



**CONNECTICUT RETAIL PHARMACY DASHBOARD  
TECHNICAL NOTES**

VERSION 3, JUNE 2025

## Introduction

The Connecticut Retail Pharmacy Dashboard supports analysis of retail pharmacy spending, compares cost and utilization metrics by drug category, and identifies drugs that account for the largest share of total spending.

Mathematica built the Retail Pharmacy Dashboard on behalf of and in consultation with Connecticut's Office of Health Strategy and Bailit Health. The dashboard uses the Power BI platform.

This document summarizes the data and methods used to create the Retail Pharmacy Dashboard.

## Data

The Retail Pharmacy Dashboard shows key spending and utilization statistics for retail pharmacy claims from 2018 to 2023 in the commercial, Medicaid, and Medicare Advantage<sup>1</sup> markets. The data source for the dashboard is Extract 6012 from Connecticut's All Payer Claims Database (APCD), which includes claims paid through June 30, 2024.

## Analytic population

The Retail Pharmacy Dashboard uses analytic files produced using pharmacy claims and enrollment data from the state's APCD. The APCD receives claims from the Medicaid, Medicare Advantage, and commercial markets. The commercial market includes fully insured commercial plans, state employee plans, and partnership self-insured plans. Self-insured plans are not required to submit data to the APCD, per the *Gobeille v. Liberty Mutual* decision.<sup>2</sup> Thus, commercial market data presented in the dashboard are not exhaustive. Pharmacy claims represent payments for retail pharmacy 30-day equivalent prescriptions.

The following claims are excluded from the analytic population:

1. Medicare fee-for-service (FFS) claims and beneficiaries.
2. Denied, reversed, or non-primary claims (header\_status not equal to 01, 19, -1, or -2).
3. Orphaned claims (orphaned\_header\_flag = Y).
4. Claims with negative paid (paid\_amt) or negative cost sharing (copay\_amt + coinsurance\_amt + deductible\_amt) amounts across all claim lines.

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<sup>1</sup> Medicare FFS data are not available in the APCD after 2019 and therefore are not included in the dashboard.

<sup>2</sup> For more information about the *Gobeille* decision on self-insured plans or plans governed by the Employee Retirement Income Security Act and how it has impacted APCD, please read <https://www.dol.gov/sites/dolgov/files/ebsa/about-ebsa/about-us/state-all-payer-claims-databases-advisory-committee/final-report-and-recommendations-2021.pdf>.

5. Commercial and Medicare Advantage claims paid outside of the runout period. That is, claim header records with a paid date after June 30 of the year following the date of service. Because of Medicaid reporting practices, the runout exclusion does not apply to the Medicaid market (primary and secondary).
6. Claims without a matching member month record. To match a pharmacy claim, the member month record must have the same member (internal\_member\_id) and be active during the month when prescription was filled or when (year\_month contains prescription\_filled\_dt).

For most plans, pharmacy spending appears to exclude manufacturer rebates.

The population is restricted to Connecticut residents (out\_of\_state\_flag = N and member state = CT).

## Markets

The tool includes the markets described in Table 1.

Table 1. Market and submarket definitions

Market	Submarket	Product_Type	Enrollment criteria
Commercial	State employees	'COMMERCIAL'	Commercial is primary and insured_group_policy_number IN ('001800', 'SC4848', '4750')
Commercial	Non-state employees	'COMMERCIAL'	Commercial is primary and insured_group_policy_number NOT IN ('001800', 'SC4848', '4750')
Medicaid	Primary	'MEDICAID'	Medicaid is primary payer
Medicaid	Secondary	'MEDICAID'	Medicaid is secondary payer or dual_eligibility_indicator = 'Dual Eligible'
Medicare	Advantage	'MEDICARE'	Payer_name not 'Medicare' <sup>a</sup> and Medicare is primary payer

<sup>a</sup>Payer\_Name = 'Medicare' identifies Medicare FFS (or traditional Medicare) claims, which are not current in the APCD and thus excluded from the Cost Drivers Dashboard. Medicare Advantage claims are submitted and paid by commercial payers such as Aetna and coded as product\_type = 'MEDICARE.'

The member\_month\_detail table in the APCD defines whether a payer is primary or secondary for a given member month. The primary payer definition varies by product and claim category:

- Member months with primary commercial pharmacy coverage have pharmacy\_eligibility\_id = rx\_commercial\_eligibility\_id
- Member months with primary Medicare pharmacy coverage have pharmacy\_eligibility\_id = rx\_medicare\_eligibility\_id
- Member months with primary Medicaid pharmacy coverage have pharmacy\_eligibility\_id = rx\_medicaid\_eligibility\_id

- Member months with secondary Medicaid pharmacy coverage have: (1) non-null rx\_medicaid\_eligibility\_id and (2) pharmacy\_eligibility\_id not equal rx\_medicaid\_eligibility\_id

## Units of analysis

Units of analysis, or units, are used to calculate payment per unit (PPU) and the utilization statistic, units per 1,000 members (UPK). The unit of analysis the pharmacy service category is a 30-day equivalent (thirty\_day\_equivalent). The 30-day equivalent variable is a function of days\_supply and equals 1 for prescriptions supplies of fewer than 45 days, 2 for prescription supplies of 45 to 74 days, and 3 for prescription supplies of 75 to 104 days; it increases by 1 for each additional 30 days.

## Key measures

The tool shows four key measures that users can view at multiple levels of aggregation and for multiple segments of the population:

- Spending = sum(allowed\_amt). Allowed\_amt includes insurance payments and member payments. Member payments include deductibles, copays, and coinsurance.
- Per member per month (PMPM) spending = sum(allowed\_amt)/sum(member\_months).
- PPU = sum(total\_price\_30day)/sum(num\_rx\_claims\_line), where:
  - total\_price\_30day = sum(allowed\_amt/thirty\_day\_equivalent). Here, payment per 30 day equivalent is first calculated on the claim record, and then summed across records to create the total\_price\_30day variable.
  - num\_rx\_claims\_line = count(pharmacy\_claim\_service\_line\_id). This approach produces a PPU result unweighted by the 30-day equivalent variable, thus giving each pharmacy claim equal weight in the PPU calculation.
- UPK = units/member\_equivalents \* 1,000, where:
  - member\_equivalents = member\_months/12.

Note that 30-day equivalent values less than 11 are masked in the dashboard as "<11"

## Drug classification

National Drug Codes (NDCs) are assigned to drug categories using the Micromedex RED BOOK therapeutic classifications. The RED BOOK 10-digit therapeutic class code aligns with NDCs, which are reported in pharmacy claims in the APCD. As defined by the RED BOOK Expanded Developer Guide, the therapeutic class code supplies the therapeutic or pharmacologic category of the product. The Micromedex RED BOOK Expanded database classification system employs a 10-digit hierarchical code that categorizes drugs down to the generic ingredient level. Table 2 lists the code structure.

Table 2. RED BOOK therapeutic code structure

Digits	Category	Example
First 2	Main Therapeutic Heading	Cardiovascular agents
Next 2	First Subcategory	Cardiac drugs
Next 2	Second Subcategory	ACE inhibitors and combinations
Last 4	Unique or Primary Agent	Lisinopril

Drug categories displayed in the dashboard align with the Main Therapeutic Heading.

Drug names are also derived from the RED BOOK product. When product names are unavailable in RED BOOK, they are derived from the pharmacy claim. NDCs not found in RED BOOK are assigned to the Unclassified Main Therapeutic Heading category.

## Generic and brand drugs

A single drug name (for example, Humira) can map to multiple NDCs, and a single NDC can map to both generic and brand drug types. The generic indicator value on the claim determines whether that claim is categorized as brand, generic, or other. Therefore, the same drug might appear in both categories. Only claims coded as generic are factored into calculations for generic drugs and only claims coded as brand are factored into calculations for brand drugs.

## Change Log

**Version 2.** In March 2025, in an effort to bring the three dashboards into better alignment, we corrected an issue in an input file that was causing some duplication of claims for members with multiple coverage types during a given month, e.g. members with dual Medicare and Medicaid coverage. Correcting this issue caused spending to decrease minimally.

**Version 3.** In June 2025, we corrected a summarizing technical issue which caused a slight undercount of member months in PMPM and UPK denominators for some pharmacy subcategory, drug name, and NDC-level calculations.