acquisition of the influenza vaccine between January 1, 2010, and December 31, 2010, were analyzed. Acute hospital admits and emergency room (ER) visits in the year 2010 were captured for analysis.

Independent Variables

The primary independent variable was participation by the PCP in the QCP. Members with QCP-enrolled physicians for all 12 months in the year 2010 were considered in the QCP group; those members with no enrollment in the QCP during the measurement year, but saw non-QCP providers for 12 months, were placed in the non-QCP group for analysis. Members who were only enrolled in a QCP between months 1 through 11 or were not a member of the health plan for all 12 months were excluded from the study.

Covariates

The variation in outcomes measures may be associated with various sociodemographic factors, comedications, and clinical factors; therefore, the study included such covariates. Sociodemographic factors included age and gender. Comedications considered were loop diuretics, thiazide diuretics, digoxin, statins, nitrates, vasodilators, a direct renin inhibitor, and spironolactone. These medications were included within the analysis because they are considered either evidence-based medications for heart failure or carry some utility for treatment of comorbid conditions associated with heart failure. Clinical factors included 21 comorbid conditions. Severity of illness could not be assessed by LVEF or New York Heart Association (NYHA) heart failure classification because of a lack of information in the database. Therefore, the models were adjusted for using member symmetry scores and CMS risk scores.

The symmetry score is used to identify an individual's health risk or "illness burden" as a measure of the relative resources expected to be required for an individual's medical care. Symmetry uses episode risk groups (ERGs) and episode treatment groups (ETGs), which combine related services into a medical episode of care focused on the medical condition. Using claims and pharmacy data, symmetry establishes a retrospective risk care and a prospective risk score. A risk score of 1.10 indicates 10% higher risk when compared with the average member in the development population. A risk score of 0.85 indicates 15% less risk when compared with the average member in the development population.

The CMS risk score is calculated based on data taken from a large pool of beneficiaries to estimate the average predicted costs for each of the component factors (e.g., age-sex, low income status, individual disease groups).[20] The risk characteristics are related to expected outcomes. The predicted costs from the risk adjustment are then converted to relative risk factors so that payment adjustments can be made relative to the average Medicare beneficiary.

Statistical Analysis

Analyses were performed using SAS software version 9.3 (SAS Institute, Cary, NC). Bivariate associations between the QCP groups and outcomes were tested, using the chi-square test for dichotomous variables and t-test for continuous variables. The adjusted analysis, captured through odds ratios, for the association of QCP with each of the outcome variables were obtained using different multivariable logistic regressions with backward selection after forcing the primary independent variable (QCP) and other covariates (age, sex, CMS risk scores, hypertension, ischemic heart disease, conduction disorders, cardiac arrhythmias, valvular heart disease, diabetes, anemia and coagulation disorders, hyperlipidemia) that are important on face validity. All significance tests were conducted at an alpha level = 0.05.

The study was approved by the Institutional Review Board of the University of Houston.

Results

A total of 4,240 members were included from the 2010 analysis. Out of this population, 1,225 members (28.8%) were seen by PCPs enrolled in a QCP; 3,015 members (71.1%) were seen by PCPs not enrolled in a QCP (Table 1). Statistical significance was noted between the groups with regards to age, risk, and symmetry scores; members within the QCP were older (79 years vs. 76 years; $P < 0.0001$) and had higher average CMS risk scores (2.26 vs. 2.05; $P < 0.0001$) and symmetry scores (7.99 vs. 7.15; $P < 0.0001$). Also, members within the QCP group were observed to have a higher prevalence of renal failure (36.7% vs. 30.1%; $P < 0.0001$), cardiac arrhythmias (38.4% vs. 34.0%; $P = 0.007$), nonskin malignancies (13.0% vs. 10.0%; $P = 0.005$), and decubiti and lower extremity ulcers (7.6% vs. 5.5%; $P = 0.012$). Members in the non-QCP had higher prevalence of hypertension (89.1% vs. 91.8%; $P = 0.004$), as well as hyperlipidemia (58.0% vs. 66.2%; $P < 0.0001$). Ethnicity and LVEF data were unavailable for analysis.

Before adjustment using different multivariable logistic regressions with backward selection, the utilization of heart failure specific evidence-based medications revealed only a few significant differences in prescribing patterns between the QCP and non-QCP groups (Table 2). The QCP group was revealed to have received more prescriptions for loop diuretics when compared with the non-QCP group (49.2% vs. 44.9%; $P = 0.011$); however, the non-QCP group received more spironolactone prescriptions (6.0% vs. 7.9%; $P = 0.036$). In all but 1 laboratory parameter (acquisition of the HbA1c), statistical significance was observed in favor of the QCP (Table 2). No statistical significance was noted between the groups with regards to ER visits (26.7% vs. 26.1%; $P = 0.675$) or acute admits (32.9% vs. 30.3%; $P = 0.100$), although a slightly higher acute hospital admission trend for the QCP group was observed (Table 2).

When ER visits and acute admits are stratified to assess male versus female outcomes within the groups (Table 3), no statistical significance was noted between the groups. Among members admitted to the ER (Table 3), the QCP group collectively (male and female) were older (79.0 vs. 76.3; $P < 0.0001$) but did not reveal any other statistically significant observations, although the non-QCP group had slightly higher

TABLE 1 Patient Demographics

Variable	QCP	Non-QCP	*P* Value
Patient count[a]	1,225	3,015	–
Age	79.08 (8.61)	76.72 (9.00)	<0.001[b]
Males	547 (44.65)	1,436 (47.63)	
Females	678 (55.35)	1,579 (52.37)	0.078
CMS risk scores	2.26 (1.32)	2.05 (1.30)	<0.001[b]
Symmetry scores	7.99 (5.24)	7.15 (4.97)	<0.001[b]
Hypertension	1,091 (89.06)	2,770 (91.87)	0.004[b]
Ischemic heart disease	608 (49.63)	1,460 (48.42)	0.476
Conduction disorders	226 (18.45)	545 (18.08)	0.776
Cardiac arrhythmias	470 (38.37)	1,025 (34.00)	0.007[b]
Valvular heart disease	260 (21.22)	597 (19.80)	0.296
Cerebrovascular disease	260 (21.22)	656 (21.76)	0.702
Chronic obstructive pulmonary disease	378 (30.86)	935 (31.01)	0.922
Diabetes	560 (45.71)	1,447 (47.99)	0.178
Renal failure	449 (36.65)	906 (30.05)	<0.001[b]
Disorders of upper GI and liver	328 (26.78)	887 (29.42)	0.084
Nonskin malignancies	159 (12.98)	302 (10.02)	0.005[b]
Anemia & coagulation disorders	384 (31.35)	868 (28.79)	0.098
Decubitus and lower extremity ulcers	93 (7.59)	167 (5.54)	0.012[b]
HIV	2 (0.16)	6 (0.20)	0.808
Thyroid disorders	290 (23.67)	670 (22.22)	0.306
Sleep apnea	46 (3.76)	107 (3.55)	0.744
Alcohol-related disease	62 (5.06)	170 (5.64)	0.454
Main psychiatric disorders	209 (17.06)	511 (16.95)	0.929
Pulmonary heart disease	64 (5.22)	179 (5.94)	0.366
Dementia	107 (8.73)	243 (8.06)	0.469
Hyperlipidemia	711 (58.04)	1,995 (66.17)	<0.001[b]
Osteoporosis	142 (11.59)	305 (10.12)	0.156
Degenerative osteoarthropathies	599 (48.90)	1,560 (51.74)	0.093

[a] *N, % for all categories; mean (SD) for continuous measures.*
[b] *Statistical significance.*
CMS = Centers for Medicare & Medicaid Services; GI = gastrointestinal; HIV = Human immunodeficiency virus; QCP = quality compensation program; SD = standard deviation.

TABLE 2 Unadjusted Results: Comparison of QCP Versus Non-QCP Groups

	QCP	Non-QCP	*P* Value
Unadjusted drug use ***(% Rx claims)***			
ACEIs/ARBs	66.04	67.89	0.244
Statins	56.98	57.18	0.905
BBs	60.49	60.43	0.972
Hydralazine	3.35	4.08	0.262
Isosorbide dinitrate	11.48	11.21	0.561
Direct renin inhibitor	0.73	1.09	0.284
Spironolactone	6.04	7.89	0.036[a]
Loop diuretics	49.22	44.91	0.011[a]
Thiazide diuretics	14.86	15.06	0.868
Digoxin	12.49	12.54	0.966
Unadjusted lab tests/vaccinations ***(% measure achieved)***			
LDL-C	79.27	76.45	0.048[a]
HbA1c	50.45	48.16	0.176
Creatinine	83.10	70.58	<0.0001[a]
Influenza vaccination	58.61	51.21	<0.0001[a]
Microalbumin	32.57	22.35	<0.0001[a]
Unadjusted acute admits and ER visits: ***(% hospital encounters)***			
Acute admits	32.90	30.32	0.100
ER visits	26.69	26.07	0.675

[a]*Statistically significant.*

ACEI/ARB = angiotensin-converting enzyme inhibitor/angiotensin receptor blocker; BB = beta blockers; ER=emergency room; HbA1c = hemoglobin A1c; LDL-C = low-density lipoprotein cholesterol; QCP = quality compensation program; Rx = prescription.

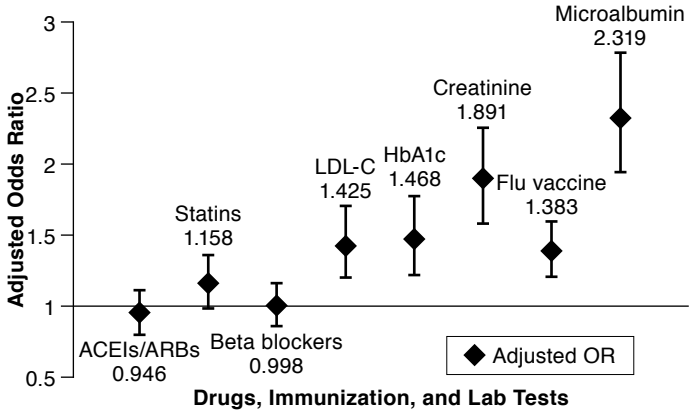
TABLE 3 Demographics in Acute Admits and ER Visits

Gender	Variable	QCP Mean (SD)	Non-QCP Mean (SD)	*P* Value
Males versus females (n, %)				
Females	Patient count	703	1,554	–
	Acute admits	216 (31.86)	487 (30.84)	0.633
	ER admits	207 (30.53)	450 (28.50)	0.330
Males	Patient count	614	1,369	–
	Acute admits	187 (34.19)	427 (29.74)	0.055
	ER admits	120 (21.94)	336 (23.40)	0.049
Variations among patients (n, %)				
ER visits	Patient count	327	786	–
	Age	78.97 (9.10)	76.28 (10.07)	<0.001[a]
	CMS scores	2.60 (1.44)	2.45 (1.53)	0.142
	Symmetry scores	9.61 (5.78)	9.03 (5.74)	0.127

[a]*Statistically significant.*

ER = emergency room; CMS = Centers for Medicare & Medicaid Services; QCP = quality compensation program; SD = standard deviation.

FIGURE 1 QCP Versus Non-QCP: Adjusted Odds Ratio for Drugs, Immunization, and Lab Tests



ACEI/ARB = angiotensin-converting enzyme inhibitor/angiotensin receptor blocker; HbA1c = hemoglobin A1c; LDL-C = low-density lipoprotein cholesterol; OR = odds ratio; QCP = quality compensation program.

average CMS risk scores (1.4% vs. 1.5%; *P* = 0.142) and the QCP group had slightly higher symmetry scores (9.6 vs. 9.0; *P* = 0.127).

The adjusted analysis revealed that none of the drug comparisons statistically differed between the QCP and non-QCP groups (Figure 1). However, all lab tests, including LDL-C (odds ratio [OR] = 1.425, 95% confidence interval [CI] = 1.194-1.702; *P* < 0.0001), HbA1c (OR = 1.468, 95% CI = 1.219-1.769; *P* < 0.0001), serum creatinine (OR = 1.891, 95% CI = 1.586-2.255; *P* < 0.001), and microalbumin (OR = 2.319, 95% CI = 1.939-2.774; *P* < 0.0001), as well as the acquisition of the flu vaccine (OR = 1.383, 95% CI = 1.205-1.589; *P* < 0.0001), occurred more frequently in the QCP group. In addition, acute admits (OR = 1.113, 95% CI = 0.926-1.337; *P* = 0.2532) and ER visits (OR = 1.070, 95% CI = 0.910-1.259; *P* = 0.4138) were similar in both the QCP and non-QCP groups and did not reveal any differences.

Discussion

Our organization launched its first QCP in 2007 and currently has approximately 300 participating PCPs. Over the past several years, the program has evolved, making heart failure a major focal point. This disease state has led to frequent hospitalizations within our member population, resulting in high costs of care. The QCP not only sought to provide measurable improvement in the health status of our members but also to improve financial outcomes for both the physicians and the members. We chose to review data from the year 2010 because of the evolution of the QCP; we felt the data collected from 2010 would help provide a more accurate snapshot of how closely the QCP then relates to the QCP today.

It is worthwhile to note that some of the baseline characteristics differed between the QCP and non-QCP groups. The QCP group, as a whole, was older with a statistically significant incidence of renal failure and higher symmetry scores. In addition, the QCP group had a higher CMS risk score, indicating

that these members have a higher predictive cost when compared with the average Medicare beneficiary. However, because of the differences between the 2 groups, it is important to consider that the QCP group may have utilized ancillary services more often than the non-QCP group.

Overall, our study showed no differences in acute admits and ER visits between the QCP and non-QCP groups, although the QCP members visiting the ER were older and were acutely admitted a bit more often. We hypothesize that the slight increase in the incidence of acute admits within the QCP group could be attributed to the fact that these members may be more cognizant of their disease state; the members in the QCP group may be coached to utilize these services if they notice any fluctuations in their health when compared with the non-QCP group.

We observed that both the QCP and non-QCP groups had similar utilization of the standards of care medications, but the QCP group revealed loop diuretics were utilized slightly more than the non-QCP group. Lab tests were performed more frequently in the QCP group, including LDL-C, HbA1c, serum creatinine, and microalbumin. The acquisition of the flu vaccine occurred more frequently in the QCP group as well. We postulate that the ordering of the aforementioned lab tests could be the result of increased physician engagement to meet performance metrics. This can also be true for the acquiring of the flu vaccine, although perhaps improved patient education by QCP physicians regarding the importance of the vaccine could also play a role.

Throughout this study, we have identified that our contracted PCPs, with or without enrollment into a QCP, typically prescribed heart failure-indicated, evidence-based medications; however, we observed that the ordering of necessary lab tests occurred more consistently when the PCPs participated in a QCP. Although the program has been shown to help providers identify quality targets and make necessary interventions, we still see room for improvement. Observing QCP provider trends, from 2007 to the present, would certainly allow us to visualize these changes more clearly.

QCPs have become a popular initiative for managed care entities in the quest to improve health care delivery to their members, especially as CMS focuses on preventative care. QCPs will continue to evolve as more relevant quality outcome measures are identified and as standards of care are updated. Unfortunately, QCPs within managed care organizations, thus far, have not been able to quantitatively reveal how effective they are long term.[21] As with many other programs that are driven by claims, coding and performance play a key role in correctly identifying these outcome measures. For that reason, accurate coding is an essential step to correct data collection, as well as thorough chart auditing.

Future research on QCPs will certainly need to focus not only on long-term outcomes but also on a health plan's return on investment of hiring health care professionals (i.e., nurses) to audit and collect the data. In addition, it would be important to measure and assign value to the pharmacist intervention in aiding these providers as they work to meet these quality metrics. Awareness of how these interdisciplinary contributions can improve MAPD and provider Star ratings would be interesting to observe as well.

Limitations

One limitation in our study was that the functional heart failure classification measures through the NYHA were not assessed in this study's participants. We feel this classification would have been a good indicator of disease progression. In addition, documentation of the member's LVEF was also not available through our claims system. The addition of the LVEF would also have been a good assessment to include in our baseline characteristics.

In addition to the lack of heart failure classification, our study population only included members who were enrolled in our organization and, thus, the QCP, for 12 consecutive months. Including members not enrolled in the health plan's QCP for 12 consecutive months, due to death, plan provider termination, or "switching plans," could provide fragmented data (depending on the length of their QCP enrollment period) and might not depict an accurate picture of the member's health status. Because this study looked at 1 year of data, we were not able to view the long-term outcomes, financial or clinical, of the QCP and its impact on the member population in question.

Another limitation was the lack of proof of medication adherence. Unfortunately, adherence measures were not calculated; these medications require patient compliance in order to prevent future complications, and some are now currently a part of the CMS Star metrics (i.e., adherence to statin medications and ACEI/ARB medications). In addition, laboratory measures in the 2010 QCP relied on the performance of tests rather than tests results, which are more likely better predictors of outcomes.

Ideally, QCPs should be mostly based on relevant outcomes metrics. Unfortunately, there is currently a paucity of such metrics that can be reliably and accurately captured via claims data, thus, avoiding the need for record reviews. To make the program scalable to an ever-growing number of providers, the program must not be labor intensive, and providers must trust the accuracy of the data. Another challenge in showing a correlation between QCPs and positive outcomes is that many of the currently utilized metrics are preventive in nature, so there is a significant lag between intervention and any observed effects upon outcomes. Studies within a 2- to 3-year time frame that analyze both member and provider behavior, as well as performance patterns, would likely present a clearer picture of the benefits and limitations of QCP-type programs. PCPs who

have adapted their practices to identify gaps in care and control the burden of chronic disease of their member panels have demonstrated the capacity to better control cost over time and often are observed to score the best on the CMS Star measures. As QCPs move towards a closer association with the Star metrics, it would be of interest to reassess their current effectiveness. A lot of movement in the form of expanded metrics, new health information technology, and provider practice restructuring has occurred in the past few years. Another look back could answer many of the questions raised by our study.

Conclusions

After evaluation of our QCP's impact on the quality of care provided to our Medicare beneficiaries, we have concluded that there is potential for health care improvement through pay-for-performance programs. Through this study, we have observed that heart failure members enrolled in a QCP within a MAPD during 2010 were on average older and female, with higher CMS risk scores, and worse renal function. Yet, their outcomes were similar to younger, healthier members that were not enrolled in the QCP. In addition, the utilization of evidence-based, guideline-driven medications for members enrolled in a QCP did not widely vary when compared with the non-QCP group, indicating that the evidence-based drug therapies were prescribed similarly by QCP and non-QCP PCPs in a MAPD plan. Documented laboratory tests and immunizations were higher in the QCP group, indicating better adherence to guidelines and improved quality of care. The clinical relevance of the data indicates that, overall, quality of care is better in some areas for heart failure members within the QCP, but medication rates could be improved for all members. QCPs must shift towards outcomes-oriented quality measures and improve to properly capture those measures. Further research, as previously discussed, is needed to determine if costs and clinical outcomes are improved for members enrolled in QCP programs over a longer term.

Authors

TARA ESSE, PharmD, BCACP, is Clinical Pharmacist; OMAR SERNA, PharmD, BCACP, is Clinical Pharmacy Manager; and NELSON FERNANDEZ, MD, is Medical Director, HealthSpring, a Cigna Company, Houston, Texas. MICHAEL JOHNSON, PhD, is Associate Professor, University of Houston College of Pharmacy, Houston, Texas, and ABHISHEK CHITNIS recently earned his PhD from the University of Houston College of Pharmacy.

AUTHOR CORRESPONDENCE: TARA ESSE, PharmD, BCACP, Department of Health Services, HealthSpring, Inc., 7550 IH 10 West, Ste. 210, San Antonio, TX 78229. Tel.: 210-321-7702; E-mail: tara.esse@healthspring.com.

DISCLOSURES

The authors report no financial conflicts of interest. Concept and design were performed by Fernandez, Esse, and Johnson. Data were collected and interpreted by Chitnis and Johnson. Esse, Serna, and Chitnis wrote the manuscript, which was revised by Esse, Serna, Chitnis, Johnson, and Fernandez.

ACKNOWLEDGEMENTS

Special thanks to Karen Newcomer, RN; Brad Parsons, Data Analyst; Hemal Mehta, University of Houston PhD student; and Brenda Brehm, Quality Improvement Director, for their consultation regarding this project.

REFERENCES

1. Van Herck P, De Smedt D, Annemans L, Remmen R, Rosenthal MB, Sermeus W. Systematic review: effects, design choices, and context of pay-for-performance in health care. *BMC Health Services Res.* 2010;10:247.

2. Jha A, Joynt K, Orav E, Epstein A. The long-term effect of premier pay for performance on patient outcomes. *N Eng J Med.* 2012;366(17):1606-15.

3. McGlynn EA, Asch SM, Adams J, et al. The quality of health care delivered to adults in the United States. *N Eng J Med.* 2003;348(26):2635-45.

4. Mullen K, Frank R, Rosenthal M. Can you get what you pay for? Pay-for-performance and the quality of healthcare providers. *RAND J Econ.* 2010;42(1):64-91.

5. Kindig DA. A pay-for-population health performance system. *JAMA.* 2006;296(21):2611-13.

6. Institute of Medicine. *Rewarding Provider Performance: Aligning Incentives in Medicare.* Pathways to Quality of Health Series. Washington, DC: National Academies Press; 2007.

7. Connell SA, Dunn JD, O'Kane ME, Smith AL. Pay for performance: where's the return? *J Manag Care Pharmacy.* 2007;13(2 Suppl S-b) S3-S6. Available at: http://www.amcp.org/WorkArea/DownloadAsset.aspx?id=14050.

8. Rosenthal M, Frank R, Li Z, Epstein A. Early experience with pay-for-performance: from concept to practice. *JAMA.* 2005;294(14):1788-93.

9. Rosenthal M, Fernandopulle R, Song H, Landon B. Paying for quality: providers' incentives for quality improvement. *Health Aff (Millwood).* 2004;23(2):127-41.

10. Epstein AM, Lee TH, Hamel MB. Paying physicians for high-quality care. *N Engl J Med.* 2004;350(4):406-10.

11. Berwick DM, DeParle NA, Eddy DM, et al. Paying for performance: Medicare should lead. *Health Aff (Millwood).* 2003;22(6):8-10.

12. Rosenthal M, Dudley RA. Pay-for-performance: will the latest payment trend improve care? *JAMA.* 2007;297(7):740-44.

13. Smedley BD, Stith AY, Nelson AR, eds. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care.* Washington, DC: National Academies Press; 2002.

14. Pham HH, Schrag D, O'Malley AS, Wu B, Bach P. Care patterns in Medicare and their implications for pay for performance. *N Engl J Med.* 2007;356(11):1130-39.

15. Casalino L, Alexander G, Jin L, Konetzka R. General internists' views on pay-for-performance and public reporting of quality scores: a national survey. *Health Aff (Millwood).* 2007;26(2):492-99.

16. Chen J, Normand S, Wang Y, Krumholz H. National and regional trends in heart failure hspitalization and mortality rates for Medicare beneficiaries, 1998-2008. *JAMA.* 2011;306(15):1669-78.

17. Lloyd-Jones D, Adams RJ, Brown TM, et al. Executive summary: heart disease and stroke statistics—2010 update: a report from the American Heart Association. *Circulation.* 2010;121(7):948-54. Available at: http://circ.ahajournals.org/content/121/7/e46.full.pdf+html. Accessed March 26, 2013.

18. Hunt SA, Abraham WT, Chin MH, et al. 2009 focused update incorporated into the ACC/AHA 2005 Guidelines for the Diagnosis and Management of Heart Failure in Adults: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines Developed in Collaboration with the International Society of Heart and Lung Transplantation. *J Am Coll Cardiol.* 2009;53(15):el-e90.

19. Bonow RO, Ganiats TG, Beam CT. et al. ACCP/AHA/AMA-PCPI 2011 performance measures for adults with heart failure: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Performance Measures and the American Medical Association-Physician Consortium for Performance Improvement. *Circulation*. 2012;125(19):2382-401.

20. Pope GC, Kautter J, Ingber MJ, et al. Evaluation of the CMS-HCC risk adjustment model: final report. RTI Project Number 0209853.006. March 2011. Available at: https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/downloads/Evaluation_Risk_Adj_Model_2011.pdf. Accessed March 26, 2013.

21. Fairman K, Curtiss F. Clinical quality indicators and provider financial incentives: does money matter? *J Manag Care Pharm*. 2010;16(5):360-66. Available at: http://www.amcp.org/WorkArea/DownloadAsset.aspx?id=8343.