

Case Study: Care Gap & HCP Segmentation

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Executive Summary

This case study leverages the CMS Part D Prescriber PUF (2023) to identify care gaps, innovative prescribing, and DPP-4 heavy usage among healthcare providers (HCPs). Using feature engineering, scoring, and clustering, we segmented prescribers into Innovators, High Gap, DPP-4 Heavy, Guideline-Aligned, and Other groups.

Methods

Data Source: CMS Part D Prescriber PUF (2023). Pipeline Steps: 1. Mapped drugs into therapeutic categories: First-line (metformin), Innovative (GLP-1, SGLT2, dual agonists), DPP-4 (separated), Legacy (sulfonylureas, etc.), Insulin, and TZD. 2. Engineered features: % share by category, Care Gap Score, Innovation Score, and DPP-4 share. 3. Defined percentile-based flags: High Gap (90th percentile), Innovators (90th percentile), DPP-4 Heavy (90th percentile), Guideline-Aligned (high metformin, low legacy). 4. Combined flags into clean segments for analysis and visualization.

Results & Key Insights

1. Family Practice and Internal Medicine drive the highest prescribing volume but show moderate innovation adoption.
2. Endocrinologists and Nephrologists lead in GLP-1/SGLT2 uptake, consistent with guideline leadership.
3. ~7k prescribers are DPP-4 heavy, suggesting opportunity to shift to GLP-1/SGLT2 therapies.
4. High-gap prescribers cluster in primary care specialties, highlighting education and outreach needs.

Results – Visuals

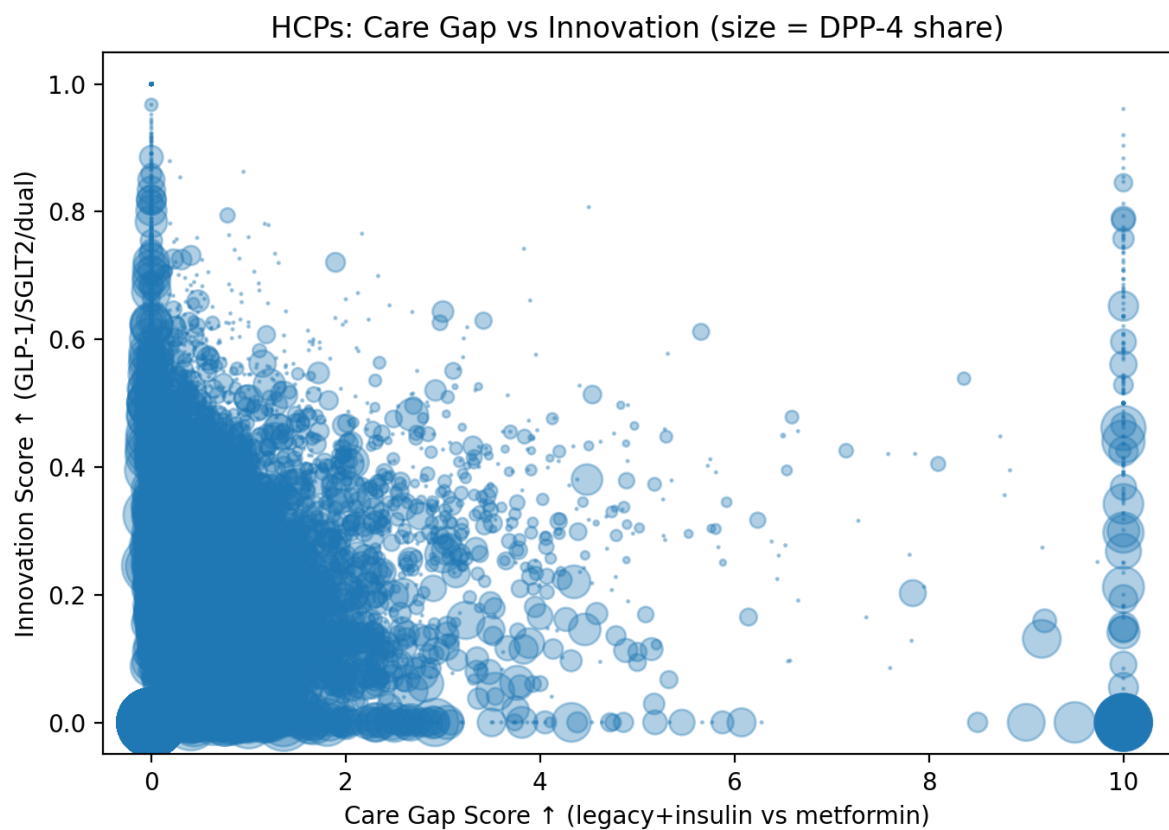


Figure 1. HCP segmentation: Care Gap vs Innovation (size or color includes DPP-4).

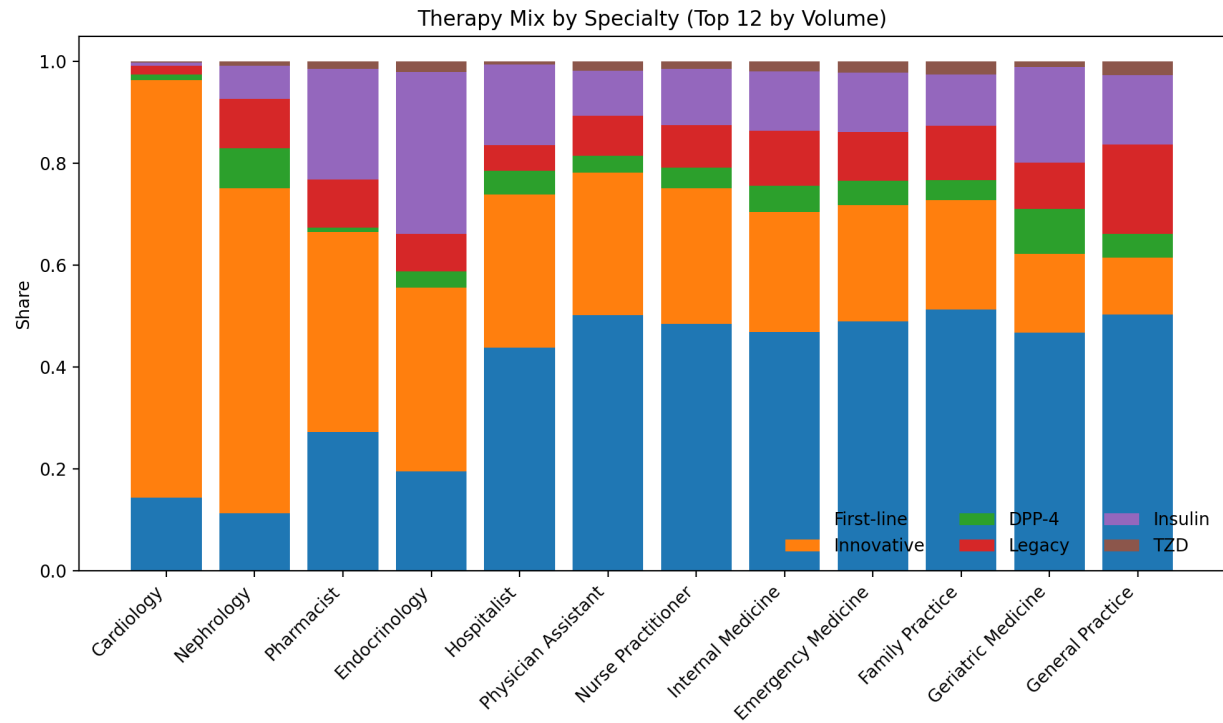


Figure 2. Therapy mix by specialty, including DPP-4 as a separate category.

Mean DPP-4 Share by State

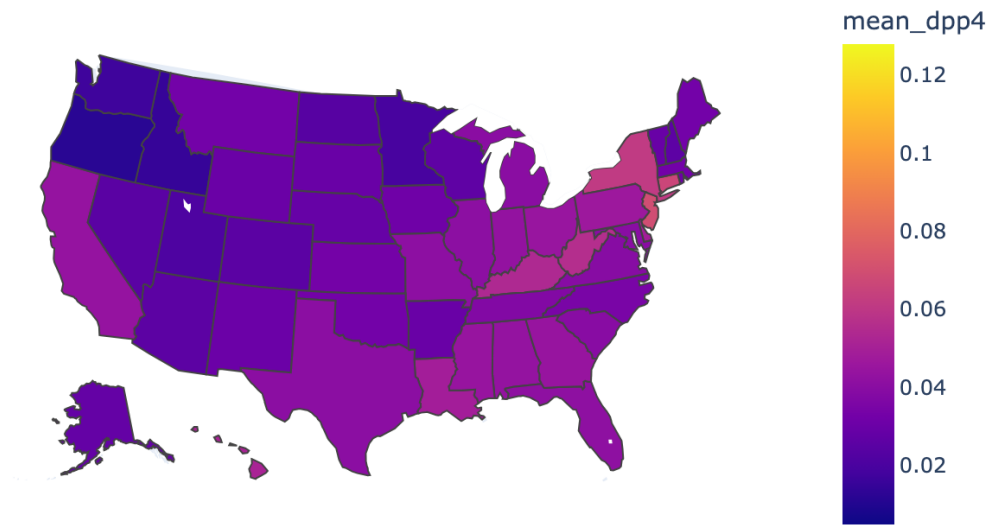


Figure 3. Mean DPP-4 share by state. See interactive version in repo: reports/figures/state_dpp4.html