Adalimumab Biosimilar Uptake in US Medicaid: A 5-Year Analysis of Managed Care, Fee-for-Service, and State Policy Expenditure Trends (2021–2025)

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Background

- **The Shift in the Market:** In 2024, the US adalimumab market saw a rapid acceleration in biosimilar utilization, largely driven by major PBM formulary exclusions rather than organic physician preference. By late 2024, biosimilar volume share had increased significantly compared to 2023, where originator Humira retained nearly 98-99% market share (IQVIA, 2024, Truveta, 2024).
- **PBM Influence:** The "Big 3" PBMs (CVS, Express Scripts, Optum) heavily influenced this shift. For example, CVS Caremark's removal of Humira from major commercial formularies in April 2024 led to near-total conversion to specific preferred biosimilars within their book of business (CVS Health, 2024, Cigna, 2024).
- **Concentration of Utilization:** Biosimilar adoption is highly concentrated among a few specific products favored by these PBMs, such as Hyrimoz, rather than being evenly distributed across all approved adalimumab biosimilars (Samsung Bioepis, 2024).
- **The Pricing Dichotomy:** The market is divided between "High WAC" (high list price, rebate-driven) and "Low WAC" (low list price, transparency-driven) products, with High WAC products currently dominating utilization due to PBM preference (PSG, 2024).
- **The Need for Medicaid-Specific Analysis**: While commercial trends are heavily tracked, understanding how these national PBM shifts influence state-administered Medicaid programs which have varied structures (e.g., MCO vs. FFS, Carve-In vs. Carve-Out) requires dedicated, longitudinal analysis.

Objective

- To quantify the longitudinal market shift from reference adalimumab (Humira) to biosimilars within US Medicaid programs over a 5-year period, evaluating the impact of Managed Care Organization (MCO) versus Fee-for-Service (FFS) utilization and broader state-level policies (e.g., carve-outs, Medicaid expansion).

Methods

- **Data Source & Scope:** Conducted a retrospective, longitudinal analysis using Centers for Medicare & Medicaid Services (CMS) State Drug Utilization Data (SDUD) from Q1 2021 through Q2 2025.
- **Product Identification & Metrics:** Adalimumab products were identified by National Drug Codes (NDCs) and categorized as reference (Humira) or biosimilar. To prevent artifacts from inconsistent unit-of-measure reporting across manufacturers (e.g., milligrams vs. pre-filled syringes), market share was strictly calculated using Total Amount Reimbursed (Expenditure Share).
- **Stratification & Statistical Analysis:** Data processing and time-series aggregations were performed. Expenditure trends were stratified geographically and evaluated against state-level policy variables, including Managed Care Organization (MCO) vs. Fee-for-Service (FFS) utilization, pharmacy benefit carve-out status, and Medicaid expansion status.
- **Data Analysis:** All analyses conducted using Stata v. 19.0 (StataCorp LLC, College Station, TX). Statistical significance was not assessed.

Results

Biosimilar Expenditure Share by Plan Type, Carve Status and Expansion Status^

Plan Type	Carve Status	Expansion Status	Biosimilar Share (%)	Humira Share (%)	Total Spend ($B)
MCO	Carve-Out	Expansion	**88.4**	11.6	$0.29
MCO	Carve-Out	Non-Expansion	**87.0**	13.0	$0.02
FFS	Carve-In	Non-Expansion	47.9	52.1	$0.45
FFS	Carve-Out	Expansion	43.8	56.2	$7.85
MCO	Carve-In	Expansion	43.5	56.5	$11.80
MCO	Carve-In	Non-Expansion	41.5	58.5	$1.58
FFS	Carve-In	Expansion	39.9	60.1	$2.65
FFS	Carve-Out	Non-Expansion	33.5	66.5	$0.31

[a] Data source: CMS State Drug Utilization Data (SDUD), aggregated across Q1 2021 – Q4 2025.
[b] **Plan Type Definitions:**
- **MCO (Managed Care Organization):** Medicaid beneficiaries enrolled in capitated managed care plans where pharmacy benefits are typically administered by PBMs.
- **FFS (Fee-for-Service):** Traditional Medicaid where states directly reimburse pharmacies for dispensed medications based on state-administered fee schedules.

[c] **Carve Status Definitions:**
- **Carve-In:** Pharmacy benefits are included ("carved in") to the MCO capitation rate; MCOs manage the pharmacy benefit directly.
- **Carve-Out:** Pharmacy benefits are excluded ("carved out") from MCO contracts; the state administers pharmacy benefits separately, often through a contracted or preferred drug list (PDL).

[d] **Expansion Status:** Refers to whether the state expanded Medicaid eligibility under the Affordable Care Act (ACA) as of 2025. Carve status classifications were derived from KFF Medicaid Managed Care Tracker and state pharmacy benefit administration reports.
[e] Biosimilar share includes all adalimumab biosimilars combined (Cyltezo, Amjevita, Hadlima, Simlandi, Hyrimoz). Humira share represents the reference product only.
[f] Total Spend reflects cumulative reimbursement across the 5-year study period for each plan type/carve status/expansion status combination.
[g] The notably higher biosimilar adoption in MCO Carve-Out programs (87–88%) may reflect state-level preferred drug list (PDL) policies that favor biosimilar placement or mandatory biosimilar substitution requirements in carved-out pharmacy programs.

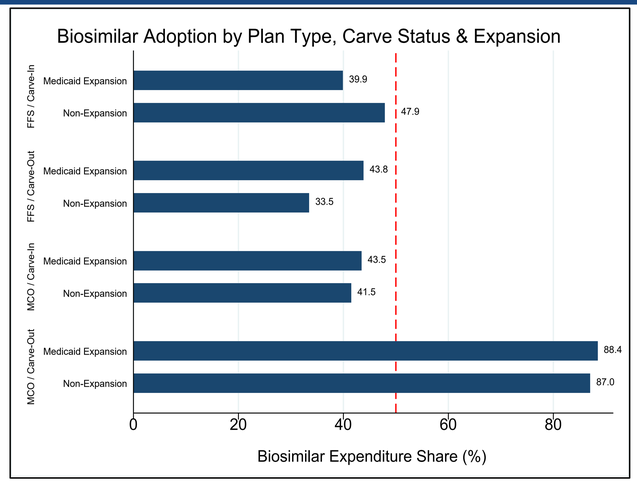

Figure Notes: Biosimilar Expenditure Share by Plan Type, Carve Status, and Medicaid Expansion Status, 2024-2025. Horizontal grouped bar chart comparing biosimilar adoption across 8 Medicaid program configurations. MCO Carve-Out programs achieved highest biosimilar adoption (87-88%). Bars grouped by Expansion (navy) vs. Non-Expansion (green) states. Red dashed line indicates 50% threshold. Carve-Out states: CA, MO, ND, NY, TN, WI, WV. Non-Expansion states: AL, FL, GA, KS, MS, SC, TN, TX, WY. Data source: CMS SDUD.

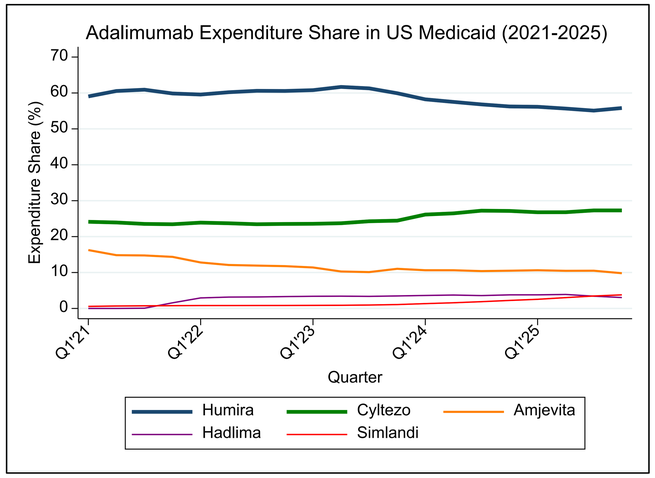

Figure Notes: Adalimumab Expenditure Share by Product in US Medicaid, Q1 2021 – Q4 2025. Quarterly expenditure share trends for adalimumab products. Humira (reference product, navy) declined from 59.0% to 55.8%. Cyltezo (green) remained the dominant biosimilar at ~27%. Amjevita (orange), Hadlima (purple), and Simlandi (red) showed varying trajectories. Data source: CMS State Drug Utilization Data (SDUD).

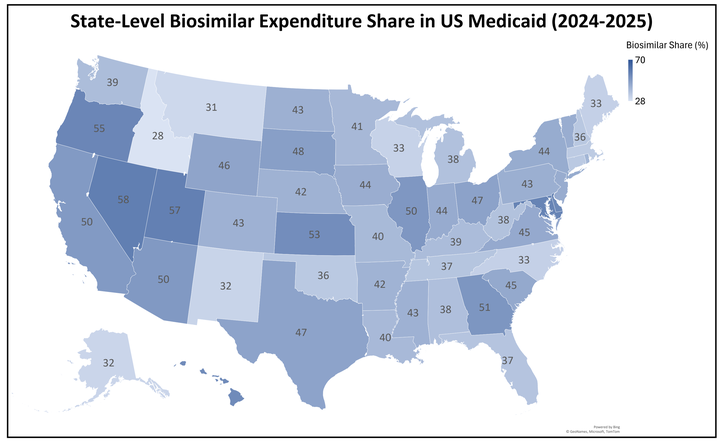

Figure Notes: State-Level Biosimilar Expenditure Share: Top 10 and Bottom 5 States, 2024-2025. Horizontal bar chart ranking states by biosimilar expenditure share for adalimumab products. DC led with 69.9%; ID had lowest adoption at 27.9%. Red dashed line indicates 50% threshold. State-level variation reflects differences in PDL policies, 340B participation, and managed care penetration. Data source: CMS SDUD.

- **Limitations:** SDUD captures outpatient retail pharmacy claims only; physician-administered adalimumab (e.g., medical benefit claims) are not included. Rebate data are not publicly available; reported expenditures reflect pre-rebate amounts.
- **Figure Notes:** All data derived from CMS State Drug Utilization Data (SDUD), Q1 2021 – Q4 2025. Expenditure share calculated as Total Amount Reimbursed per product divided by total adalimumab market reimbursement. Carve-Out states: CA, MO, ND, NY, TN, WI, WV. Non-Expansion states: AL, FL, GA, KS, MS, SC, TN, TX, WY. Red dashed lines indicate 50% market share threshold. Analysis conducted using Stata v. 19.0.
- **Abbreviations:** FFS = Fee-for-Service; MCO = Managed Care Organization; PDL = Preferred Drug List; SDUD = State Drug Utilization Data.

Key Findings and Policy Implications

MARKET SHIFT

Humira share **declined** from **59% → 56%** over 5 years Biosimilars now **represent ~44%** of Medicaid adalimumab expenditure↓ 3.2%

DOMINANT BIOSIMILAR

Cyltezo leads Medicaid biosimilar market **~27% share** Cyltezo's interchangeability designation enables automatic pharmacy substitution in most states

POLICY IMPACT

MCO **Carve-Out** programs achieve **88% biosimilar adoption** vs. Carve-In at 42%. This is the strongest predictor of biosimilar uptake in Medicaid

GEOGRAPHIC VARIATION

State-level biosimilar share ranges from: 27.9% (Idaho) to 69.9% (DC), **42% gap** reflecting differences in state PDL policies, 340B participation, and managed care penetration

MARKET GROWTH

Total Medicaid adalimumab market grew **63% over 5 years** $1.9B to $3.1B (Q1 2021-Q4 2025), Reflects increased utilization across Medicaid population

POLICY IMPLICATIONS

Medicaid biosimilar adoption is driven by:

✓ State-level **PDL contracting strategies**
✓ **Interchangeability** designation (enables auto-substitution at pharmacy)
✓ **Carve-Out** program structure (state-administered pharmacy benefits)

States seeking to increase biosimilar adoption should consider carve-out policies and PDL biosimilar preferences