RISK STRATIFICATION, SEGMENTATION, AND TIERING (RSST) TRANSPARENCY DOCUMENT

Summary At a Glance

This at-a-glance summary offers a brief overview of the *RSST Transparency Document (July 2025)* published by the California Department of Health Care Services (DHCS).

Overview

The Risk Stratification, Segmentation, and Tiering (RSST) algorithm is a predictive analytics solution developed by the California Department of Health Care Services (DHCS) for the Medi-Cal program. It combines advanced analytics with Medi-Cal data and information from other state partners and agencies to generate the risk level of every Medi-Cal member statewide on a monthly basis.

The RSST algorithm was created to make risk stratification in the Medi-Cal program more equitable, consistent, and actionable. Its primary function is to proactively identify individuals at elevated risk for future adverse health outcomes, underutilization of needed care, and social risk factors. RSST's predictive capabilities help MCPs identify gaps in services and to support targeted interventions to help mitigate negative outcomes before they occur.

The RSST algorithm is designed to be transparent, promote equity, and provide a standard approach across the whole state. It provides a scalable, policy-aligned foundation for identifying and addressing care gaps among residents with the most complex or unmet needs, with ongoing refinement planned as part of its lifecycle.

Key Features and Design Principles

- **Standardization:** Uniform risk tiering across all Medi-Cal Managed Care Plans (MCPs), reducing variability.
- **Transparency:** Comprehensive, publicly accessible documentation of model logic, training methods and data, thresholds for classifying risk predictions into tiers, and validation and testing methods.
- **Equity:** Equity was not treated as a one-time metric but as a continuous design consideration, influencing every stage of development—from the fine-tuning of

outcomes and predictor variables to the way subgroup performance was evaluated, to the final tiering decisions.

- **Flexibility:** Modular design allows adjustment of risk domains without changing the core algorithm. The RSST algorithm is structured around multiple domains and subdomains of risk—physical, behavioral, social, and underutilization—so that future policies could adjust their emphasis across these areas without altering the core technical framework.

Model Structure

- **Populations Included:** Adults (18+), Pediatrics (4 months to 17 years); birthing populations to be included in future versions. These three populations have very different risk predictors and outcomes, hence this framework.
- **Domains and Subdomains:** RSST organizes risk into three domains: Adverse Events, Underutilization, and Social Risk. Adverse Events and Underutilization each have two subdomains—Physical Health and Behavioral Health. Social Risk has one subdomain: Adverse Social Events (e.g., housing instability). This five-subdomain structure is applied separately to adults and children, resulting in ten predictive models in total.
- **Risk Tiering**: Each month, members are assigned a risk tier—low, medium-rising, or high—based on the five subdomains. Each subdomain is individually assessed and assigned a risk tier to support equity adjustments. To ensure parity and visibility across all areas, the overall risk tier rating is based on the highest-risk subdomain. In other words, if a member is classified as high-risk in any single subdomain, they are automatically categorized as high-risk overall. This prevents those with high risk from being hidden by averaging the composite score, ensuring each area of risk is recognized independently.
- **Predictor Variables**: Information or data inputs the model uses to predict risks. RSST predictor variables include diagnoses and procedure codes, patterns of health care utilization (e.g., emergency department visits, missed appointments), medication adherence, and social or environmental risk factors (e.g., housing instability).
- **Outcomes:** Future events or results the model is trying to predict, such as inpatient admission or a failure to receive a needed health service in the next 12 months.
- **Data Sources:** Nine years of Medi-Cal administrative claims and eligibility data (2016–2024), partitioned for model training, validation, and testing.

Model Performance

- Area Under the Curve (AUC) indicates how well the models can predict people who will experience an outcome versus people who will not. An AUC of 1.0 means a model predicts outcomes perfectly; 0.5 means the model is no better than flipping a coin. AUC scores for the RSST models range from 0.75 to 0.94, indicating strong predictive performance which compares favorably to similar models in the industry.
- Performance of the models was evaluated using Recall (i.e., how accurately the model identifies members who need support) and Number Needed to Treat (NNT), which measures how many people must be screened to find one person who truly needs assistance. A lower NNT means the model is more efficient—that is, it finds the right members with fewer screenings. NNT scores for the RSST models reflect efficiency at the chosen high-risk threshold: On average, for every 1.75 adults flagged, 1 adult actually experienced the outcome; similarly, for every 1.97 pediatric member flagged 1 experienced outcome—about half of flagged members experienced an outcome (57% and 51%, respectively). Using both Recall and NNT helps us understand how well the model identifies members who would benefit from additional care or services.
- The high-risk tier is capped at 10% of the overall Medi-Cal population in California to align with MCPs' operational capacity. MCPs with more high-risk members may have a higher percentage of members flagged.
- A variety of metrics were used to evaluate the performance of the model. For more information on model performance, please go to the full RSST Transparency Summary Document (page 47).

Maintenance, Monitoring, and Limitations

- RSST outputs are refreshed monthly based on data availability and delivered to MCPs and DHCS via secure systems (e.g. APIs or sFTP).
- A dashboard supports ongoing monitoring of model outputs, which are categorized by county and MCP. Currently, only DHCS has access to this dashboard.
- Limitations include:
    - RSST's reliance on claims and eligibility data, which has an inherent lag of at least three months and reflects historical, rather than real time,

information. Claims data can also be incomplete, which may affect precision when identifying at-risk members.

- Members with partial Medi-Cal coverage (e.g. GHPP, PACT, CCS) or dual Medicare-Medicaid coverage are excluded, creating blind spots for members receiving care elsewhere, though this represents a small portion of the overall population.
- Fixed tier thresholds may need periodic adjustments as populations and care patterns change to maintain fairness and accuracy.

Last updated: December 2025