



**Centers for Medicare & Medicaid Services**

**Transformed Medicaid Statistical  
Information System (T-MSIS)  
State/Territory Projects that Impact  
T-MSIS Reporting -  
Standard Operating Procedures (SOP)**

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## 1. Revision History

Version	Date	Modified By	Change Control	Revision Description
V1.0	2/8/2019	Cindy Cockman	Initial Release	New
V1.1	2/19/2019	Cindy Cockman	Removed Addendum D from Project Artifact list. Removed test environment request form and approval requirement.	Revision
V1.2	12/20/2019	Cindy Cockman	Added expected 15-business day around time for 1 <sup>st</sup> step of CMS Data Validation, updated for 2019 lessons learned (iterative testing) and removed Addendum B (retired 12/2019) references.	Revision
V1.3	4/01/2021	Cindy Cockman	Removed "Appendix A – Test Case Matrix Spreadsheet" and replaced with review of all Business Rules using the Error Summary Report (ESR) from Operations Dashboard. Clarification in Section 6 Obtaining CMS Concurrence.	Revision
V1.4	6/5/2023	Cindy Cockman	Clarified Iterative Testing, updated language resulting from transition from TPI's to OBA, added information on reviewing states' first production submission in test environment.	Revision

## 2. Introduction

This document is the Standard Operating Procedure (SOP) for The Centers for Medicare & Medicaid Services (CMS) for the Medicaid and Children's Health Insurance Program (CHIP). The document is for State agencies and territories with ongoing state/territory projects that impact T-MSIS reporting, also known as Large System Enhancements (LSEs). It provides guidelines to assist states/territories in the successful implementation of changes affecting T-MSIS reporting to ensure that no degradation in the level of accuracy, completeness or timeliness of T-MSIS data occurs as a result of the implementation of system, operational or programmatic changes. The SOP is intended for the State T-MSIS team to be used in collaboration with the CMS T-MSIS team and other State Agency projects with system implementations that impact T-MSIS reporting.

The CMS LSE T-MSIS team consists of a CMS LSE Lead, the Technical Compliance LSE lead, and the Data Quality LSE lead. This team along with the States' Technical Assistant (TA) support LSE activities.

State Technical Assistant will:

- Track state/territory projects, status, schedules, and project artifacts.
- Support state/territory T-MSIS iterative testing.

The CMS LSE T-MSIS team will:

- Assist the States' CMS State Officer in identifying State projects that should follow the LSE SOP.
- Review parallel test results for LSE Data Validation.
- Provide summary report of Record Count and Business Rule findings and work with the state/territory to resolve issues before allowing progression to Step 2 DQ Measures of Data Validation step.
- Execute and analyze inferential data quality measures on states/territories parallel T-MSIS test files.
- Provide summary report of DQ findings and support state/territory to resolve issues.
- Provide concurrence to resume production submissions.
- On an as-needed basis, review state's first submission of T-MSIS data after implementation of the new system in the test environment (StateProd) to review Record Counts, Business Rules and inferential data quality measures.

The intent of this SOP is to define CMS assumptions and support state projects the CMS LSE Lead and the States/territories' State Officer has identified as a project that impacts the T-MSIS reporting and should follow the LSE SOP for T-MSIS readiness concurrence. The SOP also outlines CMS expectations for production readiness of state/territory changes to be implemented; and provides a state/territory checklist to CMS for production readiness concurrence (see Appendix B – Project Artifacts).

This SOP is a critical piece in supporting CMS expectations for Medicaid and CHIP data and ongoing T-MSIS implementations for states/territories as outlined in the State Health Official (SHO) letter regarding T-MSIS (published August 2018), The letter can be found here, (if link does not work, copy paste into browser): <https://www.medicaid.gov/Federal-Policy-Guidance/downloads/SHO18008.pdf>

Download key reference information from the T-MSIS Data Dictionary and Release Notes, here:

<https://www.medicaid.gov/medicaid/data-systems/macbis/transformed-medicaid-statistical-information-system-t-msis/index.html>

### 3. CMS Assumptions

CMS ongoing production operations includes monitoring, assessing and assisting states/territories with improving the accuracy, completeness and timeliness of T-MSIS data submissions. This includes ensuring successful transitions when states/territories make system, operational or programmatic changes impacting T-MSIS reporting. Table 1 outlines the CMS assumptions under this SOP:

Assumptions
Until successful production readiness steps are met, and new changes are implemented, State/territory will maintain monthly production submissions in the legacy system.
State/territory will define a mitigation strategy to ensure potential delays in development projects do not threaten currency of T-MSIS data.
State/territory will maintain a schedule for closure of identified Plans of Action (POA) and maintain dates defined in schedule.
State/territory will be accountable for upholding best practices in the planning, design, development, testing and implementation of all system and data changes that impact T-MSIS reporting.

Table 1: CMS Assumptions

### 4. Identification Criteria

State/territory projects with changes or system replacements that impact T-MSIS reporting are criteria for initiating the activities and requirements defined in this document. The States' CMS State Officer will collaborate with the CMS LSE Lead in identifying the projects that initiate the activities and requirements defined in this document and will determine if changes warrant adherence to this SOP. Examples of State System Impacts and Data Content Impacts are as follows:

*State System Impact.* A replacement Medicaid Management Information System (MMIS), a new modular MMIS, new or modular Eligibility & Enrollment, new Provider, new Data Warehouse and/or new third-party liability (TPL) system implementations are examples of 'state system impacts' that require adherence to this SOP.

*Data Content Impacts.* Projects or initiatives that affect data content changes such as the addition of Managed Care Organizations (MCO) or waivers/removal of an existing MCO are considered 'data content' impacts and may not require the level of procedural oversight outlined in this SOP. The degree of CMS involvement for these types of changes will vary depending on the scope and complexity of the change. However, these projects will be identified, tracked and monitored by CMS. Data content impact projects may require State/territory updates to Source to Target (S2T) mappings, and T-MSIS addendum E valid value sets. CMS expects those artifacts to be submitted to the State Technical Compliance Team's TA.

Collaboration between state/territory T-MSIS reporting Impact project team, the state/territory T-MSIS team and CMS is critical to ensure that month-over-month T-MSIS reporting and T-MSIS data quality is maintained during system implementations where T-MSIS is impacted. CMS will assist in identifying the projects that initiate the activities and requirements defined in this document and will determine if changes warrant adherence to this SOP.

Once a T-MSIS Reporting Impact is identified, the Technical Compliance TA will create a Jira ticket to begin tracking and monitoring of the state/territory impacting project. Status of these projects will continue to be discussed at the monthly T-MSIS state support meeting. The ticket

will be used to document and collect project artifacts and on-going updates about the project throughout the project's development cycle

## 5. CMS Expectations

CMS will require that the state/territory:

1. Provide applicable project artifacts and share project status updates during the monthly T-MSIS state support meeting.
2. Perform parallel testing and provide the CMS LSE Team with results on comparability and explanations when differences occur.
3. Continue monthly T-MSIS production reporting during system changes or implementation development until CMS concurs new T-MSIS reporting system is production ready.

### 5.1.1. Artifacts

Table 2 identifies and describes the project artifacts CMS may request. Artifacts are stored with the Jira ticket for continued monitoring. Information is collected in the Project Artifacts (SOP Reporting Impacts) spreadsheet, which is provided in appendix B of this manual.

Requested Artifact/Information	CMS Expectation
Change Request/Project Description	Change requests describing the state/territory system and/or policy changes that will impact T-MSIS reporting
Project Contact List	List of point of contacts for project (i.e., PMO, development contractor, testing contractor, if applicable; key leads, vendor POCs, business owners and SMEs supporting programs that drive T-MSIS data, project-accountable leadership)
High Level Architectural/Technical Design – “as is” vs “to be”	As-is and to-be architecture/process flow and data file flow from source MMIS (or other) to T-MSIS highlighting the key data points that will be used for validation of T-MSIS.
Integrated Project Plan	Detailed schedule representing the tasks and milestones for supporting T-MSIS compliance steps (milestones, related and dependent tasks). Including, but not limited to: S2T updates, testing and validation phases for T-MSIS, implementation milestones (cutover to production).
Source to Target Mappings	S2T Mapping changes document differences and explanations. This artifact enables CMS to identify the ultimate sources of the T-MSIS data, and any intermediate steps & transformations that may occur between the ultimate source and the T-MSIS extract file.
Test Summary Report & Related Documentation	<p>Description of type of testing to be performed for any system modifications directly or indirectly impacting T-MSIS. This will describe the type of testing to be performed and its scope (including any limitations, timing, and comprehensiveness).<sup>1</sup> As test results become available, unresolved issues having a material impact on data accuracy, completeness or timeliness will be provided to CMS. Any material issues not resolved by implementation time will have a plan of action acceptable to CMS. Testing will also include comparisons of the old and new solution (e.g., comparative counts between old system and new system); and validation that plans of action for CMS related to active DQ issues are supported in the new solution (i.e., issues have been addressed by the new solution and tests have been executed to validate).</p> <p><sup>1</sup> The test data will be comprehensive and include data across all eight T-MSIS files. It will cover all scenarios for populating T-MSIS data for the state/territory and the content of what is being populated will be comparable to current system.</p>
Implementation Plan	This artifact illustrates how the state plans to run the old system and for how long, and how the state/territory plans to transition to new system. It specifies whether there is parallel processing. For T-MSIS, it includes the final month that will be sent under the old system and the first month the new system will generate the T-MSIS submission file. Finally, this artifact indicates the

	production validation checks that will be run for cutover to validate the old system will run prior to implementation and cutover to new system.
Data Conversion/Migration Plan	This artifact provides detail on how data will be migrated from old to new systems (if applicable), outlines any data crosswalk routines required to support data conversion of content due to the new system. It includes any data conversion rules and edits that are part of the plan and any reporting period re-submissions planned as part of data conversion. This information can be integrated into the Implementation plan.
Updated Addendum E Valid Values	Updates to State/territory Specific Valid Value list

Table 2. Artifacts

### 5.1.2. Testing

State/territories must complete internal comprehensive testing that includes Unit, Integration, Systems and Acceptance testing. CMS highly encourages states/territories to iteratively test against the T-MSIS federal system during its testing of changes. Iterative testing is a key success factor in attaining CMS concurrence of T-MSIS readiness. CMS provides a T-MSIS test environment within the Operations Dashboard for state/territory testing effort needs.

State/territory must contact their Technical Compliance TA to coordinate their T-MSIS Testing.

Also, the state/territory must parallel test with T-MSIS. Parallel testing means the state/territory must compare the same reporting period of data from the old system against data from the new system. For example, the state/territory's last production T-MSIS reporting was January 2018; therefore, CMS requires that the state/territory test the new system's test data against the legacy system's current data for the same reporting period (January 2018) to compare results. State/territory parallel testing with T-MSIS should be iterative until the test results meet or exceed state expectations and the quality of the T-MSIS data is as good or better than current system. Once the state/territory completes iterative parallel testing with T-MSIS and are confident in the parallel test results, they then must notify their TA and request for CMS to begin the LSE Data Validation process.

### 5.1.3. Maintain Currency

States/territories must be able to continue their monthly production T-MSIS reporting in their legacy system while working towards the new larger system or project implementations. They must also follow their development methodology and provide updates to CMS on project status and risks.

State/territory must define a mitigation strategy if there is any delay in the project to ensure state/territory will continue to submit monthly production T-MSIS reporting using the legacy system.

## 6. Obtaining CMS Concurrence

Upon notification from state/territory of successful completion of iterative parallel testing, and a request from the State, CMS will start the LSE Data Validation process. CMS data validation for T-MSIS readiness concurrence is a two-step process to review and compare the parallel data from the state's/territory's new system to production data from the state's/territory's legacy system using the same reporting period.

In the first step, the CMS LSE Technical Compliance lead will review and compare the segment Records Counts, and the Error Summary Reports (ESR) for each file from the Operations Dashboard and evaluate the parallel test results to determine if the T-MSIS processing/reporting

meets expectations. The team will work with the state/territory to understand and resolve issue(s). The findings identified in this step must be satisfied with either state system changes or acceptable explanations before moving to step two of LSE Data Validation, which is the Data Quality measure evaluation. **(NOTE: States/territories must plan for a 10-business day turn around for CMS to complete this first step.)**

Step two includes running the T-MSIS data quality measures. The goal of running the DQ measures is to ensure that 1) any issues the state noted would be fixed with the system implementation are resolved in the test data, and 2) no new DQ issues are identified in T-MSIS, especially new critical or high priority issues under the Outcome Based-Assessment DQ methodology (OBA issues) .

Using the data quality measures in the data quality tool (DQT), the CMS DQ team will execute inferential DQ testing against the states/territories test file submission, comparing the results to the data quality report in production for the same reporting period. The team will review issues that are closed/resolved, new issues that appear in the test data, and issues where the measure statistic worsened between the production and test data. The CMS DQ team will provide a summary report of new findings to the state/territory via email at the completion of this processing and analysis. If significant DQ issues are identified, the state will be asked to investigate the reporting and provide an explanation for the change. Should the state require technical assistance to correct the data, the DQ team will work with the state on those issues. In some cases, CMS may request documentation of plans of action via CMS's DQ tracking tool in the CMS Portal at <https://portal.cms.gov/portal/>.

For new data quality issues that are critical or high priority OBA issues, the state will need to address those issues before moving into production. In this case, the state will need to resubmit new test files to the State Prod environment. States will coordinate with their CMS Technical Compliance TA on this submission and processing. Once the new test files are processed, the DQ team will need to rerun the DQ measures. **(Note: State/territory must plan for a 15-business day turn around for the CMS inferential edit process, analysis and report. If the DQ team identifies significant DQ issues in the test data, this process may take longer.)**

The CMS LSE T-MSIS team will review all testing results and deem results ready for implementation before submitting a request to the CMS LSE T-MSIS Lead for concurrence. If no significant issues are identified, the state/territory will be allowed to proceed with implementation and proceed with monthly T-MSIS production submissions under the new system. State/territory will receive CMS email notification of such decision.

If significant issues are identified during parallel testing that from the state's review should not occur in production, the CMS LSE T-MSIS team reserves the right to require that the state's first set of T-MSIS files from the new system be submitted to the test environment (StateProd). Examples of such scenarios are issues the state expects are present only in converted data, issues that result from converting data for testing that would not exist in production data, or issues that the state will address between data validation and implementation but cannot fix during parallel testing. The CMS LSE T-MSIS team will review the T-MSIS data in the test environment to assess Record Counts, Business Rules, and inferential data quality measures. If issues are identified that are either new or were present during parallel testing but not expected in production data, the state will be asked to review and address them. If no significant issues are identified, the state will be informed that they can proceed with submitting data to production under the new system. State/territory will receive CMS email notification of such decision to provide concurrence pending final review of the state's first T-MSIS submission from the new system.

The state/territory T-MSIS project team must consider T-MSIS readiness in their go/no-go decision for system implementation and implement changes only after CMS concurrence of T-MSIS readiness is received. Project schedules must plan accordingly for this step. CMS expects states/territories to maintain monthly T-MSIS reporting with their legacy systems throughout the project duration.

Appendix C – Reference Sources has been provided in this SOP and includes various links to references as well as links cited in this SOP.

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## Appendix B: Project Artifacts

Use Appendix B – Project Artifacts (SOP Reporting Impact) spreadsheet to monitor Project Artifacts requested by CMS and delivered by State/territory

<https://tmsis2.atlassian.net/wiki/spaces/STATE/pages/476676323/Projects+that+Impact+T-MSIS+Reporting+-+Standard+Operating+Procedures>

## Appendix C: Reference Sources

1. Operations Dashboard and Data Quality Tool via CMS Portal  
<https://portal.cms.gov/portal/>
2. T-MSIS Data Dictionary on Medicaid.gov  
<https://www.medicaid.gov/tmsis/dataguide/index.html>
3. State/territory Health Official letter providing guidance to states/territories regarding expectations for Medicaid and Children's Health Insurance Program (CHIP) data and ongoing Transformed-MSIS (T-MSIS) implementation here:  
<https://www.medicaid.gov/Federal-Policy-Guidance/downloads/SHO18008.pdf>
4. Medicaid.gov – Transformed Medicaid Statistical Information System (T-MSIS)  
<https://www.medicaid.gov/medicaid/data-and-systems/macbis/tmsis/index.html>