Quality of Care for Children in Commercial and Medicaid Managed Care

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Over the past 3 decades, commercial managed care entities have become the primary source of health insurance for privately insured children.1 State Medicaid programs also have turned to managed care to achieve cost-containment goals and expand services2,3 through federal waivers4,5 using commercial entities under contractual arrangements.6,7 Because states recently expanded insurance coverage for children through State Children’s Health Insurance Programs,8 they have enrolled previously uninsured children in commercial delivery systems.9,10

Although many policy makers herald the efficiencies and abilities of the commercial sector to provide high-quality health care,11,12 concerns about quality of care (QOC) have led to national efforts to measure and report information on QOC provided by managed care organizations (MCOs).13-19 Of particular interest has been the QOC provided to vulnerable populations, including children and adolescents.20-23

The managed care industry has developed a set of reporting requirements for quality assessment—the Health Plan Employer Data and Information Set (HEDIS).24,25 Maintained by the National Committee for Quality Assurance (NCQA),25 HEDIS contains specified measures and data-collection procedures to provide comparative data on health care quality.26 Quality of care information has been collected by NCQA from commercial MCOs since 1995,27 and from Medicaid and Medicare MCOs since 1997.28-30

In its recent report to Congress, the Institute of Medicine called for an examination of health care quality across all governmental programs using such standardized performance indicators.31 The National Report on Healthcare Quality,32 required annually by Congress through the 1999 Healthcare Research and Quality Act,33 with the first report scheduled to be issued this year, will present an opportunity to examine and track improvements in QOC.

We undertook this study to evaluate what existing health plan performance

Context Many states have turned to commercial health plans to serve Medicaid beneficiaries and to achieve cost-containment goals. Assumptions that the quality of care provided to Medicaid beneficiaries through these programs is acceptable have not been tested.

Objective To compare the quality of care provided to children and adolescents in commercial and Medicaid managed care in the United States.

Design, Setting, and Population Using 1999 data collected through the Health Plan Employer Data and Information Set, we examined reported quality-of-care indicators for children and adolescents. Results from 423 commercial and 169 Medicaid plans were compared. Matched pairs analyses were performed using data from each of the 81 companies serving both populations to control for corporate differences. Correlation coefficients and regression procedures were used to examine observed variations in health plan performance.

Main Outcome Measures Quality indicators including prenatal care, childhood immunizations, well-child visits, adolescent immunizations, and myringotomy and tonsillectomy rates.

Results Using standard indicators of clinical performance, children and adolescents enrolled in Medicaid received worse care compared with their commercial counterparts. For most of the 81 health plans serving both populations, Medicaid enrollees had statistically significantly (P<.001) lower rates than commercial plans for clinical quality indicators (eg, childhood immunization rates of 69% vs 54%); for clinical access indicators (eg, well-child visits in the first 15 months of life, 53% vs 31%); and for common procedures (eg, myringotomies for children aged 0-4 years, 35 vs 2 per 1000 members). Conversely, some plans demonstrated equal and high-quality care for both populations. Regression models failed to identify consistent plan characteristics that explained the observed differences in quality of care.

Conclusions Most commercial health plans do not deliver high-quality care on a number of performance indicators for children enrolled in Medicaid. Policy makers and the public need plan-specific quality information to inform purchasing decisions.

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assessments reveal about the QOC provided to children and adolescents in the United States. Of particular interest was the health care quality provided to children and adolescents enrolled in MCOs through the state and federally funded Medicaid programs. The principal question of interest was whether the QOC provided to children in Medicaid MCOs is equivalent to the QOC provided to children in commercial MCOs.

METHODS

Data Sources Used for Assessing Performance

Health plans report their self-assessed and audited HEDIS data to the NCQA using electronic submission tools and attest to the accuracy of the final submission. These data are maintained in NCQA’s Quality Compass database. Clinical performance data were reported by each plan for the 12-month period preceding the submission year.

We examined health plan performance data for selected child and adolescent health indicators for 1999 reported in 2000 by both commercial and Medicaid MCO plans. Many MCOs offer both a Medicaid product and a commercial product and submit HEDIS data separately for both.

Performance Indicator Selection and Analysis

From the approximately 80 QOC indicators contained in HEDIS, we selected all indicators relevant and unique to child or adolescent health care. These included 3 clinical quality, 3 access, and 4 procedure indicators. The clinical quality indicators were early initiation of prenatal care, childhood immunization combination rate (4 diphtheria-tetanus-pertussis, 3 polio, 1 measles-mumps-rubella, >1 Haemophilus influenzae type B, and 2 hepatitis B vaccinations before 2 years of age), and adolescent immunization for measles-mumps-rubella. The access indicators were well-child visits in the first 15 months of life, annual well-child visits 3 through 6 years of age, and adolescent well visits. The procedure indicators were number of myringotomies per 1000 members aged 0 to 4 years, number of myringotomies per 1000 members aged 5 to 19 years, number of tonsillectomies per 1000 members aged 0 to 9 years, and number of tonsillectomies per 1000 members aged 10 to 19 years. Details on the numerator and denominator for each HEDIS measure are summarized in Table 1.

Many of our selected performance indicators corresponded to recommendations and goals of the US Preventive Services Task Force and Healthy People 2000. While high-quality performance is represented by higher levels of achievement for clinical and access indicators, higher rates of use of specific procedures may represent better QOC or overutilization. Thus variation in the utilization rates of common procedures observed between plans can be used to compare performance, but conclusions regarding QOC cannot be drawn.

Statistical Analyses

The NCQA publishes specifications and acceptable methodologies for data collection to ensure standardized reporting. These include defining usable data sources, systematic sampling strategies, and verifiable data collection procedures. Most clinical indicators of quality use information from administrative data with supplementation by medical record abstraction for plans with incomplete information or for indicators requiring more specific information (eg, childhood immunizations). For both Medicaid and commercial plans, administrative data were supplemented with record review in a majority of plans for the clinical quality indicators (ie, 87% of commercial and 78% of Medicaid for adolescent immunization) and in approximately one third for the access indicators. Through such efforts, data quality for clinical quality and access indicators is optimized while statistical power is maintained. Point estimates are generated to compare performance between the 2 plans and provide 80% power to detect a difference within ±5%; usually a sample of 411 enrolled and eligible children is used with separate samples required for each Medicaid and commercial plan. Measures of procedure rates were based on administrative data for all children and have no associated sample error.

Results for each QOC indicator were calculated separately for Medicaid and commercially enrolled children in each health plan. The national average for plan performance was calculated as the unweighted plan average for each indicator. Standard deviations and ranges are provided as measures of performance distribution across plans. After descriptive results for all reporting plans were determined, analyses were restricted to those plans reporting both commercial and Medicaid results for children. This controlled for potential variations between plans on corporate philosophy, structures, management strategies, and types of delivery networks.

For each indicator, performance results for commercial and Medicaid enrollees within each plan were calculated. Then Medicaid rates were subtracted from their paired commercial rates. For plans that achieved equivalent care for their Medicaid and commercial beneficiaries, no difference was observed; for those that achieved higher-quality scores for the commercial beneficiaries, a positive score was observed; for those in which Medicaid quality exceeded commercial quality, a negative score was generated. Paired t tests were conducted to see if the differences were statistically different from zero.

To determine whether the relationships among measures were consistent for observed differences between commercial and Medicaid enrollees, Pearson product moment correlation coefficients were calculated for the commercial rates, Medicaid rates, and the difference scores.

Finally, to identify potential explanatory variables, we modeled the adjusted log-transformed difference scores (to achieve a more normal distribution) using linear regression against the following MCO characteristics that have been shown to be associated with performance: (1) whether or not the commercial plan publicly reported its data,
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(2) years in business for the commercial product line, (3) years in business for the Medicaid product line, (4) number of commercial enrollees, (5) number of Medicaid enrollees, (6) corporate profit (tax) status, (7) whether the commercial plan’s results were in the top quartile, (8) whether the Medicaid plan’s results were in the top quartile, (9) whether both commercial and Medicaid results were in the top quartile of reported results, and (10) location in 4 US regions (northeast includes Department of Health and Human Services regions 1-3; southeast, regions 4, 6, and 7; midwest, region 5; and west, regions 8-10). Analyses were performed using SAS software.35

RESULTS
In 1999, 423 commercial and 169 Medicaid MCOs submitted quality performance data; 81 reported information on both groups of enrollees. Compared with existing commercial MCO plans in operation that year, approximately 75% reported and were similar in model type, geographic location, and tax status to all commercial MCOs; however, small MCOs (<10000 enrollees) were underrepresented. The 169 Medicaid MCO submissions were from 29 of the 40 states with Medicaid MCOs

Table 1. HEDIS Measures Used to Analyze Quality of Care, Scientific Guidelines, and National Public Health Goals*

<table>
<thead>
<tr>
<th>HEDIS Measure</th>
<th>Numerator</th>
<th>Denominator</th>
<th>USPSTF and AAP/ACIP Recommendations</th>
<th>Healthy People 2000 Goals34</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prenatal care</td>
<td>Women with ≥1 prenatal care visit in first trimester</td>
<td>Women who delivered a live infant and were enrolled in health plan prior to conception</td>
<td>Initial visit in first trimester as early as possible†</td>
<td>Increase to at least 90% the proportion of all pregnant women who receive prenatal care in the first trimester</td>
</tr>
<tr>
<td>Childhood immunizations</td>
<td>Number of children completely immunized for basic series‡ at 2 years of age</td>
<td>Children turning 2 years of age during the year and continuously enrolled for prior 12 months</td>
<td>Series complete at 2 years of age</td>
<td>Increase to at least 90% the proportion of children up-to-date on immunizations at 2 years of age</td>
</tr>
<tr>
<td>Adolescent immunizations</td>
<td>Adolescents ≥13 years of age with evidence of second measles-mumps-rubella vaccine</td>
<td>Adolescents ≥13 years of age with evidence of second measles-mumps-rubella vaccine</td>
<td>Second measles-mumps-rubella vaccine by 13 years of age</td>
<td>Increase to at least 90% the proportion of adolescents up-to-date on immunizations recommended for ≥5 years</td>
</tr>
</tbody>
</table>

Access Indicators

| Well-child visits (age, 15 mo) | Number of children with >6 visits for health supervision by 15th month of age | Children turning 15 months of age and continuously enrolled for prior 12 months | 6 Scheduled well-child/health supervision visits in first 15 months of life | Increase to at least 95% the proportion of people who have a specific source of ongoing primary care for their preventive and episodic health care |
| Well-child visits (age, 3-6 y) | Number of 3- through 6-year-olds with health supervision visit | Children ages 3 to 6 years and continuously enrolled for prior 12 months | Annual well-child visits | Increase to at least 95% the proportion of people who have a specific source of ongoing primary care for coordination of their preventive and episodic health care |
| Adolescent well visits     | Adolescents ≥12 years of age with annual visit | Adolescents ≥12 years of age continuously enrolled in prior 12 months | Annual visit | Increase to at least 95% the proportion of people who have a specific source of ongoing primary care for coordination of their preventive and episodic health care |

Procedural Indicators

| Myringotomy at 0-4 years and 5-19 years | Number of procedures Per 1000 members | Not determined | Not determined |
| Tonsillectomy at 0-9 years and 10-19 years | Number of procedures Per 1000 members | Not determined | Not determined |

Abbreviations: AAP, American Academy of Pediatrics; ACIP, American Committee on Immunization Practices; HEDIS, Health Plan Employer Data and Information Set; USPSTF, US Preventive Services Task Force.

*Target clinical indicators contained within the HEDIS [HEDIS 3.0/1998] and abridged descriptions of the numerator and denominator for each indicator were contrasted with clinical guidelines of the USPSTF, AAP, and ACIP and compared with national public health goals represented by Healthy People 2000. High-quality performance is represented by higher levels of achievement for clinical and access indicators; optimal QOC for specific procedures has not been determined.

†AAP recommendation.

‡Immunizations include 4 diphtheria-tetanus-pertussis, 3 polio, 1 measles-mumps-rubella, at least 1 Haemophilus influenzae type B, and at least 2 hepatitis B by the second birthday.
and represented 50% of the 337 Medicaid MCOs in 1999. Almost half (48%) of the Medicaid plans in our sample also offered commercial products, compared with 62% nationwide. Regional distributions across the 10 Department of Health and Human Services regions were similar between the 169 Medicaid plans in this sample and the 337 existing nationwide.

The mean performance across all clinical quality and access indicators for plans with commercially enrolled children was significantly higher than that of plans with Medicaid-enrolled beneficiaries with the exception of adolescent well visits (Table 2). For example, across all commercial plans, the mean (10th-90th percentile) plan performance on childhood immunizations was 64% (43%-81%) of 2-year-olds completely immunized; for Medicaid plans the mean performance was 49% (15%-69%). Assessed procedures had consistently higher utilization rates in the commercial plans reporting on well-child visits for children aged 15 months or younger to 72 plans reporting information on childhood immunizations. For Medicaid and commercially enrolled children served by the same health plan, the mean performance scores for commercially enrolled children statistically significantly exceeded that for their Medicaid counterparts (P<.05) for each clinical quality and access indicator except adolescent well visits (Table 3). Performance differences were greatest for indicators assessing multiple coordinated contacts with the health care system such as the combined childhood immunization rate (mean difference of 15%) or well-child visits in the first 15 months of life (mean difference of 22%). Indicators requiring a single point of service delivery revealed less dispari-

Table 2. Performance Results for All Managed Care Plans Serving Commercial and/or Medicaid Children and Adolescent Enrollees

<table>
<thead>
<tr>
<th>Measure*</th>
<th>Commercial (n = 423)</th>
<th>Medicaid (n = 169)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>10th-90th Percentiles</td>
</tr>
<tr>
<td>Prenatal care, %</td>
<td>83 (13.3)</td>
<td>67-95</td>
</tr>
<tr>
<td>Immunizations Childhood, %</td>
<td>64 (16.5)</td>
<td>43-81</td>
</tr>
<tr>
<td>Adolescent, %</td>
<td>52 (23.0)</td>
<td>18-80</td>
</tr>
<tr>
<td>Well-child visits Age 15 mo, %</td>
<td>50 (21.2)</td>
<td>18-79</td>
</tr>
<tr>
<td>Age 3-6 y, %</td>
<td>52 (18.1)</td>
<td>28-76</td>
</tr>
<tr>
<td>Adolescent well visits, %</td>
<td>28 (13.2)</td>
<td>13-44</td>
</tr>
<tr>
<td>Myringotomy Age 0-4 y†</td>
<td>39 (42.5)</td>
<td>11-69</td>
</tr>
<tr>
<td>Age 5-19 y†</td>
<td>4 (3.6)</td>
<td>1.3-6.6</td>
</tr>
<tr>
<td>Tonsillectomy Age 0-9 y†</td>
<td>7 (6.5)</td>
<td>3.1-11</td>
</tr>
<tr>
<td>Age 10-19 y†</td>
<td>3 (2.6)</td>
<td>1.5-4.8</td>
</tr>
</tbody>
</table>

*Across all clinical and access indicators, Medicaid performance was worse than commercial performance (P<.05). For adolescent visits, no plan exceeded 50% of its adolescents receiving a health supervision visit. For utilization indicators commercial rates exceeded Medicaid rates. Details on performance measures are shown in Table 1.
†For these measures the value is the number of procedures per 1000 eligible members.

Table 3. Performance Results Restricted to 81 Plans Serving Both Medicaid and Commercially Enrolled Children and Adolescents

<table>
<thead>
<tr>
<th>Measure*</th>
<th>No. of Plans</th>
<th>Mean Performance Scores</th>
<th>Difference of means</th>
<th>95% CI</th>
<th>Minimum</th>
<th>Maximum</th>
<th>P Value Paired t Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prenatal care, %</td>
<td>82</td>
<td>83</td>
<td>61</td>
<td>22</td>
<td>19.00 to 25.70</td>
<td>−15.20</td>
<td>55.70</td>
</tr>
<tr>
<td>Immunization Childhood, %</td>
<td>76</td>
<td>69</td>
<td>54</td>
<td>15</td>
<td>11.90 to 17.60</td>
<td>−6.30</td>
<td>63.10</td>
</tr>
<tr>
<td>Adolescent, %</td>
<td>61</td>
<td>58</td>
<td>49</td>
<td>9</td>
<td>5.10 to 12.80</td>
<td>−23.60</td>
<td>64.40</td>
</tr>
<tr>
<td>Well-child visits Age 15 mo, %</td>
<td>64</td>
<td>53</td>
<td>31</td>
<td>22</td>
<td>18.30 to 27.20</td>
<td>−45.90</td>
<td>50.80</td>
</tr>
<tr>
<td>Age 3-6 y, %</td>
<td>62</td>
<td>55</td>
<td>50</td>
<td>5</td>
<td>0.50 to 8.10</td>
<td>−46.40</td>
<td>45.90</td>
</tr>
<tr>
<td>Adolescent well visits, %</td>
<td>63</td>
<td>29</td>
<td>27</td>
<td>2</td>
<td>−0.30 to 5.30</td>
<td>−49.20</td>
<td>28.70</td>
</tr>
<tr>
<td>Myringotomy Age 0-4 y†</td>
<td>58</td>
<td>35</td>
<td>2.0</td>
<td>33</td>
<td>27.30 to 38.50</td>
<td>−1.50</td>
<td>85.30</td>
</tr>
<tr>
<td>Age 5-19 y†</td>
<td>58</td>
<td>4.0</td>
<td>0.50</td>
<td>3.50</td>
<td>3.00 to 4.30</td>
<td>−0.60</td>
<td>11.30</td>
</tr>
<tr>
<td>Tonsillectomy Age 0-9 y†</td>
<td>58</td>
<td>7.0</td>
<td>0.50</td>
<td>6.50</td>
<td>5.60 to 7.90</td>
<td>−0.30</td>
<td>27.80</td>
</tr>
<tr>
<td>Age 10-19 y†</td>
<td>58</td>
<td>3.0</td>
<td>0.30</td>
<td>2.70</td>
<td>2.40 to 3.10</td>
<td>−0.30</td>
<td>6.80</td>
</tr>
</tbody>
</table>

*Descriptive statistics include the number of plans reporting on both commercial and Medicaid populations, the mean performance with 95% CI for each population, the range of differences (commercial minus Medicaid results), and level of statistical significance for the difference measured by a paired t test. For each clinical access indicator, overall Medicaid quality was worse than commercial quality except for adolescent immunizations. Importantly, for a subgroup of plans the negative differentials represent plans in which Medicaid performance met or exceeded that of their commercial counterparts. For utilization rates of common procedures significant differences were observed between commercial and Medicaid enrollees in the same plan for each indicator. Details on performance measures are shown in Table 1.
†For these measures the value is the number of procedures per 1000 eligible members.

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ties—annual well-child visits from 3 to 6 years of age (mean difference 5%) or the single vaccine for adolescents (mean difference 9%).

Consistent differences were observed when rates of commonly uti-

lized childhood procedures were examined (Table 3). For commercially enrolled children younger than 5 years, 35 per 1000 children underwent myringotomy, compared with a mean rate of 2 per 1000 for Medicaid enrolled children. Similar differences were observed for the rate of tonsillectomy, with a mean rate for children younger than 10 years of 7 per 1000 for commercially enrolled children and 0.5 per 1000 for Medicaid enrolled children.

For most plans, QOC provided to commercially enrolled children significantly exceeded QOC provided to Medicaid enrollees on all available HEDIS child and adolescent clinical and access indicators except adolescent well visits. On a scatterplot of performance on the child immunizations indicator for the 72 plans serving both populations (Figure), the worse performance for the Medicaid population of many plans is evident. However, a subgroup of plans achieved high rates of immunizations (>75%) for both their Medicaid and commercial populations.

For indicators in both the commercial and Medicaid plans, within each group—clinical, access, and procedural—the rates were highly correlated (data available from the authors on request). In addition, examining the correlations between difference scores (commercial minus Medicaid performance), moderate to high correlations within each group of indicators were present. However, similar findings between these groups of indicators were not observed, suggesting unique contributions by each of the 3 indicator groups to the evaluation of plan performance.

In the linear regression models, few significant effects across the 10 performance indicators were observed (Table 4). However, for both commercial and Medicaid plans, increased years in business were associated with a convergence in rates (reduced difference scores) for most well-child visit indicators and myringotomy and tonsillectomy measures. In addition, increased Medicaid enrollment was associated with reduced differences for all procedure indicators in both the younger and older age groups. For-profit plans were associated with greater differences be-

Figure. Scatterplot of Performance on Childhood Immunizations for 72 Plans Serving Both Commercial and Medicaid Enrollees

While the worse performance of many plans is evident, a subgroup of plans achieving better results (>75% achievement) for both their Medicaid and commercial populations are identified.

Table 4. Regression Models Assessing the Linear Association of the Dependent Log-Transformed Adjusted Difference Scores (Commercial Minus Medicaid Performance) With Independent Plan Characteristics for Each Indicator

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Prenatal Care</th>
<th>Immunization</th>
<th>Well-Child Visits</th>
<th>Myringotomy Rate per 1000</th>
<th>Tonsillectomy Rate per 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Childhood</td>
<td>Adolescent</td>
<td>15 mo</td>
<td>3-6 y</td>
<td>Adolescent</td>
</tr>
<tr>
<td>Years in business Medicaid</td>
<td>-0.007 (.35)</td>
<td>-0.015 (.12)</td>
<td>0.010 (.42)</td>
<td>-0.008 (.03)</td>
<td>-0.015 (.01)</td>
</tr>
<tr>
<td>Commercial</td>
<td>-0.003 (.49)</td>
<td>-0.005 (.44)</td>
<td>0.006 (.49)</td>
<td>-0.004 (.31)</td>
<td>-0.009 (.052)</td>
</tr>
<tr>
<td>Plan enrollment (size) Medicaid</td>
<td>0.001 (.57)</td>
<td>-0.001 (.86)</td>
<td>0.001 (.61)</td>
<td>-0.001 (.22)</td>
<td>-0.001 (.68)</td>
</tr>
<tr>
<td>Commercial</td>
<td>0 (.96)</td>
<td>-0 (.55)</td>
<td>0 (.59)</td>
<td>-0 (.36)</td>
<td>0 (.67)</td>
</tr>
<tr>
<td>Region (northeast reference) Southeast</td>
<td>0.145 (.23)</td>
<td>-0.043 (.82)</td>
<td>0.078 (.70)</td>
<td>-0.003 (.98)</td>
<td>-0.141 (.23)</td>
</tr>
<tr>
<td>Midwest</td>
<td>-0.143 (.20)</td>
<td>0.049 (.79)</td>
<td>0.035 (.86)</td>
<td>0.015 (.84)</td>
<td>-0.173 (.07)</td>
</tr>
<tr>
<td>West</td>
<td>-0.073 (.57)</td>
<td>-0.053 (.80)</td>
<td>0.046 (.67)</td>
<td>-0.259 (.03)</td>
<td>-0.343 (.03)</td>
</tr>
<tr>
<td>For-profit</td>
<td>0.237 (.03)</td>
<td>0.182 (.30)</td>
<td>0.073 (.55)</td>
<td>0.027 (.76)</td>
<td>0.231 (.04)</td>
</tr>
<tr>
<td>Publicly reporting</td>
<td>0.029 (.76)</td>
<td>0.088 (.53)</td>
<td>0.274 (.10)</td>
<td>-0.009 (.91)</td>
<td>0.138 (.17)</td>
</tr>
<tr>
<td>Top performance Medicaid</td>
<td>-0.453 (&lt;.001)</td>
<td>-0.631 (&lt;.001)</td>
<td>-0.521 (.002)</td>
<td>-0.058 (.42)</td>
<td>-0.070 (.48)</td>
</tr>
<tr>
<td>Commercial</td>
<td>0.079 (.47)</td>
<td>0.185 (.22)</td>
<td>0.218 (.18)</td>
<td>0.054 (.46)</td>
<td>0.116 (.20)</td>
</tr>
<tr>
<td>Both groups</td>
<td>-0.304 (.052)</td>
<td>-0.163 (.43)</td>
<td>-0.081 (.68)</td>
<td>0.001 (.99)</td>
<td>0.046 (.86)</td>
</tr>
</tbody>
</table>

Abbreviation: ND, not determined. *P values are indicated in parentheses. Independent variable definitions: coefficient per year in business and coefficient per number of enrollees were continuous variables; regional comparisons used northeast region as referent group; top performance was a dichotomous variable representing membership in top quartile of plan results for clinical and access indicators; and top performance not defined for procedural indicators. Model interpretations: negative coefficients reflect reduced differences; positive coefficients reflect increased differences. The P value reflects whether or not the β coefficient for the independent variable is statistically significantly different from zero.
between Medicaid and commercial enrollees for both childhood immunizations and well-child visits for 3- to 6-year-olds.

For the clinical quality indicators, no consistent patterns emerged in the linear regression models with the exception of the top performing group of Medicaid plans. Only members of this group demonstrated statistically significant and consistently reduced differences between Medicaid and commercial enrollees for clinical quality indicators.

**COMMENT**

Increasingly, consumers, regulatory bodies, and state and federal governments are asking for comparisons of health care quality performance across providers of care. As the federal and state governments have turned to commercial health care systems to provide care to children in the Medicaid and newly formed State Children's Health Insurance Programs, assumptions have been made that equivalent QOC will be achieved for these newly enrolled populations when compared with commercially enrolled counterparts.

Our study is the first to our knowledge to document that children enrolled in Medicaid served by commercial MCOs frequently receive lower QOC than their commercially enrolled counterparts in the same MCO on a number of performance indicators. A few select MCOs do achieve high-quality and equivalent care for both Medicaid and commercially enrolled children.

Observed differences in procedure utilization for common conditions including myringotomy and tonsillectomy clearly indicate wide variation in practice between commercial and Medicaid enrolled children. Despite guideline development and dissemination of treatment standards, 20-fold differences were observed between the 2 enrollment groups for myringotomies in younger children. While absolute performance goals such as those for clinical quality and access indicators are not established for these procedures, clearly the observed variation in utilization rates cannot be explained solely based on clinical indications.

By examining the QOC results for both Medicaid and commercially insured children within the same plan, we controlled for variations in performance due to corporate structure, management strategies, and provider networks. Within most of these plans, Medicaid enrollees received worse-quality service as measured by specified clinical quality and access HEDIS indicators, with the exception being adolescent immunization for which adequate performance was not demonstrated for either population. Similarly, higher rates of utilization for common procedures were present in the commercial population compared with the Medicaid populations, suggesting, either differences in primary care referral rates, access barriers to specialists, or other unidentified practice variations affecting utilization of these services.

Importantly, several plans serving both populations did achieve equivalent and high-quality care for their Medicaid enrollees. Efforts to statistically model the difference between commercial and Medicaid rates across the 10 performance indicators using characteristics of plans were unsuccessful. Characteristics previously found to be associated with higher quality care—nonprofit status, regional location, publicly reporting results, plan size and years in business—were not consistently associated with equivalent QOC for commercial and Medicaid enrollees. Managed care organizations operating a plan for more years and/or with larger enrollments attenuated the differences in observed variations in well-child visits and utilization rates for procedures, potentially suggesting the successful development of the network and services for Medicaid enrollees over time.

However, similar results by larger or older MCOs were not observed for the clinical quality indicators. Only top performance in delivery of care for Medicaid enrollees was associated with reduced differences between commercial and Medicaid plans. These findings are important in that plan characteristics and commercial sector performance results cannot be used to infer QOC delivered to Medicaid enrollees. Thus, these analyses suggest that only Medicaid-specific performance information can serve to inform beneficiaries and policy makers on the QOC of services delivered.

Although plan characteristics associated with higher QOC were not identified, it is clear that providing care to a Medicaid population is difficult. To try to gain insight into those difficulties and how they might be addressed, on completion of quantitative analyses described above, key informant interviews were undertaken with medical directors in health plans that achieved high quality for both Medicaid and commercial enrollees. Corporate commitment to serve the community was a uniform response. In addition, specific challenges faced in serving Medicaid beneficiaries identified by most informants included a lack of reliable transportation, geographic maldistribution of existing network providers, language barriers, inflexible parent work hours, and a lack of continuity in primary care resulting in high utilization of emergency department services. Responses to these challenges included geographic location of providers near target populations and/or on public transportation routes, incorporation of traditional providers for Medicaid beneficiaries (eg, community health centers) into MCO networks, extension of provider hours into evenings and weekends, and efforts to address deficits in continuity of care through various education strategies.

Continued challenges reported by several MCOs involved the interface with state government and timely enrollment and/or changes in eligibility information. Importantly, despite the challenges in delivering care to Medicaid beneficiaries, none of the respondents anticipated withdrawal from the Medicaid market.
While HEDIS is the industry standard for performance measurement, several important limitations must be considered. Reported QOC represents both the clinical services delivered and the completeness of the data sources documenting care. For most indicators, administrative data is supplemented by individual chart review to ascertain whether specific services have been provided. Failure to document provision of services is considered a deficit in QOC. For indicators that allow samples of plan members, sampling error may have contributed to select associations in the regression models or the findings of some plans achieving parity in outcomes.

These performance data are not adjusted for sociodemographic characteristics of the populations. Efforts to quantify and adjust health system performance based on underlying social, demographic, or economic characteristics of the populations suggest that the influence of these characteristics on reported health plan quality may be frequently overstated. We have published findings of adjusted and unadjusted HEDIS rates demonstrating differences in the absolute results but minimal change in health plans’ relative performance.36

This study represents the largest comparative study of Medicaid and commercial performance results to date; however, it does not include a small subset of health plans that chose not to report data. We previously demonstrated that plans restricting public access to quality information provide poorer quality care to their enrollees.39 Therefore, our national estimates of performance results for MCOs may be slightly higher than if all plans had reported. Importantly, for these reporting plans neither Medicaid nor commercial plans consistently demonstrated high performance on any of the indicators (eg, childhood immunization rates of 64% and 49% for commercial and Medicaid plans, respectively). Finally, only a limited number of indicators, mostly reflecting preventive care, were available for study. Whether these findings would extend to care for acute or chronic conditions is unknown.

Annual measurements of health care quality information and public reporting of HEDIS indicators are both associated with improved performance.40 While most plans in this study had reported HEDIS data for at least 2 years, ongoing quality monitoring efforts are underway that may improve both clinical performance and data quality. It is likely that if Medicaid MCOs continue to measure and report quality information they will achieve quality improvements. Future reexaminations of plan performance are warranted to ensure improvement of Medicaid quality and guard against erosion of commercial QOC.

These indicators may represent the current industry standard, but they do not reflect the complexity of needed information for complete assessment of health care quality. Continued performance measure development and deployment must include not only indicators for health care delivery systems but also assessments of hospitals and individual clinical providers and a wider range of acute and chronic care measures to achieve a more complete QOC assessment. New HEDIS indicators for asthma QOC41 and children with special health care needs42 and recent assessments of provider level guideline adherence43 represent opportunities for more robust QOC assessments.

Immediate policy implications become apparent from our study. State and federal policy makers must monitor health care systems to ensure that quality services are being provided for children and adolescents enrolled in commercial, Medicaid, and new State Children’s Health Insurance Program plans. Importantly, while these analyses document performance problems in managed systems of care, no similar QOC information is available on care provided through traditional fee-for-service programs serving many beneficiaries across the United States. It is not known, for example, whether children served by Medicaid MCOs are receiving better or worse care than Medicaid children not enrolled in MCOs. These gaps in information must be addressed to accurately assess the quality performance provided by different components of our health care system.

This study documents worse QOC on clinical quality and access indicators for children and adolescents in Medicaid programs served by commercial health plans and dramatic differences in utilization rates for common procedures. Demonstrated high-quality and equivalent care by a few health plans, however, calls for more active policy and management decisions about poor-quality programs. Our findings suggest that identification of Medicaid plans providing high QOC requires plan-specific performance information and that neither plan characteristics nor commercial sector performance can be used to identify high-quality Medicaid providers.

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