Medicare Psychiatry Analytics

Illinois · 2023 · CMS Medicare Physician & Other Practitioners Dataset

Michal Kuderski

$27.2M	$35.6M	$70.7M	692	96	$51.03
Total Medicare Payment	Total Allowed Amount	Total Submitted Charges	Psychiatry Providers	Distinct Procedure Codes	Avg Payment Per Service

Project Overview

This project analyzes Medicare claims data for Illinois psychiatry providers using PostgreSQL and Excel. The dataset, published annually by the Centers for Medicare and Medicaid Services (CMS), contains one record per provider, procedure code, and place of service. After filtering to Illinois psychiatry, the working dataset included 2,460 records across 692 unique providers and 96 distinct procedure codes.

The database was built as a normalized three-table schema in PostgreSQL, separating provider demographics, procedure code references, and utilization detail into dedicated tables. Five KPI queries were written to analyze spending patterns, procedure cost drivers, provider outliers, and cost efficiency. An original sixth query examined telephone visit utilization by city, which became the most interesting finding in the project.

Tools and Methodology

Tool	Purpose
PostgreSQL	Schema design, data import, and all analytical queries
Beekeeper Studio	SQL execution environment and CSV export
Microsoft Excel	Data formatting, visualization, and executive dashboard
CMS Open Data	Medicare Physician & Other Practitioners by Provider and Service, 2023

Key Findings

Reimbursement Funnel

Illinois psychiatry providers submitted $70.7M in billed charges in 2023. CMS allowed $35.6M of that amount based on the Medicare fee schedule, and actually paid $27.2M after deductibles and coinsurance were removed. That means providers received roughly 38 cents for every dollar they billed. The 2.6x charge-to-payment ratio is consistent with standard Medicare billing practice, where submitted charges are not a reliable measure of actual cost.

Top Procedure Cost Drivers

Five procedure codes accounted for 55.6% of all Medicare payments in this dataset. The table below shows the top 10 by total payment.

Rank	Code	Description	Total Payment	Avg/Service	% of Total
1	99214	Established outpatient visit, 30-39 min	$5,645,812	$86.09	20.8%
2	99213	Established outpatient visit, 20-29 min	$3,070,132	$60.42	11.3%
3	99232	Subsequent hospital care, moderate complexity	$2,690,318	$64.15	9.9%
4	K1034	COVID-19 test provision	$1,933,779	$11.76	7.1%
5	90833	Psychotherapy with E&M; service, 30 min	$1,766,533	$50.84	6.5%
6	90792	Psychiatric diagnostic evaluation	$1,746,849	$137.30	6.4%
7	90868	TMS therapy, subsequent delivery	$1,250,601	$161.89	4.6%
8	99233	Subsequent hospital care, 50+ min	$1,146,408	$96.25	4.2%
9	90837	Psychotherapy, 1 hour	$1,010,148	$108.52	3.7%
10	99309	Subsequent nursing facility care	$834,431	$83.81	3.1%

Note: K1034 (COVID-19 test) ranked 4th in total payment due to extremely high service volume (164,437 services) from a single provider, not a high per-service rate.

Telehealth Access Analysis

In addition to the five core queries, an original analysis was built to examine telephone visit utilization across Illinois cities. Telephone visits were identified using HCPCS codes 99441, 99442, and 99443. For each city, the total number of telephone services was compared against that city's total psychiatric service volume to produce a telephone visit percentage.

Chicago led the state in every absolute metric, with 22 providers, 1,409 telephone services, and $95,423 in Medicare payments. This was expected given Chicago's size and provider density. The more notable finding appeared when looking at proportion rather than volume.

City	Providers	Phone Visits	Medicare Payment	Phone % of Total
Chicago	22	1,409	$95,423	1.9%
Libertyville	1	416	$29,478	6.9%
Elk Grove Village	1	368	$17,119	76.7%
Springfield	8	287	$18,729	3.3%
DeKalb	1	262	$19,844	52.3%
Plainfield	1	239	$17,702	25.6%
Naperville	1	232	$10,421	3.2%
Pekin	1	219	$7,666	18.8%
Winfield	5	203	$19,352	4.9%
Vernon Hills	2	161	$10,887	8.1%

Elk Grove Village stood out with 76.7% of its total psychiatric services delivered by phone, the highest share in the state. DeKalb came in second at 52.3%. Both are suburban or semi-rural communities with a single provider billing telephone code. Chicago, despite leading in raw volume, had only 1.9% of its psychiatric services delivered by phone.

That difference between urban and suburban telephone visit rates is worth paying attention to for any organization serving those communities. High phone visit concentration in a single suburban city could point to transportation barriers, a shortage of in-person providers nearby, or a patient population that has settled into phone-based care as their go-to access point. Whatever the reason, it shows up clearly in the data and would not have surfaced without looking at utilization at the city level, proportionate to each city's total service volume.

Data Note

CMS defines the beneficiary count (tot_benes) as distinct patients per provider, procedure code, and place of service row. Summing this field at the provider level double-counts patients who received multiple procedure types, inflating the count by approximately 2.4x on average. All efficiency and cost metrics in this project use payment per service unit as the primary measure, which does not carry this limitation. The approximate beneficiary columns are retained for reference and are labeled accordingly throughout the Excel workbook.