Assessing the Usability of Encounter Data for Enrollees in Comprehensive Managed Care 2010-2011

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As growing numbers of Medicaid enrollees receive health benefits through comprehensive managed care (CMC), researchers and policymakers seeking to understand the service use of these enrollees must rely on encounter data that states receive from managed care plans. However, not all states report the encounter data submitted by their plans to the Medicaid Statistical Information System (MSIS), and, until recently, little was known about the data's usability for research. This issue brief discusses the availability, completeness, and quality of encounter data for physician, clinic, and outpatient services (OT); inpatient hospital services (IP); and prescription drug services (RX) in the Medicaid Analytical eXtract (MAX) data, which are derived from MSIS. Knowing this information can help researchers and policymakers judge the usability of the 2010 and 2011 encounter data in MAX.

Introduction

The percentage of full-benefit Medicaid enrollees in CMC grew steadily—from 41 to 54 percent—between 2004 and 2010 (Borck et al. 2014). In CMC arrangements, states contract with health maintenance organizations (HMOs)/health insuring organizations (HIOs) to deliver comprehensive services to Medicaid enrollees and pay capitation payments, a set fee to cover an enrollee. States fairly consistently report enrollment in managed care plans and the capitation payments they make to HMOs/HIOs. However, capitation claims, unlike fee-for-service (FFS) claims, contain no information about service use.[1] Instead, service use is captured through encounter data, managed care records that contain information on utilization but not Medicaid expenditures. Encounter data, unlike FFS data, do not undergo extensive

quality and validation checks either in MSIS or in the production of MAX.

By 2010, more than half of all full-benefit Medicaid enrollees were in CMC plans.[2] With the arrival of the Affordable Care Act of 2010, the percentage of non-disabled adult enrollees is expected to climb as states eliminate the categorical requirements for Medicaid eligibility (such as pregnancy and dependent children) and expand eligibility to everyone below 138 percent of the federal poverty level (Kaiser Family Foundation 2012). Given that most full-benefit adult enrollees are in CMC (65 percent in 2010), researchers and policymakers will need to rely on encounter data—records that contain information on service use but not on expenditures—to assess service use in this population.

This brief discusses the availability, completeness, and quality of the encounter data in MAX 2010 and 2011, expanding on a previous brief that discussed MAX encounter data from 2007 to 2009 (Byrd and Dodd 2012a). Our analysis focuses on the encounter data submitted in the MAX 2010 and 2011 physician, outpatient, and clinic services (OT) files; inpatient hospital services (IP) files; and prescription drug services (RX) files in MAX, highlighting trends in the availability and usability of these data.[3]

Methods

MAX is designed to enable research on Medicaid enrollment, service use, and expenditures by calendar year. Analysis by calendar year is particularly important with encounter data because some states that submit these data to MSIS do not do so every quarter (Byrd et al. 2011). We limited our analysis to managed care HMO/HIO plans that are fully capitated (comprehensive) because they cover the widest range of services and are thought to have the highest quality and most complete encounter data.[4]

The goal of our analysis was not to validate the encounter data but rather to assess the availability, completeness, and quality. To be usable, data needed to be of comparable completeness and quality to FFS data. Our goal was to assess the availability and usability of encounter data from states with a notable portion of their full-benefit, nondual Medicaid population enrolled in CMC. We excluded enrollees with dual eligibility—that is, people eligible for both Medicaid and Medicare—because many of their services are covered by Medicare, and thus they have less encounter data than nondual enrollees (Young et al. 2012). We considered a state to have CMC if at least 1 percent of its full-benefit, nondual enrollees participated in CMC at some point during the year.

The mix of Medicaid populations enrolled in CMC programs varies widely by state. Many states rolled out CMC to child and adult enrollees first, but fewer states have enrolled people eligible on the basis of age or disability, where service use is often higher. Due to the differences in eligibility criteria and benefit packages for CMC programs, as well as potential differences in service use, we analyzed data using each enrollee's basis-of-eligibility (BOE) classification in Medicaid—adult, child, disabled, or aged. Because states with low enrollment in managed care are less likely to devote resources to producing high quality encounter data, we only analyzed data for a particular

BOE group if at least 10 percent of full-benefit Medicaid enrollees in that group were enrolled in an HMO/HIO plan. We also limited our analysis to BOE groups that had at least 200 encounter records, as assessments based on a small number of records could skew our estimates.

We analyzed several types of services to gauge the completeness and quality of the MAX claims files. The OT files contain up to 22 types of services, IP contains up to 4, and RX up to 2. Of these, we chose to focus on the following:

- For the OT analysis, we chose physician (type of service = 08), outpatient hospital (type of service = 11), and clinic (type of service = 12) services because they are frequently used by Medicaid enrollees and are covered by Medicaid in all states. Managed care plans are also accustomed to collecting and reporting these data for Healthcare Effectiveness Data and Information Set (HEDIS) measures. Analyzing these services separately and together yielded similar results, so the services are presented together in this brief.

- Inpatient hospital (type of service = 01) services from the IP file were chosen because they represent the vast majority of services provided in the inpatient setting.

- Prescribed drugs (type of service = 16) were chosen from the RX file; durable medical equipment was excluded.

Because MAX data are derived from the MSIS data that states submit, data for some states are available before others. At the time of our analysis, MAX 2010 data were available for all states. However, MAX 2011 did not include data from Arizona, Colorado, the District of Columbia, Hawaii, Idaho, and Louisiana because the corresponding MSIS files were unavailable or had significant data problems. Of these six states, Arizona, Colorado, the District of Columbia, and Hawaii enroll more than 1 percent of their Medicaid population in CMC, and almost all Medicaid recipients in Arizona and Hawaii were enrolled in CMC in 2011.

Metrics

Table 1 shows the measures we used to assess completeness and quality. We calculated a value for each measure using encounter data and compared it to a reference range created from the FFS data. Because managed care coverage varies by state and type of enrollee, we evaluated the completeness and quality measures for OT, IP, and RX data separately for each BOE category, for each state, and in each year.

Table 1. Data elements and reference ranges used to analyze Medicaid encounter data in MAX 2011, by BOE category

Data element	Reference range for MAX 2011			
	Adult	**Child**	**Disabled**	**Aged**
Physician, Clinic, and Outpatient Visits (OT)				
Completeness Measures				
Average number of OT encounter records per enrollee	1.66–13.08	1.40–10.42	7.55–30.78	0–22.18
Percentage of enrollees with OT encounter records	38.73–91.91	42.86–93.38	41.94–100	5.79–89.02
Quality Measures				
Percentage of OT encounter records with place of service code	83.44–100	78.16–100	82.08–100	83.32–100
Percentage of OT encounter records with primary diagnosis code	89.61–100	82.37–100	90.79–100	91.98–100
Percentage of OT encounter records with a primary diagnosis code length greater than three characters	85.68–100	78.15–100	86.46–100	87.41–100
Percentage of OT encounter records with procedure (service) code	70.19–100	79.01–100	79.98–100	84.93–100
Percentage of OT encounter records with a procedure code in CPT-4 or HCPCS format	62.44–100	69.43–100	72.09–100	80.82–100
Inpatient Hospital (IP)				
Completeness Measures				
Average number of IP encounter records per enrollee	0–0.36	0.03–0.12	0.09–0.56	0.01–0.40
Percentage of enrollees with IP encounter records	0–30.39	2.24–10.69	5.88–27.07	1.53–22.96
Quality Measures				
Average length of stay	2.54–5.74	3.70–6.43	5.37–10.65	4.82–10.44
Average number of diagnosis codes	2.56–7.55	1.97–4.77	3.73–10.07	3.76–11.00
Percentage of IP records with procedure codes	53.51–96.96	23.89–74.51	30.70–74.00	29.85–75.62
Percentage of IP records with UB accommodation codes	≥90	≥90	≥90	≥90
Prescription Drugs (RX)				
Completeness Measures				
Average number of RX encounter records per enrollee	1.34–14.25	0.71–7.81	13.62–50.94	0–53.23
Percentage of enrollees with RX encounter records	29.22–87.23	33.05–78.11	51.46–97.51	16.68–89.69
Quality Measures				
Percentage of RX records with date prescribed	≥90	≥90	≥90	≥90
Percentage of RX records with quantity	≥90	≥90	≥90	≥90

Source: Mathematica's analysis of MAX 2011 data.
Note: UB = uniform billing, CPT-4 = Current Procedural Terminology version 4, HCPCS = Healthcare Common Procedure Coding System

To create comparison metrics, we used data for FFS participants who were similar to our "encounter data" population: that is, we looked at the full-benefit, nondual FFS population across all states with substantial FFS participation in 2010 and 2011. We then examined the completeness and quality of the FFS data, calculating an average value and standard deviation for each metric in each BOE category. We used the average FFS value as the midpoint of the reference range, and we set the top of the reference range at two standard deviations above the FFS average and the bottom at two standard deviations below the FFS average. This approach approximates the construction of confidence intervals typically used in statistical analysis. We considered the FFS reference range to be the acceptable range of values for each year's encounter data for that metric.

To judge the completeness of the data, we examined each file type (OT, IP, and RX) using two measures that captured the volume of encounter data: (1) the average number of encounter records per person and (2) the percentage of enrollees with encounter records.

To evaluate quality, we created metrics for each file type that assessed data elements in the records. For the OT files, we first selected two data elements to examine: diagnosis codes and procedure codes. We then chose two quality measures to assess each element: one measure indicated whether the data element was filled, and the second indicated the format of the data. We expected many of the diagnosis codes to be filled because few OT claims are paid without a diagnosis code. To determine whether the diagnosis codes in encounter records had a comparable level of specificity to those reported in FFS claims, we evaluated the length of the code; the more characters it had (beyond the three requisite characters), the more specific the diagnosis. Similarly, we expected many of the procedure code elements to be filled, but the heavy reliance of some states on procedure codes specific to the state made a national analysis more complicated. We also examined whether the reported procedure codes were in a standard national format (Current Procedural Terminology version 4 (CPT-4) or Healthcare Common Procedure Coding System (HCPCS)). Lastly, we evaluated what percentage of records had a valid place of service code comparable to those reported in FFS claims.

To assess the quality of the IP files, we looked at four data elements (length of stay, diagnosis codes, procedure codes, and Uniform Billing (UB) accommodation codes) that are scrutinized during the quality and validation checks for FFS claims. For the RX file, we created a quality measure for each of the two data elements (data prescribed and quantity) that we expect to see routinely filled on FFS claims.

For certain measures that assessed whether a data element was provided, state values were highly skewed, but typically they were either close to 100 percent or 0 percent for both FFS and encounter data. Rather than use the reference range based on the average value, we defined a "good" value as 90 percent or greater for these measures.

For each BOE category that met the analysis criteria, we compared the state's value to the FFS reference range constructed for the same year to determine if it fell within that acceptable range. The ranges for 2011 are shown in Table 1 (2010 ranges are not shown).[5] A state's encounter data did not have to meet all completeness and quality measures to be considered usable. For the OT, IP, and RX data, we defined "complete" as having values within the acceptable range for at least one of the two completeness metrics for that data type. For example, if there was a high enough percentage of enrollees with encounter records, but the average number of records per enrollee was too low, the state's data for that BOE was still considered complete.

To meet our quality standard, the OT data had to satisfy at least four of the five quality measures, the IP data had to satisfy at least three of the four quality measures, and the RX data had to satisfy at least one of the two quality measures. A BOE category within a state was considered to have usable data if the encounter data for that BOE met both the "complete" and "comparable quality" criteria.

Findings

Since 2007, there has been a notable increase in the number of states that met our CMC threshold for the disabled and aged BOE groups (Byrd and Dodd 2012a). This is consistent with the shifting Medicaid landscape, in which more states are bringing more of their traditional FFS Medicaid populations into CMC. Also of note is that,

for the first time, encounter data for Massachusetts and Ohio appeared in the MAX data for services delivered in 2011. Although these two states did not meet all of our thresholds of usability, they do have many Medicaid enrollees in managed care, and it is encouraging that they have begun to submit their encounter data to CMS.

We saw a continued increase in the availability of data as well (Byrd and Dodd 2012a). Of the states that met our CMC enrollment threshold, the number that submitted more than 200 encounter records stayed the same or increased over the two years for each of the BOE groups.

The vast majority of states that met at least one completeness measure met both of them. Data quality within states did not uniformly improve, however, which is consistent with what states have reported to Mathematica through other contracts that are providing technical assistance to the states. Although some states have seen data quality improvements, others have had mixed experiences due to flaws in internal system processing, such as converting to a new Medicaid management information system, as well as problems with data quality received from individual plans (Byrd et al. 2013). The quality measures where the lowest number of states fell within the reference range were the percentage of OT encounter records with a place of service code and the percentage of OT encounter records with a procedure codes in a nationally standard format.

The percentage of states submitting encounter data comparable in completeness and quality to FFS data—and thus usable for research—increased for OT and RX file data for the adult, child, and disabled groups from 2010 to 2011 (see Tables 2, 4). The most notable change over time was an increase in the number of states submitting usable RX data for the disabled (from 10 states in 2010 to 18 states in 2011). Generally, states that enrolled at least 10 percent of one BOE category in an earlier year continued to meet the enrollment threshold for the same BOE categories in later years. Furthermore, states whose data were usable in one year often had usable data the next year.

OT Encounter Data

Table 2 summarizes the availability and usability of the OT encounter data in MAX 2010 and 2011 for each state, by BOE category. Most states that met our CMC enrollment

threshold submitted data of comparable completeness and quality to FFS data in both years, and the usability of the data improved for each BOE category. Twelve states submitted usable data in each year for all four BOE categories: California, Delaware, Kentucky, Michigan, Minnesota, Nebraska, New Jersey, New York, Oregon, Tennessee, Texas, and Virginia. An additional five states submitted usable data for each BOE category in which they met the CMC threshold in both years: Connecticut, Georgia, Indiana, Missouri, and Washington. The number of encounter records increased to above 200 for at least one BOE category in Massachusetts, Ohio, South Carolina, and Utah.

In 2011, 30 states met the CMC enrollment threshold for their adult Medicaid population. Of those states, 23 submitted OT encounter records that met completeness and quality thresholds and were deemed usable for research. Of the remaining 7 states, 3 submitted 200 or fewer OT encounter records, and 4 submitted more than 200 records, but the records were unusable. The number of states that met the CMC enrollment threshold for every BOE category and the number of states submitting usable data grew between 2010 and 2011.

IP Encounter Data

Table 3 shows the number of states that met the CMC enrollment threshold as well as the availability and usability of the IP encounter data for each state, by BOE. The number of states submitting encounter data increased between 2010 and 2011 for the adult, child, and disabled BOE categories. In 2011, 27 of the 30 states meeting the CMC enrollment threshold for children submitted more than 200 encounter records, and 19 of those submitted usable data.

RX Encounter Data

States that use CMC to deliver comprehensive services sometimes choose to exclude, or "carve out," prescription drug services from the CMC arrangements. However, the number of states that submitted data for each BOE category rose from 2010 to 2011. Also noteworthy is the fact that, of all states that submitted RX encounter data for 2011, all but one submitted usable data for each BOE. Table 4 summarizes the availability and usability of the RX encounter data for each state, by BOE.

Table 2. Usability of OT encounter data from MAX 2010–2011, by state and BOE category

	Usable OT encounter data, 2010				Usable OT encounter data, 2011			
	Adult	Child	Disabled	Aged	Adult	Child	Disabled	Aged
Alabama								
Alaska								
Arizona[a]	Y	Y	Y	Y	NR	NR	NR	NR
Arkansas								
California	Y	Y	Y	Y	Y	Y	Y	Y
Colorado[a]		N	N	0	NR	NR	NR	NR
Connecticut	Y	Y			Y	Y		
Delaware	Y	Y	Y	Y	Y	Y	Y	Y
DC[a]	Y	Y	N	N	NR	NR	NR	NR
Florida	Y	Y	Y	Y	N	Y	Y	N
Georgia	Y	Y			Y	Y		
Hawaii[a]	Y	Y	Y	Y	NR	NR	NR	NR
Idaho[a]					NR	NR	NR	NR
Illinois							N	Y
Indiana	Y	Y	Y		Y	Y	Y	
Iowa								
Kansas[b]	NR	NR	NR	NR	Y	Y		
Kentucky	Y	Y	Y	Y	Y	Y	Y	Y
Louisiana					NR	NR	NR	NR
Maine[a,b]	NR	NR	NR	NR	NR	NR	NR	NR
Maryland	Y	N	N		N			
Massachusetts	0	0	0		Y	Y	Y	
Michigan	Y	Y	Y	Y	Y	Y	Y	Y
Minnesota	Y	Y	Y	Y	Y	Y	Y	Y
Mississippi							Y	Y
Missouri	Y	Y			Y	Y		
Montana								
Nebraska	Y	Y	Y	Y	Y	Y	Y	Y
Nevada	0	0			0	0		
New Hampshire								
New Jersey	Y	Y	Y	Y	Y	Y	Y	Y
New Mexico	Y	Y	Y	Y	Y	Y	Y	
New York	Y	Y	Y	Y	Y	Y	Y	Y
North Carolina								
North Dakota								
Ohio	0	0	0	0	Y	Y	Y	Y
Oklahoma								
Oregon	Y	Y	Y	Y	Y	Y	Y	Y
Pennsylvania	0	0	0	0	0	0	0	0
Rhode Island	Y	Y	Y		N	N	N	
South Carolina	0	0	0		Y	Y	Y	

(continued)

Table 2. Usability of OT encounter data from MAX 2010–2011, by state and BOE category *(continued)*

	Usable OT encounter data, 2010				Usable OT encounter data, 2011			
	Adult	**Child**	**Disabled**	**Aged**	**Adult**	**Child**	**Disabled**	**Aged**
South Dakota								
Tennessee	Y	Y	Y	Y	Y	Y	Y	Y
Texas	Y	Y	Y	Y	Y	Y	Y	Y
Utah	N	N		0	Y	Y	Y	Y
Vermont								
Virginia	Y	Y	Y	Y	Y	Y	Y	Y
Washington	Y	Y			Y	Y	Y	
West Virginia	0	0			0	0		
Wisconsin	N	Y			N	Y		
Wyoming								
States meeting CMC enrollment threshold	32	33	26	20	30	30	25	18
States submitting data	26	27	23	16	27	27	24	17
States submitting usable data	24	24	18	16	23	25	21	16
Of states meeting CMC threshold, percentage that submitted usable data	75%	73%	69%	80%	77%	83%	84%	89%

Source: MAX 2010 and 2011.

Notes: Blank cells indicate the state's enrollment in CMC did not meet the enrollment threshold in that BOE category. 0 indicates the state met the enrollment threshold but submitted 200 or fewer encounter records in that BOE category. N indicates the state met the enrollment threshold and submitted more than 200 encounter records in that BOE category, but the data did not meet completeness and quality thresholds. Y indicates the state met the enrollment threshold, submitted more than 200 encounter records in that BOE category, and the data met completeness and quality thresholds (and were therefore usable). NR indicates that the files were not available in MAX.

[a] Arizona, Colorado, DC, Hawaii, Idaho, Louisiana, and Maine were not included in the analysis because the corresponding MSIS files were unavailable or contained significant data problems in 2011.

[b] Kansas and Maine were not included in the analysis because the corresponding MSIS files were unavailable or contained significant data problems in 2010.

Table 3. Usability of IP encounter data from MAX 2010–2011, by state and BOE category

	Usable IP encounter data, 2010				Usable IP encounter data, 2011			
	Adult	Child	Disabled	Aged	Adult	Child	Disabled	Aged
Alabama								
Alaska								
Arizona[a]	Y	Y	Y	Y	NR	NR	NR	NR
Arkansas								
California	Y	N	N	N	N	N	N	N
Colorado[a]		0	0	0	NR	NR	NR	NR
Connecticut					N	N		
Delaware	Y			0	Y	Y	N	0
DC[a]	Y	Y	Y		NR	NR	NR	NR
Florida	Y		Y	Y	Y	N	Y	Y
Georgia	Y	Y			Y	Y		
Hawaii[a]	Y	Y	Y	Y	NR	NR	NR	NR
Idaho[a]					NR	NR	NR	NR
Illinois							0	0
Indiana	Y	Y	Y		Y	Y	Y	
Iowa								
Kansas[b]	NR	NR	NR	NR	Y	Y		
Kentucky	Y	Y	Y	0	Y	N	Y	N
Louisiana					NR	NR	NR	NR
Maine[a,b]	NR	NR	NR	NR	NR	NR	NR	NR
Maryland	Y	Y	Y		Y	Y	Y	
Massachusetts	0	0	0		N	N	N	
Michigan	Y	Y	Y	0	Y	Y	Y	0
Minnesota	Y	Y	Y	Y	Y	Y	Y	Y
Mississippi							0	0
Missouri	Y	Y			Y	Y		
Montana								
Nebraska	Y	Y	Y	0	N	N	N	0
Nevada	0	0			0	0		
New Hampshire								
New Jersey	Y	Y	Y	Y	Y	Y	Y	Y
New Mexico	Y	Y	Y	0	Y	Y	Y	
New York	Y		Y	Y	Y	N	Y	Y
North Carolina								
North Dakota								
Ohio	0	0	0	0	Y	Y	Y	Y
Oklahoma								
Oregon	Y	Y	Y	0	Y	Y	Y	0
Pennsylvania	0	0	0	0	0	0	0	0
Rhode Island					N	N	N	
South Carolina	0	0	0		Y	Y	Y	

(continued)

Table 3. Usability of IP encounter data from MAX 2010–2011, by state and BOE category *(continued)*

	Usable IP encounter data, 2010				Usable IP encounter data, 2011			
	Adult	**Child**	**Disabled**	**Aged**	**Adult**	**Child**	**Disabled**	**Aged**
South Dakota								
Tennessee	Y	Y	Y	0	Y	Y	Y	0
Texas		Y		0	N	Y	N	0
Utah	Y		0	0	Y	Y	Y	0
Vermont								
Virginia	Y	Y	Y	Y	Y	Y	Y	Y
Washington	Y	Y			Y	Y	Y	
West Virginia	0	0			0	0		
Wisconsin	Y	Y			Y	Y		
Wyoming								
States meeting CMC enrollment threshold	32	33	26	20	30	30	25	18
States submitting data	26	26	21	8	27	27	22	8
States submitting usable data	23	19	17	7	21	19	16	6
Of states meeting CMC threshold, percentage that submitted usable encounter data	72%	58%	65%	35%	70%	63%	64%	33%

Source: MAX 2010 and 2011.

Notes: Blank cells indicate the state's enrollment in CMC did not meet the enrollment threshold in that BOE category. 0 indicates the state met the enrollment threshold but submitted 200 or fewer encounter records in that BOE category. N indicates the state met the enrollment threshold and submitted more than 200 encounter records in that BOE category, but the data did not meet completeness and quality thresholds. Y indicates the state met the enrollment threshold, submitted more than 200 encounter records in that BOE category, and the data met completeness and quality thresholds (and were therefore usable). NR indicates that the files were not available in MAX.

[a] Arizona, Colorado, DC, Hawaii, Idaho, Louisiana, and Maine were not included in the analysis because the corresponding MSIS files were unavailable or contained significant data problems in 2011.

[b] Kansas and Maine were not included in the analysis because the corresponding MSIS files were unavailable or contained significant data problems in 2010.

Table 4. Usability of RX encounter data from MAX 2010–2011, by state and BOE category

	Usable RX encounter data, 2010				Usable RX encounter data, 2011			
	Adult	**Child**	**Disabled**	**Aged**	**Adult**	**Child**	**Disabled**	**Aged**
Alabama								
Alaska								
Arizona[a]	Y	Y	Y	Y	NR	NR	NR	NR
Arkansas								
California	Y	Y	Y	Y	Y	Y	Y	Y
Colorado[a]		0	0	0	NR	NR	NR	NR
Connecticut	0	0			0	0		
Delaware	0	0	0	0	N	0	0	0
DC[a]	N	N	0		NR	NR	NR	NR
Florida	Y	Y	Y	Y	Y	Y	Y	Y
Georgia	Y	Y			Y	Y		
Hawaii[a]	0	0	0	0	NR	NR	NR	NR
Idaho[a]					NR	NR	NR	NR
Illinois							Y	Y
Indiana	0	0	0		0	0	0	
Iowa								
Kansas[b]	NR	NR	NR	NR	Y	Y		
Kentucky	Y	Y	Y	Y	Y	Y	Y	Y
Louisiana					NR	NR	NR	NR
Maine[a,b]	NR	NR	NR	NR	NR	NR	NR	NR
Maryland	Y	Y	Y		Y	Y	Y	
Massachusetts	0	0	0		Y	Y	Y	
Michigan	Y	Y	Y	Y	Y	Y	Y	Y
Minnesota	N				Y	Y	Y	Y
Mississippi							Y	Y
Missouri	0	0			0	0		
Montana								
Nebraska	0	0	0	0	0	0	0	0
Nevada	0	0			0	0		
New Hampshire								
New Jersey	Y	Y	N	Y	Y	Y	Y	Y
New Mexico	Y	Y	Y	Y	Y	Y	Y	
New York	N	N	N	Y	Y	Y	Y	Y
North Carolina								
North Dakota								
Ohio	0	0	0	0	Y	Y	Y	Y
Oklahoma								
Oregon	Y	Y	Y	Y	Y	Y	Y	Y
Pennsylvania	0	0	0	0	0	0	0	0
Rhode Island	Y	Y	Y		Y	Y	Y	
South Carolina	0	0	0		Y	Y	Y	

(continued)

Table 4. Usability of RX encounter data from MAX 2010–2011, by state and BOE category *(continued)*

	Usable RX encounter data, 2010				Usable RX encounter data, 2011			
	Adult	**Child**	**Disabled**	**Aged**	**Adult**	**Child**	**Disabled**	**Aged**
South Dakota								
Tennessee	0	0	0	0	0	0	0	0
Texas	0	0	0	0	0	0	0	0
Utah	0	0	0	0	0	0	0	0
Vermont								
Virginia	Y	Y	Y	Y	Y	Y	Y	Y
Washington	Y	Y			Y	Y	Y	
West Virginia	0	0			0	0		
Wisconsin	0	0			0	0		
Wyoming								
Total meeting CMC threshold	32	33	26	20	30	30	25	18
States submitting data	15	16	14	11	19	18	18	12
States submitting usable data	13	13	10	10	18	18	18	12
Of states meeting CMC threshold, percentage that submitted usable encounter data	41%	39%	38%	50%	60%	60%	72%	67%

Source: MAX 2010 and 2011.

Notes: Blank cells indicate the state's enrollment in CMC did not meet the enrollment threshold in that BOE category. 0 indicates the state met the enrollment threshold but submitted 200 or fewer encounter records in that BOE category. N indicates the state met the enrollment threshold and submitted more than 200 encounter records in that BOE category, but the data did not meet completeness and quality thresholds. Y indicates the state met the enrollment threshold, submitted more than 200 encounter records in that BOE category, and the data met completeness and quality thresholds (and were therefore usable). NR indicates that the files were not available in MAX.

[a] Arizona, Colorado, DC, Hawaii, Idaho, Louisiana, and Maine were not included in the analysis because the corresponding MSIS files were unavailable or contained significant data problems in 2011.

[b] Kansas and Maine were not included in the analysis because the corresponding MSIS files were unavailable or contained significant data problems in 2010.

Caveats

Our analysis shows that a reasonable volume of encounter data is available in MAX and that the data appear to be of good quality on basic measures. We assumed that, like the FFS data, the encounter data falling within acceptable ranges accurately depict what is happening in the state. Our analysis is limited, however, by its assumption that FFS data provide a reasonable benchmark for judging the encounter data, which may not be the case, depending on the populations a state chooses to enroll in managed care. One issue is that people who are moved to CMC may be healthier than those who are not, or vice versa, within all BOE categories.

People who are enrolled in CMC plans likely do differ from FFS populations in important ways. To control for this, we used metrics within two standard deviations to account for variations in service use that may reflect differences in the populations or in the FFS system versus the managed care delivery systems. The use of two stan-dard deviations is consistent with confidence intervals typically used in statistical analyses, but for measures with a lot of variation in the FFS data, this sometimes resulted in a wide reference range. Researchers interested in the full scope of Medicaid service use within states should still examine the encounter data that were not deemed usable for research based on our analysis.

Conclusions

This brief is intended to shed light on the availability and usability of the 2010 and 2011 MAX OT, IP, and RX encounter data. Our analysis provides information that will help researchers and policymakers determine which states' encounter data to analyze. In many states, the quality and availability of the encounter data improved over the two study years. This is an encouraging trend for researchers and policymakers, who can use this larger volume of data to assess service use across the variety of Medicaid delivery systems.

Endnotes

[1] Fee-for-service claims account for dollars paid by states to providers for Medicaid services.

[2] A full-benefit Medicaid enrollee is defined here as an enrollee with a restricted benefits flag equal to 1 for any month of enrollment in the calendar year, meaning the person is eligible for Medicaid or the Children's Health Insurance Program (CHIP) and entitled to the full scope of Medicaid or CHIP benefits.

[3] Encounter records in the LT file are clustered among very few states in MAX data. After imposing our analysis criteria, there were too few encounters for a cross-state analysis of LT data.

[4] Another issue brief in this series discusses the availability and usability of encounter data for prepaid behavioral health plans in MAX 2009. See Nysenbaum et al. (2012).

[5] The reference ranges for MAX 2007, 2008, and 2009 data appear in previous issue briefs; see Dodd et al. 2012 and Byrd et al. 2012a and 2012b.

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