

## CAPSTONE FINAL PROJECT PROPOSAL REPORT -Week 6

**Project Goal:** The primary goal of this project is to analyze the quality of care in Medicare Advantage (MA) plans using HEDIS measures and CMS Star Ratings. We aim to identify trends in HEDIS performance, examine CMS Star Rating cut points and their impact on plan rankings, assess the relationship between plan quality and enrollment trends, and provide data-driven recommendations to improve MA plan quality. This analysis will generate insights for policymakers, insurers, and healthcare providers, helping to improve Medicare Advantage plan quality and patient outcomes.

**HEDIS and CMS Star Ratings:** HEDIS (Healthcare Effectiveness Data and Information Set) is a set of standardized performance measures used to assess healthcare quality. These measures cover preventive care, chronic disease management, and patient outcomes. CMS Star Ratings evaluate the quality of Medicare Advantage plans based on HEDIS performance, member satisfaction, and other key factors. Plans receive ratings from 1 to 5 stars, which impact reimbursements, bonuses, and enrollment trends.

### How CMS Evaluates Medicare Advantage Plan Quality Performance

CMS evaluates Medicare Advantage (MA) plan quality performance using a **5-star rating system** based on several key domains. These ratings influence **plan reimbursements, bonuses, and enrollment trends**. The evaluation is based on the following categories:

<u>Category</u>	<u>Description</u>	<u>Weight in Star Ratings</u>
<b>Clinical Quality (HEDIS Data)</b>	Measures preventive care, chronic disease management, and overall patient outcomes.	<b>50%</b>
<b>Member Experience (CAHPS Survey)</b>	Assesses patient satisfaction with access to care, provider communication, and overall healthcare experience.	<b>30%</b>
<b>Customer Service &amp; Complaints</b>	Evaluates plan responsiveness, complaints, appeals, and how effectively issues are resolved.	<b>15%</b>
<b>Drug Safety &amp; Pricing Accuracy</b>	Examines medication adherence, formulary accuracy, and access to necessary medications.	<b>5%</b>

### Star Rating Calculation

- Each plan is rated on a **1 to 5-star scale**, where **5 stars indicate excellent performance** and **1 star reflects poor quality**.
- Scores are calculated by **CMS using a weighted average** of individual measure scores across the above categories.
- Plans receiving **4+ stars** qualify for **higher reimbursement and bonuses**, while **low-rated plans (under 3 stars)** may face enrollment restrictions.

## Data and Preliminary Work: Data Sources and Description

For this project, we have gathered Medicare Advantage (MA) plan quality data from publicly available sources provided by **CMS (Centers for Medicare & Medicaid Services)**. The datasets include key metrics that help evaluate plan performance, patient outcomes, and overall healthcare quality. Below are the details of the data sources used in our analysis:

### 1. HEDIS Public Use Files (2024)

- The **Healthcare Effectiveness Data and Information Set (HEDIS)** is a standardized set of performance measures used to assess health plan quality.
- It includes data on **preventive care, chronic disease management, patient outcomes, screenings, vaccinations, and medication adherence**.
- These measures are used by CMS to evaluate Medicare Advantage plans and contribute to the **CMS Star Ratings**.

### 2. 2023 Star Ratings Data Tables

- This dataset contains **historical CMS Star Ratings** assigned to Medicare Advantage plans in 2023.
- It includes **plan performance on quality measures such as patient experience, customer service, and clinical outcomes**.
- The data helps in identifying trends and variations in plan ratings over time.

### 3. 2024 Star Ratings Data Tables

- This dataset provides the most recent **CMS Star Ratings for 2024**.
- It includes **updated quality measure scores, rating cut points, and plan rankings** based on performance.
- It helps in understanding how plan quality changes from year to year and its impact on **enrollment, reimbursement, and provider performance**.

**Data Cleaning & Preprocessing:** Checking for missing values: We identified and noted any incomplete data points. • Reviewing the relevance of columns: We assessed the columns to ensure they are useful for the analysis. • Ensuring data consistency: We verified that all datasets align in terms of formatting and variables. • Data Loading: After preprocessing, we loaded the cleaned datasets into our analytical environment and conducted a hex check to validate completeness.

## Next Steps:

1. Exploratory Data Analysis (EDA): Analyze HEDIS performance trends across different plans. • Examine Star Ratings distribution and historical cut point changes. • Assess the relationship between enrollment and plan quality scores.
2. Python Programming for Analysis: We plan to use Python for further data analysis, including advanced data manipulation, visualization, and statistical modeling.
3. Interactive Dashboards: Visualization: We will develop interactive dashboards using tools like Plotly or Streamlit to visualize key trends in HEDIS measures, Star Ratings,

and enrollment patterns. These dashboards will provide dynamic, real-time insights for policymakers, insurers, and healthcare providers.

**Conclusion:** We have successfully gathered and reviewed the data in preparation for the next phase. Moving forward, we will leverage Python programming to conduct deeper analysis and produce interactive visualizations, providing valuable insights for stakeholders in the Medicare Advantage space.