

The background of the slide features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.

# **Medicaid Analytic eXtract Data (MAX)**

## Providing Data to Researchers and Policy Analysts

An Introduction to MAX Data  
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# What is MAX?

- MAX is a research-ready data source for Medicaid and CHIP calendar year person-level data on eligibility, service utilization and payment information in the 50 states and the District of Columbia (DC)
- MAX's primary input sources
  - The Medicaid Statistical Information System (MSIS)
  - The Transformed Medicaid Statistical Information System (T-MSIS)
- MAX began with CY 1999 when MSIS reporting was first required for all states and DC
  - MAX 1999-2013 data are available for all states and DC
  - MAX 2014 data are available for 32 states
  - MAX 2015 data are available for 21 states

## Purpose of MAX

- The purpose of MAX is to produce data to support research and policy analysis on Medicaid populations.
- There are many analytic uses for MAX that cover various research methods and topic areas:
  - Policy analysis (e.g. effects of ACA)
  - Research and demonstration evaluation
  - Utilization and expenditure trends and variation
  - Comparative effectiveness of alternative therapies
  - Drug coverage issues
  - Quality of care and patient outcomes
  - Disparities in Health Care
  - High cost and vulnerable populations (e.g. dual enrollees, low income children)
  - Epidemiology/Analysis of selected health conditions
  - Forecasting and budget estimates
  - Use of waiver and home- and community based services (HCBS)
  - Managed care assessment
  - Provider participation and access
  - And many more topics

## MAX Derived from MSIS and T-MSIS

- MAX files are produced from 7 fiscal year (FY) quarters of MSIS or MSIS and T-MSIS source data
- MAX transforms data from the fiscal year quarters to calendar years
- The source data used include:
  - 4 FY quarters of data to complete the current MAX calendar year of production (January-December); plus
  - 3 additional quarters of FY data following the calendar year (January - October)
  - Monthly beneficiary status
  - Adjudicated claims (original, credits, debits and voids)

## MAX Derived from MSIS and T-MSIS (Cont'd.)

- **These additional quarters of source data allow**
  - A higher level of completeness in MAX data files
  - More updated information on eligibility and adjudicated claims
- **This more complete and updated information affects eligibility and claims**
  - For enrollment, most retroactive and correction records are included
  - For fee-for-service claims, a very high percent of all claims are included, although some may not be captured because the time from date of service to date of adjudication may be longer
  - Although states usually submit encounter records in batches, it is usually the case that a high percentage of encounter records are captured
- **Oversight and management**
  - For T-MSIS - The Center for Medicaid and CHIP Services (CMCS)
  - For MAX - The Office of Enterprise Data and Analytics (OEDA)

# Types of Data Captured in MAX

- **Person Summary (PS) File**
  - Enrollee eligibility and demographic data elements
  - A summary of utilization and spending
- **Services files - fee-for-service and managed care encounters**
  - Inpatient Hospital (IP)
  - Long-Term Care (LT) - four types of LT services
  - Other Services (OT), including
    - Physician
    - Outpatient Hospital
    - Clinic
    - Home Health
    - Dental
    - Other Practitioners and Services
  - Prescription Drug (RX)
    - Drugs, supplies and other covered items provided by free-standing pharmacies
    - A version of this file with additional data from commercial vendors - available only to authorized users

# MAX Production Process

To make MAX files research-ready, the production process:

- Applies retroactive determinations and corrections to enrollment records
- Combines interim claims (originals, voids, credits and debits) to create final action service event records
- Selects the last-best demographic data for enrollees
- Provides data consistency by calendar year
  - Organizes eligibility data by month within a calendar year
  - Organizes claims, encounter and premium payment records by service dates within calendar year
- Merges summaries of claims data onto enrollment records
- Adds selected enrollee data to claim records
- Compares to external sources to verify data quality
- Corrects known data problems using customized business rules

# MAX Production Enhancements

- **Reviews and edits state coding**
  - MSIS eligibility groups
  - MSIS types of service
- **Adds types of service, important to researchers, beyond those available in MSIS**
  - Durable medical equipment and supplies
  - Residential care
  - Psychiatric service
  - Adult day care
- **Creates a delivery indicator**
- **Captures ICD-9-CM and ICD-10 diagnosis code**



## MAX Production Enhancements (Cont'd)

- Links to the Medicare Enrollee Database (EDB) - expands and improves information on dual Medicaid-Medicare enrollees
- Links to SSA's Death Master File (DMF) - improves death reporting
- Links with the Medi-Span and First Data Bank databases - adds valuable information on prescribed drugs
  - Therapeutic use of each drug
  - Multi-source code
  - Over-the-counter indicator

## MAX Production Enhancements (Cont'd)

- Link to the Home- and Community-Based Services (HCBS) taxonomy - identifies HCBS services according to an accepted national classification system
- Links to state-provided identifier cross-reference files - un-duplicates enrolled individuals within a state (when possible)

# MAX Data Users

- **CMS and HHS Organizations**

- CMS components, including CMMI, OEDA, CMCS (including the Division of Tribal Affairs), OACT and OA
- Office of the Assistant Secretary for Planning and Evaluation
- National Center for Health Statistics (NCHS)
- Agency for Healthcare Research and Quality (AHRQ)
- National Institutes of Health (NIH)
- Centers for Disease Control (CDC)

- **Other Federal Organizations**

- U.S. House of Representatives
- Medicaid and CHIP Payment Assessment Commission (MACPAC)
- Office of the Inspector General (OIG)
- Government Accountability Office (GAO)
- Congressional Budget Office (CBO)
- Congressional Research Service (CRS)
- Veteran's Administration (VA)
- Census Bureau

# MAX Data Users (Cont'd)

- **Many Other Organizations**

- State governmental entities, including Medicaid agencies
- Local government
- Consulting firms
- Foundations
- Health policy research organizations
- Medical facilities
- Clinical researchers
- Universities, including sponsorship of dissertation work

# How to Access MAX

- **‘Internal’ Users**

- Administrative requirements
  - CMS staff - Internal approval
  - CMS contractors - Execution of a Data Use Agreement (DUA)
- Availability primarily as flat files on the CMS mainframe

- **‘External’ Users**

- Administrative requirements
  - Processing of a request through ResDAC
  - Review by CMS Privacy Board
  - Execution of a DUA
  - Payment of a data access fee, as required
- Availability through the CCW/VDRC

- **All approvals are one-time and project-specific**

# User Support and Documentation

- **Technical training and assistance from ResDAC**
- **MAX products on the CMS website**
  - Data dictionaries
  - SAS load statements
  - Validation reports
    - Over 1,900 measures
    - Comparison of target year to two prior years
  - Anomaly tables
  - Record counts by state and year
  - Issue briefs on various topics, including a MAX User Guide
  - Other support materials

# Transition to T-MSIS

## Transformed MSIS (T-MSIS) has replaced MSIS

- Monthly (T-MSIS) vs. quarterly (MSIS)
- Existing files remain but with new data elements in T-MSIS (1,500) vs. MSIS (300)
- New T-MSIS files
  - Provider
  - Managed care
  - Third-party liability
- More flexible format with relational segments and variable length (T-MSIS) vs. flat fixed length files (MSIS)
- Automated data review (T-MSIS) vs. automated and manual review (MSIS)
- Error records to be corrected by states (T-MSIS) vs. file acceptance or rejection (MSIS)

# Effect of T-MSIS on MAX

- **Once a state transitioned to T-MSIS, MAX production used T-MSIS as the source data**
  - MAX production continued through calendar year 2015
  - MAX used either MSIS or T-MSIS data as the primary input
  - MAX was produced as flat fixed-length files
  - MAX is available primarily through the Chronic Condition Warehouse (CCW) Virtual Data Resource Center (VDRC)
- **T-MSIS Analytic Files (TAF) replace MAX**
  - Selected states in 2014 and 2015
  - All states in 2016



# Questions, Comments and Suggestions

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