

Using Data Visualization to Understand Beneficiary Health and Drive Improvement in Medicaid & CHIP



A hand is shown placing a wooden block with a blue plus sign on top of a stack of other wooden blocks. The blocks in the stack feature various medical icons: a heart with a plus sign and a pulse line, two pills, a syringe, a person in a wheelchair, and a first aid kit. The word 'AGENDA' is written vertically in a light blue banner on the right side of the image.

AGENDA

- Welcome and Introductions
- DSG/CMCS Data Visualizations to Drive Improvement in Medicaid & CHIP
- North Carolina Medicaid Data Visualization Journey
- Healthier Washington Measures Dashboard
- Question & Answer



DSG/CMCS Data Visualizations to Drive Improvement in Medicaid & CHIP

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AGENDA (2)

- CMS Strategic Vision
- DSG's Efforts to Improve Data Quality
- DSG's Efforts to Enhance Equity Data
- DSG's Visualization and Analytics Work



CMS Strategic Vision



CMS Strategic Pillars

CMS Strategic Plan

CMS serves the public as a trusted partner and steward, dedicated to advancing health equity, expanding coverage, and improving health outcomes.

CMS Strategic Pillars

ADVANCE EQUITY

Advance health equity by addressing the health disparities that underlie our health system



EXPAND ACCESS

Build on the Affordable Care Act and expand access to quality, affordable health coverage and care



ENGAGE PARTNERS

Engage our partners and the communities we serve throughout the policymaking and implementation process



DRIVE INNOVATION

Drive Innovation to tackle our health system challenges and promote value-based, person-centered care



PROTECT PROGRAMS

Protect our programs' sustainability for future generations by serving as a responsible steward of public funds



FOSTER EXCELLENCE

Foster a positive and inclusive workplace and workforce, and promote excellence in all aspects of CMS' operations





DSG's Efforts to Improve Data Quality



Data Quality, Visualizations, and Equity: “We can’t fix what we don’t know.”

DQATLAS

Explore by Topic

Explore by State

Resources

Medicaid.gov
Keeping America Healthy

SELECT A VIEW

Explore Single Topic

Compare Across Topics

SELECT A TOPIC FROM THE LIST BELOW

Search for a topic...



TOPIC AREAS

EXPAND ALL >

Linking Across Files >

Enrollment Benchmarking >

Enrollment Patterns Over Time >

Beneficiary Information >

Claim Files Completeness >

Expenditure Benchmarking >

Payments >

Financial Reporting >

OVERVIEW

Exploring Data Quality (DQ) Assessments by Topic

View data quality assessments on topics such as enrollment, claims, expenditures, and service use.

GETTING STARTED

From the left selection panel:

- 1 Select a view to explore DQ Assessments either for a single topic or to compare across multiple topics.
- 2 Select the topic(s) you want to see from the list of topic areas and topics.

WHAT INFORMATION WILL I FIND IN DQ ATLAS?

SELECT A RESOURCE

DQ Assessments

DQ Assessments

Background and Methods

The charts, maps, and tables in DQ Atlas show state-level **DQ Assessments** and associated measure values for topics that are pertinent to Medicaid and the Children’s Health Insurance Program.

DQ Snapshots

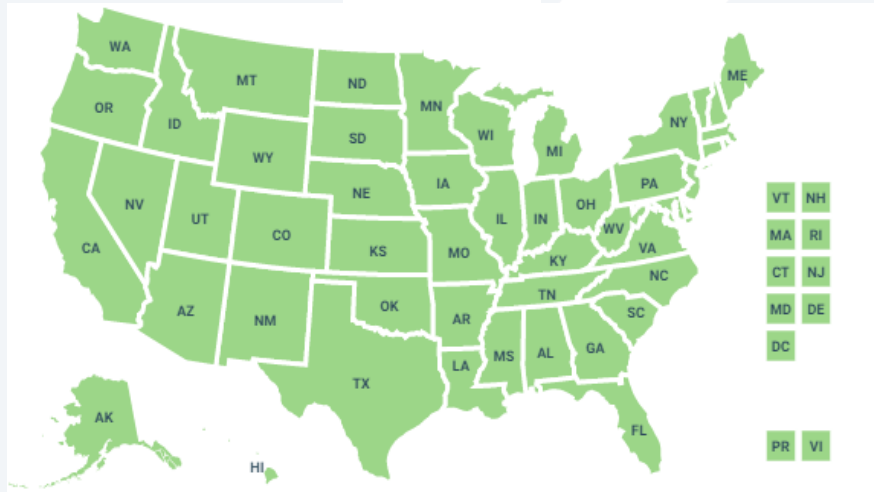
DQ Snapshots

Feedback

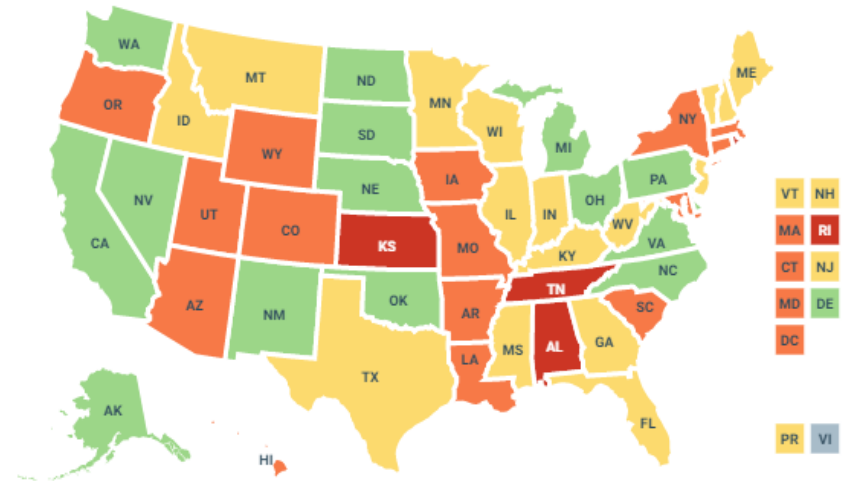


DQ Visualizations Drive Data Quality Improvements: Medicaid DQ Atlas

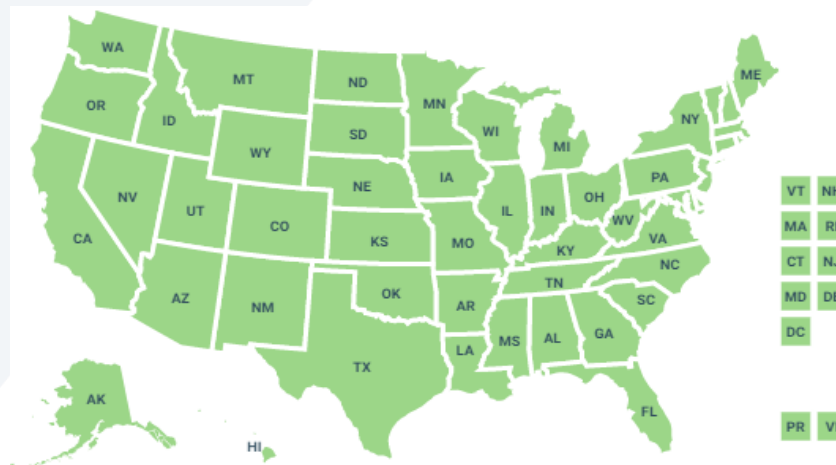
Gender



Race and Ethnicity



ZIP Code





DSG's Efforts to Enhance Equity Data



Enhancing Equity-Related Data: Race/ Ethnicity Imputations

Administrative surname data

Residential address data



Racial and ethnic probability for each data point

American Indian/Alaska Native, Asian and Pacific Islander,
Black, Hispanic, Multiracial, White

- **Bayesian Improved Surname Geocoding**
- **Medicaid + CHIP Enhancements:**
 - First name
 - American Indian/Alaskan Native Certification variable
 - Calibrating estimates to ACS results
- **Timeframe:** 2016 – 2020

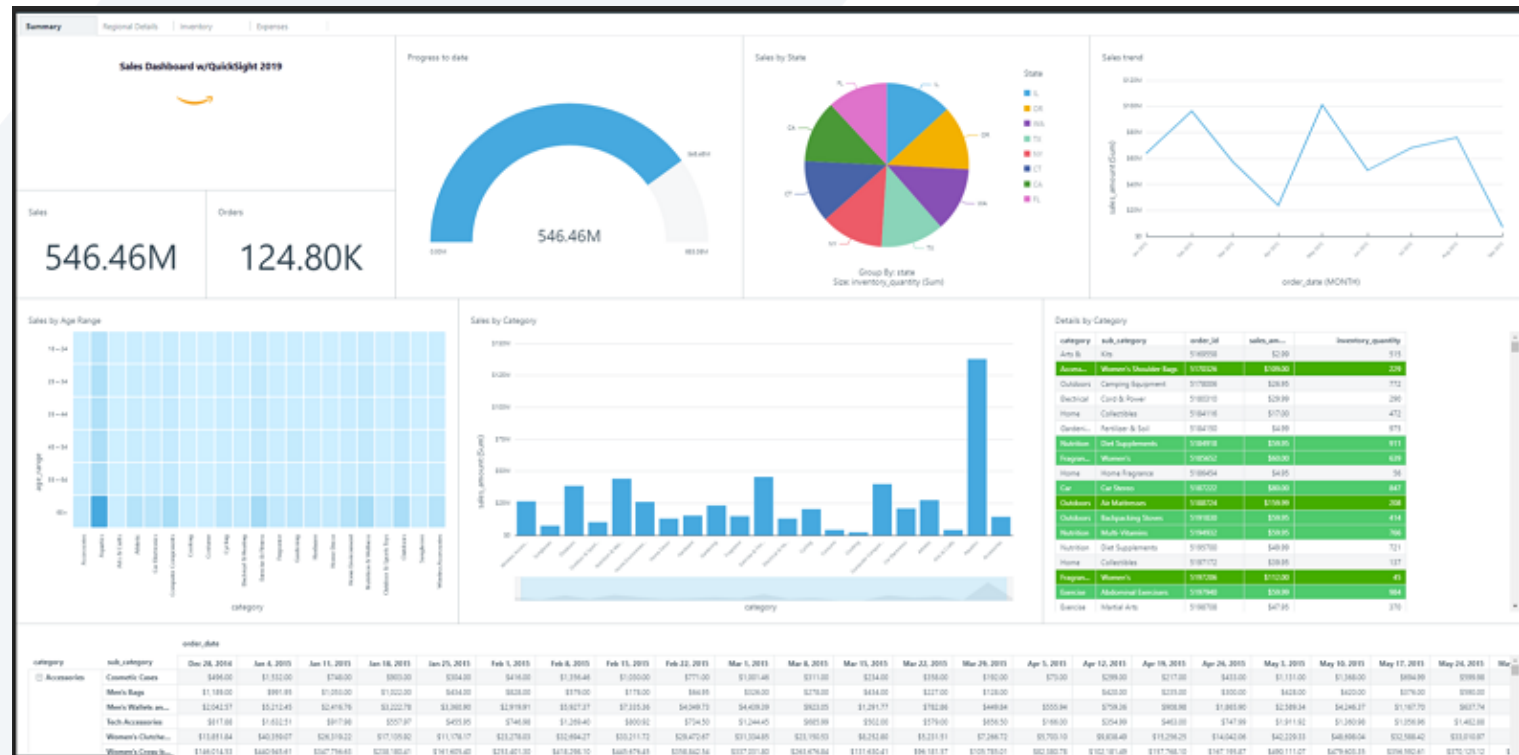


DSG's Visualization and Analytics Work



DSG is using Internal Dashboards to Improve Data Visualization for Medicaid and CHIP

- Focus on centralized, easy-to-access and use tools (Amazon QuickSight)
- Key topics of importance for Medicaid & CHIP
- Increasing complexity over development cycles
- Currently for internal use only



Health Equity Dashboard will Enhance our Understanding of Medicaid and CHIP

- **Content:** policy adoption, behavioral and physical health, dental, maternal and child health, primary care, enrollment, LTSS
- **Timeframe:** 2018 – 2020
- **Geography:** national and by state
- **Equity-related stratifiers:** sex/gender identity, disability related eligibility pathway, primary language, race/ethnicity, rural residence, age



Future DSG Dashboard Development for Internal Monitoring of Key Program Areas

- **Opioids:** morphine milligram equivalents (MME)
- **Pregnancy:** development of pregnancy episode file + associated dashboard
- **Key Summary Stats:** summary of enrollment and utilization
- **Behavioral Health:** mental health + substance use disorder
- **Increasing complexity:** add additional information over development lifecycle, i.e., chronic conditions, cost, episodes of care





North Carolina Medicaid Data Visualization Journey

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AGENDA (3)

- History/Background
- Configuration
- Demo

History/Background

- Joined NC Medicaid in 2016.
- Existing legislation required NC Department of Health and Human Services (NC DHHS) to publish comprehensive information on Medicaid payments made to providers to its website.
- Also included the directive to generate an interactive site to access the information.
- Decided to add dashboards for other, existing reports published to the website (enrollment, annual report tables, HEDIS measures).

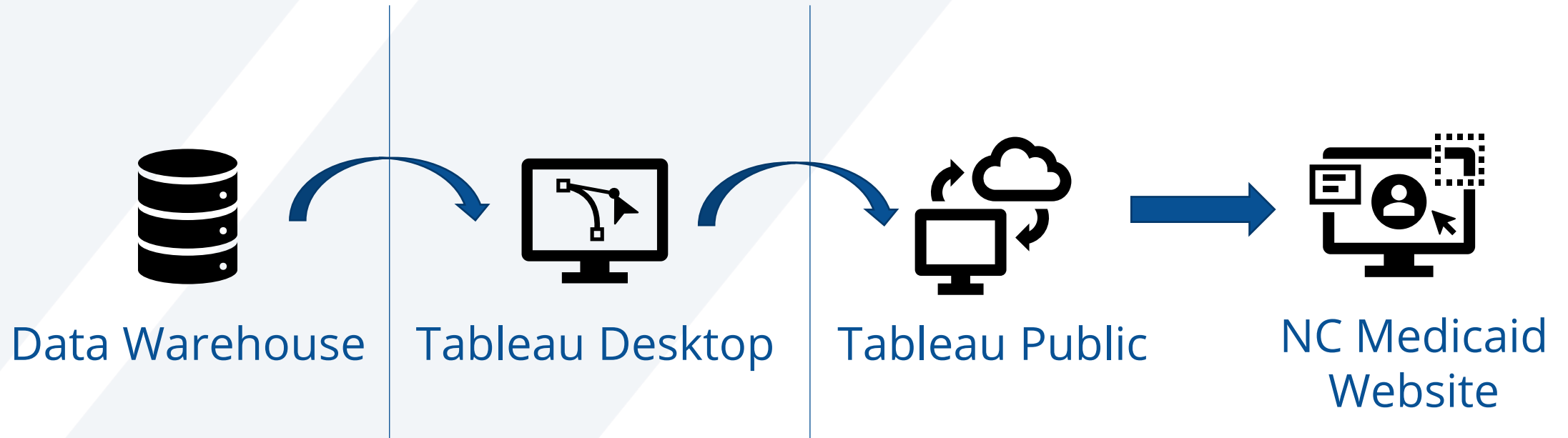


History/Background (1)

- Decided to use Tableau Desktop to develop the dashboards and Tableau Public to host them.
- Tableau Public provides link to embed in website (Drupal-based).
- Went through an iterative development process with Communications team.
- Initially we only embedded dashboards for reports/data that were being published the web site as well.



Initial Configuration

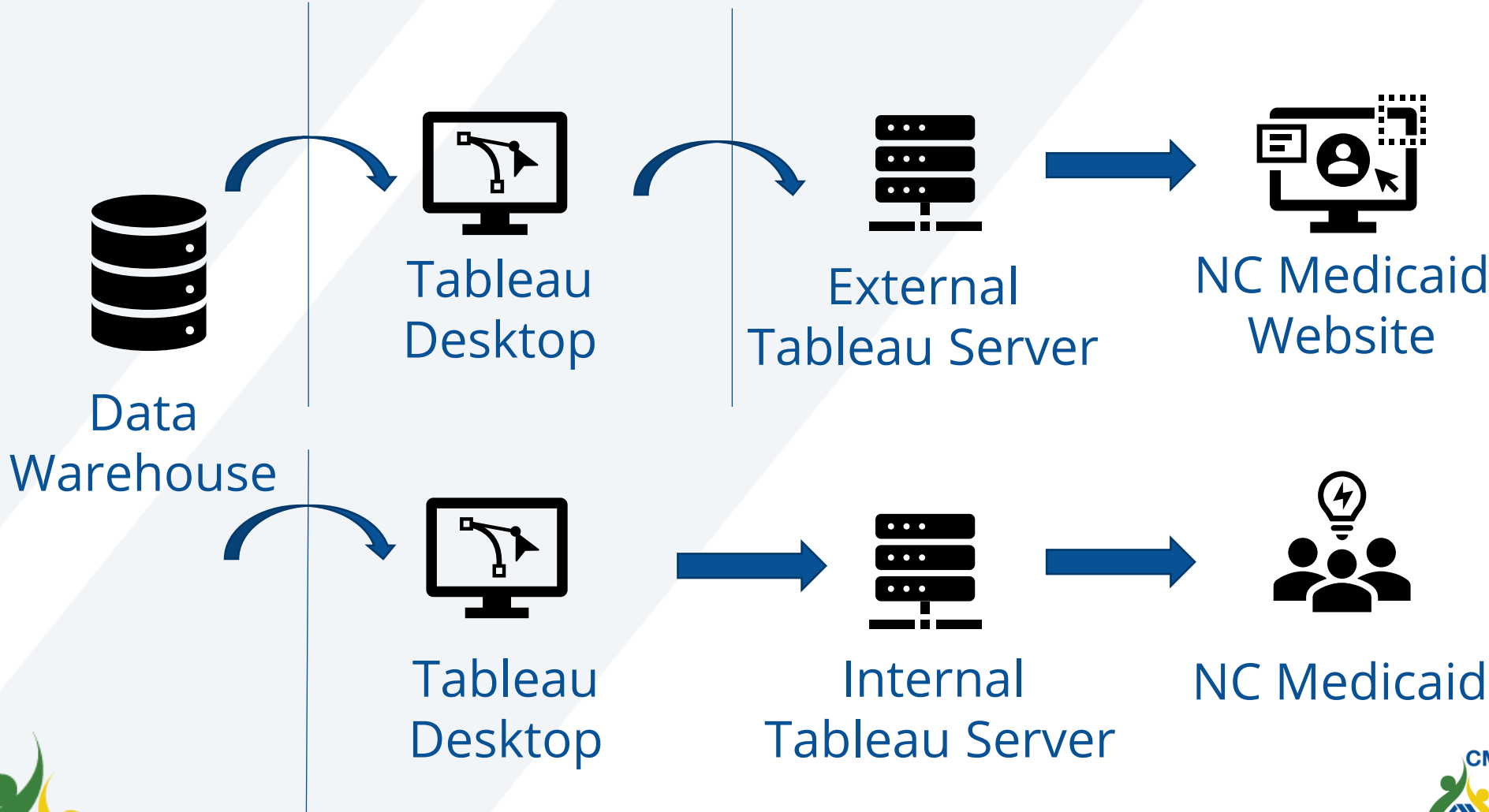


History/Background (2)

- Around same time, NC DHHS and the NC Department of Information Technology (NC DIT) both began exploring using Tableau on a broader scale.
- NC DIT signed statewide agreement for Tableau licensing.
- NC DHHS deployed two on-premises servers: one internal-facing and one public-facing. Sites on each were created for the different divisions.
- The internal server has named-licenses. The external server has core-license and has a “guest” role for public access.



Current Environment



Demo

<https://medicaid.ncdhhs.gov/reports/dashboards>





Healthier Washington Measures Dashboard

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Washington State Health Care Authority

Pronouns: she/her



History and Purpose

- The Healthier Washington dashboard was created in 2016 in Support of the Medicaid Transformation Project (MTP) Initiative 1.
- The dashboard displays health care quality metrics for the Washington state Medicaid population.
- This includes Pay for Performance metrics that are part of MTP.



The Data (1 of 2)

- The Analytics, Research & Measurement (ARM) team leads the entire process, starting from our ProviderOne claims data, Washington's Medicaid Management Information System (MMIS).
- The dashboard is updated quarterly, which includes adding one more period of data, refreshing all previous data, and any enhancements. We have a 6-month lag in our data.
- While most quality metrics are annual, to give more frequent updates, we calculate the metrics at rolling 12-month periods. For example:

01/2020-12/2020

04/2020-03/2021

07/2020-06/2021

10/2020-09/2021

01/2021-12/2021



The Data (2 of 2)

- We stratify metrics by geography, age range, gender, language, and race/ethnicity (combined).

Region	Age Group	Gender	Language	Race Type	Race Name
All State	All	All	All	Inclusive	All

- We do all calculations and aggregations in SAS and/or SQL.
- The dashboard is built in Tableau and hosted on a Tableau server.



Dashboard Demo

[Healthier Washington Measure Explorer & Trend Dashboard](#)



More Data: The ARM Dashboard Suite



The **Analytics Research & Measurement (ARM) Dashboard Suite** contains information to address questions around health service utilization by Washington State Medicaid enrollees. The dashboard suite consists of several individual dashboards that provide information on who have had emergency room visits or, Inpatient admissions, common diagnoses associated with health service utilization, Medicaid density, Opioid Use Disorder (OUD) Treatment, measures for healthcare quality and, links to ARM data products. Dashboard data is refreshed regularly to provide the most up-to-date information to users to aid decision-making. ARM team strives hard to add new information to the dashboards based on emerging needs of users and our partners. For more information, questions or feedback contact us at HCAHWARM@hca.wa.gov.

Technical document and frequently asked questions can be accessed by clicking on icons available at top-right corner of the dashboard.

<p>Emergency Room</p> <p>Emergency room visits and diagnoses</p>	<p>Inpatient Facility</p> <p>Inpatient facilities and primary conditions</p>	<p>Medicaid Explorer</p> <p>Medicaid enrollees density in Washington</p>	<p>Opioid Use Disorder Treatment</p> <p>Opioid Use Disorder (OUD) Treatment</p>	<p>Healthier Washington Measures</p> <p>Healthier Washington Measures Dashboard</p>
<p>Maternal and Child Health Measures</p> <p>Maternal and Child Health Measures</p>	<p>Foundational Community Services Providers Map</p> <p>Foundational Community Services Provider Map</p>	<p>Health Home Service Providers</p> <p>Health Home Service Providers Locator</p>	<p>ARM Data Products</p> <p>ARM Data products on Box.com</p>	

Question & Answer

