Cost And Quality Trends In Direct Contracting Arrangements

A Minnesota employer-provider initiative seems to have cut costs without sacrificing quality, this empirical evaluation finds.

by Alan Lyles, Jonathan P. Weiner, Andrew D. Shore, Jon Christianson, Leif I. Solberg, and Patricia Drury

ABSTRACT: This paper presents the first empirical analysis of a 1997 initiative of the Buyers Health Care Action Group (BHCAG) known as Choice Plus. This initiative entailed direct contracts with provider-controlled delivery systems; annual care system bidding; public reports of consumer satisfaction and quality; uniform benefits; and risk-adjusted payment. After case-mix adjustment, hospital costs decreased, ambulatory care costs rose modestly, and pharmacy costs increased substantially. Process-oriented quality indicators were stable or improved. The BHCAG employer-to-provider direct contracting and consumer choice model appeared to perform reasonably well in containing costs, without measurable adverse effects on quality.

The buyers health care action group (BHCAG) in the Twin Cities of Minnesota is one of the nation’s more innovative and closely watched employer purchasing coalitions. It is a model of direct contracting from purchaser to provider, bypassing the health plan, and it represents an attempt to allow employees, rather than employers, to choose their health care providers. Of particular interest is what happens to patterns of health services use and costs under this model. Can a system of direct contracting between purchaser and provider restrain costs while preserving quality? We undertook this study in an effort to answer these and

Alan Lyles is a member of the Health Systems Management faculty at the School of Public Affairs, University of Baltimore, where he is also a senior fellow in the Hoffberger Center for Professional Ethics. Jonathan Weiner is a professor of health policy and management and deputy director of the Health Services Research Center at the Johns Hopkins Bloomberg School of Public Health in Baltimore. Andrew Shore is a health services researcher at that center. Jon Christianson is the James A. Hamilton Chair in Health Policy and Management and directs the Center for the Study of Healthcare Management in the Department of Healthcare Management at the Carlson School of Management, University of Minnesota, in Minneapolis. Leif Solberg is associate medical director, HealthPartners Medical Group, in Minneapolis, and Patricia Drury is a health care consultant based in that city.
other questions about BHCAG and Choice Plus, its 1997 initiative to restructure plan-employer relationships.\textsuperscript{2}

**Study Methods**

Computerized service claims and enrollment files were the main data sources we used to describe the 100,000–150,000 persons receiving care under BHCAG during 1996 (the year preceding the implementation of Choice Plus), 1997 (the transitional first year of the initiative), and 1998 (the initiative’s second year). Our unit of analysis was the individual patient. In brief, the initiative in 1997 included direct contracts with provider-controlled delivery systems; annual care system bidding; public reports of consumer satisfaction and quality; uniform benefits; and risk-adjusted payment.

From its inception through 1996, BHCAG contracted with a single large health plan (HealthPartners), which in turn contracted with multiple physician groups and hospitals. The 1997 initiative was designed to empower consumers and to increase competition, consequently, it changed these relationships. Ten of BHCAG’s care systems in 1997 had existed as the same group of providers in 1996; the other fifteen care systems were formed to contract with BHCAG. To track utilization across years, we assigned providers in 1996 to the care systems with which they became affiliated in 1997. We limited our analysis to members enrolled for at least six months in any given year; those enrolled for less than half the year were unlikely to reflect accurately the health services patterns of their care systems. Also, the case-mix adjustment that we used required at least six months of claims-based diagnosis codes.

In addition to documenting actual BHCAG expenditures (which reflect the bid price of each care system), a major focus of our assessment was to document changes in underlying health care resource use during the study years. Beginning in 1997 care systems made annual premium bids prospectively to establish specific spending targets; risk-adjusted fee schedule conversion factors were then calculated each quarter, based on each care system’s actual performance.\textsuperscript{3} To reduce the impact of price variation resulting from the differential bids, price inflation across the three years, and the complex quarterly “bonus/penalty” fee-for-service price adjustments under the BHCAG model, standardized charges were developed and consistently applied across all providers and all three years of the study. Standardized institutional charges were constructed for hospital admissions from the Healthcare Cost and Utilization Project data, and outpatient charges were developed from the Medicare resource-based relative value scale (RBRVS) fee schedule.\textsuperscript{4} These charges were applied to each claim, based on Current Procedure Tech-
nology (CPT) codes or diagnosis-related groups (DRGs). Pharmaceutical charges were not standardized in the same manner, since there was no quarterly adjustment factor for them and since prices were the same across the plans. Rather, to adjust pharmacy charges across the three years to a common year, we applied yearly national price deflators from the Bureau of Labor Statistics (2000).

BHCAG implemented a diagnosis-based, risk-adjusted payment system as part of Choice Plus for two reasons: to support the development of care systems that wished to specialize in treating chronically ill patients, and to minimize the financial impact of selection bias on care systems, especially those with relatively few enrollees. For these reasons, and since there was a good deal of growth and change in the underlying beneficiary cohort over the study years, it was essential that assessments of use and costs incorporate across-year and across-provider adjustment for case-mix variation. Consequently, our comparisons are risk-adjusted using the adjusted clinical group (ACG) methodology. This measure is widely used by health plans nationally and in the Twin Cities, and is used administratively by BHCAG for its quarterly risk-adjusted payment multiplier calculation. ACGs represent mutually exclusive actuarial cells that reflect broad morbidity and comorbidity groupings; they are determined from International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis codes assigned by providers and captured by computerized insurance claims.

ACG assignment over the three-year period could have been susceptible to "coding creep" as a consequence of providers' being aware that this measure contributed to the reimbursement calculation. Although there was little evidence of this, we used an additional independent approach to corroborate the change in case-mix that did appear to take place during the period. We counted individual conditions by matching ICD-9-CM diagnosis codes to a set of 190 diagnosis clusters, based on an expanded version of the diagnosis cluster system originally developed by Ronald Schneeweiss and colleagues. These 190 diagnosis clusters were reduced to the 54 identified as chronic. Counts of these chronic conditions provided an alternative comparison of relative morbidity across years: the percentage of enrollees with one or more chronic conditions. Finally, we examined the change in physicians' CPT visit complexity billing codes from 1996 to 1998. We found the following changes: simple, 34.8 percent to 26.2 percent; intermediate, 47.6 percent to 54.6 percent; and complex, 17.6 percent to 19.1 percent. These differences are consistent with the increase in morbidity suggested both by the ACG and by the chronic-conditions measures. The case-mix change among BHCAG enrollees was not a consequence of persons
who were more ill joining each year. The cohort that was enrolled continuously in all three years experienced an increase in ACG morbidity over the period. It is possible that the care systems signed contracts with more specialists or otherwise made access to specialists easier, thus increasing the likelihood of more complex treatment and assignment to a higher ACG.

Multivariate analysis of patient-level differences in resource use employed controls for enrollee demographics, case-mix, year, and geographic location (metropolitan versus nonmetropolitan). Care system covariates in the regressions included cost tier, total number of BHCAG members, metropolitan/nonmetropolitan location, and average BHCAG member morbidity as measured by ACGs.

Encouraging quality of care is a prominent goal of the 1997 BHCAG initiative; however, other quality efforts were under way in the Twin Cities at the same time. BHCAG built on the foundation of a communitywide provider quality improvement consortium, known as the Institute for Clinical Systems Improvement (ICSI), that had been created in response to BHCAG’s initial 1992 request for proposals. ICSI worked with most of the care systems to improve quality throughout this period and was actively collaborating with BHCAG until 1997. Another possible confounder to our quality analyses is that in 1996 HealthPartners, the large Twin Cities health plan that formerly collaborated with BHCAG in administering Choice Plus, began using a financial incentive system for medical groups to achieve certain quality targets, including some of those in the current analysis. Finally, care systems were aware that survey measures as well as Health Plan Employer Data and Information Set (HEDIS) and similar quality measures would be published annually.

In addition to documenting trends in resource use, we examined their temporal association with quality measures. Our analyses focused on four clinical areas (diabetes, depression, asthma, and preventive services) across the three-year study period. Specifically, we examined the attainment of technical quality-of-care guidelines for the entire enrollee cohort. Detailed explorations of the relationship between cost and quality are reported elsewhere.

Claims data identified persons with diabetes, depression, or asthma and were used to construct process-oriented quality indicators. The quality measures incorporated prescription drug use patterns, in addition to use of specific diagnostic tests. We patterned our measures after HEDIS protocols, modifying the quality indicators when medical chart data were required. After input from clinicians at Johns Hopkins and our Twin Cities–based clinical consultant, we determined that the measures we used were compatible with ICSI clinical guidelines.
Evidence from BHCAG consumer surveys suggests limited consumer consideration of cost tiers and selective use of quality information. BHCAG offered a choice of a provider systems, and consumers could more readily link the providers’ quality reports to their choice of a physician group than they could to their choice of a health plan in a more typical consumer model. However, in the first two years of the initiative consumer surveys did not indicate that consumers perceived differences in quality among the care systems, nor were the care systems differentiated on price to any large degree, since employers provided a partial subsidy. Report cards on service quality and satisfaction among care systems were the most useful to consumers who switched to a new care system.

**Study Results**

In 1996 BHCAG had 98,118 members enrolled for six months or more. By 1998 this figure had risen 35 percent (Exhibit 1). About 12 percent of the total membership was enrolled for less than six months in each year and was excluded from analyses. Members’ sex, age, and metropolitan residency were similar for each year. The percentage of covered persons who had chronic conditions increased over the three-year period by about 12 percent, and the ACG index, by about 10 percent (Exhibit 1).

We calculated actual and standardized per member per month charges for the year before Choice Plus (1996 or “pre”) and the second year after (1998 or “post”); these are presented with and without risk adjustment (Exhibit 2). Our analysis compared overall

| EXHIBIT 1 | Characteristics Of Enrollees Before And After The BHCAG Choice Plus Initiative, 1996 And 1998 |
|---|---|---|
| Demographics | Before, 1996 | After, 1998 | Percent change |
| total enrollees | 110,826 | 150,003 | 35.4% |
| Enrolled at least 6 months | 98,118 | 132,507 | 35.0 |
| Percent under age 18 | 30.5% | 29.8% | -2.3 |
| Mean age (years) | 29.5 | 30.1 | 2.0 |
| Percent female | 52.4% | 52.4% | 0.0 |
| Percent metropolitan | 93.1% | 92.0% | -1.2 |
| Case-mix | | | |
| Percent with chronic conditions | 28.4% | 31.9% | 12.3 |
| ACG index | 0.95 | 1.05 | 10.5 |

**SOURCE:** Buyers Health Care Action Group (BHCAG) medical service claims and enrollment files.

**NOTES:** The initiative commenced in January 1997. The study population and descriptive statistics are for those enrolled at least six months.

a Chronic conditions are a subset of Schneeweiss’s clusters, equaling fifty-four conditions. See Note 8 in text.

b 1.00 = 1997 population case-mix using the Johns Hopkins adjusted clinical group (ACG) case-mix system.
costs as well as those for three major service categories: ambulatory (physician fees, laboratory, and x-ray); hospital (facility and physician fees); and ambulatory pharmacy.

The premium increases during this period for other Minnesota providers, for commercial plans nationally, and for a large retiree health insurance purchaser provided a context for BHCAG’s experience. Enrollment-weighted national premiums increased 9 percent during 1996–1998; and California Public Employees Retirement System (CalPERS) basic HMO premiums increased 1.3 percent.\textsuperscript{15} BHCAG’s cost trends occurred in a market with a small number of large competitors, a situation generally associated with higher premiums.\textsuperscript{16} The unadjusted results for BHCAG indicate a 19 percent overall increase in payments during the two years following the 1996 base period, or about 9 percent a year. After an adjustment is made for changing case-mix, the actual increase is only about 3 percent per year. After standardized/deflated payments are applied, the overall change attributable to increased intensity of services was a little more than 1 percent per year.

These overall increases mask differences in sector-specific results. After case-mix adjustment, using either standardized charges or actual payments, hospital payments decreased during the period, ambulatory care expenses rose modestly, and pharmacy expenses increased greatly.

The overall BHCAG average expenditure of $120.38 per member per month in 1998 (including both nonusers and those enrolled less than six months) was considerably lower than the average commer-

<table>
<thead>
<tr>
<th>Type of charge</th>
<th>Before, 1996</th>
<th>After, 1998</th>
<th>Percent change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not risk-adjusted</td>
<td>Risk-adjusted</td>
<td>Not risk-adjusted</td>
</tr>
</tbody>
</table>
| Actual total per member per month | $100 | $105 | $119 | $112 | 19% | 7%
| Ambulatory | 55 | 57 | 65 | 61 | 18% | 7%
| Hospital | 30 | 32 | 33 | 31 | 10% | -3%
| Pharmacy | 15 | 15 | 21 | 20 | 40% | 33%
| Standardized total per member per month | 103 | 108 | 117 | 110 | 14% | 2%
| Ambulatory | 52 | 55 | 60 | 57 | 15% | 4%
| Hospital | 36 | 38 | 37 | 35 | 3% | -8%
| Pharmacy | 15 | 15 | 20 | 19 | 33% | 27%

\textbf{SOURCE:} Buyers Health Care Action Group (BHCAG) medical service claims and enrollment files.

\textbf{NOTES:} Sample restricted to those enrolled at least six months. Ambulatory and hospital charge standardization based on utilization and resource-based relative value scale (RBRVS)-like fee schedule. Pharmacy charges are not standardized, but the figures in the last row are adjusted for inflation. Risk adjustment is based on age, sex, and adjusted clinical group (ACG) morbidity clusters.
cial expenses statewide for Minnesota HMOs (medical, $137.56; administrative, $11.94; and other, $2.74, for a total of $152.23).\textsuperscript{17}

For the 1997 calendar year, care systems submitted bids to BHCAG and, based on these bids, were designated as being in a high, medium, or low cost tier. Consumers chose from among these tiers, and (depending on the employer’s policy) some consumers paid more out of pocket toward the premium for the higher cost tiers.

There were significant annual shifts in the care systems in each cost tier.\textsuperscript{18} Care system bids in anticipation of the first year of the initiative (1997) reflected the uncertainty over the number that would be invited to participate in the initiative and were probably deliberately low to improve a care system’s chance of being included if only a few were permitted to participate. However, BHCAG permitted all qualified care systems to participate. Consequently, bids for the second year (1998) changed markedly from those of the first, producing a shift in the composition of the cost tiers and in the proportion of consumers enrolled in each (Exhibit 3). The large shift in the distribution of enrollees across the two years who were in high-cost care systems (from 6 percent in 1997 to 43 percent in 1998) reflects strategic decisions by several large care systems. These care systems moved into the highest cost tier over this period, presumably hoping that their current members would not switch to lower tiers. This assumption was supported by actual enrollment and retention patterns. Health status is also a determinant, with sicker patients being more likely to remain in the same plan.\textsuperscript{19}

In addition to cost differentials across the networks, other relevant competitive factors in consumers’ selection process included network size and location, patients’ desire for continuity of care, published results of performance and satisfaction surveys, perceived amenities, and the care systems’ special clinical offerings. Analyses of consumer choice during this enrollment period are reported elsewhere.\textsuperscript{20}

Although a member might self-select into a higher-price care sys-

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|c|c|c|c|c|c|c|}
\hline
 & \multicolumn{4}{c|}{1997 (year 1) cost tier} & \multicolumn{4}{c|}{1998 (year 2) cost tier} \\
\hline & Total & Low & Medium & High & Total & Low & Medium & High \\
\hline Number of enrollees\textsuperscript{a} & 100\% & 45.1\% & 48.9\% & 6.0\% & 100\% & 9.5\% & 47.7\% & 42.7\% \\
Number of care systems & 23 & 9 & 11 & 3 & 24 & 6 & 15 & 3 \\
Case-mix index\textsuperscript{b} & 1.00 & 0.99 & 1.01 & 1.03 & 1.05 & 0.97 & 1.02 & 1.10 \\
\hline
\end{tabular}
\caption{Enrollee Shift, Costs, And Case-Mix Among BHCAG Cost Tiers, 1997 And 1998}
\end{table}

\textsuperscript{a} Sample restricted to those enrolled at least six months: N = 119,592 for 1997 and 132,507 for 1998.
\textsuperscript{b} Adjusted clinical group (ACG) case-mix calibrated to 1997 population base.
tem for many reasons, it is commonly believed that persons with special medical needs are more likely to pay higher cost sharing to choose systems that allow them to keep their providers. The tier-specific case-mix measurement, calibrated to the 1997 population base, suggested generally lower case-mix among less costly providers and higher case-mix among more costly providers. This stratification increased in the second year, with a 13 percent difference in case-mix between high and low tiers in 1998, compared with a 4 percent difference the year before. This is consistent with the fact that enrollees who were willing to pay higher premiums were on average sicker than those paying lower premiums; however, the absolute differences are not large, and some employers did continue to subsidize the difference in premiums across cost tiers.

To isolate the relative effects of care system price and efficiency on member charges, we performed multivariate analyses. The regression models yielded coefficients representing the independent effects of each of the cost-tier designations (using the “medium cost” set of care systems as the reference) for 1997 and 1998 (Exhibit 4). The analysis was repeated for two charge variables: actual per member per month charges paid by BHCAG (which by design vary across the three cost tiers), and standardized charges (which did not vary by provider). These analyses hold constant ACG case-mix and demographics to control for potential risk selection among patients across the three cost tiers.

The results in Exhibit 4 indicate, perhaps not surprisingly, that once the influence of case-mix is removed, the actual per member per month charges paid for those enrolled in the low cost tier are lower than for those enrolled in the middle tier, for both 1997 and 1998.
1998. Although the difference was not as great, actual charges were higher for enrollees in high-cost care systems. Specifically, in 1998 care systems in the low cost tier as a group had a per member per month actual charge that was about $11 below the that of systems in the medium tier, and the high cost tier’s charges were about $3 per member per month above those of the medium-tier providers.

We developed a standardized fee schedule to remove the effects of different provider prices. Using the standardized fee schedule, we found no detectable difference in resource use across the three cost tiers in 1998. The absence of a statistical difference in resource use after adjustment for case-mix suggests that care systems may have been competing more on price than on efficiency. However, systems in the high cost tier did appear to have a more resource-intensive practice style in 1997, as evidenced by their $7 higher per member per month standardized charge. The shift of some care systems from the low tier in 1997 to the high tier in 1998 produced a different mix of care systems and, presumably, efficiencies.

**Quality Trends Before And After Choice Plus**

We calculated technical quality-of-care measures for three diseases and for preventive services for each of the study years (Exhibit 5); given the sample sizes, we set the significance level at \( p < .01 \). For all but one reported measure, the presence of the indicator is considered a measure of higher quality.

Approximately 3 percent of the BHCAG population was identified as diabetic. Five separate services for the care and management of diabetes were compared for them: rates of obtaining tests for hemoglobin A\(_{1c}\), microalbuminuria screening, lipid profiles, and diabetic eye exams, as well as use of lipid-lowering (statin) medications; all of these screening tests are recommended at least annually. All measures increased somewhat from the pre to the post period, with microalbuminuria tests, lipid profiles, and statin use being statistically significant and showing what could be considered clinically meaningful increases.

Depression cases were identified by ICD-9 code plus a member’s having filled a new prescription for an antidepressant; this produced a BHCAG per year new “index case” incidence of 1.5–2 percent. Studies of depression treatment for adults ages eighteen to sixty consistently report early termination of pharmacotherapy. The BHCAG measures show a stable proportion of office-based visits and no demonstrable change in the agreement with pharmacotherapy treatment recommendations.

Asthma prevalence among BHCAG adults ages eighteen to fifty ranged from 3.5 percent in 1996 to 4.1 percent in 1998, based on cases
identified by claims diagnoses and by prescription inhalers. Those over age fifty were excluded to eliminate confusion with chronic obstructive pulmonary disease (COPD) cases. Although most patients with asthma had at least two office visits during the year, fewer than 23 percent filled at least two steroid inhaler prescriptions during the year, even though this was one possible case identification criterion (Exhibit 5). Even with this low rate of steroid inhaler use, only 3 percent of adult asthma patients used emergency services. All three asthma medical service measures were consistent over the three years.

Some preventive services recommended by the U.S. Preventive Services Task Force can be examined using administrative data: cholesterol screening, colorectal examination, cervical cancer screening, and diabetes screening. The table below shows the percent of individuals meeting quality indicators across three years of the BHCAG Choice Plus Initiative, 1996–1998.

<table>
<thead>
<tr>
<th>Condition/quality indicator</th>
<th>Percent of target individuals meeting quality indicator 1996</th>
<th>1997</th>
<th>1998</th>
<th>Percent change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diabetes (n = 1,979)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hemoglobin A\textsubscript{1C} &amp; 78.3% &amp; 79.5% &amp; 82.9%*** &amp; 5.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microalbuminuria             &amp; 24.7 &amp; 30.8 &amp; 38.4*** &amp; 55.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lipid profile                &amp; 30.8 &amp; 34.8 &amp; 47.2*** &amp; 53.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statins                      &amp; 13.2 &amp; 17.1 &amp; 20.4*** &amp; 54.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetic retinopathy         &amp; 41.8 &amp; 42.6 &amp; 43.9 &amp; 5.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Depression (n = 1,434)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 follow-up visits within 3 months within each calendar year &amp; 36.6 &amp; 30.1 &amp; 35.5 &amp; -3.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute phase: 54 days Rx within 84 days within the calendar year &amp; 75.4 &amp; 75.7 &amp; 78.6 &amp; 4.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic phase: 129 days Rx in 6 months within the calendar year &amp; 53.9 &amp; 50.8 &amp; 56.5 &amp; 4.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of time with medication within each calendar year &amp; 59.0 &amp; 56.1 &amp; 59.0 &amp; 0.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asthma (n = 3,089)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steroid inhaler—2 or more prescriptions per year &amp; 21.7 &amp; 22.6 &amp; 22.7 &amp; 4.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 2 visits per year &amp; 83.4 &amp; 83.4 &amp; 84.6 &amp; 1.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency room use           &amp; 2.8 &amp; 2.2 &amp; 3.0 &amp; 7.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age/sex-appropriate prevention (n = 5,328–77,325)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholesterol screening        &amp; 13.2 &amp; 15.8 &amp; 22.8*** &amp; 72.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colorectal screening (excludes stool guic test) &amp; 9.3 &amp; 10.1 &amp; 10.2*** &amp; 9.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pap test                     &amp; 44.9 &amp; 44.8 &amp; 45.5 &amp; 1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammography                  &amp; 54.5 &amp; 55.0 &amp; 56.2*** &amp; 3.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flu shots                    &amp; 22.7 &amp; 22.4 &amp; 23.0 &amp; 1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of all eligible screenings &amp; 28.2 &amp; 29.1 &amp; 31.3*** &amp; 11.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE:** Buyers Health Care Action Group (BHCAG) medical service claims and enrollment files.

***p < .01
screening, mammography, and flu shots. Their recommended screening frequencies vary by age and other risk factors. Rates of use of preventive services either remained stable or showed general improvements from the pre to the post periods. (We report yearly frequencies, based on what our data permitted, rather than the recommended five-year testing rates.) Although the criteria are defined differently for national HEDIS rates, and those rates are not directly comparable, the changes from 1996 to 1998 are similar to those seen in BHCAG: diabetic retinopathy, up 7.9 percent; Pap test, no change; and mammography, up 2.8 percent. Preventive services for BHCAG enrollees also were combined into an aggregate measure for the proportion of eligible services each member actually received. On average, BHCAG members received approximately one-third of the preventive services for which they were eligible, with the trend rising over the study period ($p < .01$). This rate is lower than might be anticipated, perhaps because some services are recommended at intervals exceeding our one-year analytic period.

**Discussion And Policy Implications**

BHCAG is a unique purchasing initiative that builds on Minnesota’s extensive experience with organized care delivery systems. Although our ability to make direct comparisons for BHCAG’s performance is limited, national health care use and cost trends during this period provide a context for its payment changes. During the period we studied, the U.S. rate of overall increase in hospital charges was approximately 6.5 percent, spending for physician services rose by about 10 percent, and drug spending rose by 32 percent. Milliman and Robertson’s Health Cost Index estimates that non-Medicare physician revenues increased 8.2 percent, prescription revenues increased 27.2 percent, and hospital inpatient revenues declined 6.1 percent. When these two sources of data are compared with BHCAG’s actual risk-adjusted expenditures (which is appropriate, given the changing population during the study), BHCAG’s ambulatory care increases were somewhat lower than those nationally, pharmacy costs were comparable, and hospital payments were in between. Hospital use rates in the Twin Cities were already below the national average (local admission rates per 1,000 in 1996 were about 10 percent lower than national rates), which suggests that additional decreases would likely have been more difficult to achieve. Additionally, BHCAG expenditures per member per month were lower than the Minnesota average medical expenses for commercial HMOs.

Employer coalitions in some urban areas have assumed a high profile and have proved to be key participants in reforming local
health care delivery systems. Although these activities have been
well documented, their impacts on utilization and health care qual-
ity indicators generally have not been examined. Our evaluation
indicates that overall employee and dependent health care costs
increased slightly less than national rates of increase, despite a rapid
increase in drug costs.\textsuperscript{10} After the changing population disease sev-
erness is controlled for, hospital costs (traditionally a costly component
of health care) appear to have moderated and even declined during
the period in which Choice Plus was put in place. The percentage
offset of increased ambulatory care use is modest. As the underwrit-
ing cycle moves to larger premium increases for conventional health
plans over the next few years, the relative performance of the direct-
contracting care system model should be reexamined.

BHCAG’s control of health care spending during its first two
years does not appear to have occurred at the expense of quality of
care. Measures for technical quality of care for selected chronic
conditions, as well as for preventive services, either were stable or
improved moderately over the study period.

\textbf{Study limitations.} Our findings are from a single employer
coalition in a single state that is unique in a number of important
attributes. The data are only for the first two years of the BHCAG
initiative’s implementation and may represent the ascent of a learning
curve in which changes could be greater or less with more experi-
ence. The response of care systems to the annual bidding process is
still fluid, as is the entrance of new members and their health care
needs. Although the overall BHCAG evaluation involves multiple
data sources, the health care utilization component reported here
relies exclusively on administrative data and carries with it the limi-
tations of such data. We applied quality measures that were consis-
tent with best practices using medical service claims, but these are
limited; they should not be compared to HEDIS and other measures
that employ a hybrid approach combining claims and medical chart
data.

Despite its limitations, the study contributes to our under-
standing of what can happen under an employer-to-provider direct
contracting and consumer choice model. Given the paucity of em-
pirical analyses in this regard, the results reported here should be
relevant to others considering such changes. Through a combination
of case-mix adjustment and application of standardized charges,
this analysis offers a well-documented picture of the effects of an
intervention on overall resource use immediately after its implemen-
tation. The early experience with the BHCAG model reflects, in
part, strategic choices and accommodations by employers, employ-
ees, and providers. In the longer term, contracting care systems may
need to focus on improving clinical efficiency if they are to sustain competitive bid prices.

The study was supported by a grant from the Robert Wood Johnson Foundation’s Changes in Health Care Financing and Organization (HCFO) Initiative. The participation of other key individuals and organizations is gratefully acknowledged, especially Klaus Lemke of Johns Hopkins and Ann Robinow, formerly of BHCAG and now of Patient Choice Healthcare, Inc. The project would not have been possible without the cooperation of the many employers that constitute BHCAG. HealthPartners staff provided valuable assistance with the claims data.

NOTES
12. The specific criteria used for case identification and for defining technical quality are available in Solberg et al., “Is Quality Free?” or from the authors upon request.


18. Christianson et al., “Early Experience with a New Model.”


26. These quality-of-care analyses are at the person level. For analyses at the care system level, see Solberg et al., “Is Quality Free?”


