

## QUALITY IN HEALTHCARE

# Improving Healthcare Quality Measurement

by **Gary R. Ilminen**

In November 2002, the Institute of Medicine (IOM) released a major report on healthcare quality. *Leadership by Example: Coordinating Government Roles in Improving Healthcare Quality* explored several of the most difficult issues confronting publicly funded healthcare programs such as Medicare and Medicaid.

The report issued a variety of recommendations, including a call for the development and implementation of 15 sets of national standardized performance measures by 2008. The report also recognized the critical failings of current retrospec-

tive performance measure sets, saying, "By the time retrospective performance measures reach decision makers, it is too late for them to be useful."<sup>1</sup>

## The Problems

Healthcare quality measurement has long been a nettlesome issue. The first hurdle is deciding what to measure and how to measure it. Once performance measure topics and technical specifications are finally agreed on for a given healthcare setting, the next—and biggest—problem is getting accurate, complete data quickly enough to derive useful measurements.

Most current healthcare performance measure systems require extensive medical record review, because administrative data (claims or encounter data) are often incomplete. Problems most frequently occur in capitated managed healthcare systems—systems in which managed care plans pay healthcare providers a fixed amount over a given period to care for a patient regardless of the nature of the treatment. In capitated systems, submission of encounter data—which are any data relating to the treatment rendered by a provider to a patient—is not necessary for payment, so the encounter data are often not even there. Sometimes patients supply their own data, but they may be inaccurate, incomplete and subjectively interpreted.

## In 50 Words Or Less

- Healthcare performance measurement is handicapped by the lengthy and inaccurate process of medical record review.
- A new measurement system in Wisconsin improves accuracy and responsiveness, reduces complexity and virtually eliminates the need for medical record review.



Wisconsin has long recognized insufficient encounter data as the central problem in measuring healthcare quality. Since performance measurement is essential in publicly funded healthcare programs to ensure the funds are being put to good use, a solution is clearly necessary.

### Years in the Making

Wisconsin began operating a Medicaid health maintenance organization (HMO) program in a limited number of counties in 1984. In 1997, the HMO program was expanded nearly statewide (68 of 72 counties). Over the years, the state struggled to find a cost effective, responsive performance measure system.

In 1996, Wisconsin began developing techniques and offering technical assistance to HMOs on reporting encounter data. The state began implementing mandatory HMO encounter data reporting in 1999, and the first full year of encounter data reporting across all HMOs was 2000.

To date, all HMOs in Medicaid/BadgerCare (the state's children's health insurance program) have implemented encounter data reporting, and errors in reporting (edit failures) have been very low. No HMOs are experiencing unacceptable rates of critical edit failures. Ongoing data validity audits are essential to the operation of encounter data driven performance measures.

Significant progress came in 2002 with the completion and testing of a new system called the Medicaid Encounter Data Driven Improvement Core Measure Set (MEDDIC-MS).

Development of MEDDIC-MS began in January 2001 with the decision to migrate the HMO program's performance measures from the retrospective, medical record review system then in use to a system using encounter data. Following development of the draft measures, internal and external stakeholders, including multiple state staff, agencies and participating HMOs, gave their input. Testing began in early 2002, and by July 2002 final technical specifications for the first version of MEDDIC-MS were complete.

MEDDIC-MS brings significant changes to performance measurement in the Wisconsin Medicaid managed care program. It also introduces new concepts applicable to performance measurement in any state's publicly funded managed healthcare.

### No More Self-Reporting

Perhaps the most noticeable change lies in data gathering and reporting. Traditional managed care performance measures allow each HMO, as a vendor, to report its own performance to the state, the customer. This is the reverse of the normal customer/vendor relationship in other industries' quality improvement systems. MEDDIC-MS restores the ability of the customer—the state Medicaid program—to have greater control over performance assessment.

Each month, the HMOs report encounter data to the state for each service provided to enrollees, including those used in performance measures, and the state calculates each HMO's performance. Having the state calculate performance facilitates greater consistency and accuracy by eliminating several factors:

- Variations in reporting caused by differing HMO data processing systems, capabilities and personnel.
- Problems with delayed reporting of measures due to limitations of HMO data infrastructure.
- Errors and inconsistencies due to misinterpretation of reporting specifications.

It also eliminates the duplicative data gathering, calculation and reporting functions each HMO previously had to bear. This allows HMOs to devote increased resources to performance improvement and reduces administrative cost and complexity

systemwide. It also frees the HMOs to focus on reporting complete, accurate monthly encounter data.

## Medical Record Review All but Ends

In traditional measure systems, medical record review is necessitated by incomplete encounter data. Unfortunately, it makes performance measurement slow, cumbersome, intrusive and expensive. It is virtually eliminated with MEDDIC-MS in HMO settings. For reducing or eliminating medical record review in non-HMO settings, MEDDIC-MS uses multiple state controlled data streams such as fee-for-service data and public health lead toxicity screening and immunization data.

Use of these data streams is necessary because Medicaid enrollees often receive services from public health departments or other non-HMO fee-for-service providers. Those services are usually provided just before enrollment in the HMO. Often, however, enrollees will obtain services from those non-network providers even after enrollment in the HMO, because they are unfamiliar with the HMO delivery system.

An advantage of the multiple data stream approach is that it allows the use of MEDDIC-MS measures to assess both services provided by the HMO and enrollee status in terms of access to all services, HMO and otherwise. HMOs may then calculate their individual performance on each measure if they wish by using only HMO encounter data and including no service codes from the other data streams.

Another positive is that the measures focus on clinical criteria readily identifiable using standard procedure and diagnosis codes. For example, the MEDDIC-MS measure for ambulatory management

of diabetes mellitus assesses the rate of delivery of hemoglobin A1c (HgbA1c) tests and lipid profiles. Each is identifiable with distinct procedure codes.

While MEDDIC-MS does include measures that assess outcomes, this particular measure does not. There are two reasons. First, the lab results are not reported in encounter data, making the acquisition of the results dependent on medical record review; second, the results of the tests can be affected by multiple factors, such as comorbidities or noncompliance that the HMO and the practitioner may not be able to control.

Use of multiple data streams also reduces the likelihood of underreporting of services (false negatives) and prevents reporting of services that may not have been provided (false positives). Duplicate reporting across systems can be prevented by eliminating repeat dates of service, a process known as unduplicating. HMOs are free to supplement their encounter data by record review if they wish, but otherwise it is used primarily for focused clinical quality audits and data validity audits.

False negatives and the need for medical record review are also minimized by denominator specifications that focus on individuals enrolled when the services were due to be provided. This is accomplished by designing denominator specifications to link enrollee age at the date of service to applicable clinical guidelines for service delivery. The specifications are designed to ensure measurement of performance by HMOs for enrollees they had when the services should reasonably be expected to be provided. It eliminates attempts to account for services that were due when the HMO did not have the enrollee in its care.

For example, the childhood immunization measure denominator targets children enrolled in the HMO during the first 18 months of life—the period when the majority of immunizations are supposed to be given. This reduces the problems caused by attempting to measure immunization status of all children who are 2 years old, irrespective of their enrollment status when the immunizations were due to be given, as is done in other measure systems. This feature increases the likelihood encounter data will exist for the services being measured.

## Speed Equals Relevance

MEDDIC-MS capitalizes on the availability of monthly HMO encounter data and current data sub-

**TABLE 1** Targeted Performance Improvement Measures

- Ambulatory diabetes care by age cohort (provision of HgbA1c and lipid profile).
- Childhood immunizations.
- Blood lead toxicity screening, ages 1 and 2 years.
- Preventive dental care, ages 3 to 21 years and 21 plus.
- Posthospitalization care for mental illness/substance abuse at seven and 30 days.
- Satisfaction with HMO customer service (uses Consumer Assessment of Health Plans [CAHPS] survey data).
- Satisfaction with HMO referral for mental health/substance abuse care (uses CAHPS survey data).

missions in other data streams to move performance measurement much closer to real time, thus addressing one of the key shortcomings identified by the IOM report. This capability makes data on HMO performance relevant to the HMO's current quality improvement program for provider network management, access improvement, enrollee satisfaction and clinical quality of care.

Analysis of Wisconsin HMO encounter data submissions has shown that, on average, encounter data are more than 95% complete, edited and uploaded to the Medicaid Management Information System data warehouse 182 days from the date of service. This allows greater flexibility in measure calculation timeframes than before. For example, it allows calculation of measures in timeframes other than traditional calendar year reporting—even quarterly, if necessary. This allows data extraction and analysis frequently enough for trending, and it facilitates much more rapid response to problems than with the current annual reporting systems.

Contrast that with the timeframes for traditional annual measure systems. For example, in Wisconsin, reporting of calendar year 1998 performance measure data occurred in October 1999. By the time the measures were edited, uploaded to the data warehouse, analyzed, and any performance issues identified, it was calendar year 2000. By then, the data were of greater historical interest than interventional value.

### **Flexibility To Meet Changing Needs**

To meet changing program needs, new measures must sometimes be developed and existing measures refined. Under most existing systems, this can be time consuming. Implementation of a new measure can take six months to a year for development and approval of draft specifications. The measure must be operated for at least one test year prior to actual implementation, which is followed by a year of data acquisition for the first actual reporting year. Thus, from the time of concept, performance data acquisition on a new measure may take up to three years.

Because MEDDIC-MS is not dependent on calendar year reporting, new measures can be developed or existing measures can be adjusted in as little as 90 days.

### **Realistic, Achievable Goal Setting**

Under MEDDIC-MS, performance goal setting is designed to first establish baseline levels using MEDDIC-MS technical specifications and then, through a collaborative process with participating HMOs and other stakeholders, establish realistic intermediate goals for

## New System, New Terms

Development of some new terminology has accompanied the new ways of thinking about performance measurement. The new terms help make clear how the system itself works. Here are a few:

**Clinical criteria:** The diagnosis or procedure codes used to define the numerator or denominator.

**Denominator:** The number of enrollees meeting the enrollment and clinical criteria to be included in the calculation of the measure—in other words, those enrollees who could have received the service or care being measured.

**Enrollment criteria:** For most measures, the enrollee must have been continuously enrolled with the same HMO for at least 304 days immediately prior to the measure end date with no more than one gap in enrollment of not more than 45 days. The enrollee must have a total of not less than 259 enrolled days in the look-back period.

**Look-back period:** The period preceding the measure end date during which services must have been provided in order to be counted in the measure numerator. This can be 365 days from the measure end date, but it can be more or less as program needs dictate.

**Measure end date:** The last date of service in the look-back period to be included in the measure.

**Numerator:** The number of enrollees in the denominator found to meet the clinical criteria indicating they received the service or had the diagnosis being measured.

**TABLE 2** MEDDIC-MS Monitoring Measures

<p><b>Chronic conditions:</b></p> <ul style="list-style-type: none"> <li>• Asthma.</li> </ul> <p><b>Women's health:</b></p> <ul style="list-style-type: none"> <li>• Cesarean sections.</li> <li>• Vaginal births after cesarean section.</li> <li>• Deliveries with substance abuse treatment.</li> <li>• Deliveries with HIV test.</li> <li>• Prenatal care coordination.</li> <li>• Screening mammography.</li> <li>• Breast malignancies detection.</li> <li>• Cervical cancer detection.</li> <li>• Screening pap test.</li> <li>• Malignancies and premalignant lesions of cervix or uterus detection.</li> <li>• Human papillomavirus detection.</li> </ul>	<p><b>Child health:</b></p> <ul style="list-style-type: none"> <li>• Nonhealth-check ambulatory and well child encounters.</li> </ul> <p><b>Mental health/substance abuse:</b></p> <ul style="list-style-type: none"> <li>• Outpatient evaluations.</li> <li>• Mental health day/outpatient treatment.</li> <li>• Substance abuse day/outpatient treatment.</li> </ul> <p><b>General and specialty care:</b></p> <ul style="list-style-type: none"> <li>• Emergency care without admission.</li> <li>• Primary care encounters.</li> <li>• Vision care encounters.</li> <li>• Audiology encounters.</li> <li>• Dental encounters.</li> </ul>	<p><b>Inpatient care:</b></p> <ul style="list-style-type: none"> <li>• Maternity care.</li> <li>• Neonatal care.</li> <li>• Surgery.</li> <li>• Medical care</li> <li>• Psychiatry.</li> <li>• Substance abuse care.</li> <li>• Hospice, rehabilitation and respite care.</li> </ul> <p><b>Satisfaction measures:</b></p> <ul style="list-style-type: none"> <li>• Satisfaction with HMO services for enrollees with special healthcare needs (uses Consumer Assessment of Health Plans [CAHPS] survey data).</li> <li>• Satisfaction with cultural competence/interpreter services (uses CAHPS survey data).</li> </ul>
--	--	--

subsequent years to facilitate ramping up programwide performance.

MEDDIC-MS consists of two subsets of measures: targeted performance improvement measures (TPIMs, see Table 1, p. 64) and monitoring measures (see Table 2). Measures consist of state specified clinical and nonclinical topics important to Medicaid and BadgerCare enrollees in quality of care, access and satisfaction.

The TPIMs are measures on topics of highest priority to the Medicaid program. They are intended to ramp up performance using specific minimum performance goals.

The monitoring measures do not have specific performance targets. They are used for tracking access to a wide range of services, for trending and for augmenting some of the TPIMs. Both sets include measures driven by data acquired through the state administered Consumer Assessment of Health Plans enrollee satisfaction survey. They also include both process and outcome measures. Examples of outcome measures include the rate of cervical/uterine malignancies among enrollees who had Pap tests and breast malignancies diagnosed among the enrollees who had mammograms.

## Recognition and Recommendations

In October 2003, the Agency for Healthcare Research and Quality recognized MEDDIC-MS by including it in the National Quality Measures Clearinghouse (NQMC), making Wisconsin the first and, at present, only state to have this distinction. Other organizations included in the NQMC are the

National Committee for Quality Assurance, the Joint Commission on Accreditation of Healthcare Organizations, the federal Centers for Medicare and Medicaid Services and the American Medical Assn.

MEDDIC-MS does not aim to resolve all health-care performance measurement issues. Since it relies on multiple data streams that private HMOs do not have access to, it is not a panacea for performance measurement in privately insured populations. However, Wisconsin hopes other state Medicaid programs may find it a useful model to improve performance measurement in the commercial sector.

## REFERENCES

1. *Leadership by Example: Coordinating Government Roles in Improving Healthcare Quality*, Institute of Medicine, 2003.

**GARY R. ILMINEN** is a registered nurse and nurse consultant for the State of Wisconsin, Department of Health and Family Services, Division of Health Care Financing, in the Bureau of Managed Health Care Programs. He earned associate degrees in mechanical design and nursing at Gogebic Community College in Ironwood, MI.

## Please comment

If you would like to comment on this article, please post your remarks on the *Quality Progress* Discussion Board at [www.asq.org](http://www.asq.org), or e-mail them to [editor@asq.org](mailto:editor@asq.org).