NATIONAL MEDICAID HEDIS DATABASE/BENCHMARK PROJECT

Pilot-Year Experience and Benchmark Results

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The emergence of managed care in the United States has brought opportunities and challenges to state Medicaid agencies in the administration of the Medicaid program. Between 1991 and June 30, 1997, the percentage of Medicaid beneficiaries enrolled in some form of managed care (including primary care case management systems and at-risk plans) grew from 9.5 percent to 47.8 percent. According to the Health Care Financing Administration (HCFA), by June 30, 1998, the percentage of beneficiaries enrolled in a managed care system had increased to 53.6 percent, or to more than 16.5 million people.[1]

The rapid increase in Medicaid managed care has been accompanied by growing attention to measuring and evaluating the quality of care and delivery of services to beneficiaries. Managed care plans can be very effective vehicles for increasing access to care and also for identifying areas in which care can be improved. To achieve these goals, however, one needs data—data that will tell you where you are (the baseline), where you want to be (the standard), and how far you have come (measurable improvement). One of the available tools to accomplish this is the Health Plan Employer Data and Information Set (HEDIS), a product of the National Committee for Quality Assurance (NCQA).[2]

A state Medicaid program can use HEDIS data to learn about the performance of Medicaid plans in that state. However, prior to the initiation of the National Medicaid HEDIS Database/Benchmark Project, there were no national summaries of Medicaid HEDIS data, nor were there national Medicaid benchmarks against which to measure performance. Prompted by this need, the American Public Human Services Association (APHSA) secured funding from The Commonwealth Fund in 1998 for a demonstration project to create a national database of Medicaid HEDIS data. Project planners then formed a steering committee, which selected 1997 as the base year and invited states to participate. APHSA contracted with NCQA to collect the data and provide technical support to the project. This report summarizes the results of the first project year.

Not all states contract with at-risk managed care plans, and there are substantial differences in the quality assessment activities among those who do. Some states use the HEDIS measures, some use HEDIS measures with state-specific modifications, and still others use performance measures developed by the state. Some states have health plans calculate the measures and report to the state; other states calculate the measures themselves using plan-submitted encounter data and medical chart reviews.

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[1] *1998 Medicaid Managed Care Enrollment Report, Summary Statistics as of June 30, 1998,* Health Care Financing Administration, Washington, D.C., 1999.

[2] HEDIS is a registered trademark of the National Committee for Quality Assurance.

Significant differences also exist among plans. Some are large, with an operating history of many years. In addition to Medicaid beneficiaries, these plans have large commercial and Medicare enrollments as well as sophisticated data systems and experienced quality assurance staff. Small, relatively new plans, however, lack the depth of experience in performance measurement common to well-established ones.

Given the differing maturity levels of plans that participate in Medicaid programs, the existence of other measurement systems that some states were reluctant to change, and the relative newness of some of the HEDIS measures themselves, the final result of the first year's effort was a pleasant surprise for the steering committee. The database contains information from 110 at-risk plans representing approximately one-third of all the plans that had Medicaid contracts in 1997, as well as two state-operated primary care case management (PCCM) systems. The submissions came from plans in 21 states and the Commonwealth of Puerto Rico.

The steering committee selected nine measures for which to calculate national Medicaid benchmarks. Five are from NCQA's effectiveness-of-care domain, one is from the availability-of-care domain, and three are from the use-of-services category. The benchmarks are averages of the scores from all the plans that report information on that particular measure; they are not weighted by Medicaid enrollment. The score of a plan with 1,000 enrollees has the same weight as one with 25,000. This method is the same as the one NCQA uses to calculate benchmarks for its annual report of commercial plan performance on HEDIS measures.

Because states and consumers will inevitably seek to compare the Medicaid HEDIS benchmark figures with the NCQA-reported commercial data, APHSA asked NCQA to calculate a comparison of the two (excluding the use-of-services data.) The following table (as well as Table 3) shows the result. Medicaid mean numbers that are marked with an asterisk are statistically different from the commercial rate.

When interpreting this table, one should keep the following points in mind:

- The commercial NCQA database represents voluntary reporting by plans. Most of the Medicaid plans are required to report this information by state contracts or regulations. Therefore, the Medicaid plans cannot withhold results that reflect unfavorably on their performance.

- The Medicaid population is entitled to coverage by virtue of either low income or health status (pregnancy, chronic illness, etc.), while the commercial population qualifies for coverage because of employment. Thus, the two populations may not be strictly comparable, since Medicaid beneficiaries tend to be sicker than the general public and lack of ready access to transportation or child care hampers their ability to comply with normal office-hour requirements (e.g., appointments between 9 a.m. and 5 p.m.). Both factors could be valid reasons for differences between plan performance for the two populations.

Summary Table
Comparison of Medicaid and Commercial Means, 1997

Measure	Description	Commercial Mean	Medicaid Mean
Childhood Immunization	Percentage of children who reached age 2 in the reporting year who received all 12 recommended immunizations	64%	56%*
Adolescent Immunization	Percentage of children who turned 13 in the reporting year who received the recommended second MMR immunization	51%	49%
Cervical Cancer Screening	Percentage of women ages 21 through 64 who received one or more Pap tests during the reporting year or the two years prior to the reporting year	71%	63%*
Check-Ups After Delivery	Percentage of women who had a postpartum visit three to eight weeks after delivery	66%	44%*
Eye Exams for People with Diabetes	Percentage of members age 31 years or older with diabetes who received a retinal eye exam in the reporting year	39%	41%
Children's Access to Primary Care Providers	Percentage of children who saw a primary care provider during the year:		
Ages 12 to 24 months		89%	82%*
Ages 25 months to 6 years		80%	74%*
Ages 7 to 11 years		79%	73%*
Well-Child Visits	Percentage of children ages 3, 4, 5, or 6 who received one or more well-child visit(s) with a primary care provider during the year	54%	60%*

* NCQA calculated that these rates are statistically different from the commercial rate. When rates were determined using a sample of members, to assess whether the Medicaid average was statistically significantly different from the commercial average, 95 percent confidence intervals (CI) of the difference between the rates were calculated. If the CI contained zero, the Medicaid and commercial averages were considered the same.

From a statistical perspective, the pilot-year database is a less-than-ideal indicator of performance for all 300-plus health plans that had Medicaid enrollees in 1997. These limitations are discussed in some detail in the report. While we would not recommend that states or plans rely heavily on the pilot-year benchmarks to evaluate the performance

of an individual plan or plans in a state, the data can be useful as a general guide for future expectations. It suggests, for example, that Medicaid plans perform well with respect to ensuring children's access to primary care providers, especially for children younger than 2 years old. States with plans that score well below the mean certainly would want to review the results with the plan and develop appropriate interventions.

The National Medicaid HEDIS Database/Benchmark Project provides an important additional resource for state Medicaid agencies to use in monitoring the quality of care and access to care for Medicaid beneficiaries and in working with Medicaid health plans to improve the care and services delivered. It also provides important information to beneficiaries and consumer advocacy groups who fear that managed care systems, especially at-risk plans, might deny needed care because of cost constraints. Finally, it is yet another set of markers for the public health community, indicating where the health care community is meeting or falling short of achieving national public health goals such as those articulated in the U.S. Public Health Service's *Healthy People 2000.*

It is now estimated that 175 plans will be included in the database for the second project year. The number of participating states will also grow to include such major managed care buyers as California. Already a rich source of information, the database will be even more valuable as it expands and its statistical integrity is enhanced.

I. INTRODUCTION

Medicaid and Managed Care

The emergence of managed care in the United States has brought opportunities and challenges to state Medicaid agencies in the administration of the Medicaid program. Between 1991 and June 30, 1997, the percentage of Medicaid beneficiaries enrolled in some form of managed care (including primary care case management systems as well as at-risk plans) grew from 9.5 percent to 47.8 percent. By June 30, 1998, according to the Health Care Financing Administration (HCFA), the percentage of beneficiaries enrolled in a managed care system had increased to 53.6 percent, or to 16,573,996 people.[3]

The term *managed care,* as used in the Medicaid program, does not always mean a comprehensive medical plan in which the plan is paid a monthly premium and is at financial risk for the cost of the care of all enrollees. Medicaid beneficiaries are enrolled in such plans, but many others are enrolled in primary care case management (PCCM) plans, which are very similar to the fee-for-service system, except that each PCCM enrollee has a primary care provider who authorizes access to specialty care but is not at risk for the cost. The majority of Medicaid beneficiaries are enrolled in comprehensive at-risk plans, however. The HCFA 1998 report shows 4,003,421 enrollees in PCCM plans, compared to 11,892,617 in comprehensive managed care organizations.

This rapid increase in managed care in Medicaid programs has been accompanied by growing attention to measuring and evaluating the quality of care and services that are delivered to Medicaid beneficiaries. As Bruce Bullen, the former Massachusetts Medicaid director and chair of the National Association of State Medicaid Directors (NASMD), stated in his keynote address at the NASMD managed care conference in March 1998:

> *In health care, the prudent purchaser cannot be just the consumer—it must also be the organization [employer or government agency] that makes buying decisions on behalf of the consumer—whether the consumer is an employee or a beneficiary. The purchaser's objective should be to obtain value.... The health care system is not a black box; it can be made to improve through targeted, practical interventions. Quality improvement is a process, and it must be managed. This is another reason why the prudent purchaser looks toward managed care.*

Managed care plans can be effective vehicles for improving access to care and identifying areas in which care can be improved. To affect either, however, one needs

[3] *1998 Medicaid Managed Care Enrollment Report, Summary Statistics as of June 30, 1998,* Health Care Financing Administration, Washington, D.C., 1999.

data—data that will tell you where you are (the baseline), where you want to be (the goal or standard), and how far you have come (measurable improvement). One of the available tools to accomplish this is the Health Plan Employer Data and Information Set (HEDIS), a product of the National Committee for Quality Assurance (NCQA). Originally developed in the early 1990s for large employers, HEDIS has since been significantly modified and expanded to meet the needs of both the Medicaid and Medicare programs. Both state Medicaid agencies and plan administrators can use the data to evaluate and improve the care and services delivered to Medicaid beneficiaries.

National Medicaid HEDIS Database/Benchmark Project

A state Medicaid program can use HEDIS data to learn about the performance of Medicaid plans in that state. However, a state does not have access to Medicaid HEDIS performance data from other states, and national averages of Medicaid HEDIS data were not available prior to initiation of this project. NCQA releases HEDIS information about plans' performance[4] in serving their commercial enrollees on a national basis, but to use this data as a benchmark to evaluate a particular plan's performance in serving Medicaid enrollees is problematic because of the nature of the populations and differences in the enrollment processes. For example, some pregnant Medicaid beneficiaries cannot be enrolled in a plan until their pregnancy is established, because the pregnancy is the key to eligibility for Medicaid. This automatically reduces the length of plan enrollment prior to delivery, and arguably explains why the plan may have had a low score on the initiation-of-prenatal-care measure.

States also had limited information available about Medicaid fee-for-service history to assist them in performance measurement efforts. Individual states do studies from time to time to help them evaluate the success of certain statewide initiatives—e.g., reducing emergency room utilization or improving child immunization rates—but such studies vary in their methodologies and are not necessarily comparable from state to state. Furthermore, the results of such studies cannot be aggregated to generate national averages.

States that use HEDIS believed that the creation of a national Medicaid HEDIS database would be extremely helpful in their quality assessment and improvement activities, because it could aid in the establishment of national Medicaid benchmarks against which to measure performance. Prompted by this need, the American Public Human Services Association (APHSA) in 1998 secured funding from The Commonwealth Fund for a demonstration project to create a national database of HEDIS

[4] The 1997 data was reported in *The State of Managed Care Quality,* NCQA, Washington, D.C., Fall 1998. It can be located on the NCQA web site at http://www.ncqa.org/state2.htm.

results.[5] A project steering committee was formed, headed by Ann Clemency Kohler, the former New York Medicaid director.[6] States were invited to sign participation agreements, which meant the state agreed to require its plans to report HEDIS Medicaid data directly to NCQA or, if the state preferred the plans to report to the state, the state would forward HEDIS data to NCQA. APHSA contracted with NCQA to collect the data and build the database. Because this was a pilot project and some of the plans and states were just beginning to use HEDIS, APHSA and NCQA promised that no published analysis would identify particular states or plans. Calendar year 1997 was selected as the initial reporting period, and the project was launched in late spring 1998.

HEDIS and Medicaid

HEDIS—the Health Plan Employer Data and Information Set—is a set of standardized performance measures designed to allow reliable comparison of the performance of managed care organizations. HEDIS enables public- and private-sector buyers, regulators, consumers, and beneficiaries to distinguish among health plans on the basis of comparative quality information. It provides value on two fronts. First, HEDIS measures address issues such as how well preventive care is delivered, how well adults and children in the health plan are cared for, and how accessible care is. Second, the precision of HEDIS specifications ensures that HEDIS results are comparable across health plans. The earliest versions of HEDIS were developed by health plans, large private-sector employers, and others who wished to have a means to compare health plans on the basis of quality. Those versions applied only to commercial plans.

In 1994 a work group chaired by Patricia MacTaggart, the Medicaid director in Minnesota at that time, began the development of a version of HEDIS specific to Medicaid. The work group included five other state Medicaid officials, staff from APHSA, HCFA, health plans with Medicaid contracts, officials from the U.S. Public Health Service, and other Medicaid experts. Medicaid HEDIS was released late in 1996. The Medicaid version of HEDIS placed heavy emphasis on measures relating to well-child care and maternity care because the majority of Medicaid beneficiaries enrolled in at-risk health plans at that time were mothers and children. NCQA's HEDIS 3.0, issued in winter 1997, incorporated much of Medicaid HEDIS. HEDIS 3.0 also required that health plans that enrolled both Medicaid and commercial populations report separate performance data on each population.

[5] The National Association of State Medicaid Directors is an APHSA affiliate.

[6] Ann Kohler left the New York state government in the spring of 1999. Her successor as chair of the steering committee is Foster Gesten, M.D., medical director, Bureau of Quality Management and Outcomes Research, New York State Department of Health.

HEDIS is updated annually to incorporate new measures and to refine existing measures. The version used in 1998 to collect HEDIS data for reporting year 1997 was HEDIS 3.0/1998. It was changed only slightly from the HEDIS 3.0 version issued in winter 1997. For this project, the significant differences between the versions were in the specifications for the child and adolescent immunization measures and the check-up-after-delivery measure.

HEDIS 3.0/1998 has 49 measures that a plan that enrolls Medicaid beneficiaries can report. Plans that report HEDIS data to NCQA do so on a voluntary basis at the request of private and public buyers, coalitions, unions, and others. For some, the extent of the reporting depends on the requirements of the plan's contract with the state. Many states required only selected measures in 1997; a few states used no HEDIS measures.

II. PROJECT OVERVIEW

Background

There are substantial differences in Medicaid programs across the 50 states and other jurisdictions. Within the framework of congressional legislation and HCFA regulations, state Medicaid agencies can and do make rules concerning eligibility, benefits, services, and service-delivery systems. Still within that framework, state Medicaid agencies also can and do make rules concerning types of data to collect, reports to submit, and analyses to perform. Some state Medicaid agencies contract with an array of plans, require the collection of audited HEDIS or state-developed performance measures, and conduct sophisticated quality improvement programs in collaboration with their contracted plans. Other states have few, if any, contracts with at-risk plans, and focus instead on improving the quality of care through a primary care case management (PCCM) system. Many states have both at-risk and PCCM plans. Some states have a mature managed care structure; others are in the early stages of developing such systems, including establishing their quality assessment and improvement requirements.

There are also significant differences among at-risk plans that participate in Medicaid. Some are large, with an operating history of many years. They have significant commercial and Medicare enrollments in addition to Medicaid beneficiaries. They have sophisticated data systems and numerous staff dedicated to quality assessment and quality improvement. These plans routinely collect HEDIS data, and seek or already have NCQA accreditation. They are also well versed in cutting-edge approaches to quality measurement and improvement. Other plans are small and are often created out of large group practices or hospital-centered systems in order to participate in the Medicaid managed care market. Such plans have a long history of serving the Medicaid population, but lack the depth of experience in performance measurement common to the well-established plans.

State Requirements for HEDIS Reporting

NCQA released the Medicaid version of HEDIS in winter 1996; most of the Medicaid measures were then incorporated in the HEDIS 3.0 version made public in January 1997. Both contained a number of measures that plans had not reported before. Wary of imposing significant new administrative burdens on plans, or reluctant to change their existing reporting requirements, states moved cautiously to embrace the entire new HEDIS measurement set. In a survey of states' planned use of Medicaid HEDIS,[7] done late in 1996 by APHSA and NCQA, only six states—Georgia, Kentucky, Maine, Missouri, New York, and Utah—reported that they planned to require reporting of all

[7] Lee Partridge and Phyllis Torda, *Performance Measurement in Medicaid Managed Care: States' Adoption of Medicaid HEDIS,* Center for Health Care Strategies, Princeton, N.J., October 1997.

"core" quality measures.[8] Massachusetts said it would require reporting of half of the measures one year, and half the next, in order to minimize the burden for its plans. Of the 18 states that reported they would use at least some of the HEDIS quality measures, the number each state would use ranged from three to the full 16. Not surprisingly, since most of the Medicaid enrollees were women and children, the most popular measures were those relating to well-child care and maternity.

Potential Size and Depth of the Database

Given the newness of HEDIS, the differing maturity levels of plans participating in Medicaid programs, and the existence of other measurement systems in some states that were reluctant to change, the steering committee was uncertain how rich the database would be for the initial year. An APHSA analysis of the HCFA plan enrollment as of June 30, 1997, suggested there could be data from about 335 plans if all plans were required to report HEDIS measures. That would not occur. Several states with a number of plans, including New Jersey and Oregon, had already told us in the 1996 survey that they would not be using HEDIS in 1997. We also knew that because states would not necessarily be using all the measures, the database would not be uniformly deep.

By the time the data collection ended in November 1998, 18 states had signed participation agreements and the database reflected information from 112 health plans. Of these 112 plans, 96 were in states that were project participants. The remaining plans, located in a total of eight other states and Puerto Rico, voluntarily submitted Medicaid HEDIS data to NCQA. Two states—Colorado and Massachusetts—also used HEDIS measures to evaluate the performance of their state PCCM systems. Those PCCM data are included in the database but not in the mean calculations. Table 1 shows the composition of the database by state and the state's participation status in the project. A list of all plans in the database is included in Appendix B.

[8] Medicaid HEDIS had 16 measures in the quality-of-care domain; 11 were core measures and mandatory, five were optional. HEDIS 3.0 retained 10 of the 11 core measures and added three of the optional measures to the mandatory list, for both Medicaid and commercial plans.

Table 1
Database Composition by State, State Participation in Project, and Number of Plans in the Database

State	Signed Participation Agreement	No Participation Agreement	Number of Plans Reporting for Pilot Year 1997
Arizona	X		0
Colorado	X		5
Delaware		X	1
District of Columbia	X		0
Hawaii	X		0
Illinois	X		1
Kansas	X		0
Massachusetts	X		7
Michigan	X		23
Minnesota		X	1
Missouri		X	1
Nebraska		X	1
New Hampshire	X		2
New Jersey	X		1
New Mexico	X		3
New York	X		34
North Carolina	X		4
North Dakota	X		0
Ohio		X	1
Oklahoma	X		5
Oregon		X	2
Pennsylvania	X		1
Puerto Rico		X	3
Utah	X		2
Virginia		X	1
Washington	X		12
Wisconsin		X	1
Total	**18**	**9**	**112**

Adherence to HEDIS Specifications

The version of HEDIS to be used for collecting data for calendar year 1997 was HEDIS 3.0/1998. The steering committee decided to accept variations from these specifications, both with regard to the time period (some states were using a state fiscal year, July–June, rather than the calendar year) and HEDIS version, if the variances would not materially affect the statistical validity of the results. A similar decision was made regarding slight state modifications to HEDIS specifications. Where the deviation had little impact on data comparability, the reported data were included in the database.

Significant changes had occurred between HEDIS 3.0 and 3.0/1998 with respect to three measures—childhood immunizations, adolescent immunizations, and check-ups

after delivery. The steering committee therefore decided that data from states that used 3.0 for these measures rather than 3.0/1998 should be excluded from the submissions used to calculate the benchmarks for these measures.

NCQA also requires commercial plans to report data directly to NCQA, using its HEDIS Data Submission Tool (DST). The DST is a preformatted, standardized Excel spreadsheet that provides step-by-step assistance in collecting the necessary data elements for each of the HEDIS measures. Once the various fields within the DST are filled, the diskette containing the information is sent to NCQA where it is entered into the database. Although some states and Medicaid plans used the DST, other states had the plans report directly to the state rather than to NCQA. The steering committee agreed that it could accept the data from the states instead of directly from the plans, and those data were also entered into the database.

In February 1999, after reviewing preliminary analyses of the data, the steering committee selected nine measures to be used as national benchmarks for state Medicaid agencies and health plans. *Benchmark* was defined as the national average (mean) for all plans reporting that data element. The data are not weighted by plan enrollment, i.e., the score of a plan with 3,000 Medicaid enrollees has the same value (for purposes of the benchmarks) as a plan with 30,000 enrollees. The committee agreed to explore the option of weighting scores in the second year of the project.

Outlier Data

Each year NCQA determines an expected range of results for commercial HEDIS reporting. The method for establishing the ranges uses both statistical and clinical evaluation of results from the past two reporting years. The steering committee decided that the same range should be used for the Medicaid HEDIS data, and that outliers should be excluded from the benchmark calculations.

Audit of Data

An early steering committee discussion centered on the acceptance of unaudited data. In 1997 NCQA encouraged, but did not require, the audit of data submitted by commercial plans before inclusion in the commercial HEDIS database. Moreover, the standards for an acceptable audit can vary. NCQA has developed a HEDIS Compliance Audit™ that consists of an overall information-system capability assessment, followed by an evaluation of the plan's ability to comply with HEDIS specifications. States sometimes do their own audits, or hire an outside contractor to do one, but do not necessarily follow the specifications for the NCQA audit.

Experience with audits suggests plans make errors in both directions—understating and overstating results.[9] Somewhat reluctantly, the steering committee decided against limiting the database solely to audited submissions in this pilot year, but to encourage states to require audited data in the future. In fact, almost 75 percent of the submissions came from states that do require an audit.

[9] For example, see the New York State 1995 audit report.

III. MEDICAID BENCHMARKS

After data collection closed and the decisions on such issues as treatment of outliers and deviations from HEDIS 3.0/1998 had been made, APHSA and the steering committee, with assistance from NCQA, selected nine measures to benchmark. In doing so, the group used the following criteria (not every measure met all the listed criteria):

- The measure was reported by a substantial number of Medicaid plans. Not all states require all measures, and, as noted above, not all the data submitted met the tests for inclusion in the database. In general, if a measure had data from fewer than 50 plans, the measure was not considered.

- The measure is of special interest to the public health community. Both the immunization measures were selected because of their general acceptance as "proxies" for the quality of well-child care.

- The measure is one that was also selected by NCQA for its report of commercial plan results for 1997. States were interested in knowing not only how the Medicaid participating plans compared with each other but also how, as a group, their performance compared with the performance of commercial plans.

- The measure is useful for charting practice differences among the states. This suggested the selection of the measures relating to inpatient hospital utilization and emergency room visits.

- The measure seems likely to remain in future HEDIS versions, with comparable specifications, thereby allowing the extrapolation of trends.

Based on these criteria, the following nine measures were selected for reporting national benchmarks for the pilot year: childhood immunization status, adolescent immunization status, cervical cancer screening, check-ups after delivery, eye exams for people with diabetes, children's access to primary care providers (reported separately for each of three age groups), well-child visits, inpatient hospital utilization, and hospital emergency room visits.

Table 2 describes each measure in detail, and gives the Medicaid benchmark (mean), the Medicaid median, the NCQA-acceptable range of scores for this measure, and the number of plans used in calculating each benchmark.

Table 2
Medicaid Benchmark Data, Pilot Year, 1997

Measure	Description	Benchmark (mean)	Median	Range of Scores (min, max)	Number of Plans Used for This Measure
Childhood Immunization	Percentage of children who reached age 2 in the reporting year who received all 12 recommended immunizations	56%	58%	10 to 86%	74
Adolescent Immunization	Percentage of children who turned 13 in the reporting year who received the recommended second MMR immunization	49%	48%	0 to 91%	56
Cervical Cancer Screening	Percentage of women ages 21 through 64 who received one or more Pap tests during the reporting year or the two years prior to the reporting year	63%	64%	24 to 100%	88
Check-Ups After Delivery	Percentage of women who had a postpartum visit three to eight weeks after delivery	44%	44%	0 to 72%	78
Eye Exams for People with Diabetes	Percentage of members age 31 years or older with diabetes who received a retinal eye exam in the reporting year	41%	39%	10 to 99%	41
Children's Access to Primary Care	Percentage of children who saw a primary care provider during the year:				
	Ages 12 to 24 months	82%	88%	35 to 100%	70
	Ages 25 months to 6 years	74%	77%	32 to 97%	73
	Ages 7 to 11 years	73%	76%	37 to 100%	60
Well-Child Visits	Percentage of children ages 3, 4, 5, or 6 who received one or more well-child visit(s) with a primary care provider during the year	60%	61%	22 to 90%	75
Inpatient Hospital Utilization, Acute Care	Number of hospital discharges per 1,000 member months	12 days per 1,000 member months	8	0 to 103	91
Inpatient Hospital Utilization, Acute Care	Average length of stay	3 days	3	1 to 7	92
Hospital Emergency Room Visits	Number of emergency room visits per 1,000 member months that do not result in admission	38 visits per 1,000 member months	34	2 to 137	79

Limitations of the First-Year Data

As noted in Chapter 2, several characteristics of the pilot-year database make it less than ideal, from a statistical perspective, as an indicator of performance for all 300-plus health plans that had Medicaid enrollees in 1997. One factor is the absence of an audit for some

of the plans, which almost certainly contributed to the unlikely scores of some of those plans. For example, the range of submissions on the cervical cancer screening score goes as high as 100 percent. New York State, which does audit its plans, has published the scores of its Medicaid plans for 1997 on this measure, and the highest score was 86 percent.[10] An audit would certainly have questioned any plan or plans that reported the 100-percent rate and their inclusion in this benchmark may have resulted in overstating the average rate.

In addition, plans were not required to report on all measures. This results, in some cases, in data from a fairly small number of plans being used to determine a benchmark—i.e., the retinal eye exam for people with diabetes, which is based on scores from 41 plans. The steering committee decided to include this as a benchmark measure, despite the lack of depth in the database, because diabetes is so prevalent among the Medicaid population and states are hungry for any national comparative information.

The problems and limitations are expected to ease in the second year of the project, when the number of reporting plans will increase significantly and both states and plans will have had more experience with HEDIS.

While we would not recommend that states or plans rely heavily on the pilot-year benchmarks to evaluate the performance of a plan or plans in a state, the data can be useful as a general guide for future expectations. It suggests, for example, that Medicaid plans perform well with respect to children's access to primary care providers, especially for children under age 2 (the mean was 82 percent). States with plans that score well below that number certainly would want to review the results with the plan and develop appropriate intervention activities, which could be as simple as improving the plan's data system.

States can also use the benchmarks to avoid the setting of unrealistic plan performance targets. The performance level indicated by the adolescent immunization measure is discouraging: the mean is just 49 percent, with half the plans scoring at or below 48 percent. However, the commercial mean for this measure—51 percent—is not much better. Vaccination campaigns tend to focus on the younger child, and the importance of full immunization of adolescents receives less attention. Moreover, the HEDIS immunization measures require specific documentation, documentation that may not be captured in the primary care provider's record because the child received the vaccination elsewhere—e.g., at school. Improving the immunization status of adolescents should certainly be a goal of the Medicaid programs; this data can help states to establish reasonable targets and time frames for their plans.

[10] *1997 Quality Assurance Reporting Requirements,* Bureau of Quality Management and Outcomes Research, New York State Department of Health, March 1999.

Two states submitted HEDIS measurement data for their PCCM plans. Because the PCCM plans are administered directly by the state, and are not at risk for the cost of care, the steering committee decided not to include those data in the benchmarks shown above. The PCCM results are reported separately in Appendix C.

IV. COMPARISON OF MEDICAID WITH COMMERCIAL DATA

NCQA is the repository for a large HEDIS database of reports by plans that enroll commercially insured individuals. For calendar year 1997, the pilot reporting year for the Medicaid project, NCQA's commercial database had information from 447 plans. NCQA annually calculates and publishes national and regional performance averages for commercial plans for selected HEDIS measures. Some states—Massachusetts, for example—use the published commercial data in their own annual reports on quality in Medicaid managed care.[11] It was inevitable that states and consumers would seek to compare the Medicaid HEDIS benchmark information with the NCQA commercial data. Therefore the steering committee asked NCQA to provide comparative performance data on the Medicaid and commercial populations for the benchmarked measures (excluding the utilization ones). Please note that the data is the national average of all reporting plans in each group, i.e., the commercial mean is the average for care of the plan's commercial enrollees, the Medicaid mean the average for the plan's Medicaid enrollees. Although many plans enroll both groups, the data is reported and calculated separately for each group. A number of plans in each database serve only one of these populations.

Table 3
Comparison of Medicaid and Commercial Means, 1997

Measure	Description	Commercial Mean	Medicaid Mean
Childhood Immunization	Percentage of children who reached age 2 in the reporting year who received all 12 recommended immunizations	64%	56%*
Adolescent Immunization	Percentage of children who turned 13 in the reporting year who received the recommended second MMR immunization	51%	49%
Cervical Cancer Screening	Percentage of women ages 21 through 64 who received one or more Pap tests during the reporting year or the two years prior to the reporting year	71%	63%*
Check-Ups After Delivery	Percentage of women who had a postpartum visit three to eight weeks after delivery	66%	44%*
Eye Exams for People with Diabetes	Percentage of members age 31 years or older with diabetes who received a retinal eye exam in the reporting year	39%	41%

[11] Cf. *MassHealth Managed Care, HEDIS 3.0/1998 Report,* Massachusetts Division of Medicaid Assistance and the University of Massachusetts Center for MassHealth Evaluation and Research, Boston, Massachusetts, February 1999.

Measure	Description	Commercial Mean	Medicaid Mean
Children's Access to Primary Care Providers	Percentage of children who saw a primary care provider during the year:		
Ages 12 to 24 months		89%	82%*
Ages 25 months to 6 years		80%	74%*
Ages 7 to 12 years		79%	73%*
Well-Child Visits	Percentage of children ages 3, 4, 5, or 6 who received one of more well-child visit(s) with a primary care provider during the year	54%	60%*

* NCQA calculated that these rates are statistically different from the commercial rate. When rates were determined using a sample of members to assess whether the Medicaid average was statistically significantly different from the commercial average, 95 percent confidence intervals (CI) of the difference between the rates were calculated. If the CI contained zero, the Medicaid and commercial averages were considered the same.

When interpreting these results, it is important to keep these points in mind:

- Plans that report data for the commercial NCQA database do so voluntarily. Most Medicaid plans are required by state contracts or regulations to report this information. Thus the Medicaid plans that participate cannot withhold results that reflect unfavorably on their performance.

- The Medicaid population is entitled to coverage by virtue of either low income or health status (pregnancy, chronic illness, etc.). The commercial population qualifies for coverage because of employment. This gives rise to the argument that the two populations are not strictly comparable because Medicaid beneficiaries tend to be sicker than the general public and their lack of ready access to transportation or child care hampers their ability to comply with normal office-hour requirements (e.g., appointments between 9 a.m. and 5 p.m.). Both could be valid reasons for differences between plan performance for the two populations.

V. LOOKING AHEAD

The National Medicaid HEDIS Database/Benchmark Project provides an important additional resource for state Medicaid agencies to use in monitoring the quality of care and access to care for Medicaid beneficiaries and in working with Medicaid health plans to improve the delivery of care and services. It also provides important information to beneficiaries and consumer advocacy groups who fear that managed care systems, especially at-risk plans, might deny needed care because of cost constraints. Finally, it is yet another set of markers for the public health community, indicating areas where the health care community is meeting or falling short of achieving national public health goals like those articulated in *Healthy People 2000.*

States' enthusiastic response to the invitation to participate in the project testifies to the perceived need for this database. Eighteen states signed participation agreements during the first project year. Three more, including California, which has nearly 3 million beneficiaries enrolled in managed care arrangements, will join in year two. Two states submitted PCCM data in the initial year; several more are considering using and reporting HEDIS measures in year two. Estimates call for the number of plans included in the database to rise to 175 in the second year.

As the steering committee looks ahead, it is encouraged by the expertise at producing and interpreting this data that already exists in states and plans. Massachusetts and New York publish detailed plan-specific HEDIS data annually for use by other buyers and consumers. Both states also use the data for setting performance goals and program planning. Utah publishes similar, though less extensive, consumer guides. Arkansas has conducted and published the results of a consumer satisfaction survey of its PCCM enrollees, and is considering following Massachusetts and Colorado in evaluating its PCCM performance using the HEDIS data specifications.

The steering committee also recognizes that its leadership will be important in enhancing/helping to improve the future utility of the database. To that end, it will encourage the use of standard and current HEDIS specifications to improve data quality and comparability and the submission of audited, rather than unaudited, data. Already a rich source of information, the database will become even more valuable as it expands and its statistical integrity is enhanced.

APPENDIX A
DETAILED DESCRIPTION OF THE HEDIS MEASURES CHOSEN FOR BENCHMARKING

For the convenience of readers who may not be very familiar with HEDIS, this describes in detail each of the nine measures selected for benchmarking. The measures are grouped into three categories: effectiveness of care, access/availability of care, and use of services.

Part I. The Effectiveness-of-Care Measures

Childhood and Adolescent Immunizations

Immunizations begin at birth and should continue through adolescence. Vaccines are among medicine's best examples of primary prevention and are an easy, proven way to help children and adolescents stay healthy and avoid the potentially harmful effects of childhood diseases such diphtheria, tetanus, whooping cough, polio, hepatitis B, influenza type b, mumps, and measles. The Centers for Disease Control and Prevention, the American Academy of Pediatrics, the American Academy of Family Physicians, and the Advisory Committee on Immunization Practices all recommend that by the second year of life, children and adolescents receive appropriate immunizations. The HEDIS specifications require reporting of a number of different rates of immunization. The definitions of the particular measures selected for benchmarking are provided below.

Childhood Immunization	Percentage of enrolled children who turned 2 years old during the reporting year, who were continuously enrolled for 12 months immediately preceding their second birthday, who had no more than one gap in enrollment of up to 45 days during the past 12 months,[12] and who have received all of the following recommended immunizations: • 4 diphtheria/tetanus/pertussis (DTP) • 3 oral or injectable polio virus (OPV/IPV) • 1 measles/mumps/rubella (MMR) • 2 haemophilus influenza type b (Hib) • 2 hepatitis B (Hep B)

Adolescent Immunization	Percentage of children in the health plan who turned 13 years old during the reporting year, who were continuously enrolled for 12 months immediately preceding their 13th birthday, who had no more than one gap in enrollment of up to 45 days during the past 12 months, and who have received the following recommended immunization: • a second dose of MMR[13]

[12] Given that many Medicaid plans verify enrollment in monthly intervals (i.e., in increments of one month) on their information system, a 45-day gap in enrollment is the equivalent of a 30-day or one-month eligibility period.

[13] Health plans that identify a child as having received an MMR on or between the 4th and 13th birthday need only identify one MMR to count towards their adolescent immunization rate. Otherwise, plans must identify two MMRs between the child's 1st and 13th birthday.

For both Childhood and Adolescent Immunizations, additional vaccines are recommended and included in the HEDIS specifications. However, due to the newness of some of the recommended vaccines, NCQA uses the measures described above to evaluate the extent to which plans are providing immunization for children and adolescents.

Cervical Cancer Screening

Cervical cancer can be detected in its earliest stages by regular screening using a Pap smear test, which has been credited with reducing the number of deaths from cervical cancer by as much as 75 percent. A number of organizations, including the American College of Obstetricians and Gynecologists, the American Medical Association, and the American Cancer Society, recommend Pap testing every one to three years for all women who have been sexually active or who are age 18 and older. The U.S. Public Health Service's *Healthy People 2000* objective is to increase to at least 85 percent the proportion of all women age 18 and older who have received at least one Pap test during the past three years.

Cervical Cancer Screening	The percentage of women in the health plan, ages 21 through 64 years, who were continuously enrolled during the reporting year, who had no more than one gap in enrollment of up to 45 days during the past 12 months, and who received one or more Pap tests during the reporting year or the two preceding years.

Check-Ups After Delivery

Seeing a physician or nurse after delivery can help new mothers adjust to the physical, emotional, and social changes associated with having a baby. During an early postpartum visit, providers can conduct a physical evaluation, answer parents' questions, and offer counseling on family planning and nutrition. The American College of Obstetricians and Gynecologists recommends that women see their provider at least once from four to six weeks after giving birth. The HEDIS measure has a slightly longer allowable time period.

Check-Ups After Delivery	Percentage of women in the health plan who gave birth and who were continuously enrolled at least 56 days after their delivery, who had no breaks in enrollment, and who had a postpartum visit three to eight weeks after delivery.

Eye Exams for People with Diabetes

Diabetes is the leading cause of adult blindness in the United States. Therefore, it is important that people with diabetes have their eyes examined regularly so that appropriate treatment can be initiated at the first sign of a problem. To determine if there are any problems, the eye doctor examines the retina, a light-sensitive layer of tissue in the back of the eye that receives and transmits visual information to the brain.

How often diabetics should have their eyes examined is currently a matter of some debate. Diabetics with advanced disease should be screened more frequently than those

with mild or no eye disease, who can be screened safely every other year. Because some diabetics can be screened less frequently than annually, one would not necessarily expect a screening rate of 100 percent in each plan.

Eye Exams for People with Diabetes	Percentage of members with diabetes (Type I and Type II) age 31 years and older, who were continuously enrolled during the reporting year, who had no more than one gap in enrollment of up to 45 days during the past 12 months, and who had a retinal examination during the reporting year.

Part II. Access/Availability-of-Care Measures

Children's Access to Primary Care Providers

Childhood access to primary care providers is positively associated with such things as successful completion of recommended immunizations, identification and treatment of childhood conditions at an early stage, and assessment of any environment situations in the child's life that may put the child at risk. This measure must be calculated using administrative data only; a mixture of administrative data and information from chart reviews is not permitted. Plans with inadequate information systems may therefore be at a disadvantage in capturing all childhood visits to a primary care provider.

Children's Access to Primary Care Providers	The percentage of children, reported in three age groupings, who were continuously enrolled in the plan during the reporting year, who had no more than one gap in enrollment of up to 45 days during the past 12 months, and who had a visit with a health plan primary care provider during the reporting year.[14]

Part III. Use-of-Services Measures

Well-Child Visits in 3rd, 4th, 5th, and 6th Years of Life

Well-child visits during the preschool and early school years are particularly important to help children reach their full potential and become productive and successful members of society. During regular check-ups, health professionals can assess a child's physical development by comparing their height and weight against normative benchmarks and discuss issues with parents such as expected developmental milestones for the child's age, and the child's eating habits and nutrition. Parents also have an opportunity to raise any concerns or questions they may have. By detecting vision, speech, and language problems early, a child can be helped to improve communication skills and avoid or reduce language and learning problems. The American Academy of Pediatrics recommends annual well-child visits for children ages 2 through 6 years. The Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) requirements of the Medicaid statute reinforce the importance of regular developmental screening for children.

[14] HEDIS specifies that all plans collect this measure using their administrative databases only.

Well-Child Visits in 3rd, 4th, 5th, and 6th Years of Life	Percentage of children who were 3, 4, 5, or 6 years old and who were continuously enrolled in the plan during the reporting year, who had no more than one gap in enrollment of up to 45 days during the past 12 months, and who received one or more well-child visit(s) with a primary care provider during the reporting year.

Inpatient Utilization—General Hospital/Acute Care

A well-functioning managed care plan should provide relatively high rates of outpatient (preventive and health maintenance) care and should require relatively low inpatient (acute restorative) care. Inpatient Utilization—General Hospital/Acute Care estimates the extent to which health plan members received inpatient surgical or nonsurgical medical treatment. Plans reported how many hospital stays occurred during the reporting year and how long patients stayed in the hospital on average for total medicine and surgery services. The results do not include stays for mental health, chemical dependency, or newborns. Only gynecology stays related to pregnancy termination or antepartum care are included.

Inpatient Utilization—General Hospital/ Acute Care	**Discharges**—The total number of hospital discharges per 1,000 member months (which can be thought of as the sum of the enrollment in the health plan for each of the 12 months during the reporting year). **Average Length of Stay**—The average length of stay is the ratio of the total number of days that members spent in the hospital to the total number of hospital stays.

Ambulatory Care—Emergency Room Visits

Emergency room visits may sometimes be used as a substitute for ambulatory clinic encounters. While patient behavior is a factor in the decision to use an emergency room rather than a clinic or physician's office, the decision may also be a result of insufficient access to primary care. A health plan that effectively manages ambulatory treatment of patients should be able to keep the number of emergency room visits relatively low.

Ambulatory Care—Emergency Room Visits	The rate of emergency room visits (per 1,000 member months) that do not result in hospitalization. Services related to emergency room visits that result in admission are excluded from this measure.

APPENDIX B
PARTICIPATING PLANS BY STATE, 1997

Number	State	Health Plan Name
1.	CO	Colorado Access
2.	CO	Community Health Plan of the Rockies, Inc.
3.	CO	HMO Colorado
4.	CO	Kaiser Foundation Health Plan of Colorado
5.	CO	Rocky Mountain HMO
6.	DE	AmeriHealth HMO Delaware
7.	IL	American Health Care Providers
8.	MA	Fallon Community Health Plan
9.	MA	Harvard Pilgrim Health Care
10.	MA	HMO Blue
11.	MA	Kaiser Foundation Health Plan, Northeast
12.	MA	Neighborhood Health Plan
13.	MA	PCCM Plan
14.	MA	Tufts Health Plan
15.	MI	Blue Care Network, East Michigan Region
16.	MI	Blue Care Network, West Michigan Region
17.	MI	Botsford Health Plan
18.	MI	Cape Health Plan
19.	MI	Care Choices HMO (Mercy)
20.	MI	Community Care Plan
21.	MI	Community Choice Michigan
22.	MI	Comprehensive Health Services, Inc. (The Wellness Plan)
23.	MI	DMC Clinic Plan
24.	MI	Family Health Plan of Michigan
25.	MI	First Care Health Plan
26.	MI	Great Lakes Health Plan
27.	MI	Health Alliance Plan of Michigan
28.	MI	Health Plus of Michigan
29.	MI	M-Care
30.	MI	Midwest Health Plan, Inc.
31.	MI	Oakwood Healthcare Plan
32.	MI	OmniCare Health Plan
33.	MI	Physicians Health Plan of Michigan, Inc.
34.	MI	SelectCare, Inc.
35.	MI	Superior Health Alliance
36.	MI	Total Health Care
37.	MI	Ultimed HMO of Michigan
38.	MN	Central Minnesota Group Health Plan
39.	MO	First Guard Health Plan
40.	NC	Atlantic Health Plan
41.	NC	Maxicare, NC
42.	NC	Optimum Choice of the Carolinas, Inc.
43.	NC	The Wellness Plan

Number	State	Health Plan Name
44.	NE	Exclusive Healthcare, Inc. – Omaha
45.	NH	Healthsource New Hampshire (CIGNA)
46.	NH	Matthew Thornton Health Plan
47.	NJ	AmeriHealth HMO New Jersey
48.	NM	Cimarron Health Plan
49.	NM	Lovelace Health Systems, Inc.
50.	NM	Presbyterian Health Plan, Inc.
51.	NY	ABC Health Plan
52.	NY	Aetna/U.S. Healthcare – New York
53.	NY	Blue Cross/Blue Shield of Western New York
54.	NY	Bronx Health Plan
55.	NY	Buffalo Community Health
56.	NY	Capital District Physicians Health Plan
57.	NY	CarePlus
58.	NY	CenterCare
59.	NY	Community Choice Health Plan of Westchester
60.	NY	Compre-Care, Inc.
61.	NY	Empire Blue Cross and Blue Shield
62.	NY	Fidelis Care New York
63.	NY	Finger Lakes Health Insurance Co.
64.	NY	Genesis Health Plan
65.	NY	Health Plus
66.	NY	HealthFirst, Inc.
67.	NY	Health Insurance Plan of Greater New York (HIP)
68.	NY	Independent Health Association of Western New York
69.	NY	Kaiser Foundation Health Plan, Northeast – NY
70.	NY	Managed HealthCare Systems
71.	NY	MetroPlus Health Plan
72.	NY	Neighborhood Health Providers
73.	NY	New York Hospital Community Health Plan
74.	NY	NYL Care Health Plans of NY
75.	NY	Oxford Health Plans – NY
76.	NY	Preferred Care, Inc. (Rochester)
77.	NY	St. Barnabas Community Health Plan (Partners in Health)
78.	NY	Suffolk County Department of Health Services
79.	NY	Total Care, Inc. (SCHC)
80.	NY	United HealthCare of NYC
81.	NY	United HealthCare of Upstate New York
82.	NY	Vytra Health Care of Long Island
83.	NY	WellCare of New York, Inc.
84.	NY	Westchester Prepaid Health Services Plan (HealthSource)
85.	OH	QualChoice
86.	OK	Heartland Health Plan
87.	OK	BlueLincs HMO
88.	OK	CommunityCare HMO
89.	OK	Foundation Health
90.	OK	Prime Advantage Health Plan

Number	State	Health Plan Name
91.	OR	Providence Health Plan of Oregon
92.	OR	Regence HMO Oregon
93.	PA	Keystone Mercy Health Plan
94.	PR	Humana Health Plans of Puerto Rico, Inc.
95.	PR	Triple-S, Inc.
96.	PR	United Healthcare Plans of Puerto Rico, Inc.
97.	UT	IHC Health Plans, Inc.
98.	UT	Pacificare of Utah, Inc.
99.	VA	Sentara Health Management
100.	WA	Blue Cross of Washington and Alaska
101.	WA	Community Health Plan of Washington
102.	WA	Group Health Cooperative of Puget Sound
103.	WA	Group Health Northwest
104.	WA	Kaiser Foundation Health Plan of the Northwest
105.	WA	Kitsap Physicians Services
106.	WA	Medical Service Corp. of Eastern Washington
107.	WA	NYL Care Health Plans of the Northwest
108.	WA	Providence Health Plan of Washington
109.	WA	QualMed Washington Health Plan, Inc.
110.	WA	Regence Blue Shield of Idaho
111.	WA	Skagit County Medical Bureau
112.	WI	Family Health Plan Cooperative

APPENDIX C
MCO AND PCCM PLAN PERFORMANCE

Measure	State A's PCCM Data	State B's PCCM Data
Childhood Immunization	64%	42%
Adolescent Immunization	79%	44%
Cervical Cancer Screening	77%	59%
Check-Ups After Delivery	34%	42%
Eye Exams for People with Diabetes	49%	46%
Children's Access to Primary Care Providers		
Ages 12 to 24 months	94%	59%
Ages 25 months to 6 years	91%	37%
Well-Child Visits in the 3rd, 4th, 5th, and 6th Years of Life	77%	52%
Inpatient Utilization—General Hospital/ Acute Care (Total Discharges)	77 per 1,000 member months	10
Inpatient Utilization—General Hospital/ Acute Care (ALOS)	3.7 days	2.7
Ambulatory Care—Emergency Room Visits	N/A	38 per 1,000 member months

RELATED PUBLICATIONS

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Can the Market Ensure Quality Work Without Government? (October 1999). Karen Davis. *Journal of Health Politics, Policy and Law,* vol. 24, no. 5. Copies are available from Duke University Press, 905 West Main Street, Suite 18B, Durham, NC 27701, Tel: 888-651-0122, E-mail: dukepress@duke.edu, Website: www.jhppl.org

A Foundation Perspective: Core Principles for Regulating Health Care Quality (1999). Karen Davis and David Sandman. Chapter in *Regulating Managed Care: Theory, Practice and Future Options,* Stuart Altman, Uwe E. Reinhardt, and David Shactman (eds.). Copies are available from Jossey-Bass, Inc., 350 Sansome Street, San Francisco, CA 94104, Tel: 888-378-2537, Fax: 800-605-2665, Website: www.josseybass.com.

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