Using T-MSIS and TAF to Measure State Expenditures and Expenditures to Providers

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TAF methodology brief

Summary

This brief provides information about Medicaid, the Children's Health Insurance Program (CHIP), and relevant data systems for users who want to measure expenditures on beneficiary care. It also describes key considerations and methods for using Transformed Medicaid Statistical Information System (T-MSIS) Analytic Files (TAF) to measure expenditures defined at the state level or as the sum of provider payments. *Please note that this brief is current through mid-2023.*

Background

Medicaid and CHIP are administered as a partnership between states and the federal government, with states retaining substantial latitude to decide which populations to cover, what benefits to offer, and how to structure the delivery of benefits. Because of this flexibility, each state makes different choices about policy and program operation, which has an impact on Medicaid expenditure patterns.

This flexibility makes it challenging for TAF users to measure expenditures and make comparisons between populations or states. This brief discusses common approaches to standardizing these variations when using TAF data,[1] including the following:

1. **Deciding which scope of benefits to include in the analysis.** Some beneficiaries have service packages that are more restricted in scope and tend to have different expenditure patterns than others, and the use of these limited-benefit packages varies between states.
2. **Determining which services to examine.** Many TAF users stratify expenditure analyses by service type or focus on a particular set of services. But differences in the way states apply service codes in claims data make it important for users to carefully select the appropriate records for their analyses.

[1] The approaches discussed in this brief are intended to apply to all TAF users, regardless of the data environment in which they are working. We note any limitations in the TAF data specific to certain data environments.

3. **Accounting for the use of managed care delivery systems.** Roughly three-quarters of Medicaid beneficiaries are enrolled in comprehensive managed care (CMC) as of 2023, and the use of managed care systems, the scope of services covered by managed care plans, and key aspects of service delivery can vary widely across states. Moreover, use of managed care introduces challenges because TAF users must decide whether expenditures should be measured as:
   - State expenditures, meaning the total cost to the state of the managed care population
   - Total payments to providers for the services delivered to those beneficiaries

   Both of the above are valid measures of cost of care that can provide different results.
4. **Deciding how to handle provider payments that cannot be linked to specific beneficiaries.** Medicaid programs are allowed to make direct payments to providers that cannot be assigned to individual beneficiaries, such as Upper Payment Limit (UPL) demonstration payments and Disproportionate Share Hospital (DSH) payments. TAF users generally will not want to include these payments in their analyses unless they are looking at total expenditures across all beneficiaries in the state.[2]

T-MSIS and the TAF

The Centers for Medicare & Medicaid Services (CMS) developed T-MSIS to be the most comprehensive national set of data on Medicaid and CHIP expenditures, beneficiaries, providers, service utilization, managed care, and third-party liability.[3] Each state compiles data on these topics from its own eligibility and claims data systems[4] and from the processed claims data it receives from any managed care plans serving its beneficiaries. It then reports these data in a standardized format in monthly T-MSIS data submissions. CMS collects and stores the source T-MSIS data in a relational database that can be unwieldy to use for typical analytic purposes.

To lessen the challenges of using T-MSIS data for analyses, CMS created the TAF to support research, monitoring, and data-driven decisions on key dimensions of Medicaid and CHIP. To produce the TAF, CMS extracts source data from T-MSIS and processes it to include major enhancements such as organizing data by enrollment date or date of service rather than by submission date. The TAF also include an annual file summarizing the monthly eligibility, provider, and managed care plan files for ease of use. Compared with T-MSIS, the TAF have a more straightforward structure with smaller monthly files, which are easier to use for analysis and research.

The TAF are ideal for analyzing the cost of care because they are a unique and detailed source of Medicaid and CHIP expenditure and payment data. Although other data sources

[2] More information on the percentage of total TAF expenditures in each state that are attributable to beneficiaries can be found in the DQ Atlas topic “Medicaid Beneficiary Expenditures” at https://www.medicaid.gov/dq-atlas/.

[3] Third-party liability information is available in source T-MSIS data but not in TAF data.

[4] All states operate a Medicaid Management Information System to mechanize claims processing and information retrieval, and states might also operate separate eligibility and enrollment systems.

provide aggregate information on state-level expenditures,[5] the TAF are the only national data source providing information at the beneficiary and service levels. This structure enables the TAF to be used to calculate expenditures for specific beneficiaries or beneficiary groups, for specific types of services, and for payments received by a specific provider or type of provider.[6]

As of 2023, seven TAF are available: three annual files, which contain information on providers, managed care plans, and beneficiaries, and four monthly claims files, which contain service use and payment records (Table 1). The three annual files do not include any summary information on payments or expenditures. The four monthly claims files are as follows:

1. **Inpatient (IP):** Captures services and payments for acute care hospitals
2. **Long-term care (LT):** Captures services and payments for nursing facilities, intermediate care facilities, residential treatment facilities, and some nonacute hospitals[7]
3. **Other services (OT):** Captures services and payments for outpatient facilities, physicians and other medical providers, dental providers, transportation providers (emergency and non-emergency), and nonmedical home and community-based service providers[8]
4. **Pharmacy (RX):** Captures prescription drug fills by National Drug Code and pharmacy payments in addition to durable medical equipment services and payments

In addition to service use records, the OT file also contains all non-claims-based financial records that states are required to submit to T-MSIS.

[5] The Chronic Conditions Warehouse Virtual Research Data Center, DataConnect, or other data environments might contain additional data sources used in cost-of-care analyses.

[6] For more information about TAF and TAF RIF, see https://www.medicaid.gov/medicaid/data-systems/macbis/medicaid-chip-research-files/transformed-medicaid-statistical-information-system-t-msis-analytic-files-taf/index.html. For more information on the generation of TAF and TAF RIF from T-MSIS data, see Brief #9010: Production of TAF Research Identifiable Files (RIF), available at https://www.medicaid.gov/dq-atlas/downloads/supplemental/9010-Production-of-TAF-RIF.pdf.

[7] States vary in whether they submit institutional claims for care received in nongeneral acute care hospitals as IP or LT claims. For example, some states submit claims from psychiatric specialty hospitals as IP records and some states as LT records.

[8] States may elect to cover nonmedical services that help beneficiaries with activities of daily living or instrumental activities of daily living, particularly when these services enable a beneficiary to remain in lower-cost community settings rather than in institutions. These services are generally not covered by Medicare or other payers and include personal care services, home health aide services, and homemaker services.

Table 1. Information available in the TAF, by file

Topic area	Level	Includes expenditure information?	Monthly file name	Annual file name
Enrollment	Person level	No	Beneficiary Summary File (BSF)	Annual Demographic and Eligibility (DE)
Services, diagnoses, and spending	Claims level	Yes	IP, LT, OT, RX	IP, LT, OT, RX[a]

Note: The table does not show information about the monthly or annual files on providers or managed care plans.

[a] The claims-level files are organized by month, meaning there are 12 monthly files for each file type in a given year. However, claims-level files released at the same time as the DE file are commonly referred to as annual files. The monthly claims files are created first and then the annual claims files are aggregated from the corresponding monthly files. The final annual files include at least 12 months of runout, or the time between the date of service and when the record appears in TAF, for each month of the calendar year.

Types of Expenditure Data Available in the TAF

Expenditure records in the TAF

The TAF claims files include a wide variety of record types containing expenditure information, including both claims-based service use records and other, non-claims-based financial transactions. Each TAF claim is structured as one header record and one or more line records captured in two separate header and line files. Header-level records capture data that apply to the entire claim. Line-level records capture data about the specific goods or services provided to a beneficiary as part of the overall service. A full claim record can have one claim header and many claim lines or, in the case of payment records, one claim header and no claim lines.

The four main types of expenditure information in the TAF are as follows:

1. **Fee-for-service (FFS) expenditures.** States may reimburse health care providers for services delivered to Medicaid beneficiaries by paying providers directly for each covered service on an FFS basis. These expenditures can be linked to specific beneficiaries and represent both state expenditures and payments to providers. In the TAF, FFS expenditures are called FFS claims and can be found in the IP, LT, OT, and RX files (see the section on how to measure expenditures for instructions on identifying these claims in the TAF). In some cases, states also provide supplemental payments, which are payments beyond the regular negotiated payment rate.[9, 10]
2. **Monthly beneficiary payments.** In Medicaid, states may provide services to some or all of their beneficiaries by enrolling them in a managed care arrangement. In this arrangement, the state pays a flat monthly payment per beneficiary for services that are contracted to a managed care entity, which then assumes responsibility for delivery of

[9] Supplemental payments intended to bring the payment received from managed care plans for a visit up to the minimum level required by law under Medicaid—primarily used for federally qualified health centers—are often referred to as “wraparound payments.”

[10] In the TAF, supplemental payments sometimes include the same information present in other service use records, such as diagnosis codes and procedure codes. In other cases, supplemental payments are coded more like non-claims-based financial transactions. A longer discussion of the reporting and usability of supplemental payment information is available in the TAF methodology brief titled Supplemental Payments: https://www.medicaid.gov/dq-atlas/downloads/background-and-methods/TAF-DQ-Supplemental-Pmts.pdf.

care to the beneficiary. Monthly beneficiary payments are non-claims-based financial transactions with managed care entities, such as fees paid to a primary care provider for primary care case management. When monthly beneficiary payments are made to managed care plans, they are called capitation payments. Across most states, the vast majority of monthly beneficiary payments represent capitation payments.

Except for capitation payments reported on "service tracking" claims (see the section on other financial transactions below), all monthly beneficiary payments can be linked to specific beneficiaries using a unique beneficiary identifier and represent the cost to the state for the care these beneficiaries receive. The proportion of total state expenditures on beneficiary care comprised of capitation payments varies widely by state, depending on the degree of managed care penetration.[11] Monthly beneficiary payments are found only in the OT file.

3. **Payments on managed care encounters.** Records that represent claims processed and paid for by a managed care plan are called managed care encounters.[12] States were required to report payment amounts on managed care encounter records submitted to T-MSIS starting in June 2019, and most states have complied.[13] Keep in mind that these amounts represent costs to managed care plans for providing contracted care to beneficiaries, not the costs to the state Medicaid or CHIP programs. Managed care encounters are found in the IP, LT, OT, and RX files.

Accessing encounter payment data

Although states report payments on managed care encounters in T-MSIS, this information is redacted from the standard TAF Research Identifiable Files (RIF) and only found in the interim TAF (see the appendix for more on the interim TAF). The interim TAF can be accessed with the appropriate permissions.

4. **Other financial transactions.** The TAF also include other financial transactions, mostly captured in service tracking claims. All such records are considered non-claims-based financial transactions and are found in the OT file.
   - Service tracking claims represent lump-sum payments made for services that cannot be attributed to a specific beneficiary, such as DSH payments or supplemental payments to providers made under the UPL demonstration. As such, these represent state expenditures.
   - A small number of states use these records to report capitation payments to managed care plans that they cannot report at the beneficiary level. The number of states reporting capitation payments in this manner varies by year. When states

[11] For state-level details on the proportion of expenditures directed toward FFS payments, monthly beneficiary payments, and other financial transactions, see the DQ Atlas topic "Total Medicaid Expenditures" at https://www.medicaid.gov/dq-atlas/.

[12] Many Medicaid and CHIP managed care plans pay contracted providers on an FFS basis. This produces encounter records similar to Medicaid or CHIP FFS claims but with a different negotiated payment rate and ultimate payer. Medicaid and CHIP managed care plans must submit these encounter records to states, and states must pass them through into T-MSIS.

[13] For state-level details on the proportion of managed care encounter records in which payment data are reported, see the DQ Atlas topic "Missing Payment Data - Encounters" at https://www.medicaid.gov/dq-atlas/.

report capitation payments made on behalf of multiple beneficiaries in a single transaction, the payments are submitted as service tracking claims, and it is impossible to attribute these expenditures to specific beneficiaries.

Table 2 summarizes the expenditure information available in the TAF, by expenditure type.

Table 2. Types of Medicaid expenditures in the TAF

Expenditure type	Description	Linked to specific beneficiaries?	Represents expenditures by the state?
FFS expenditures	• Direct payments from the state Medicaid agency to medical, pharmacy, dental, transportation, and other nonmedical providers for individual services delivered to beneficiaries • Add-on or supplemental wraparound payments associated with a specific beneficiary above the negotiated per-service rate[a]	Yes	Yes
Monthly beneficiary payments	• Capitation payments to managed care organizations • Flat fees for primary care case management services • Medicare Part A and Part B premiums for Medicaid beneficiaries dually eligible for Medicare • Premium assistance payments to private plans to enroll eligible Medicaid beneficiaries into coverage	Yes	Yes
Monthly beneficiary payments	• Capitation payments to managed care organizations reported in service tracking claims	No	Yes
Managed care encounters	• Paid claims that were processed by a managed care plan contracted to deliver a certain benefit package to any enrolled Medicaid and CHIP beneficiaries • Available in the interim TAF; also available in the TAF RIF with appropriate permissions	Yes	No
Other expenditures	• DSH payments • Supplemental payments made under the UPL demonstration • Drug rebates • All other lump-sum payments	No	Yes

[a] Under federal law, states must pay federally qualified health centers the difference between a managed care organization's per-service payment and the amount determined under the state's prospective payment system. States often report these "wraparound" payments in supplemental payment records (those with claim-type code 5, E, or Y).

Managed care expenditure information in the TAF

Data users will need to account for delivery systems and payment arrangements to providers when choosing how to measure expenditures. The extent to which states use managed care arrangements could affect how data users want to measure expenditures. In managed care arrangements, states pay fixed monthly payments for beneficiaries to managed care plans; these payments are captured in capitated payment records and can be found in the OT file. The plans then directly pay providers for the services rendered to the beneficiaries in capitated encounter records.

The payments from managed care plans can (and often do) represent FFS payment arrangements between the plan and contracted providers. In expenditure analyses that include

managed care arrangements, data users will need to decide whether to use capitated payments or managed care encounters to reflect expenditures:

- Managed care encounters more accurately capture expenditures for services that beneficiaries used.
- Capitation payments more accurately capture state expenditures for providing health care coverage for those beneficiaries.

When deciding how to measure expenditures in states that use managed care, TAF users should consider data quality and completeness. Some states might under-report capitation payments to managed care plans, resulting in incomplete state expenditure data for managed care.[14] Conversely, some states might not collect managed care encounter data for all plans. This limits the amount of payment data that "pass through" to T-MSIS, resulting in an undercount of provider payments for services covered by those plans.[15]

Even when states do report complete encounter data, high rates of missing, zero, or negative payment data in encounter records might preclude TAF users from accurately analyzing health care expenditures.[16] Missing state capitation payments or encounter payment data might also be specific to individual managed care plans. If users are interested only in certain managed care plans in a state, they can limit claims to the plans of interest by using the managed care plan identification number (MC_PLAN_ID) variable. They can then reassess the rate of missing capitation expenditures or provider payment information at the plan level.

Expenditures not attributable to individual beneficiaries

Not all state expenditures and provider payments can be directly linked to an individual beneficiary. These include DSH payments, UPL supplemental payments, cost-settlement payments, drug rebates, and other lump-sum payments, which are usually captured as service tracking claims in the TAF. In rare cases, states cannot report capitation payments to managed care plans at the beneficiary level, and instead they report these expenditures as service tracking claims covering a large group of beneficiaries.

TAF users will need to decide whether to include these claims in their expenditure analyses. In some states, these payments could represent a large share of total expenditures and including them in expenditure analyses will make the results more reflective of overall Medicaid spending.[17] However, these payments cannot be partitioned or applied to specific beneficiaries

[14] Information on the completeness of the data on state capitation payments made to managed care is available in the DQ Atlas topic "Total Monthly Beneficiary Payments" at https://www.medicaid.gov/dq-atlas/.

[15] Information on the completeness of encounter data for all plans in a state is available in the DQ Atlas topic "Availability of CMC Plan Encounter Data" at https://www.medicaid.gov/dq-atlas/.

[16] Information on the completeness of payment data on encounters reported in the TAF is available in the DQ Atlas topic "Missing Payment Data – Encounters" at https://www.medicaid.gov/dq-atlas/.

[17] The share of total state expenditures in the TAF that can be attributed to specific beneficiaries is available in the DQ Atlas topic "Linking Expenditures to Beneficiaries" at https://www.medicaid.gov/dq-atlas/.

in the state. As a result, users who need to aggregate beneficiary-level expenditures will have to determine whether and how to include these types of payments.

Selecting Beneficiaries for Analysis

States have the option of covering some populations with different benefits than the standard bundle of mandatory and optional benefits available to most of their beneficiaries. These limited-benefit groups can be large—up to 20 percent of the people in a state's Medicaid program[18]—and their expenditures tend to be different from those of other groups. One example is Medicaid-funded family-planning programs, which can enroll people who don't qualify for full Medicaid benefits but who are eligible for a limited package of family-planning services. Another example is coverage of COVID-19 testing services during the public health emergency for people not otherwise eligible for Medicaid.

There is much variation across states in the populations they cover, the services covered in the standard benefit package, and the benefits available to certain limited-benefit groups—all of which can substantially drive findings on the average expenditures attributed to beneficiaries in each state. As a result, when using Medicaid administrative data to research and evaluate expenditures, one of the most important decisions is which populations and benefits to include in the analysis.

Defining unique individuals

To select a subset of the entire statewide Medicaid or CHIP population, TAF users can use the MSIS ID (MSIS_IDENT_NUM) and submitting state code (SUBMTG_STATE_CD) to limit records in the claims files to those that link to the beneficiaries of interest. The combination of these two variables represents a single Medicaid- or CHIP-eligible individual in a given state. TAF RIF users can use the federal beneficiary identifier (BENE_ID)—which is available only in the TAF RIF—for the same purpose.

Below, we describe key considerations and methods for implementing inclusion and exclusion criteria for three types of populations.

Limited-benefit populations

Medicaid beneficiaries might qualify for full-scope benefits, which include all mandatory and optional services the state has elected to cover. Other beneficiaries might have comprehensive benefits—a benefit package that meets the minimum essential coverage (MEC) standard under the Affordable Care Act but is more restricted than the state's full scope of benefits. Or they might have limited benefits—a narrow benefit package that does not meet the MEC standard.[19]

[18] Information on the percentage of the total Medicaid population enrolled in limited-benefit packages by year can be found in the data table for the DQ Atlas topic "Restricted Benefits Code" at https://www.medicaid.gov/dq-atlas/. Information on the specific types of limited-benefit packages covered by state Medicaid programs can be found at https://www.healthcare.gov/medicaid-limited-benefits/.

[19] A longer discussion of the differences between these categories is available in the TAF methodology brief titled Identifying Beneficiaries with Full-Scope, Comprehensive, and Limited Benefits in the TAF: https://www.medicaid.gov/dq-atlas/downloads/supplemental/4151-Scope-of-Benefits.pdf.

The most common limited-benefit packages are coverage for family-planning services, for emergency medical services, or for COVID-19 testing among people who do not otherwise qualify for Medicaid.

Another large group of limited-benefit enrollees includes low-income Medicare beneficiaries who do not qualify for full-scope benefits that go beyond the Medicare benefit package, but do qualify for Medicaid-funded assistance with premiums and cost-sharing through a Medicare Savings Program. These beneficiaries are sometimes described as having "partial dual eligibility."[20]

Best practice for inclusion and exclusion criteria

Analyses often include beneficiaries with full-scope and comprehensive benefits, while excluding beneficiaries with limited-benefit packages unless they are relevant to the research question.

Users can draw on three data elements in the monthly TAF Beneficiary Summary File (BSF) and Demographic and Eligibility (DE) files to identify or exclude limited-benefit groups:[21]

1. **Restricted benefits code.** Within the restricted benefits code (RSTRCTD_BNFTS_CD_01–RSTRCTD_BNFTS_CD_12 for monthly values; RSTRCTD_BNFTS_CD_LTST for the last valid value in the year), the values 2, 3, 6, E, F, and G identify beneficiaries whose Medicaid coverage does not meet the MEC standard. In addition, restricted benefits code 4 (Medicaid or CHIP pregnancy-related services) does not meet the MEC standard for Arkansas prior to January 2023, South Dakota prior to July 2023, or Idaho prior to January 2025. Prior to these dates, these three states offered pregnancy-related Medicaid benefits that qualified as limited benefit packages only (while all other states offered comprehensive coverage).
2. **Dual-eligible code.** The dual-eligible code (DUAL_ELGBL_CD_01–DUAL_ELGBL_CD_12 for monthly values; DUAL_ELGBL_CD_LTST for the last valid value in the year) can be used to identify beneficiaries who are dually eligible for Medicare with limited or full Medicaid benefits. Dual-eligible code values 01, 03, 05, and 06 represent individuals with partial dual eligibility; they should be excluded from analyses that intend to exclude people with limited-benefit packages.
3. **Eligibility group code.** The eligibility group code (ELGBLTY_GRP_CD_01–ELGBLTY_GRP_CD_12 for monthly values; ELGBLTY_GRP_CD_LTST for the last valid value in the year) identifies the pathway through which a beneficiary qualified for Medicaid benefits. Many limited-benefits groups are classified in eligibility pathways that

[20] For more information on dually eligible individuals, see https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/Downloads/MedicareMedicaidEnrolleeCategories.pdf.

[21] Data quality issues and variations in the way states run their programs can lead to apparent inconsistencies in the values across these three data elements. For example, some states might run their family-planning program through an 1115 waiver program rather than as a state plan option. When this occurs, beneficiaries might have a benefit code that indicates limited benefits for family planning, but they would not have an eligibility group code associated with the family-planning program pathway.

also include full-scope benefit enrollees. However, some limited-benefit groups have dedicated eligibility group codes.

Users can use eligibility group code values 23–26 to identify dually eligible beneficiaries who qualify for partial benefits only. They can use eligibility group code 35 to identify beneficiaries who qualify for family-planning programs and use eligibility group code 76 to identify beneficiaries in the COVID-19 testing services group.

Best practice for excluding limited-benefit beneficiaries

When excluding beneficiaries with limited-benefit packages, TAF users are encouraged to exclude records that meet *any* of the three criteria above, rather than relying on a single method alone.

Dually eligible beneficiaries

Some low-income Medicare enrollees can qualify for full-scope Medicaid benefits, which entitles them to assistance with Medicare premiums and cost-sharing, as well as to any benefits covered under their state's Medicaid state plan that are not part of the standard Medicare benefit package. The most significant of these benefits is long-term care services and supports, including institutional care (such as long-term stays in nursing facilities) and home and community-based services (such as personal care assistance, home health services, and private-duty nursing).

Medicare is the primary payer for nearly all acute care services received by dually eligible beneficiaries, and it is important to note that the TAF does not capture these Medicare expenditures. In addition, states are allowed to submit Medicare premium payments that are paid for by Medicaid as service tracking claims in T-MSIS, though this is rare; this results in an underestimate of state-funded Medicaid expenditures for dually eligible people. The absence of these premium payments means the data on state Medicaid expenditures for dually eligible beneficiaries are incomplete. But these incomplete data would not affect studies focusing on expenditures as the payments to providers on behalf of specific beneficiaries (instead of the state expenditures for covering the individuals).

Given the complexity of integrating Medicare data into an analysis to accurately capture all expenditures for dually eligible beneficiaries, some users might decide to drop these beneficiaries from the study, including those who qualify for full-scope Medicaid benefits, because TAF data do not capture all expenditures associated with their care. Other users, particularly those studying models in which dually eligible beneficiaries are expected to be a major part of the model population, might elect to obtain and link both TAF and Medicare eligibility and claims data.

Dropping dual-eligible beneficiaries

To identify and drop dually eligible beneficiaries from the TAF data, users would use the dual eligibility code in the BSF or DE files. Values of 01, 02, 03, 04, 05, 06, 08, 09, and 10 indicate that a beneficiary is dually enrolled, and most or all acute care expenditures are captured in Medicare data rather than in the TAF. Values of 00 and null (missing) indicate that a beneficiary is not dually eligible. Information on the reliability of the dual-status code can be found in the DQ Atlas topic "Dual Eligibility Code."

To link Medicaid and Medicare data, TAF users who are accessing the TAF RIF in the Chronic Conditions Warehouse (CCW) Virtual Research Data Center can use the CCW beneficiary identifier (BENE_ID) to link beneficiary enrollment records across Medicaid and Medicare administrative data stored in the CCW. This would enable the identification of all payments to providers for a beneficiary's care across both programs.

Beneficiaries enrolled in a specific model

TAF users might want to know the expenditures for beneficiaries enrolled in a particular model, such as the Center for Medicare and Medicaid Innovation's Integrated Care for Kids Model. However, it might not be possible to identify individuals' participation in these models using TAF data. Users interested in identifying the subset of beneficiaries participating in a model will typically need to contact state Medicaid and CHIP agencies to obtain a finder file containing the MSIS IDs for all participants.

Using the CCW beneficiary identifier

Note that the CCW beneficiary identifier (BENE_ID) is added during TAF RIF production. It is not available to states, and states cannot provide it as part of a finder file for participants in a certain model.

Selecting Records by Service Type

Expenditure studies often stratify results by service type or limit the analysis to expenditures for certain services. There are two common approaches to disaggregating services and associated expenditures into categories in the TAF:

Type of service

The type-of-service (TOS) data element (TOS_CD) is intended to map each service provided to standardized service categories.[22] Note that TOS does not enable users to differentiate between the same service provided through the FFS system versus through a managed care plan, and expenditures are calculated differently for each delivery system (see the section of this brief on how to measure expenditures). As a result, TOS must always be used along with the claim-type code (CLM_TYPE_CD) in expenditure analyses. Although most states submit a valid TOS code in nearly all cases, there is substantial variation across states in the frequency with which various TOS codes are used, suggesting that states differ in how they

TOS vs. federally assigned service category

TAF users should be cautious when using only the TOS data element to systematically identify a specific service across different states without including information from other fields, such as procedure or revenue codes, to corroborate the service category. We discourage the use of state-assigned TOS codes to identify service categories and recommend using the federally assigned service category (described in the next section) instead.

[22] A list of valid values for the TOS code can be found in the TAF Claims Codebook at https://www2.ccwdata.org/web/guest/data-dictionaries.

apply these codes to the same type of record.[23] Moreover, internal CMS analyses show that TOS codes cannot reliably replicate how individual states report expenditures in other reports to CMS, such as the CMS-64.

Federally assigned service category

To address some of the aforementioned issues with the TOS code, CMS developed the federally assigned service category (FASC) variable (FED_SRVC_CTGRY_CD), which identifies 21 distinct types of records and services present in the TAF claims files (Table 3).[24] CMS created this variable to help TAF users select comparable records across all states for their analyses, particularly when differentiating between nonclaim financial transactions and transactions that originated as claims (paid for through the FFS system or by a managed care plan).

Best practice for using the FASC code

Using the FASC code is the preferred way to differentiate records by service type because it enables users to identify capitation payments to managed care plans, regardless of whether the state submitted the payments as capitation records or service tracking claims. Because the FASC code does not differentiate between FFS claims and managed care encounters, TAF users must also use the claim-type code (CLM_TYPE_CD) to construct expenditure analyses.

Because the FASC field is constructed using the most reliable data elements for each type of service, it maximizes consistency within service categories across states and promotes alignment with other data sources. However, the FASC code includes only 21 distinct categories and is much less granular than the state-assigned TOS code, which means it might not be usable for all analyses.

The FASC code is available for all years and versions of TAF files produced in 2022 or later, including the releases listed below and future TAF RIF releases for each year:

- 2017 Release 3
- 2018 Release 3
- 2019 Release 2
- 2020 Release 1
- 2021 preliminary release
- All releases for 2022 and later years

[23] Internal CMS analyses of the 2016 TAF showed that many states appear to use the most broadly defined codes from among the applicable TOS codes, which makes it difficult or impossible to use the TOS code to make meaningful comparisons of the use of specific services across states. These internal analyses also showed several instances of states using incorrect codes, such as defining claims with a dental procedure code as “home and community-based services.” This could be a result of some states continuing to use the TOS code’s older valid value set from MSIS, rather than the newer valid value set from T-MSIS.

[24] A more extensive discussion of the FASC variable and its construction is available in the brief titled Assigning TAF Records to a Federally Assigned Service Category (FASC): https://www.medicaid.gov/dq-atlas/downloads/supplemental/5241-Federally-Assigned-Service-Category.pdf.

Table 3. FASC values

Type of records	Value	Federally assigned service categories
Nonclaim financial transactions	11	Managed care capitation payments (including those attributable and not attributable to individual beneficiaries)
	12	Other per-member per-month payments
	13	DSH payments
	14	Other financial transactions
Service use (submitted on institutional claim forms)	21	Inpatient hospital
	22	Nursing facility
	23	Intermediate care facility
	24	All other overnight facilities
	25	Hospice
	26	Outpatient facility
	27	Clinic
	28	All other outpatient institutional claims
Service use (submitted on non-institutional claim forms)	31	Radiology
	32	Laboratory
	33	Home health
	34	Transportation services
	35	Dental
	36	Home and community-based services, not otherwise specified
	37	Durable medical equipment and supplies
	38	Physician and all other professional claims
Service use (prescription drugs)	41	Prescription drug

How to Measure State Expenditures vs. Provider Payments

Depending on the analysis, TAF users can use several approaches to measure expenditures. These approaches will differ depending on the analytic needs of the user, the availability of additional data sets that might be used along with the TAF to calculate expenditures, or other case-specific factors that users might need to consider when determining how to measure the cost of care.

Figure 1 depicts a high-level overview of a five-step approach for using TAF to measure expenditures. This approach differs somewhat depending on whether the user is (1) calculating expenditures at the state level or (2) aggregating payments made to providers. Table 4 presents detailed instructions on measuring expenditures using both approaches.

Note that:

- In states with little or no use of managed care to deliver services, both approaches will result in similar findings because state expenditures will equal provider payments.
- The more extensive the use of managed care in a state, the larger the potential difference will be between measuring state expenditures and provider payments.

Figure 1. Overview of methods for measuring expenditures

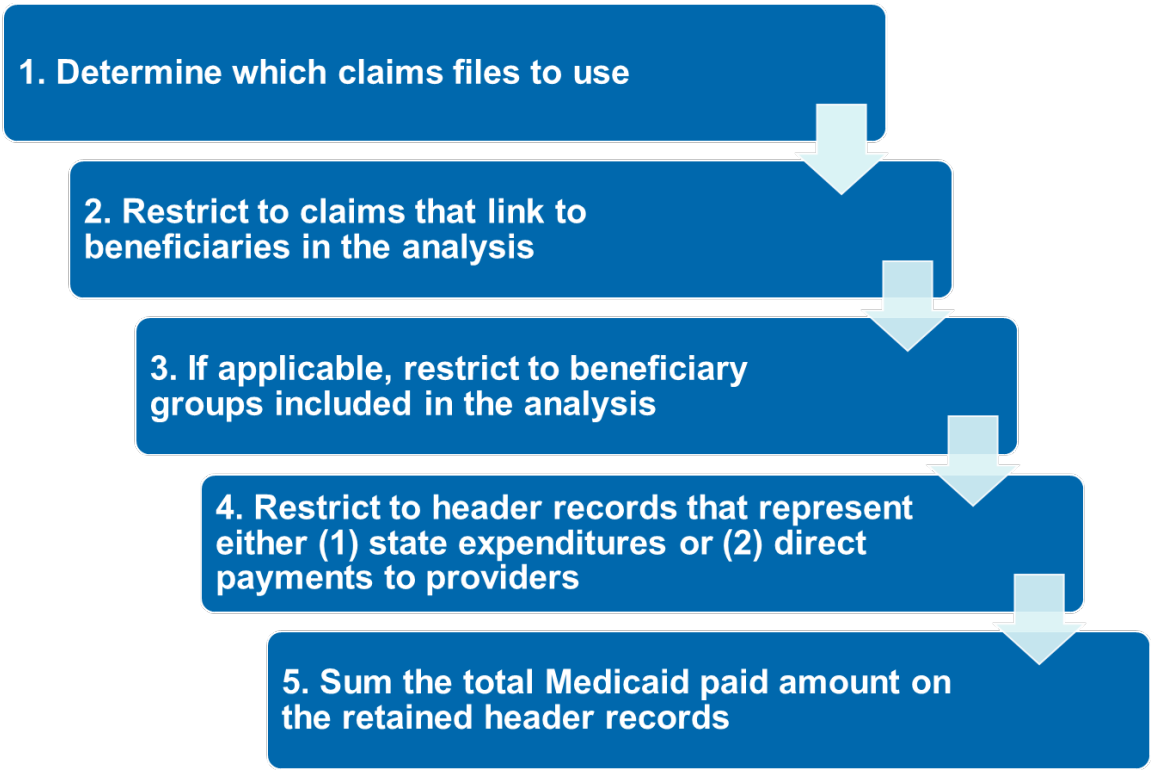

Table 4. Detailed methods for measuring expenditures

Step	Analysis type	Activity
1	Both	Determine which claims files to use in the analysis. For instance, a study of pharmaceutical expenditures would draw on the RX claims file only, whereas an analysis of total expenditures would rely on the IP, LT, OT, and RX claims files.
2	Both	Use MSIS ID (MSIS_IDENT_NUM) and submitting state code (SUBMTG_STATE_CD) to restrict to records that link to beneficiaries in the eligibility file (DE or BSF) who are included in the analysis.
3	Both	If the analysis is limited to or excludes a certain beneficiary group (such as limited-benefit populations or dually eligible beneficiaries, as described earlier), restrict records to the appropriate populations using the restricted-benefit code, dual-eligible code, or eligibility group code.
4a	State expenditures	**Restrict to the record types with relevant state expenditure information:** • FFS claims (claim type codes 1, A, and U) • Capitation payments (FASC values 11 and 12 or claim type codes 2, B, and V) • Supplemental payments (claim type codes 5, E, and Y) • Non–claims-based financial transactions[a] (claim type codes 4, D, and X) **Exclude the following claim types:** • Managed care encounters (claim type codes 3, C, and W)[b] *Note that many service tracking records cannot be linked to specific beneficiaries (see Table 2), and thus the records would have been dropped in the previous step upon linking the eligibility and claims files.*
4b	Provider payments	**Restrict to the record types with relevant state expenditure information:** • FFS claims (claim-type codes 1, A, and U) • Managed care encounters (claim-type codes 3, C, and W) • Supplemental payments (claim-type codes 5, E, and Y) • Non–claims-based financial transactions[a] (claim-type codes 4, D, and X) **Exclude the following claim types:** • Capitation payments (FASC values 11 and 12 or claim-type codes 2, B, and V)[c] *Note that many service tracking records cannot be linked to specific beneficiaries (see Table 2), and thus the records would have been dropped during the previous step, upon linking the eligibility and claims files.*
5	Both	If the study is designed to measure expenditures only on certain types of services or for certain conditions, implement any additional restrictions on the claim records using TOS code, FASC code, procedure code (PRCDR_CD), or diagnosis code (DGNS_1_CD).[d] *Note that capitation payments are intended to cover the entire benefit package and cannot be partitioned by service type, so extensive use of managed care by a state could make it impossible to limit analyses of state expenditures to expenditures for specific services or conditions.*[e]
6	Both	Across all retained claims records, sum state expenditures using the total Medicaid paid amount (TOT_MDCD_PD_AMT) in the header record to either (1) aggregate state expenditures for beneficiaries included in the analysis or (2) capture total payments received by providers for care delivered to beneficiaries included in the analysis.[f]

[a] Expenditure analyses that require the partitioning of expenditures to beneficiaries often exclude these record types. Most non-claims-based financial transactions that are not capitation payments are reported with a claim-type code for service tracking or supplemental payments. Service tracking claims are available in the TAF and the TAF RIF starting with Release 2 of the 2017–2018 TAF RIF. These claims were excluded from earlier versions—specifically, the 2014–2016 TAF RIF and Release 1 of the 2017–2018 TAF RIF.

[b] Managed care encounter claims are excluded because they do not represent costs to the state.

[c] Capitation claims are excluded because they do not represent payments to providers.

[d] DGNS_1_CD is the primary/principal ICD-9 or ICD-10 code reported on the claim. As of 2023, diagnosis code variables are available for additional diagnoses in records in the IP file (up to 12 diagnoses per claim), LT file (five per claim), and OT file (two per claim).

[e] Some managed care plans cover a benefit package that is specific to a certain service type (such as dental services) or to certain conditions (such as mental health and substance abuse services). The managed care plan-type code (MC_PLAN_TYPE_CD) can be used to determine whether the plan covers (1) a comprehensive benefit package or (2) a service- or condition-specific package.

[f] We recommend using only header-level payment information because line-level payment data are duplicative of header payment data for most claims and are sometimes missing.

Appendix

Appendix Table 1. Additional topics relevant to expenditure analyses

Topic	Additional information
Differences between interim, preliminary, and final TAF files	• See the DQ Atlas page titled DQ Atlas Resources at https://www.medicaid.gov/dq-atlas/landing/resources/about. • For information about records excluded from the TAF RIF, see the DQ brief titled Production of the TAF Research Identifiable Files (RIF) at https://www.medicaid.gov/dq-atlas/downloads/supplemental/9010-Production-of-TAF-RIF.pdf.
Measuring expenditures in alternative payment models	• For CMS guidance on how states should report information on primary care case management in T-MSIS, see CMS Guidance: Primary Care Case Management Reporting, Updated, at https://www.medicaid.gov/tmsis/dataguide/t-msis-coding-blog/cms-guidance-primary-care-case-management-reporting-updated/. • For CMS guidance on how states should report home health data in T-MSIS, see CMS Guidance: Reporting Health Home Data in T-MSIS at https://www.medicaid.gov/tmsis/dataguide/t-msis-coding-blog/cms-guidance-reporting-health-home-data-in-t-msis/.
Benchmarking TAF expenditure data to other Medicaid data sources	• For a detailed comparison of TAF and CMS-64 data, see the methodology brief titled Medicaid Expenditure Data: TAF and the CMS-64 at: https://www.medicaid.gov/dq-atlas/downloads/supplemental/9020-TAF-CMS-64-Comparison.pdf. • For information on how to benchmark the TAF against the CMS-64, see the following methodology briefs: – Medicaid Beneficiary Expenditures at https://www.medicaid.gov/dq-atlas/downloads/data-by-topic/TAF-DQ-Bene-Expenditures/TAF-DQ-Bene-Expenditures.pdf. – Total Medicaid Expenditures at https://www.medicaid.gov/dq-atlas/downloads/data-by-topic/TAF-DQ-Total-Expenditures/TAF-DQ-Total-Expenditures.pdf.
Subcapitated arrangements	• For information on how subcapitation claims should be reported in T-MSIS, see the T-MSIS Coding Blog post titled CMS Technical Instructions: Reporting Sub-capitation Payments and Encounters Associated with Sub-capitation Payments from Managed Care Plans at https://www.medicaid.gov/tmsis/dataguide/t-msis-coding-blog/cms-technical-instructions-reporting-sub-capitation-payments-and-encounters-associated-with-sub-capitation-payments-from-managed-care-plans/.

Eric Morris,[1] Natalie Thomas,[1] and Allison Barrett.[1] "Using T-MSIS and TAF to Measure State Expenditures and Expenditures to Providers." Baltimore, MD: CMS, 2023.

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