Medicaid Managed Care Encounter Data: What, Why, and Where Next?

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Managed care now serves 23 percent of the Medicaid population. With the shift to capitation, the fee-for-service (FFS) billing mechanism that has generated much of the administrative data used in policy planning and research no longer exists. This article provides an overview of the types of encounter data currently being required of plans and the problems and issues with providing and analyzing such data. It is based on a review of documentation and interviews with representatives of nine States and the Health Care Financing Administration (HCFA). The article concludes by providing recommendations for HCFA, States, and plans in creating and improving encounter data systems.

INTRODUCTION

Managed care is increasingly becoming a preferred administrative vehicle for States to control their Medicaid budgets and assure access to and coordination of services. Managed care now serves 23 percent of the Medicaid population. As reported by the Kaiser Commission on the Future of Medicaid (1995), enrollment in some form of managed care grew from 4.8 million Medicaid enrollees to 7.8 million in a single year—1993-94. This rapid growth is likely to continue with some of the larger States such as California and New York forecasting large expansions in 1996. Numerous States now have waivers from traditional Medicaid rules (known as 1115 or 1915b waivers) that allow for such expansion.

Most of the statewide waivers require enrollment in some form of capitated plan, rather than the primary-care case-management form of managed care. One consequence of the shift to capitation is that the FFS billing mechanism that has generated much of the administrative data used in policy planning and research no longer exists, at least not universally nor for all Medicaid services. States and HCFA have struggled with how best to replace FFS billing data with other comparable information on Medicaid enrollees in capitated managed care plans. Both levels of government face the tradeoffs between their need for data to manage the program efficiently and assure that beneficiaries are well served, versus a desire to reduce the administrative burden on the plans which contract with the program.

Some recent studies have shown that the ability of plans to produce encounter data is often limited. For example, the Group Health Association of America (1994) found in its survey of 330 health maintenance organizations (HMOs) that a substantial proportion (more than 10 percent) did not currently have the ability to report patient characteristics or diagnosis for a hospital encounter and that data capabilities for reporting ambulatory encounters were even weaker. A Mathematica Policy Research study for the Physician Payment Review Commission (Gold et al., 1995) provides further insight on the reasons that data have been problematic in managed care. Problems arise most often when the data the plan collects are not automatically generated by the plan's payment system.

Though most HMOs that pay physicians on other than an FFS basis require encounter data, only a minority of plans with such requirements say that the required data are almost always submitted by providers. Clearly a plan cannot itself comply with a State's encounter data requirements if its providers do not send in encounter records. Another study of aggregate reporting showed similar problems, with some plans being unable to report aggregate measures of ambulatory care use because of the lack of such information in their administrative data base (Aizer, Felt, and Nelson, 1996). Thus the structure of an encounter data system must include, at the most basic level, the provider, then the plan, then the State, and finally the Federal Government (should it choose to require Medicaid encounter data, which—to date—it only requires of some 1115 waiver States).

This article provides an overview of the types of encounter data currently being required of plans, and the problems and issues with providing and analyzing such data. It is based on information provided by HCFA and nine of the States which have had some of the earliest experience with obtaining encounter data as a substitute for FFS billing data. These States are Arizona, California, Hawaii, Maryland, Minnesota, New York, Rhode Island, Tennessee, and Washington. From them, we reviewed documentation of State data requirements, and

we spoke with individuals about their experiences during the past few years as they struggled to implement useful reporting systems (Table 1). We also spoke with individuals in States (e.g., Massachusetts) which have chosen to require aggregate reports from plans as an alternative to encounter data. Together these States had a little more than 50 percent of the Medicaid beneficiaries in managed care in June 1994 (Kaiser Commission on the Future of Medicaid, 1995). Some of the States have had a relatively long experience, dating back to the early 1980s, with developing reporting systems for Medicaid managed care enrollees.

WHY DO HCFA AND STATES NEED ENCOUNTER DATA?

Plans understandably have been skeptical of the need for vast volumes of data to be accumulated at the State or Federal level. Such skepticism has increased in States which have required encounter data but have not developed the management information systems and internal analytic expertise needed to analyze the data. There is a growing recognition, expressed by almost all the States with which we spoke, that only when data are used and used regularly will the effort to produce and submit data be worthwhile.

States have not often routinely used their encounter data in the past, because managed care has been a small part of the pro-

Table 1

State Encounter Data Contacts

State	Agency	Title
Arizona	Arizona Health Care Cost Containment System	Operations Manager
California	Department of Health and Human Services	Chief of Medical Care Statistics
Hawaii	Department of Health	Director of Encounter Data System
Maryland	Department of Health and Mental Hygiene	Director, Policy and Health Statistics Administration
New York	Department of Health	Research Scientist, Managed Care Research Unit
Rhode Island	Health Department	Branch Chief, Health Statistics
Tennessee	TennCare Bureau	Director of Information Services and Director of Operations
Washington	Department of Social and Health Services	Data Specialist/Medical Assistance Administrator
Minnesota	Department of Human Services	Consultant

SOURCE: Howell, E., Mathematica Policy Research, Inc., 1996.

gram in most States until now. Also, States that did collect data lacked a clear concept of how they planned to use them, and consequently lacked concrete plans for analysis and reporting. The precursor FFS billing data have often been used for reporting expenditures, a use that is not directly relevant for encounter data, because State expenditures for capitated plans are defined by premiums. (However, utilization variables such as hospitalizations can be used to create FFS proxy measures.)

We spoke with many individuals about the reasons they felt it was important or necessary to routinely collect encounter data. The data needs they expressed fell into the following categories:

- Accountability: utilization, access, and quality analysis.
- Ratesetting and risk adjustment.
- Studies of small, high-policy-interest populations.
- Community-wide studies.
- Other research and evaluation studies.

Developing broad utilization, access, and quality measures is the most common use of encounter data. Under capitation, plans are held accountable by the State for providing or arranging all medically necessary care funded by the benefit package for a defined population. State and Federal governments need to assure that patients are getting the care that they need. Though oversight of this issue occurs in a variety of ways (e.g., external reviews, onsite inspection, consumer complaints and grievances), administrative data are a useful tool for broad tracking and profiling to identify potential problem areas. These measures include, for example, rates of the use of preventive services, hospitalization (including readmissions), and selected surgical procedures.

Many of these measures are included in State aggregate reporting requirements and form the basis for some sections of the Medicaid Health Plan Employer Data and Information Set (HEDIS), which specifies a variety of aggregate reports that States might require plans to submit (National Committee for Quality Assurance, 1995). Critics of required encounter data reporting point out that many such utilization-access-quality measures can be obtained from aggregate reports. Also, many States and plans have found that administrative data lack some of the clinical detail needed for oversight, thus making medical record review and surveys necessary. Thus, States and HCFA must make a compelling case regarding why they need encounter data to develop such measures.

Often this case is based on the Federal and State need for more flexibility than is provided by routine aggregate reports. Although a certain format may be useful at the time when a report is developed, it is likely that another format may be desired subsequently. For example, mental health services for young adolescents may become an important policy topic, whereas the age breakdowns for aggregate reports may group individuals 10-19 years of age. Plans should consider that it may be in their long-run interest to provide encounter data, rather than to repeatedly respond to modifications in State or Federal aggregate reporting requirements.

FFS billing data have long been used for ratesetting or for developing risk adjustors to rates. In the past, States have developed capitation rates by a relatively simple approach of developing age-sex-eligibility group cells and averaging Medicaid FFS expenditures within each cell. An alternative is to accept bids from plans for specific categories of enrollees. Regardless of the method, there can be problems if plans with enrollees that are in poorer-than-average health either choose not to participate or suffer large losses under Medicaid managed care. Plans whose networks are made up pri-

marily of traditional safety net providers to the Medicaid population (such as affiliations of community clinics or public hospitals) may be particularly vulnerable. Thus it is to the advantage of both the States and the plans to have the fairest rate possible.

Although the state-of-the-art for developing risk-adjusted rates is still developing, there are many research projects underway to refine such approaches. Some of the most promising, such as Ambulatory Care Groups, are based on using FFS billing or encounter data to adjust payments by the diagnostic mix of a plan's panel of patients (Physician Payment Review Commission, 1995). States which have almost all enrollees in capitated plans lose the ability to test and ultimately use such approaches unless they require encounter data.

Another way to reimburse plans separately for high-cost outliers is through reinsurance, which is a retrospective approach that may accomplish a similar purpose to prospective risk adjustment. A plan that enrolls a high-risk Medicaid population might be allowed to retrospectively receive increased reimbursement for its high-cost population. Detailed encounter data will facilitate a State's ability to use reinsurance, because the State would not otherwise have sufficient information on the distribution of utilization of certain high-cost services (e.g., hospitalizations) in order to evaluate plans' claims.

Related to this outlier issue is a more general need to frequently study small, high-policy-interest populations. A small percentage of Medicaid beneficiaries account for a large share of costs. These individuals, who tend to be sicker and more vulnerable, are the most likely to be affected by the health system, both positively and negatively. However, because of their small numbers, it may be hard to detect problems for these individuals from aggregate data only. More detailed encounter data may be important in

allowing States to fulfill their fiduciary and oversight role for these populations. The experience of HCFA and the States with FFS billing data is illustrative of this need. Early in the Medicaid program, simple aggregate reports were frequently sufficient for both HCFA and the States' needs. Surveillance and Utilization Review Subsystem (SURS) and Management Analysis and Reporting Subsystem (MARS) reports were required for certification of the State's Medicaid Management Information System and were often used by the States for internal reporting. A uniform report from the States to HCFA, the HCFA-2082 report, served many of HCFA's management needs. However, as the program grew and as certain high-cost populations became of greater interest (examples include persons with acquired immunodeficiency syndrome, pregnant women, and the mental health and substance abuse population), these reports no longer sufficed to answer questions from State or Federal legislatures or other policymakers. State and Federal analysts then began using the detailed person-level data derived from FFS billing to answer questions regarding use of services and expenditures for such groups. The detailed data were needed in order to refine analyses based on specific diagnoses or specific services.

Another related issue that requires encounter data is the frequent need to assess the health of whole communities or other geographic areas. A State might want to compare utilization of all Medicaid enrollees in a county or ZIP Code, or for all services provided within a given geographic area. The analysis might identify geographically based access problems in order to help the States and HCFA decide whether certain hospital or health plan services are essential to a particular geographic area. To do such a study, the analyst would need the encounter data for all individuals who lived in an area

(or who provided services in an area), based on patient or provider address. Aggregate reports from plans would not generally be sufficient. Studying Medicaid enrollees' care at the community level may also facilitate cooperative identification of areas for improvement across plans. Problems that cut across health plans may be best addressed through such cooperative efforts.

Although not all-encompassing, the prior examples are illustrations of the many ways in which States, HCFA, and other policy analysts could typically use encounter data. However, such data will only be useful if they are relatively complete and an accurate representation of the care plans are providing.

WHAT IS AN ENCOUNTER?

Some of the struggle to develop successful Medicaid managed care reporting systems has to do with the lack of agreement about what is the proper "unit of analysis" for reporting. When the unit of analysis is the plan, States might request aggregate reports on all of the Medicaid enrollees a plan served in a particular reporting period. Almost all States require some type of aggregate reports either on a monthly, quarterly, or annual basis.

Another possible unit of analysis is the individual enrollee. This form of analysis is particularly attractive because managed care aims to promote accountability for care to defined populations. Plans could be requested to report aggregate counts of services or other summary data on each Medicaid enrollee in the plan on a monthly or annual basis. We did not find any States that are requiring this type of reporting, although States potentially can construct such records from encounter data.

Finally, and most commonly, States may require records for each encounter, or a subset of encounters. We found somewhat

varying, but generally similar, definitions for an encounter. One person gave the following definition: "An encounter is a bundle of services provided to one client by one provider in one time period." Using this definition, if an individual patient went to two different providers in a day, they would have two encounter records. Such definitions can become difficult to operationalize when, for example, a provider is actually a hospital outpatient department with multiple clinics or a multi-specialty group practice. In such circumstances, the number of encounter records will probably depend on how the State enrolls providers and assigns unique provider identifiers. Other areas that can lead to variations include, for example, such non-ambulatory services as hospital and nursing home care. We found that most States include such services and define a separate bundle of services (e.g. the hospital stay) as an encounter. Also, very often pharmacy services are included with an individual prescription being called an encounter. In all cases which we examined, the definitions of encounters, as operationalized in the States' data requirements, approximate closely the unit of analysis for their pre-existing Medicaid FFS billing system.

WHAT VARIABLES ARE COLLECTED ON EACH ENCOUNTER?

There has been a period of evolution at both HCFA and in each of the States regarding the list of variables and other reporting specifications for their encounter data, and much of the experience is very recent. One State described a period early in their attempts to obtain encounter data in which they simply asked plans to submit data "within the parameters of our computer system." Similarly, HCFA in its original terms and conditions of approval of state-wide managed care 1115 waivers has

required that encounter data be collected, but has not specified the content or definition of variables. Not surprisingly, plans have often had extreme difficulty complying with such unspecified requirements. States with more experience have now learned that very precise definitions of files—including lists of variables and variable definitions—and precise submission specifications are needed. Also, they have learned that plans need ongoing training and technical assistance, especially early in the development of the system. Finally, there needs to be intensive, ongoing editing of the data as they come in, and feedback to the plans on the quality of the data. Many States define and circulate the edit specifications, along with the error tolerances for each variable.

Working mostly independently of each other, HCFA, and other payers, each State with which we spoke had developed a variable list for what is to be included in its encounter data set. During the same recent period, 1993-95, a parallel effort was underway at HCFA to define a uniform encounter data set (known as McData) for both the Medicare and Medicaid programs. The draft McData variable list was sent on September 17, 1995, to 1,000 individuals and organizations for review and comment. HCFA received about 200 responses. About 40 percent of these responses were from plans. They expect the final data set will be substantially similar to the draft version. In a survey sent out with the specifications, HCFA found that 93 percent of the 200 respondents felt that it was appropriate to have a national standard encounter data set.

In addition to the standardization that will probably result from the McData effort, several States and HCFA have built on the efforts of the National Uniform Claim Form Committee, which developed the HCFA-1500 billing form for ambulatory

services, and the National Uniform Billing Committee, which developed the UB92 hospital billing form, as well as the American National Standards Institute (ANSI), which has developed standards for electronic submission of the HCFA-1500 and UB92 forms. Indeed, the push for standardization is a major impetus for the HCFA McData effort.

Table 2 shows the draft McData encounter data set and some other examples of variables that occur on State encounter data sets. It shows that most of the McData variables are required by almost all of the nine States.

The variables in this typical encounter data set include the identity, and sometimes other characteristics, of the individual receiving the care (i.e., the Medicaid enrollee) and the individual or institution providing the care. The reason that the characteristics of enrollees or providers are not always required is that some States plan to obtain those characteristics from their enrollment or provider reference files. (This could be more difficult at the Federal level, because HCFA might not have ready access to those files, which are often complex in structure and less uniform across States. States could also have difficulty matching to the reference files if identifiers submitted by plans have errors.) The encounter data set also includes selected information about the service provided including the date or dates of service, the procedure code, which tells which service was provided, and the diagnosis or diagnoses, describing the condition that required the care. Different types of services (for example, hospital, outpatient, pharmacy and dentistry) will require somewhat different variables, and often the States use different file formats for different types of encounter records.

Some States have very rigorous edits that are applied to data as it comes in. Examples

Table 2

Encounter Data Requirements by State

Item	Arizona	California	Hawaii	Maryland	Minnesota	New York	Rhode Island	Tennessee	Washington	Number of States
McData Variables										
Enrollee ID Number	X	X	X	X	X	X	X	X	X	9
Enrollee Name*	–	X	–	X	–	–	X	X	X	5
Plan ID	X	X	X	X	X	X	X	X	X	9
Provider ID	X	X	X	X	X	X	X	X	X	9
Provider Location*	X	X	X	–	–	–	–	–	–	3
Place of Service	X	X	X	X	X	–	X	–	X	7
Specialty/Provider Type*	–	X	–	X	–	X	X	X	–	5
Dates of Service	X	X	X	X	X	X	X	X	X	9
Diagnoses	Ambulatory: 1 Hospital: 2	3	Ambulatory: 1 Hospital: 9	2	Ambulatory: 1 Hospital: 9	Ambulatory: 4 Hospital: 1	Ambulatory: 7 Hospital: 11	9	1	9
Procedure Codes	X	X	X	X	X	X	X	X	X	9
EPSDT Indicator	X	–	–	X	X	X	–	–	X	5
Patient Status	X	X	X	X	X	X	X	X	–	8
Revenue Codes	X	X	–	–	X	–	X	X	X	6
National Drug Code	Long-Term Care Plans	X	X	X	X	X	Aggregate Data	X	X	7
Dental Quadrant/ Tooth Number	–	X	X	X	–	X	–	–	–	4
Other Examples of Required Variables										
Birthdate*	–	X	X	–	–	–	–	X	X	4
Sex*	–	X	X	–	–	–	–	X	–	3
Quantity	X	X	X	X	X	X	X	–	–	7
Days Supply	–	X	–	X	X	X	–	–	–	4
Admission Type	X	–	X	X	X	–	–	X	–	5
DRG	–	–	–	X	–	X	X	–	X	4
Family Planning Indicator	–	X	–	–	X	X	–	–	–	3
Newborn Birthweight	–	–	–	–	–	–	X	–	X	2

*Fields could be derived from enrollment or provider files.

NOTES: ID is identification. EPSDT is early and periodic screening, diagnosis, and testing. DRG is diagnosis-related group.

SOURCE: Howell, E., Mathematica Policy Research, Inc., 1996.

include edits to assure that all codes are valid, that numeric data are present where required, and that dates are in logical sequence. States generally specify submission schedules and tolerances which may vary for different categories of variables (e.g., 95 percent of primary diagnoses should be present and within valid range).

ENFORCING ENCOUNTER DATA COLLECTION

States report both carrots and sticks that may or may not be included in plan contracts to enforce the submission of complete and accurate data. There may be financial penalties for late submission (e.g., a percent reduction in the capitation fee). Alternatively, timely submittors of valid data may be allowed to expand Medicaid enrollment more rapidly.

Most States and HCFA report substantial ambivalence about how tough such enforcement should be, because they are anxious to have plans participate in managed care and recognize that the data requirements are burdensome. As mentioned, many plans do not yet have well-developed internal systems that can generate encounter data completely and consistently. Also, Medicaid often is only one of a number of diverse parties making data requirements of a plan. If reporting requirements are poorly conceived, the State could drive away the plans that it most wishes to attract (e.g., those with substantial commercial populations). Consequently, there may be interagency conflicts within State or Federal government, with data and research officials being strongly in favor of encounter data, and managed care program officials being more sympathetic to plan difficulties. Although most States recognize that their clout in requiring data has increased considerably over earlier years when Medicaid HMO enrollments were lower, most States remain in a cooperative, rather than combative, mode and hope that this cooperative approach will lead to better data over time.

It is important to note that encounter data systems are still in a developmental stage in all the States we talked to, with the exception of Arizona, which has been working on their system for a decade. Although some other States have a long history of contracting with HMOs (e.g.. California, Minnesota, and New York), their major expansions into Medicaid managed care have only recently forced them into serious development of their encounter data systems.

The lack of internal staff capacity is one major impediment to development of an operational encounter data system. All of the steps previously outlined (e.g.. developing specifications, providing technical assistance to plans, editing the data, providing feedback, and using the data) are time consuming and require staff and resources that many financially strapped States do not currently have. States are particularly challenged now since most will—at least in the short term—need to continue to maintain the administrative structure for FFS billing. HCFA has provided some help through the recent development of a technical assistance document to States (McCall, 1995). There is also a technical assistance contract to assist 1115 waiver States with the development of their encounter data. However, this type of assistance is late to arrive, is limited in scope, and will not be sufficient. All levels of organizations involved in the effort to develop workable encounter data—providers, the plans, the States, and HCFA—will need to obtain (either directly or through contract or both) the expertise to develop such systems.

PITFALLS IN COLLECTING AND ANALYZING ENCOUNTER DATA

In order to make the encounter data that many plans and States will be struggling to

provide and analyze most useful, it is important to consider some of the lessons learned from experience with such efforts with FFS billing data, and from recent experience with encounter data. These include the following:

- Regular communication among providers, plans, States, and HCFA is essential. Feedback and discussion of results will assure that data problems are examined and resolved.
- States must have clear specifications for required data, and must not change those specifications very often.
- When data are received, States must carefully review and edit the data. In addition to range edits, they should examine frequency distributions and outliers. Edits used for FFS billing data may not be appropriate.
- Developing useful encounter data is a time-consuming, labor-intensive effort. Attempting to develop a system without the proper resources to do so at the plan, State, or Federal level will lead to questionable results. Putting resources into such efforts early will prevent problems later.
- Finally, even though the system appears to function smoothly, it is important to keep examining and refining the data as they come in.

These lessons apply to all levels of an encounter data system. A plan must follow such steps as it relates to its providers. Similarly, a State needs to address the same issues in relating to participating plans. And finally HCFA, to the extent that it receives data from States on a mandatory or voluntary basis, will need to develop a similar approach to data cleaning and analysis.

ACKNOWLEDGMENTS

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