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Report to Congressional Addressees

January 2021

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Data Completeness and Accuracy Have Improved, Though Not All Standards Have Been Met

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GAO-21-196

GAO Highlights

Highlights of GAO-21-196, a report to congressional addressees

January 2021

MEDICAID

Data Completeness and Accuracy Have Improved, Though Not All Standards Have Been Met

Why GAO Did This Study

Since adding Medicaid to its High Risk List in 2003, GAO has identified multiple limitations in program data affecting CMS's ability to ensure beneficiaries' access to care and proper payments to health care providers. CMS intends T-MSIS be a national repository of data to manage and oversee Medicaid, which served approximately 77 million individuals at an estimated cost of $673 billion in fiscal year 2020. Prior GAO work found issues with the completeness and accuracy of T-MSIS data and recommended that CMS expedite efforts to improve T-MSIS data and to use them for program oversight. CMS has taken steps to improve T-MSIS data and has made some T-MSIS data publicly available. Yet, questions remain about the usability of T-MSIS data for program oversight.

Under the Comptroller General's authority, GAO initiated this review to examine what is known about the completeness and accuracy of T-MSIS data. GAO reviewed CMS's assessments of two T-MSIS data sources: (1) states' submissions of T-MSIS priority items; and (2) the 2016 T-MSIS analytic files, which was the most recent analytic file data available when GAO began this work. GAO also reviewed CMS documents, prior GAO reports, and reports published by others examining T-MSIS data. GAO interviewed officials from CMS and seven states selected based on variation in their progress submitting complete and accurate priority item data, among other factors.

The Department of Health and Human Services provided technical comments on a draft of this report, which GAO incorporated.

View GAO-21-196. For more information, contact Carolyn L. Yocom at (202) 512-7114 or yocomc@gao.gov

What GAO Found

GAO found that the completeness and accuracy of Transformed Medicaid Statistical Information System (T-MSIS) data have improved. Over the past decade, the Centers for Medicare & Medicaid Services (CMS) has been implementing T-MSIS, which is the agency's initiative to improve state-reported data available for overseeing Medicaid. CMS's assessment of two key T-MSIS data sources reflect these improvements.

I. **Priority items.** Priority items are areas of data CMS identified as critical for program oversight, such as beneficiary eligibility and managed care. CMS's assessment of states' data submissions for the first 12 priority items identified significant improvement in meeting CMS data standards over a 22-month period. CMS's assessments of additional priority items similarly indicate improved completeness and accuracy.

Improvements in the Number of States Meeting CMS Standards for Transformed Medicaid Statistical Information System Priority Items One through 12

Number of priority items that met standards	Number of states as of October 2018	Number of states as of August 2020
10 or more	6	41
7 to 9	26	10
6 or less	18	0

Source: GAO analysis of the Centers for Medicare & Medicaid Services (CMS) priority item data. | GAO-21-196

Note: CMS assessed data from all 50 states and the District of Columbia. CMS excluded Wisconsin from its October 2018 assessment, because the state had not submitted sufficient data.

II. **Analytic files.** Analytic files are publicly available, research-ready T-MSIS data. GAO's review of CMS's assessments found that all states submitted some data for 67 of the 69 topics relevant to their Medicaid programs. This is an improvement from what GAO found in 2017, when none of the six states reviewed submitted all T-MSIS data applicable to their programs. GAO also found that states' data for 52 of the 69 topics were acceptable—meaning that CMS determined most states' data did not have significant problems that would affect their usability.

While CMS's assessments of priority item and analytic file data indicate improvement in the completeness and accuracy of T-MSIS data, GAO also found that these assessments highlight areas where data do not meet the agency's standards. For example, 30 states did not submit acceptable data for inpatient managed care encounters. Accurate encounter data are critical to ensuring that Medicaid managed care beneficiaries obtain covered services and that payments to managed care organizations are appropriate.

GAO has made at least 13 recommendations related to improving T-MSIS data and expediting their use for program oversight. CMS has addressed five of these recommendations, and has not fully addressed eight—including recommendations to improve data for overseeing payments to providers and managed care organizations. Implementing these recommendations would help CMS strengthen program oversight through improved T-MSIS data.

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Abbreviations

CMS	Centers for Medicare & Medicaid Services
CHIP	Children's Health Insurance Program
HHS	Department of Health and Human Services
MCO	managed care organization
NPI	National Provider Identifier
OIG	Office of Inspector General
PPACA	Patient Protection and Affordable Care Act
SUD	substance use disorder
T-MSIS	Transformed Medicaid Statistical Information System

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January 14, 2021

The Honorable Cathy McMorris Rodgers
Republican Leader
Committee on Energy and Commerce
House of Representatives

The Honorable Gary C. Peters
United States Senate

The Centers for Medicare & Medicaid Services (CMS), within the Department of Health and Human Services (HHS), has a critical role overseeing the Medicaid program—the joint federal-state health financing program that covered an estimated 77 million individuals at an estimated cost of $673 billion in fiscal year 2020. To oversee Medicaid, CMS relies on data submitted by states on, for example, the number of beneficiaries enrolled in their program and payments made to providers. However, longstanding limitations in available Medicaid data have affected CMS's ability to ensure that states' operations are in keeping with federal requirements, including ensuring beneficiaries' access to care and proper payments to health care providers. Since adding the Medicaid program to our High Risk List in 2003, we have identified multiple limitations in the data used to oversee this program. For example, in October 2018, we reported limitations in CMS's ability to assess the reliability of states' service utilization data from managed care organizations (MCO)—known as encounter data—which are necessary for oversight of this fast-growing segment of the Medicaid program.[1]

Over the past decade, the Transformed Medicaid Statistical Information System (T-MSIS) has been CMS's primary effort to broaden the scope and improve state-reported data available for Medicaid and the Children's Health Insurance Program (CHIP) oversight and other purposes, such as program planning and research. For example, T-MSIS includes data not previously reported by states, such as the National Provider Identifier (NPI), which are unique identification numbers for Medicaid providers that

[1]See GAO, *Medicaid Managed Care: Additional CMS Actions Needed to Help Ensure Data Reliability,* GAO-19-10 (Washington, D.C.: Oct. 19, 2018).

can help ensure that only eligible providers receive program payments.[2] T-MSIS also includes detailed information on MCOs that provide coverage to Medicaid beneficiaries, which can help CMS monitor service use for enrolled beneficiaries.

Our prior work and work conducted by others, such as the HHS Office of Inspector General (OIG), have raised questions about the completeness and accuracy of T-MSIS data.[3] In response, CMS has taken some steps to improve T-MSIS data, including identifying data elements critical for program oversight and tracking states' efforts to report them. CMS also made some T-MSIS data publicly available through research-ready analytic files, supplementing these files with the agency's assessment of these data. Despite these steps, questions about the usability of these data for program oversight remain. Further, we have made numerous recommendations regarding improving T-MSIS data and expediting their use for program oversight. CMS has not yet addressed most of these recommendations, as discussed later in the report.

This report describes what is known about the completeness and accuracy of T-MSIS data. We performed our work under the authority of the Comptroller General to conduct evaluations to assist Congress with its oversight responsibilities.

To describe what is known about the completeness and accuracy of T-MSIS data, we reviewed CMS's assessments of two available sources of T-MSIS data: (1) state submissions for T-MSIS priority items, which comprise data elements in areas that CMS has identified as critical for program oversight; and (2) state-reported data in the 2016 T-MSIS research-ready analytic files. These sources provide information on the extent that T-MSIS data are meeting CMS data standards and can be used for oversight and analytical purposes.

- For T-MSIS priority items, CMS assessed states' data submissions against agency standards, including those for completeness and

[2]NPI is a 10-digit identification number assigned to health care providers that CMS has specified must be used in accordance with the Health Insurance Portability and Accountability Act of 1996. Pub. L. No. 104-191, § 262(a), 110 Stat. 1936, 2025 (1996) (codified, as amended, at 42 U.S.C. § 1320d-2(b)); 45 C.F.R. §§ 162.404, et.seq. (2019).

[3]For example, see GAO, *Medicaid: Further Action Needed to Expedite Use of National Data for Program Oversight,* GAO-18-70 (Washington, D.C.: Dec. 8, 2017). A list of GAO products related to T-MSIS is included at the end of the report.

accuracy. To identify the extent of states' compliance with these standards and any changes in compliance over time, we reviewed CMS's assessments of data from all 50 states and the District of Columbia (hereafter, states) for 23 priority items the agency had identified as of January 2020, which is when we began our work.[4] These priority items were split into groups based on the year in which CMS introduced them to states. For the first 12 priority items, we reviewed CMS's assessment of states' data submitted from October 2018 to August 2020; for priority items 13 through 23, we reviewed CMS's assessments of states' data submitted from March 2020 to August 2020.[5]

- For the 2016 T-MSIS analytic files, which were the most recently available when we began our work, we reviewed 35 data quality briefs published by CMS in November 2019. These data briefs summarize CMS's assessments of certain analytic file data reported by 50 states, including assessments of completeness and accuracy.[6]

To examine the reliability of CMS's assessments of T-MSIS priority items and the 2016 analytic files, we reviewed agency guidance and related documentation and confirmed this information with agency officials. We determined that these assessments were sufficiently reliable for our purposes. In addition, we reviewed published studies from the HHS-OIG and other T-MSIS users that examined or used T-MSIS data, as well as reports from CMS and its technical expert panel, which helped assess T-MSIS data.[7] We also interviewed officials from CMS and seven states—Arizona, Arkansas, Kentucky, Nebraska, Ohio, Oklahoma, and

[4]As of August 2020, Puerto Rico and the U.S. Virgin Islands were also submitting data monthly to T-MSIS, and Guam was in the process of implementing systems to submit T-MSIS data. For this report, our analyses were limited to the 50 states and the District of Columbia.

[5]For these 23 priority items, August 2020 summary data were the most recently available data at the time we completed our analyses.

[6]CMS excluded Arkansas from the 2016 T-MSIS analytic files due to significant data issues. We did not independently verify information included in the data quality briefs, but did follow up with CMS to clarify inconsistencies or outliers we identified. CMS publicly released the 2017 and 2018 analytic files in September 2020. In November 2020, CMS also released a second version of the 2016 analytic files, which updated information on the completeness and accuracy of included data. These data were released after we completed our analyses, and were not included in the scope of our work.

[7]For example, see Department of Health and Human Services Office of Inspector General, *National Review of Opioid Prescribing in Medicaid Is Not Yet Possible,* OEI-O5-18-00480 (Washington, D.C.: August 2019); Mathematica Policy Research, *Technical Expert Panel on T-MSIS Analytic Files: Final Report,* a report prepared at the request of the Centers for Medicare & Medicaid Services, Mar. 6, 2019.

Pennsylvania—to obtain information on CMS's and states' efforts to report and improve T-MSIS data. We selected these states based on variation in Medicaid expenditures and progress toward submitting complete and accurate T-MSIS data for certain priority items and other factors. Our findings from these state interviews are not generalizable to other states.

We conducted this performance audit from January 2020 to January 2021 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

CMS has been working to implement the T-MSIS initiative over the past decade and intends for it to be a national data repository that would support Medicaid program management, including oversight activities. On a monthly basis, states are to submit over 1,400 data elements to the eight data files that comprise T-MSIS. The data elements include information touching upon most aspects of Medicaid and CHIP, including beneficiary eligibility, service use, and payments. (See table 1.) As of December 2019, all states were submitting data on a monthly basis to all eight T-MSIS files.

Table 1: Description of Data Included in the Eight Transformed Medicaid Statistical Information System Files and Examples of Their Potential Use for Medicaid Program Oversight

File name		Description of included data	Examples of potential oversight uses
1	Demographic and eligibility	Detailed information on beneficiary demographics, eligibility, and enrollment.	Ensure accurate federal payments and that only eligible individuals are enrolled.
2	Managed care	Detailed information on managed care organizations (MCO), including covered eligibility groups, services provided, and reimbursement arrangements.	Ensure MCO beneficiaries receive covered services and that payments to MCOs are appropriate.
3	Third party liability[a]	Detailed information on beneficiaries' sources of insurance or health care coverage in addition to Medicaid.	Ensure Medicaid only pays for expenditures for which it is liable.
4	Provider	Detailed information on providers, including National Provider Identifiers (NPI), specialty, and practice location.[b]	Ensure payments are only made to providers enrolled in Medicaid.

File name	Description of included data	Examples of potential oversight uses
5 - 8 Claims	These four files include data on services provided and payments made under fee-for-service and MCO arrangements, including • **Inpatient claims:** inpatient hospital visits; • **Long-term care claims:** nursing home or mental health facility stays; • **Pharmacy claims:** drugs and pharmacy-provided services; and • **Other claims:** physician and dental visits, laboratory and X-ray services, and capitation payments.	Ensure beneficiaries receive covered services and that federal payments are appropriate.

Source: GAO. | GAO-21-196

[a]Medicaid is generally the payer of last resort, meaning if Medicaid beneficiaries have another source of health care coverage, that source should pay, to the extent of its liability before Medicaid does.

[b]NPI is a 10-digit identification number assigned to health care providers that the Centers for Medicare & Medicaid Services specified must be used in accordance with the Health Insurance Portability and Accountability Act of 1996. Pub. L. No. 104-191, § 262(a), 110 Stat. 1936, 2025 (1996) (codified, as amended, at 42 U.S.C. § 1320d-2(b)); 45 C.F.R. §§ 162.404, et.seq. (2019).

Initiatives to Improve T-MSIS Data

CMS has several ongoing efforts to improve T-MSIS data. CMS meets with state officials on a regular basis, provides ongoing technical assistance, and hosts national webinars to share implementation updates, among other activities. Further, according to CMS officials, the agency conducts about 4,400 automated checks on state T-MSIS submissions, over half of which provide states with feedback on data format and consistency. The agency has an interactive web-based, operational dashboard through which it shares data errors identified by these checks with states. Through the dashboard, states can identify the frequency and cause of certain errors, which may facilitate their efforts to resolve them and improve future submissions. The remainder of CMS's checks assess states' data submission by comparing them to the agency's standards, including those related to completeness and accuracy. CMS provides information to states on data that do not meet these standards through its data quality tool. This tool also tracks states' progress toward meeting agency standards, among other things. Two additional efforts to improve T-MSIS data—priority items and analytic files—are described below.

T-MSIS Priority Items

CMS has asked states to focus on improving the accuracy and completeness of data elements related to T-MSIS priority items, which

include data on beneficiary and provider eligibility, as well as managed care services and payments.[8] CMS introduced the first 12 T-MSIS priority items in May 2017 and has increased the number of items incrementally over time. As of October 2020, CMS had identified 32 priority items.[9]

CMS assesses states' monthly data submissions of T-MSIS priority items against agency standards, including standards for completeness and accuracy. For example, CMS assesses the accuracy of states' efforts to assign beneficiaries to eligibility groups they must cover—known as mandatory eligibly groups—which is essential for calculating accurate federal payments.[10] Not meeting a given standard can indicate an incomplete or inaccurate data submission, which can limit CMS's ability to use these data to oversee states' Medicaid programs. In such cases, CMS works with states to clarify standards and resolve identified issues, which can take significant time and effort, according to CMS and state officials. Further, CMS issued guidance informing states that the agency can withhold a portion of federal Medicaid funds from states that fail to meet established standards for a specified number of priority items.[11]

T-MSIS Analytic Files

CMS has also developed research-ready analytic files using T-MSIS data. The analytic files include data from five of the eight T-MSIS files: the demographic and eligibility file, as well as the four claims files. CMS created these analytic files to support analysis, research, and data-driven decisions on key Medicaid and CHIP topics, as well as program oversight. In November 2019, CMS publicly released analytic files for calendar years 2014, 2015, and 2016. In September 2020, the agency

[8]A single priority item can encapsulate numerous T-MSIS data elements. For example, for one priority item, CMS assesses data drawn from multiple T-MSIS files to determine the consistency of provider identifiers, such as NPIs for billing and servicing providers.

[9]For additional information on CMS's T-MSIS priority items, see https://www.medicaid.gov/medicaid/data-and-systems/macbis/tmsis/tmsis-blog/entry/54044.

[10]Under federal law, states must cover certain groups of individuals and have the option to cover others.

[11]CMS may reduce federal matching payments for the use, maintenance or modification of automated data systems from states that fail to report required data. See 42 C.F.R. § 433.120 (2019). See Centers for Medicare & Medicaid Services, *CMCS Informational Bulletin re: T-MSIS State Compliance,* (Baltimore, Md.: Mar. 18, 2019). Additionally, CMS may withhold federal matching payments for medical assistance to managed care enrollees for whom states fail to report required encounter data. See 42 U.S.C. § 1396b(i)(25) and 42 C.F.R. § 438.818 (2019).

released additional analytic files for calendar years 2017 and 2018; in November 2020, CMS released an updated version of the 2016 analytic files. CMS officials told us they plan to release analytic files on an ongoing basis.

The 2016 analytic files include data on beneficiary enrollment and demographics, service utilization, and payments. To help researchers and others understand and navigate these analytic files, CMS issued 35 corresponding data quality briefs summarizing the agency's assessment of the completeness and accuracy of states' data. These briefs

- provide insight on the usability of these data and highlight considerations for data users, such as cases where state data were missing, incomplete, or coded incorrectly; and
- assess each state's data related to 69 topics, which CMS grouped into seven categories—claims completeness, eligibility, enrollment, expenditures, inpatient services, managed care encounters, and service utilization.[12]

CMS officials told us the topics for data quality assessments were selected based on data elements and analyses, such as linking claims to eligibility records, that were commonly conducted by users of previously available Medicaid data files. (See table 2.)

Table 2: Examples of Topics in CMS's Assessments of Data Accuracy and Completeness in the 2016 T-MSIS Analytic Files by Category

Category	Number of topics	Examples of assessment topics
Claims completeness	7	Volume of claims Percentage of beneficiaries with claims
Eligibility	12	Beneficiary income Eligibility group code
Enrollment	10	Adult expansion beneficiaries Dually eligible beneficiaries
Expenditures	7	Fee-for-service expenditures Monthly beneficiary payments
Inpatient services	1	Adult inpatient hospital stays

[12]For example, to assess the accuracy of a state's data on the number of Medicaid beneficiaries with benefits in 2016, CMS compared analytic file data to a benchmark; in this case, the benchmark was CMS's Eligibility and Enrollment Performance Indicator data.

Category	Number of topics	Examples of assessment topics
Managed care encounters	4	Volume of comprehensive managed care encounters claims
Service utilization	28	Admission and discharge dates
		Provider identification numbers

Source: Centers for Medicare & Medicaid Services (CMS) Transformed Medicaid Statistical Information System (T-MSIS) data quality briefs. | GAO-21-196

CMS officials shared the agency's plans to continue to release—and refine—information on the completeness and accuracy of data in the analytic files. For example, in July 2020, CMS introduced a data quality atlas (referred to as the DQ Atlas), which provides interactive, web-based access to information about the analytic file data. In this atlas, CMS

- increased the number of categories for which it grouped data topics from seven categories to nine categories;
- included assessments of states' submissions for an additional 13 topics—increasing the total number of topics from 69 to 82; and
- included information on the completeness and accuracy of analytic file data for 2017, 2018, and 2019; in addition to 2016.[13]

Ultimately, CMS officials told us that the agency plans for the DQ Atlas to replace the data quality briefs.[14]

T-MSIS Data Reflect Improved Completeness and Accuracy, Though State Data Have Not Met All Standards

The completeness and accuracy of the T-MSIS priority items and the 2016 analytic files have improved, reflecting CMS's and states' ongoing efforts. CMS's assessment of these T-MSIS data sources highlight areas of improvement. CMS's assessments also highlight areas where states' data do not meet CMS's standards, which limits CMS's ability to use them for oversight.

[13]For additional information on the DQ Atlas, see https://www.medicaid.gov/dq-atlas/welcome. In November 2020, CMS updated information on the completeness and accuracy of 2016 analytic file data.

[14]In October 2020, CMS officials told us that the agency plans to remove the data quality briefs from its website within a few months. As of December 18, 2020, these data briefs remained on CMS's website.

CMS's Assessments of T-MSIS Priority Items Identify Data Improvements and Areas Where States Have Not Met Agency Standards

CMS's assessment of states' data submissions for T-MSIS priority items indicates ongoing improvement in the data's completeness and accuracy.

T-MSIS Priority Items One through 12

CMS introduced 12 priority items in May 2017 to improve the completeness and accuracy of states' Transformed Medicaid Statistical Information System (T-MSIS) data.

1. Consistency of beneficiary identifiers across certain T-MSIS files
2. Flagging duplicate records in non-claim files
3. Enrollment data results in reasonable eligibility counts
4. Reasonableness of Children's Health Insurance Program (CHIP) eligibility code and enrollment
5. Consistency of CHIP eligibility code and enrollment
6. Accurate enrollment for mandatory eligibility groups
7. Assignment of beneficiaries to one primary eligibility group
8. Consistency of managed care organization identifiers across certain T-MSIS files
9. Consistency of capitated payments with managed care enrollment
10. Flagging duplicate claims
11. Accuracy of values indicating changes made to a claim
12. Consistency of provider identifiers across certain T-MSIS files

Source: GAO summary of priority item information from the Centers for Medicare & Medicaid Services (CMS). | GAO-21-196

T-MSIS priority items one through 12. Our review of CMS's assessment of states' data submissions for T-MSIS priority items one through 12 identified improved completeness and accuracy in these data submissions over time.[15] (See side bar for a summary of these 12 priority items.) For example, the number of states meeting CMS's standards for

[15]CMS officials told us that they first assessed states' data against the agency's standards for priority items one through 12 in July 2017.

at least 10 of the first 12 priority items increased from six states to 41 states between October 2018 and August 2020.[16] (See table 3.)

Table 3: Improvement in the Number of States Meeting Standards for T-MSIS Priority Items One through 12 between October 2018 and August 2020

Number of priority items that met standards	Number of states as of October 2018[a]	Number of states as of August 2020
10 or more	6	41
7 to 9	26	10
6 or less	18	0

Source: GAO analysis of CMS's assessments of states' data for T-MSIS priority items. | GAO-21-196

Note: Transformed Medicaid Statistical Information System (T-MSIS) priority items comprise data elements that the Centers for Medicare & Medicaid Services (CMS) has identified as critical for Medicaid program oversight. CMS assesses monthly data submissions from the 50 states and the District of Columbia against the agency's standards for each priority item, including standards for completeness and accuracy.

[a]CMS officials told us that the agency did not hold states accountable for data errors related to priority item two, because the agency was in the process of making planned system enhancements to identify duplicate records. CMS excluded Wisconsin, because it had not submitted sufficient data.

The completeness and accuracy of data submitted by states improved for all 12 T-MSIS priority items between October 2018 and August 2020, with the most significant improvement seen in two priority items related to states' eligibility determinations (priority items six and seven). For example, the number of states that met CMS's standards for assigning beneficiaries to one primary eligibility group (priority item seven) increased from 10 states to 46 states between October 2018 and August 2020.

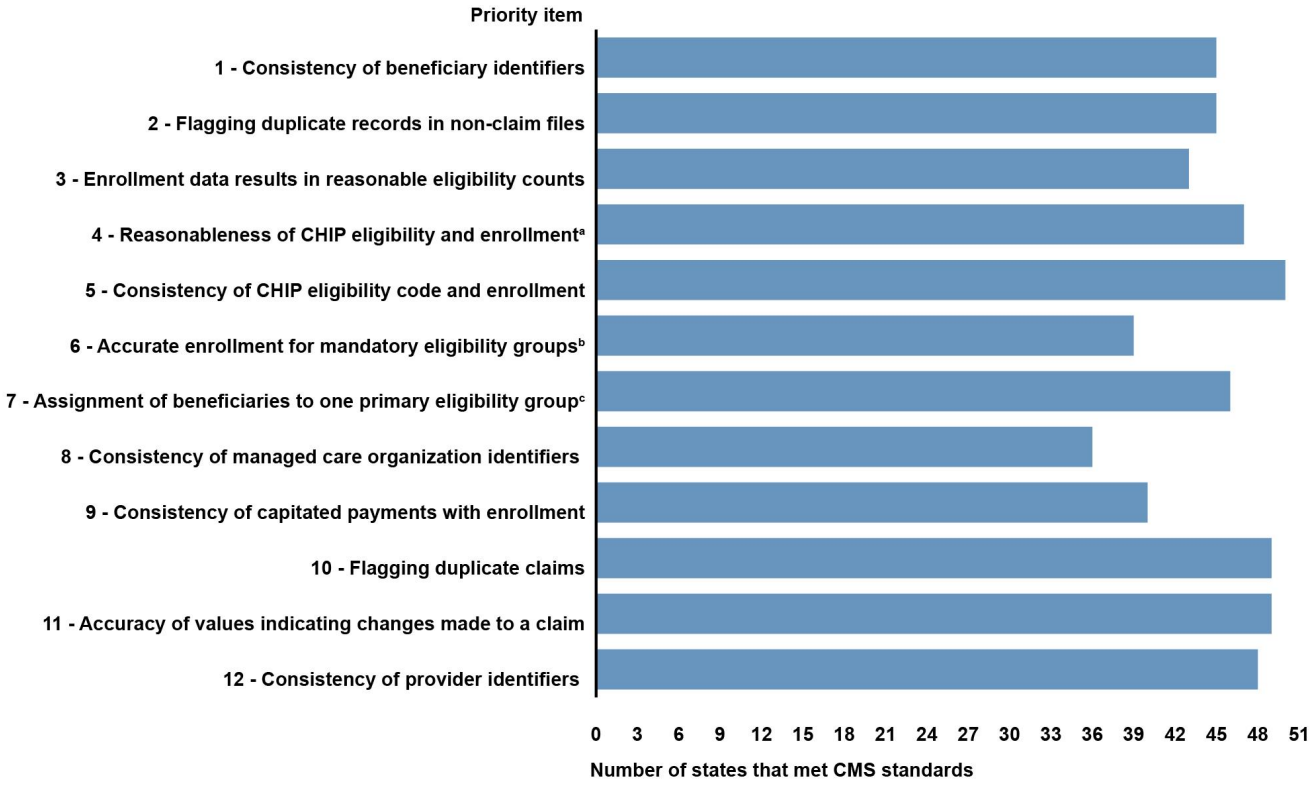
Our review of CMS's assessment also identified areas where states have not met CMS's standards for priority items. For example, as of August 2020:

- 15 states did not meet CMS's standards related to ensuring the consistency of MCO identifiers across certain T-MSIS files (priority item eight); and
- 11 states did not meet CMS's standards related to consistency of capitated payments with MCO enrollment (priority item nine).

[16]Data submissions for priority items one through 12 from Puerto Rico and the U.S. Virgin Islands also improved during this time.

Figure 1 provides information on the number of states that met CMS's standards for each of these 12 priority items in August 2020.

Figure 1: Number of States Meeting CMS Standards for T-MSIS Priority Items One through 12, as of August 2020



Source: GAO analysis of CMS's assessment of states' data submission for T-MSIS priority items. | GAO-21-196

Data Table for Figure 1: Number of States Meeting CMS Standards for T-MSIS Priority Items One through 12, as of August 2020

Priority item	Number of states that met CMS standard
1 - Consistency of beneficiary identifiers	45
2 - Flagging duplicate records in non-claim files	45
3 - Enrollment data results in reasonable eligibility counts	43
4 - Reasonableness of CHIP eligibility and enrollment[a]	47
5 - Consistency of CHIP eligibility code and enrollment	50
6 - Accurate enrollment for mandatory eligibility groups[b]	39
7 - Assignment of beneficiaries to one primary eligibility group[c]	46
8 - Consistency of managed care organization identifiers	36
9 - Consistency of capitated payments with enrollment	40
10 - Flagging duplicate claims	49
11 - Accuracy of values indicating changes made to a claim	49
12 - Consistency of provider identifiers	48

Note: Transformed Medicaid Statistical Information System (T-MSIS) priority items comprise data elements that the Centers for Medicare & Medicaid Services (CMS) has identified as critical for Medicaid program oversight. CMS assesses monthly data submissions from the 50 states and the District of Columbia against the agency's standards for each priority item, including standards for completeness and accuracy.

[a]States have three options for designing their Children's Health Insurance Program (CHIP): (1) Medicaid expansion CHIP where CHIP operates as an extension of the state's Medicaid program; (2) separate CHIP, where CHIP operates separately from its Medicaid program; or (3) combination of CHIP, in which a state operates both.

[b]Under federal law, states must cover certain groups of individuals and have the option to cover others. The eligibility group code designates the basis of an individual's eligibility and includes both mandatory and optional eligibility groups.

[c]States must designate a primary eligibility group for a period of enrollment, because individuals may meet criteria for more than one eligibility group.

T-MSIS Priority Items 13 through 23

CMS introduced the following 11 priority items in 2019—specifically, 13 through 18 in February 2019 and 19 through 23 in May 2019—to improve the accuracy and completeness of states' Transformed Medicaid Statistical Information System (T-MSIS) data.

13. Completeness and accuracy of beneficiary demographics
14. Completeness of beneficiary identifiers in the eligibility file
15. Consistency of beneficiary eligibility data
16. Completeness and consistency of payment data on claims
17. Completeness of key service dates on claims
18. Completeness of classifier data on claims, such as type of service provided
19. Accurate enrollment of dually eligible beneficiaries
20. Completeness of key service data on claims, such as place of service or procedure code
21. Completeness of claim payment dates
22. Completeness and consistency of provider information in the claims files
23. Completeness of key provider information in the provider file

Source: GAO summary of priority item information from the Centers for Medicare & Medicaid Services (CMS). | GAO-21-196

T-MSIS priority items 13 through 23. Our review of CMS's assessments of states' data submission for an additional 11 T-MSIS priority items also found improvements in completeness and accuracy in these data submissions over time.[17] (See side bar for a summary of these additional priority items.) In the 6-month span between March 2020 and August 2020, the number of states that met CMS's data standards for more than six of these priority items increased from 18 states to 37 states. (See table 4.)

Table 4: Improvement in the Number of States Meeting CMS Standards for T-MSIS Priority Items 13 through 23 between March and August 2020

Number of priority items that met standards	Number of states as of March 2020	Number of states as of August 2020
10 or more	4	8
7 to 9	14	29
6 or less	33	14

Source: GAO analysis of CMS's assessments of states' data for T-MSIS priority items. | GAO-21-196

Note: Transformed Medicaid Statistical Information System (T-MSIS) priority items comprise data elements that the Centers for Medicare & Medicaid Services (CMS) has identified as critical for Medicaid program oversight. CMS assesses monthly data submissions from the 50 states and the District of Columbia against the agency's standards for each priority item, including standards for completeness and accuracy.

States' data submissions for nearly all 11 priority items improved between March 2020 and August 2020, with the most significant improvements for two priority items:

- the number of states meeting standards for reporting accurate enrollment of dual eligible beneficiaries increased from 25 states to 35 states (priority item 19); and
- the number of states meeting standards for consistently reporting beneficiary data in the eligibility file increased from 22 states to 32 states (priority item 15).

Our review of CMS's assessments of priority items 13 through 23 also identified priority items for which most states did not meet CMS's standards. For example, as of August 2020:

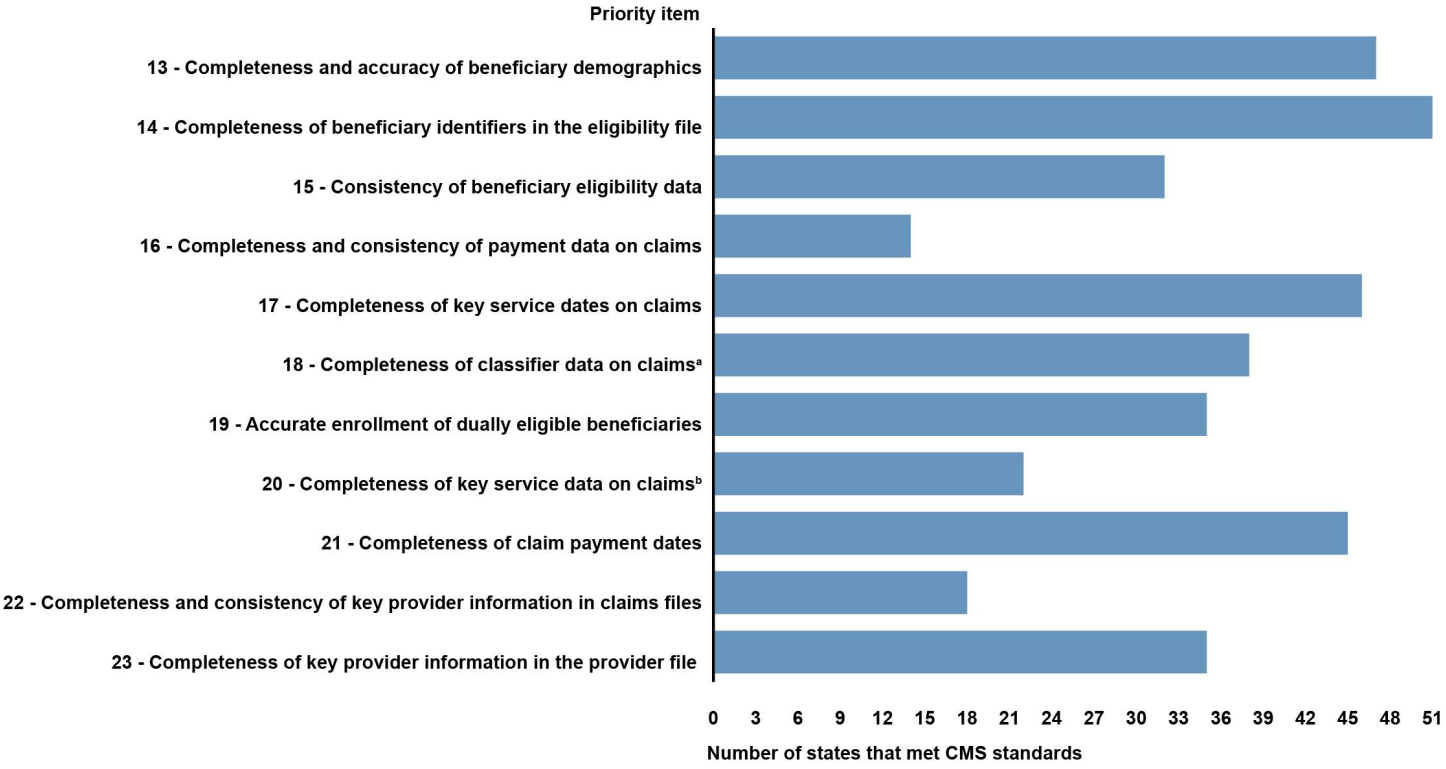
- 37 states did not meet the standards for priority item 16, which assesses the completeness and consistency of data on paid claims.

[17]CMS officials told us they first assessed states' data for these priority items between March 2019 and August 2019.

- 33 states did not meet standards related to priority item 22, which assesses the completeness and consistency of key provider information in the claims files, including NPIs.

Figure 2 provides information on the number of states that met standards for priority items 13 through 23 in August 2020.

Figure 2: Number of States Meeting CMS Standards for T-MSIS Priority Items 13 through 23, as of August 2020



Source: GAO analysis of CMS's assessment of states' data submission for T-MSIS priority items. | GAO-21-196

Data table for Figure 2: Number of States Meeting CMS Standards for T-MSIS Priority Items 13 through 23, as of August 2020

Priority item	Number of states that met CMS standard
13 - Completeness and accuracy of beneficiary demographics	47
14 - Completeness of beneficiary identifiers in the eligibility file	51
15 - Consistency of beneficiary eligibility data	32
16 - Completeness and consistency of payment data on claims	14
17 - Completeness of key service dates on claims	46
18 - Completeness of classifier data on claims[a]	38
19 - Accurate enrollment of dually eligible beneficiaries	35

Priority item	Number of states that met CMS standard
20 - Completeness of key service data on claims[b]	22
21 - Completeness of claim payment dates	45
22 - Completeness and consistency of key provider information in claims files	18
23 - Completeness of key provider information in the provider file	35

Note: Transformed Medicaid Statistical Information System (T-MSIS) priority items comprise data elements that the Centers for Medicare & Medicaid Services (CMS) has identified as critical for Medicaid program oversight. CMS assesses monthly data submissions from the 50 states and the District of Columbia against the agency's standards for each priority item, including standards for completeness and accuracy.

[a]Classifier data on claims include data on the type of service provided.

[b]Key service data on claims include the place where the service was provided and the procedure code.

T-MSIS Priority Items 24 through 32

CMS introduced the following nine priority items in March 2020 to improve the completeness and accuracy of states' Transformed Medicaid Statistical Information System (T-MSIS) data.

24. Consistency of Children's Health Insurance Program eligibility code and enrollment: level 2
25. Consistency of beneficiary eligibility data: level 2
26. Completeness of key provider information in the provider file: level 2
27. Completeness and consistency of Medicaid waiver information
28. Accuracy of data for tracking financial transactions on claims
29. Linking related claims
30. Consistency of reported Medicare payments on claims
31. Completeness of service category information on fee-for-service claims
32. Completeness and accuracy of beneficiary demographics: level 2

Source: GAO summary of priority item information from the Centers for Medicare & Medicaid Services (CMS). | GAO-21-196

T-MSIS priority items 24 through 32. In March 2020, CMS introduced another nine priority items. (See side bar for a summary of these items.) In some cases, CMS standards for these priority items further refine the data targeted by priority items one through 23. For example, priority item 26 includes additional CMS standards to assess the completeness of key provider information in the provider file. According to CMS officials, the agency began assessing states' data against standards for these priority items in August 2020. CMS had not publically shared the results of its assessment for these priority items on its website as of October 2020.

Officials from CMS and our seven selected states cited a number of ongoing efforts as contributing to the overall improvement in the completeness and accuracy of states' priority item data. For example:

- CMS officials told us they meet at least monthly with each state, which allows states to clarify data issues and collaborate to devise potential solutions; and
- CMS requests that states submit state plans of action outlining steps to address data issues related to priority items that take 6 months or more to resolve, and agency officials told us they review and monitor states' progress implementing these plans.

As of October 2020, 12 states had submitted 21 state plans of action outlining their steps to address such issues, three of which had been

resolved. The remaining 18 plans of action involve data issues that persist in 11 states.[18] For example:

- Pennsylvania submitted a plan to address issues identified in August 2017 related to priority item eight, which found inconsistencies in identifiers for MCOs that provide services under the states' transportation and adult community autism programs across certain T-MSIS files.[19]
- Oregon submitted two plans of action to address issues identified in August 2017 and November 2018 related to priority item six, which found incomplete data on enrollment for mandatory eligibility groups. As of October 2020, Oregon was in the process of implementing a new data system—expected to be operational in 2021—that will collect these data.

CMS also reports on its website states' progress in meeting standards for priority items and updates these data monthly. According to CMS officials, this effort has increased transparency and provided an incentive for states to improve the completeness and accuracy of their T-MSIS submissions.[20] To maintain full federal funding, states had to meet CMS's data standards for at least half of the first 12 priority items by March 2020, which they all did; CMS officials told us the agency had not withheld any states' federal funding. CMS officials told us that implementing a compliance threshold increased state actions to improve data. CMS subsequently increased the number of priority items for which states had to meet standards to 17 of the first 23 priority items, but had not set a time frame for compliance.[21] As of August 2020, 34 states met this threshold.

[18]As of October 2020, Puerto Rico was working to implement a state plan of action to address a data issue identified in July 2019 related the completeness of information in the provider file.

[19]As of May 2020, Pennsylvania Medicaid officials told us the state developed processes to collect these data for one of these programs. While these officials did not have a time frame for implementing corrective actions for the other program, they have provided CMS with regular updates on their progress.

[20]CMS first reported states' progress toward meeting quality standards for the first 12 priority items in April 2020, and expanded its monthly updates to include 23 priority items in June 2020. See https://www.medicaid.gov/medicaid/data-systems/macbis/transformed-medicaid-statistical-information-system-t-msis/index.html.

[21]As of October 2020, CMS officials told us they had not set a time frame in which states must meet this threshold due to the ongoing Coronavirus Disease 2019 pandemic.

In addition, officials from our selected states attributed data improvements to ongoing efforts, including efforts to align state data with T-MSIS, information technology system updates, and collaboration with CMS and state-level stakeholders. State officials also told us that they took these steps to address identified ongoing challenges, including difficulty collecting accurate information from MCOs and the labor-intensive nature of resolving some data issues—which officials from one state said can take 6 to 9 months—as affecting their ability to address certain priority items. For example, Arkansas officials told us they faced challenges with their encounter claims meeting CMS standards, in part, because managed care was relatively new to their Medicaid program. To overcome these challenges, officials met with CMS to clarify requirements for encounter claims, and coordinated across state-level stakeholders to reach consensus on how to define terms and accurately collect certain data, such as the amount paid to MCOs.

CMS Assessments of 2016 Analytic File Data Identify Improvement in States' Data and Areas Where States Have Not Submitted Acceptable Data

CMS's data quality briefs assessed the completeness and accuracy of data in the 2016 analytic files related to 69 topics, which CMS grouped into seven categories, such as eligibility, enrollment, and service utilization. Our review of CMS's data quality brief assessment found that all states submitted some data for 67 of the 69 topics that were relevant to their Medicaid programs. For the remaining two topics–payment information on pharmacy claims and admission dates on long-term care claims—not all states submitted data when the topic was relevant to their Medicaid program. This marks an improvement from our December 2017 report where we found that none of the six states we reviewed submitted data on all the T-MSIS elements applicable to their programs.[22]

With respect to the accuracy of the data states submitted, we found that over half of states' data for 52 of the 69 topics were acceptable—meaning that, for most states' data, CMS did not identify major problems that

[22]See GAO-18-70. In this report, we determined that across these six states, the number of unreported T-MSIS data elements ranged from about 80 elements to 260 elements.

would affect the data's usability for analyzing a given topic.[23] While the 52 topics were generally distributed across the seven data categories, the percentage of states submitting acceptable data varied.[24] For example:

- Sixty-eight percent to 100 percent of states submitted acceptable data for topics within the eligibility category, with 100 percent of states having submitted acceptable data on beneficiaries' age, gender, and the average length of time between enrollment periods.
- In contrast, the percentage of states that submitted acceptable data for topics within the enrollment category ranged from 56 percent to 74 percent, with 56 percent of states having submitted acceptable data on enrollment in managed care plans. (See table 5.)

Table 5: Summary of Topics for Which Over Half of States Submitted Acceptable Data in the 2016 T-MSIS Analytic Files by Category

Topic category	Number of topics for which over half of states submitted acceptable data	Range in the percentage of states that submitted acceptable data
Claims completeness	5	58 to 100
Eligibility	9	68 to 100
Enrollment	7	56 to 74
Expenditures	4	55 to 94

[23]To assess data related to each topic, CMS compared each state's data to a threshold and determined its level of data quality concern: low concern, medium concern, high concern, or unusable. CMS determined that data had low quality concern when its assessments did not identify any major problems that would affect the data's usability for analyzing a given topic. We refer to states' data that CMS determined as having low data quality concerns as acceptable data. For purposes of this report, we categorize the topics into two groups: (1) topics for which 50 percent or more of states submitted acceptable data, and (2) topics for which less than 50 percent of states submitted acceptable data.

[24]CMS did not assess data from all 50 states for each topic; as a result, the denominator can vary by topic. Due to the potential for different denominators across topics, we report results in terms of the percentage of states versus the number of states. See appendix I for the number of states CMS included in its assessment for each topic. CMS excluded states from its assessment when topics did not apply to the states' programs—such as enrollment data for the Medicaid expansion population in states that did not expand their programs under the Patient Protection and Affordable Care Act (PPACA). Under PPACA, states can opt to expand their Medicaid programs to cover non-elderly, non-pregnant adults who are not eligible for Medicare, and whose income does not exceed 138 percent of the federal poverty level, including a 5 percent income disregard. Pub. L. No. 111-148, 124 Stat. 119 (2010), as amended by the Health Care and Education Reconciliation Act of 2010, Pub. L. No. 111-152, 124 Stat. 1029 (2010). CMS also excluded states when there was a significant data issue, such as a low volume of claims. CMS assessed data from less than 50 states for 37 of the 69 topics. For 22 of these 37 topics, CMS excluded less than four states from its assessment due to significant data issues.

Topic category	Number of topics for which over half of states submitted acceptable data	Range in the percentage of states that submitted acceptable data
Inpatient services	0	NA
Managed care encounters	1	53
Service utilization	26	56 to 100

Source: GAO analysis of CMS's assessment of states' data in the Transformed Medicaid Statistical Information System (T-MSIS) related to 69 topics. | GAO-21-196

Note: To assess data related to each topic, the Centers for Medicare & Medicaid Services (CMS) compared each state's data to a threshold and determined its level of data quality concern: low concern, medium concern, high concern, or unusable. CMS determined that data had low quality concern when its assessment did not identify any major problems that would affect the usability of data. We refer to states' data that CMS determined as having low data quality concern as acceptable data. For purposes of this report, we categorize the topics into two groups: (1) topics for which 50 percent or more of states submitted acceptable data, and (2) topics for which less than 50 percent of states submitted acceptable data. CMS excluded states' data from its assessments when the topics were not applicable to the states' Medicaid program or states' data had significant issues, such as low volume of claims data.

Variations in acceptable data show that limitations in some available T-MSIS data may complicate program oversight. For example:

- **Ensuring accurate federal payments.** Sixty-two percent and 64 percent of states, respectively, submitted acceptable data on the enrollment of beneficiaries newly eligible under the Patient Protection and Affordable Care Act (PPACA) and of beneficiaries dually eligible for Medicare and Medicaid. Accurate enrollment data for newly eligible beneficiaries are critical to ensure that federal matching rates are appropriate.[25]
- **Ensuring appropriate use of federal dollars.** Fifty-six percent of states submitted acceptable data for supplemental payment records. Supplemental payments—payments made to providers, such as local government hospitals—accounted for over half of the $87 billion in fee-for-service payments to hospitals in fiscal year 2018.[26] Having complete and accurate data on these payments is critical to ensuring

[25]Medicaid requirements include higher than standard matching rates for certain populations of beneficiaries, including beneficiaries newly eligible for Medicaid coverage under PPACA. See GAO-18-564.

[26]Medicaid and CHIP Payment and Access Commission, *MACStats: Medicaid and CHIP Data Book* (Washington, D.C.: December 2019).

such payments are economical, efficient, and made for Medicaid activities or services.[27]

See appendix I for the percentage of states reporting acceptable data by topic.

For the remaining 17 of the 69 data topics, we found that less than half of the states submitted acceptable data. These 17 topics spanned all seven data categories, with the percentage of states submitting acceptable data ranging from 0 percent to 47 percent. For example, for the category of managed care encounters—which represented about half of total program expenditures in fiscal year 2018—fewer than half the states submitted acceptable data for nearly all included topics. (See table 6.)

[27]In March 2019, we reported that CMS had not made significant progress towards improving its oversight of supplemental payments, for which reporting remains incomplete. Among our findings, we reaffirmed the need for complete and accurate reporting on supplemental payments made to individual hospitals and institutional providers, and the need for CMS to outline clear criteria, data, and a review process to ensure supplemental payments are economical and efficient. See GAO-19-157SP.

Table 6: Summary of Topics for Which Most States Did Not Submit Acceptable Data to the 2016 T-MSIS Analytic Files by Category

Topic category	T-MSIS data topic	Percentage of states that had acceptable data
Claims completeness	Volume of long-term care claims	0
	Volume of inpatient claims	46
Eligibility	Eligibility group code	22
	Beneficiary income	34
	Beneficiary race/ethnicity	42
Enrollment	Behavioral health plan enrollment	38
	Enrollment in Children's Health Insurance Program by program type	42
	Primary care case management program enrollment	47
Expenditures	Total monthly beneficiary payments	22
	Total fee-for-service expenditures	30
	Consistency of payment amount on inpatient claims	43
Inpatient services	Inpatient hospital stays	47
Managed care encounters	Volume of comprehensive managed care other encounter claims	21
	Volume of comprehensive managed care inpatient encounter claims	23
	Volume of comprehensive managed care long-term care encounter claims	40
Service utilization	Billing provider type for other service claims	8
	National Provider Identifier for servicing provider	38

Source: GAO analysis of CMS's Transformed Medicaid Statistical Information System (T-MSIS) 2016 data quality briefs. | GAO-21-196

Note: To assess data related to each topic, the Centers for Medicare & Medicaid Services (CMS) compared each state's data to a threshold and determined its level of data quality concern: low concern, medium concern, high concern, or unusable. CMS determined that data had low quality concern when its assessment did not identify any major problems that would affect the usability of data. We refer to states' data that CMS determined as having low data quality concern as acceptable data. For purposes of this report, we categorize the topics into two groups: (1) topics for which 50 percent or more of states submitted acceptable data, and (2) topics for which less than 50 percent of states submitted acceptable data. CMS excluded states' data from its assessments when the topics were not applicable to the states' Medicaid program or states' data had significant issues, such as low volume of claims data.

The low percentage of acceptable analytic file data for several of these 17 topics further complicates CMS efforts to use these data for Medicaid program oversight. For example:

- **Ensuring that only eligible individuals are enrolled in Medicaid.** Thirty-four percent of states submitted acceptable data for beneficiary income. About half of the remaining states did not submit any relevant income information. Without accurate data on beneficiary income,

limited assurance exists that only eligible individuals are obtaining Medicaid coverage.[28]

- **Ensuring beneficiaries in managed care receive necessary services.** Twenty-three percent of states submitted acceptable data for beneficiaries' managed care inpatient encounters.[29] The remaining states' data were not acceptable due to incomplete submissions or inaccurate formatting. Managed care expenditures represented about 48 percent of all Medicaid program spending, which totaled about $630 billion, in fiscal year 2018. Accurate encounter data are critical to ensuring that Medicaid managed care beneficiaries obtain covered services and payments to managed care organizations are appropriate.

CMS's preliminary efforts to use the analytic file data demonstrate how important T-MSIS can be to oversight efforts and how limitations in these data may affect oversight. For example:

- **Substance use disorder (SUD) data book.** In October 2019, CMS published the SUD data book, which reports the number of beneficiaries with SUD and the services they received during calendar year 2017. CMS excluded four states from its analyses due to severe data issues, such as instances where the state was missing all Medicaid claims in one or more of the four T-MSIS claims files. For some of the remaining 47 states, CMS cited less severe data concerns, such as incomplete or inaccurate Medicaid enrollment data.[30]
- **State-level Medicaid per capita expenditures.** In November 2019, CMS published its state-level Medicaid per capita expenditures, which it calculated using a preliminary version of data in the 2017 analytic

[28]See GAO, *Medicaid Eligibility: Accuracy of Determinations and Efforts to Recoup Federal Funds Due to Errors,* GAO-20-157 (Washington, D.C.: Jan. 13, 2020).

[29]In general, encounter data are the primary record of services provided to beneficiaries enrolled in managed care plans. See GAO-19-10.

[30]CMS used a preliminary version of the 2017 analytic files to conduct this work. CMS assessed data submitted by 51 states and Puerto Rico.

file. However, CMS could only complete calculations for 12 states.[31] CMS excluded the remaining 39 states from its analysis, because the states' data did not meet minimum standards for one or more of the four data elements critical for calculating per capita expenditures: enrollment, eligibility, claims, and managed care capitated payments.[32]

- **Preliminary Medicaid and CHIP Data Snapshot.** More recently, in September 2020, CMS published results of its analyses that used 2020 analytic file data to track Medicaid and CHIP foregone care among children during the Coronavirus Disease 2019 pandemic.[33] CMS generally included data from all states in its analysis. However, CMS cautioned users when interpreting national estimates, because they likely under count service use due to the significant variation among states in timeliness when submitting claims data, with some states taking nearly a year to submit claims data.[34]

We have made at least 13 recommendations related to improving T-MSIS data and expediting their use for program oversight between July 2014 and September 2020. As of September 2020, CMS has taken action to address five of these recommendations, and has not yet fully addressed eight, including recommendations targeting improvements in T-MSIS data to ensure federal payments to MCOs are appropriate, and to oversee states' provision of and spending on personal care services.[35]

[31]An accurate understanding of per capita expenditures would also require accurate data beyond state T-MSIS data, such as data on geographic variation in costs of service. In our past work, we identified other limitations in calculating state-level Medicaid per capita expenditures, including (1) the difficulty of determining spending on services received by beneficiaries during a specific time period; and (2) the lack of complete, accurate information about supplemental payments. See GAO, *Medicaid: Assessment of Variation Among States in Per-Enrollee Spending*, GAO-14-456 (Washington, D.C.: June 16, 2014); and *Medicaid: Key Policy and Data Considerations for Designing a Per Capita Cap on Federal Funding*, GAO-16-726 (Washington, D.C.: Aug. 10, 2016).

[32]CMS assessed data submitted by 51 states, Puerto Rico, and the U.S. Virgin Islands.

[33]To conduct this work, CMS used preliminary data from a portion of the 2020 analytic files (January 2020 through June 2020). California was not included in some of CMS's analyses, because the state only submitted T-MSIS claims through the end of May 2020.

[34]In providing technical comments on the draft report, CMS noted that providers have up to a year to submit Medicaid claims, so the preliminary nature of these data are normal and expected. CMS added that the agency released the report because foregone care for children in the pandemic is an urgent matter.

[35]See GAO-19-10 and GAO, *Medicaid: CMS Needs Better Data to Monitor the Provision of and Spending on Personal Care Services,* GAO-17-169 (Washington, D.C.: Jan. 12, 2017).

Implementing these recommendations would help CMS strengthen program oversight through improved T-MSIS data.

Agency Comments

We provided a draft of this report to HHS for comment. HHS provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the Secretary of Health and Human Services, the Administrator of CMS, appropriate congressional committees, and other interested parties. In addition, the report is available at no charge on the GAO website at https://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-7114 or yocomc@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix II.

Carolyn L. Yocom
Director, Health Care

Appendix I: CMS's Assessment of Transformed Medicaid Statistical Information System Data in the 2016 Analytic Files

The 2016 Transformed Medicaid Statistical Information System (T-MSIS) analytic files include Medicaid and Children's Health Insurance Program (CHIP) data from 50 states on beneficiary enrollment and demographics, service utilization, and payments.[1] To help researchers and others understand and navigate these analytic files, the Centers for Medicare & Medicaid Services (CMS) issued 35 corresponding data quality briefs to summarize their assessment of the completeness and accuracy of states' data related to 69 topics, which CMS grouped into seven categories. For each topic, the number of states assessed and the percentage of states with acceptable data could vary.

- **States assessed.** CMS did not assess data from all 50 states for all topics. CMS excluded states from its assessment when topics did not apply to the states' programs—such as enrollment data for the Medicaid expansion population in states that did not expand their programs under the Patient Protection and Affordable Care Act. CMS also excluded states when there was a significant data issue, such as a low volume of claims.[2] For example, for the 18 topics in the service utilization category, CMS did not assess data from one to five states for this reason.
- **States with acceptable data.** CMS compared each state's data to a threshold and determined its level of data quality concern: low concern, medium concern, high concern, or unusable data. CMS determined the level of quality concern to be low when its assessments did not identify major problems that would affect the usability of data for analyzing a given topic. We calculated the percentage of states' data that CMS determined had low data quality concern—which we refer to as acceptable data. (See table 7.)

[1]We refer to states as the 50 states and the District of Columbia. CMS excluded Arkansas from the 2016 analytic files due to significant data quality issues.

[2]CMS assessed data from less than 50 states for 37 of the 69 topics. For 22 of these 37 topics, CMS excluded less than four states from its assessment due to significant data issues.

Table 7: Percentage of States with Acceptable Data in the 2016 T-MSIS Analytic Files by Data Category and Topic

Data category (number of topics)	Data topics	Number of states assessed	Number of states assessed with acceptable data	Percentage of states assessed with acceptable data
Claims Completeness (7)	Percentage of beneficiaries with other service claims	50	50	100
	Percentage of beneficiaries with pharmacy claims	50	50	100
	Percentage of beneficiaries with inpatient claims	50	39	78
	Volume of pharmacy claims	50	37	74
	Volume of other service claims	50	29	58
	Volume of inpatient claims	50	23	46
	Volume of long-term care claims	5	0	0
Eligibility (12)	Beneficiary age	50	50	100
	Beneficiary gender	50	50	100
	Average length of time between enrollment periods	43	43	100
	Number of enrollments per beneficiary in a calendar year	22	20	91
	Beneficiary ZIP code	50	42	84
	CHIP program type	50	41	82
	Dual eligibility code[a]	50	40	80
	Overlapping enrollment in Medicaid and CHIP	50	40	80
	Restricted benefits code[b]	50	34	68
	Beneficiary race/ethnicity	50	21	42
	Beneficiary income	50	17	34
	Eligibility group code[c]	50	11	22
Enrollment (10)	Total Medicaid and CHIP enrollment	50	37	74
	Medicaid enrollment	50	34	68
	Dually eligible beneficiary enrollment[d]	50	32	64
	1915(c) waiver enrollment[e]	47	29	62
	Beneficiaries newly eligible under PPACA[f]	29	18	62
	Adult expansion beneficiary enrollment[g]	31	19	61
	Comprehensive managed care enrollment[h]	41	23	56
	Enrollment in primary care case management program[i]	15	7	47
	Enrollment in CHIP by program type	50	21	42
	Behavioral health plan enrollment	13	5	38
Expenditures (7)	Accuracy of fee-for-service claims payment data	50	47	94
	Consistency of payment amount on pharmacy claims	48	44	92
	Consistency of payment amount on other service claims	48	40	83
	Consistency of payment amount on long-term care claims	47	26	55

Data category (number of topics)	Data topics	Number of states assessed	Number of states assessed with acceptable data	Percentage of states assessed with acceptable data
	Consistency of payment amount on inpatient claims	49	21	43
	Total fee-for-service expenditures	50	15	30
	Total monthly beneficiary payments	50	11	22
Inpatient services (1)	Inpatient hospital stays	43	20	47
Managed care encounters (4)	Volume of comprehensive managed care pharmacy encounter claims	38	20	53
	Volume of comprehensive managed care long-term care encounter claims	35	14	40
	Volume of comprehensive managed care inpatient encounter claims	39	9	23
	Volume of comprehensive managed care other encounter claims	39	8	21
Service utilization (28)	Admission date for inpatient claims	47	47	100
	Diagnosis code for inpatient claims	49	48	98
	Type of service for pharmacy claims	49	48	98
	Type of service for long-term care claims	47	45	96
	Type of service for inpatient claims	49	46	94
	Diagnosis code for other service claims	48	45	94
	Procedure codes for professional claims in the other service claims file[j]	48	45	94
	Type of service for other service claims	48	45	94
	Procedure codes for inpatient claims	49	45	92
	Type of bill for other service claims[k]	50	45	90
	Diagnosis code for long-term care claims	50	44	88
	Admission date for long-term care claims	49	43	88
	Procedure codes for institutional claims in the other service claims file[j]	45	39	87
	Type of bill for inpatient claims	49	41	84
	Discharge date for inpatient claims	47	39	83
	NPI for prescribing provider[m]	50	40	80
	NPI for billing provider[m]	50	36	72
	NPI for dispensing provider[m]	50	35	70
	Place of service	48	33	69
	Type of bill for long-term care claims	50	34	68
	Billing provider type for long-term care claims	50	30	60
	Generic indicator for pharmacy claims	49	29	59

Data category (number of topics)	Data topics	Number of states assessed	Number of states assessed with acceptable data	Percentage of states assessed with acceptable data
	Discharge date for long-term care claims	50	29	58
	Billing provider type on inpatient claims	49	28	57
	Hospital type for inpatient claims	49	28	57
	Supplemental payment records[n]	18	10	56
	NPI for servicing provider[m]	48	18	38
	Billing provider type for other service claims	50	4	8

Source: GAO analysis of CMS's Transformed Medicaid Statistical Information System (T-MSIS) 2016 data quality briefs. | GAO-21-196

Note: The 2016 T-MSIS analytic file includes data from 49 states and the District of Columbia (collectively referred to as states). The Centers for Medicare & Medicaid Services (CMS) excluded Arkansas from the 2016 analytic files due to significant data quality issues. States' data were not assessed when topics did not apply to the states' programs—such as enrollment data for the Medicaid expansion population in states that did not expand their programs under the Patient Protection and Affordable Care Act (PPACA)—or there was a significant data issue, such as a low volume of claims. To assess data related to each topic, CMS compared each state's data to a threshold and determined its level of data quality concern: low concern, medium concern, high concern, or unusable. CMS determined that data had low quality concern when its assessment did not identify any major problems that would affect the usability of data for a given topic. We refer to states' data that CMS determined as having low data quality concern as acceptable data.

[a]The dual eligibility code designates the level of Medicaid coverage to which the beneficiary, who is also eligible for Medicare, is entitled.

[b]The restricted benefits code designates the scope of services for which each Medicaid and Children's Health Insurance Program (CHIP) beneficiary is eligible.

[c]Under federal law, states must cover certain groups of individuals and have the option to cover others. The eligibility group code designates the basis of an individual's eligibility for Medicaid or CHIP, and includes both mandatory and optional eligibility groups.

[d]Dually eligible beneficiaries are individuals who are enrolled in both Medicaid and Medicare.

[e]Under section 1915(c) of the Social Security Act, the Secretary of Health and Human Services may waive requirements that states offering home and community-based services offer such benefits on a comparable basis statewide and to all eligible beneficiaries, and that they use a single standard for eligibility.

[f]Under PPACA, states can opt to expand their Medicaid programs to cover non-elderly, non-pregnant adults who are not eligible for Medicare, and whose income does not exceed 138 percent of the federal poverty level, including a 5 percent income disregard. Pub. L. No. 111-148, 124 Stat. 119 (2010), as amended by the Health Care and Education Reconciliation Act of 2010, Pub. L. No. 111-152, 124 Stat. 1029 (2010). Individuals are considered newly eligible if they would not have qualified for Medicaid coverage under the state's eligibility rules in place as of December 1, 2009.

[g]Some states opted to expand coverage to adult beneficiaries under different authorities prior to the enactment of PPACA. Individuals are in the adult expansion group if they qualified for Medicaid coverage under states' eligibility rules in place as of December 1, 2009.

[h]Comprehensive managed care plans deliver a broad range of services, including primary care, specialty care, and acute services, to Medicaid beneficiaries for a set, capitated payment.

[i]Primary care case management programs cover case management services for program beneficiaries for an administrative fee, and all other services are paid for on a fee-for-service basis.

[j]Professional claims are submitted by physicians (both individual and group practices); other clinical professionals; free-standing laboratories and outpatient facilities; ambulances; and durable medical equipment suppliers.

[k]The type of bill data element is used to report the type of facility that provides care, and can be used to differentiate between key settings and types of institutional care, such as inpatient hospital stays, outpatient hospital visits, or nursing facility care.

[l]Institutional claims are submitted by facilities such as hospitals, nursing facilities, intermediate care facilities for individuals with intellectual or development disabilities, rehabilitation facilities, home health agencies, and clinics.

[m]The National Provider Identifier (NPI) is a 10-digit identification number assigned to health care providers that CMS specified must be used in accordance with the Health Insurance Portability and Accountability Act of 1996. Pub. L. No. 104-191, § 262(a), 110 Stat. 1936, 2025 (1996) (codified, as amended, at 42 U.S.C. § 1320d-2(b)); 45 C.F.R. §§ 162.404, et.seq. (2019).

[n]Supplemental payments represent additional payments beyond the standard rate for a service provided to a beneficiary, including payments made to providers such as local government hospitals.

Appendix II: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

In addition to the contact named above, Susan Anthony (Assistant Director), Kristin Ekelund (Analyst-In-Charge), Kerry Casey, Drew Long, Cynthia Nelson, and Atiya Siddiqi made key contributions to this report. Also contributing were Giselle Hicks, Eric Peterson, and Jennifer Whitworth.

Related GAO Products

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