Integration

Do Integrated Health Care Systems Provide Lower-Cost, Higher-Quality Care?

By John Kralewski, PhD, MHA, Bryan Dowd, PhD, MS, Megan Savage, BS, and Junliang Tong, MS

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The Accountable Care Organization (ACO) concept proposed by the Affordable Care Act legislation is based on models developed by Integrated Delivery Systems (IDS). It is widely believed that these organizations reduce costs and improve quality of care through better integration and coordination of services.

Although some studies have suggested improved quality of care, the cost savings attributed to these care systems is still uncertain. We attempted to shed light on this issue by analyzing the costs and quality of care provided by 52 medical group practices in a large upper Midwest community.

Thirty-two of these practices are owned by not-for-profit IDS’s that include primary care and specialty clinics, at least one owned hospital, and extensive support services.

Twenty are medium size (10 to 65 FTE) physician-owned primary care practices, some with one or two additional specialty services. These physician-owned practices depend on nonowned hospitals and specialty clinics for most of their secondary and tertiary patient care needs.

Data and methods

Data for this study were obtained from a firm that aggregates health care claims data provided by a consortium of self-insured employers in the Upper Midwest and provides quality and cost reports for its clients.

Our sample included 273,000 enrollees in these self-insured health plans during 2008 and 2009. We identified 52 medical group practices, each of which provided care for at least 300 of those enrollees. Enrollees were assigned to the practice where they received a plurality of their primary care visits during the study period.

All of the practices have a primary care component, but 36 also provide some specialty services. In this study, practices with multiple sites are considered one group practice if they bill as one unit.

In addition to ownership, we include the following organizational variables in our analysis that have been found to influence group practice performance:

- Practice size (number of FTE physicians)
- Rural vs. urban location
- Single primary care vs. multispecialty practice
- Electronic health record use

These data were obtained from the practices and from their publications.

Costs of services provided by each practice were standardized for differences in negotiated payment rates by assigning each procedure, service and prescription drug the average allowed amount paid for that item to all of the practices included in the study.

Thus, our cost measure represents a dollar-weighted measure of resource use. These standardized costs per member per year (PMPY) then were adjusted for case mix using the 3M Clinical Risk Group (CRG) software.

Quality of care measures for the practices were obtained from the Minnesota Community Measurement (MNCM) program. The following measures are included in our analysis:

- Optimal diabetes care
- Cervical cancer screening rates
- High blood pressure control

The metrics for these measures are available on the MNCM website.

In addition to these quality measures, we calculated avoidable hospitalization rates and emergency department
use rates for non emergent conditions using the ambulatory care sensitive (ACS) hospital admissions algorithm and an emergency department use algorithm. The distribution of the practice and quality measures is shown in Table 1.

**Findings**

The standardized risk-adjusted PMPY costs of care provided by these practices vary from a mean cost of $2,645 in the lowest quintile to $4,156 in the most costly quintile. The mean cost for all of the practices is $3,258 PMPY (Table 2).

Because these costs are standardized and risk-adjusted, these differences result from differences in the mix of services used to care for similar patients. The regression analysis shown in Table 3 provides insights into the practice attributes that influence these cost differences.

Two of the practice structure variables have a statistically significant influence on these cost differences. Practices owned by Integrated Delivery Systems have higher costs...
than those owned by physicians (p = 0.09) and multispecialty practices are more costly than single specialty primary care practices (p = 0.07).

The IDS and multispecialty findings might indicate that the availability of more technologies and services influences cost differences. An alternative explanation might be that the close linkage between some of the IDS practices and owned hospitals creates a high-technology practice culture that increases costs.

The finding that single specialty primary care group practices have lower costs indicates that less costly care systems can be organized by primary care practices that depend on nonowned medical practices and hospitals for specialty services. It appears that structural integration of services is only one dimension of the PMPY cost issue.

Costs and quality of care

We analyzed the quality of care provided by these group practices

Table 3
The Influence of Practice Structure, Location and Ownership on Standardized Risk Adjusted PMPY Cost

<table>
<thead>
<tr>
<th>Parameter</th>
<th>PMPY Estimate</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3178.1831</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Physician Owned</td>
<td>-181.3573</td>
<td>0.09</td>
</tr>
<tr>
<td>Rural Location</td>
<td>67.2023</td>
<td>0.60</td>
</tr>
<tr>
<td>Size (FTE Physicians)</td>
<td>-0.0277</td>
<td>0.90</td>
</tr>
<tr>
<td>Multispecialty Practices</td>
<td>279.6911</td>
<td>0.07</td>
</tr>
</tbody>
</table>

Practices owned by Integrated Delivery Systems and single specialty primary care practices are the omitted reference variables.

Table 4
Spearman Correlation of Cost and Quality Measures

<table>
<thead>
<tr>
<th>PMPY Cost</th>
<th>Inapp ER Rate</th>
<th>Avoidable Hosp Rate</th>
<th>Optimal Diabetes Score</th>
<th>Pap Test Rate</th>
<th>HBP Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMPY cost</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inapp ER Rate</td>
<td>0.11</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidable Hosp Rate</td>
<td>0.21</td>
<td>0.35</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimal Diabetes Score</td>
<td>-0.28</td>
<td>-0.12</td>
<td>-0.16</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Pap Test Rate</td>
<td>-0.03</td>
<td>0.14</td>
<td>0.1</td>
<td>-0.18</td>
<td>1.00</td>
</tr>
<tr>
<td>HBP Control Score</td>
<td>-0.29</td>
<td>-0.19</td>
<td>-0.26</td>
<td>0.28</td>
<td>0</td>
</tr>
</tbody>
</table>

Practices owned by Integrated Delivery Systems and single specialty primary care practices are the omitted reference variables.
two ways. First, we calculated the correlation of the quality measures to determine the degree of consistency in performance across the measures within practices.

As shown in Table 4, the screening rates for breast, cervical and colon cancer are weakly correlated, but none of the other measures are correlated. It appears that these medical group practices are not consistent in providing quality care across different measures. In general, quality is uncorrelated with costs, although optimal diabetes care and better high blood pressure control are weakly correlated with lower costs.

In the second analysis of the quality data, we calculated differences in the quality of care provided by the IDS-owned medical group practices vs. those owned by physicians when other practice variables are controlled (Table 5).

With the exception of lower optimal diabetes scores, the IDS practices do not differ from those owned by physicians on these quality of care measures. The Influence of practice structure, locations and ownership on Quality of Care

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Nonemergent ED Rate</th>
<th>ACS Hospitalization Rate</th>
<th>Optimal Diabetes Care</th>
<th>Pap Smear Rate</th>
<th>HBP Control Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.3036</td>
<td>1.381</td>
<td>0.1398</td>
<td>0.8179</td>
<td>0.6069</td>
</tr>
<tr>
<td>P-Value</td>
<td>0.0008</td>
<td>0.0188</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
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<tr>
<td>Physician Owned</td>
<td>-0.073</td>
<td>-0.4324</td>
<td>0.0429</td>
<td>-0.0013</td>
<td>0.0442</td>
</tr>
<tr>
<td>P-Value</td>
<td>0.2726</td>
<td>0.335</td>
<td>0.043</td>
<td>0.8547</td>
<td>0.1708</td>
</tr>
<tr>
<td>Rural Location</td>
<td>-0.226</td>
<td>0.671</td>
<td>-0.0007</td>
<td>0.0018</td>
<td>0.0442</td>
</tr>
<tr>
<td>P-Value</td>
<td>0.0168</td>
<td>0.2742</td>
<td>0.9813</td>
<td>0.8564</td>
<td>0.5936</td>
</tr>
<tr>
<td>Size (FTE Physicians)</td>
<td>0.0003</td>
<td>-0.0003</td>
<td>0.7903</td>
<td>1.99E-05</td>
<td>-1.75E-05</td>
</tr>
<tr>
<td>P-Value</td>
<td>0.0734</td>
<td>0.7903</td>
<td>0.4521</td>
<td>0.2873</td>
<td>0.8028</td>
</tr>
<tr>
<td>Multispecialty Practices</td>
<td>0.0681</td>
<td>1.2927</td>
<td>0.0498</td>
<td>-0.003</td>
<td>0.0102</td>
</tr>
<tr>
<td>P-Value</td>
<td>0.4753</td>
<td>0.3653</td>
<td>0.7724</td>
<td>0.8283</td>
<td></td>
</tr>
</tbody>
</table>

Practices owned by Integrated Delivery Systems and single specialty primary care practices are the omitted reference variables.
measures. Multispecialty practices have higher avoidable hospitalization rates than single specialty primary care practices (p = 0.05), and larger practices have more inappropriate emergency department visits (p = 0.07). Rural practices have lower non-emergent ED rates, probably resulting from lack of access to these services in some rural areas; none of the other relationships is statistically significant.

Discussion

Our data show that there is important variance in the costs of care provided by different medical group practices serving a local community. Because we controlled for payment rates and case mix, these findings result from differences in the type and amount of services used to care for similar patients.

Physicians in some of these practices apparently use a more cost-effective mix of services and technologies to care for patients, and these savings do not appear to be achieved at the expense of quality of care.

The IDS group practices included in our study have extensive administrative and organizational capacity and are the only ones in the community with EHRs that are linked to a full range of specialists and at least one hospital.

Yet, they are often outperformed by relatively small physician-owned practices. This unexpected finding might result from difficulties encountered in creating a uniform culture in the large, complex health care delivery systems and the technology-intensive culture of the hospital-based IDS practices.

Our data raise important questions about the assumptions regarding the performance of integrated health care delivery systems. Although there appears to be a consolidation of providers into large systems in response to payment constraints and in anticipation of health care reform initiatives such as ACOs, our data suggest that these large complex structures might increase costs with no gains in quality.

However, our data indicate that there are high-performing medical group practices within all of the ownership categories. Identifying the organizational and cultural factors influencing these “best practices” is an important area for further research.

Reference


