

Patient Out-of-Pocket Cost Burden for Prescription Drugs: Trends and Disparities in Commercial Insurance Design

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Background

- Prescription drug affordability remains a persistent challenge for U.S. patients despite insurance coverage¹
- Over the past decade, shifts in benefit design, such as the rise of high-deductible health plans, have reshaped patient cost exposure
- Prior research emphasized aggregate trends, but few studies examine distributional impacts and subgroup disparities²
- A focus on the “average beneficiary” can mask disproportionate burdens among patients using branded drugs, those with chronic conditions, and from lower-income households

Objective

- To evaluate temporal trends in brand-prescription out-of-pocket spending (OOP) among commercially insured U.S. adults, characterize variation in patient burden across comorbidity and socioeconomic subgroups, and examine changes in utilization, cost-sharing structure, and relative affordability

Methods

- **Study design and sample:** Repeated retrospective cross-sectional analyses (2014–2023) of adults aged 18–64 with continuous commercial coverage* and ≥1 annual branded pharmacy claim
- **Data sources and measures:** Pharmacy OOP measured using commercial brand claims** from Merative MarketScan and Optum Clinformatics SES; Optum SES additionally provided socioeconomic variables (household income group, education, race***); Comorbidity burden measured with Quan-Charlson Comorbidity Index; Wage benchmarks obtained from the U.S. Bureau of Labor Statistics****, single premium benchmarks from KFF/Kaiser employer-based insurance surveys; brand drug net-price benchmarks came from Drug Channels’ analysis of SSR Health data (>90% of U.S. branded Rx net sales); net price was defined as WAC minus rebates and discounts
- **Outcomes:** Annual per-patient OOP for branded claims, defined as summed copay, coinsurance (only available in MarketScan), and deductible amounts and inflation-adjusted to 2023 USD (CPI-U); each component was also analyzed separately
- **Analytic approach:** Descriptive analyses of annual OOP trends overall and by comorbidity burden, shifts in cost-sharing composition, subgroup differences by income, education, and race, and OOP growth relative to wages, premiums, utilization, and drug net prices; sensitivity analyses examined the top 10% of OOP spenders and truncated OOP costs at the top 1% of positive values to ensure trends persisted and were not driven by extreme outliers

Limitations

- MarketScan and Optum SES may not be fully generalizable to all commercially insured adults, and claims are subject to coding errors
- Findings are descriptive associations and non-causal; beyond benefit design, differences in drug or patient mix may contribute. Without a fixed longitudinal sample, annual cohorts may be affected by year-to-year database composition
- Measured OOP does not fully capture the absolute level of patient financial liability and reflects branded retail pharmacy claims only, excluding generic spending, medical spending, health insurance premiums, and manufacturer assistance programs and copay cards; continuous-enrollment requirements may also understate burden among adults with coverage churn
- Wage, premium, and drug-price benchmarks***** are presented as external reference trends rather than cohort-specific measures
- Optum SES reports household income categorically, so burden shares relying on income-bin midpoints are approximate and not per-capita; estimates for the open-ended top category may understate true patient burden

* Continuous enrollment requires uninterrupted medical and pharmacy coverage for the full year
 ** Branded drugs are defined using the database’s brand indicator
 *** The race/ethnicity category Others in Optum includes Hispanic, multiracial, and unknown classifications, as well as categories combined due to HIPAA-related cell size restrictions
 **** Main analyses use average hourly earnings of production and nonsupervisory employees (seasonally adjusted) from the BLS Current Employment Statistics (CES). Wage growth by race/ethnicity uses median wages from the BLS Current Population Survey (CPS) for full-time wage and salary workers
 ***** Drug cost series of SSR Health data for >90% branded Rx net sales in the total U.S. market. Data do not map directly to drug mix/utilization patterns in the MarketScan cohort

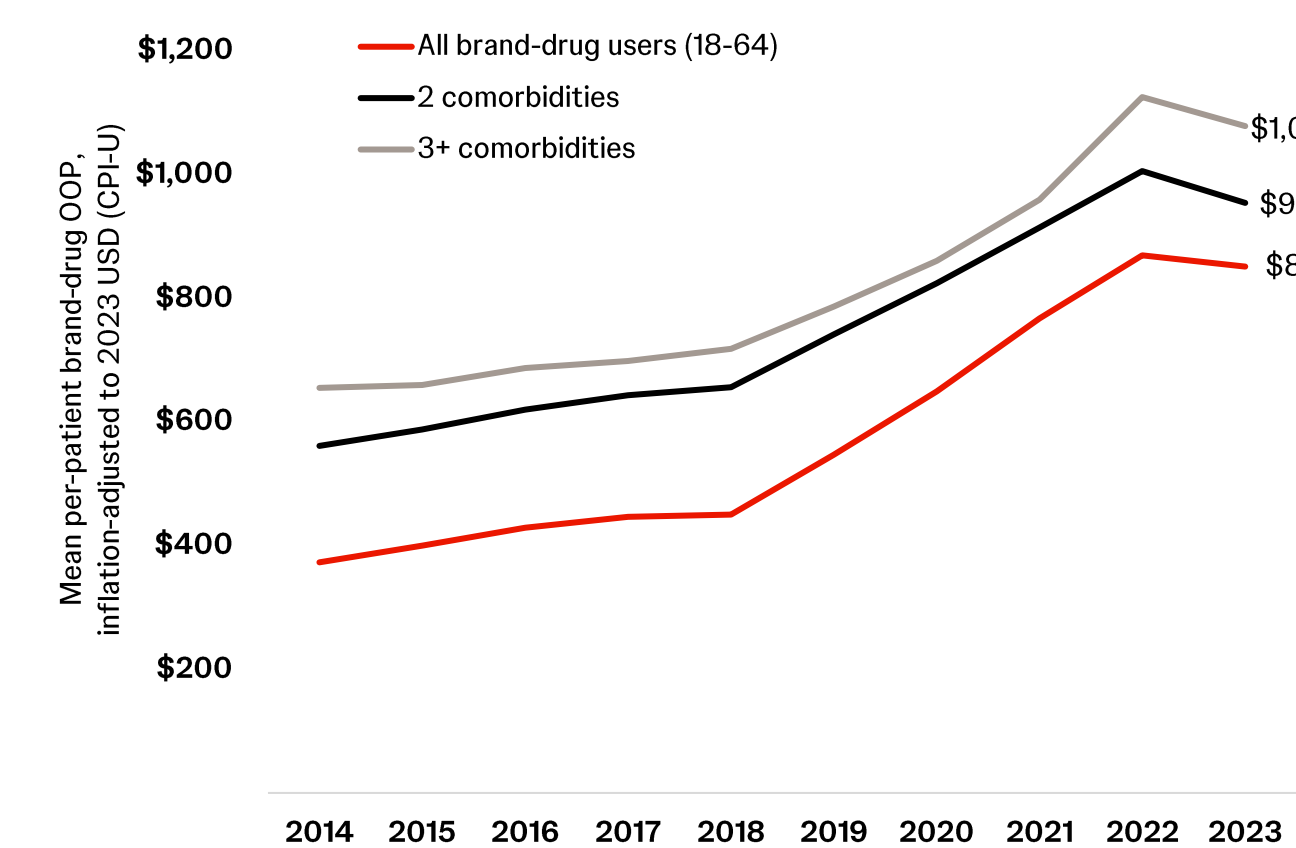
References:

1. Doherty B, Hooks K, Neumann U, Peters W, Zona S, Shea L. Patient Perspectives on Health Insurance Design: A Mixed-Methods Analysis. J Mark Access Health Policy. 2025;13(4):56. Published 2025 Nov 14. doi:10.33390/jmahp13040056
2. Carroll WA, Miller GE, Hill SC. Out-of-Pocket Spending for Retail Prescribed Drugs by Age and Type of Prescription Drug Coverage, 2009 to 2018. 2020 Dec. In: Statistical Brief (Medical Expenditure Panel Survey (US)) [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2001-. STATISTICAL BRIEF #532. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK581167>

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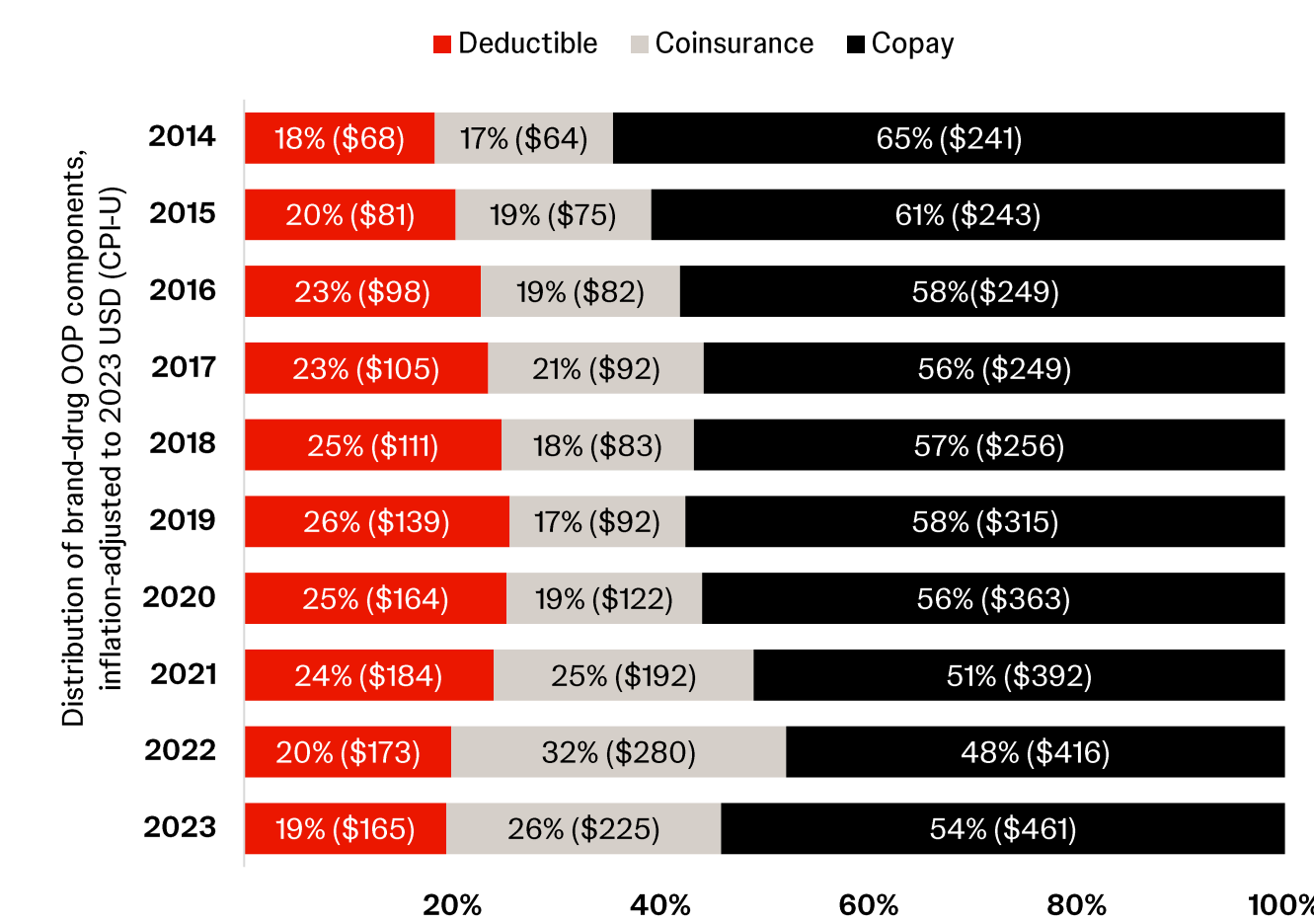
Findings

Figure 1: OOP by Comorbidity



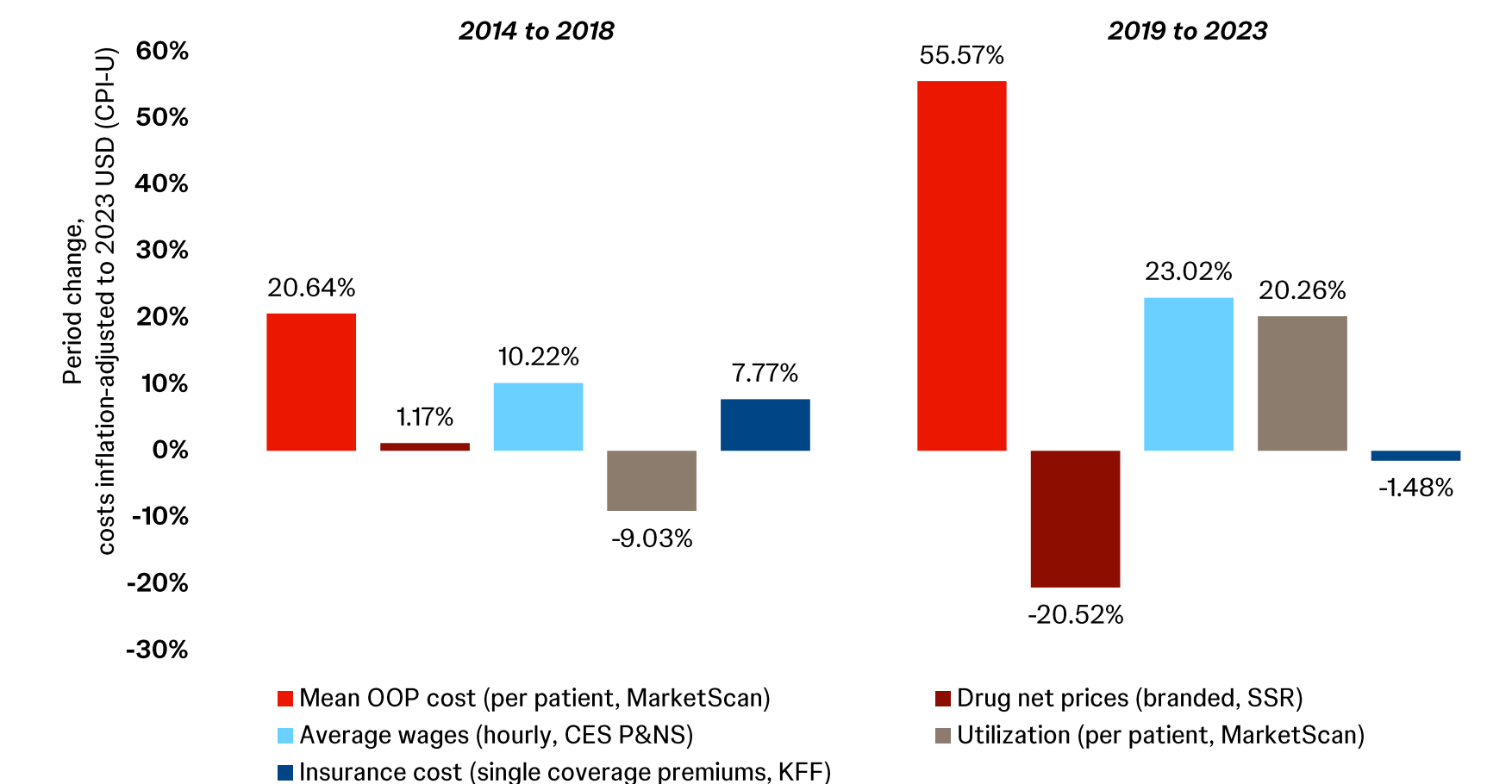
- Total OOP for branded drugs more than doubled from 2014 to 2023, with steepest growth after 2018
- Per patient OOP levels were consistently highest among patients with 3+ comorbidities, followed by those with 2 comorbidities, highlighting greater OOP exposure among higher-need patients
- A small dip in 2023 coincides with a partial shift in plan designs (Figure 2), from coinsurance/deductible exposure back toward (fixed) copays

Figure 2: OOP Components



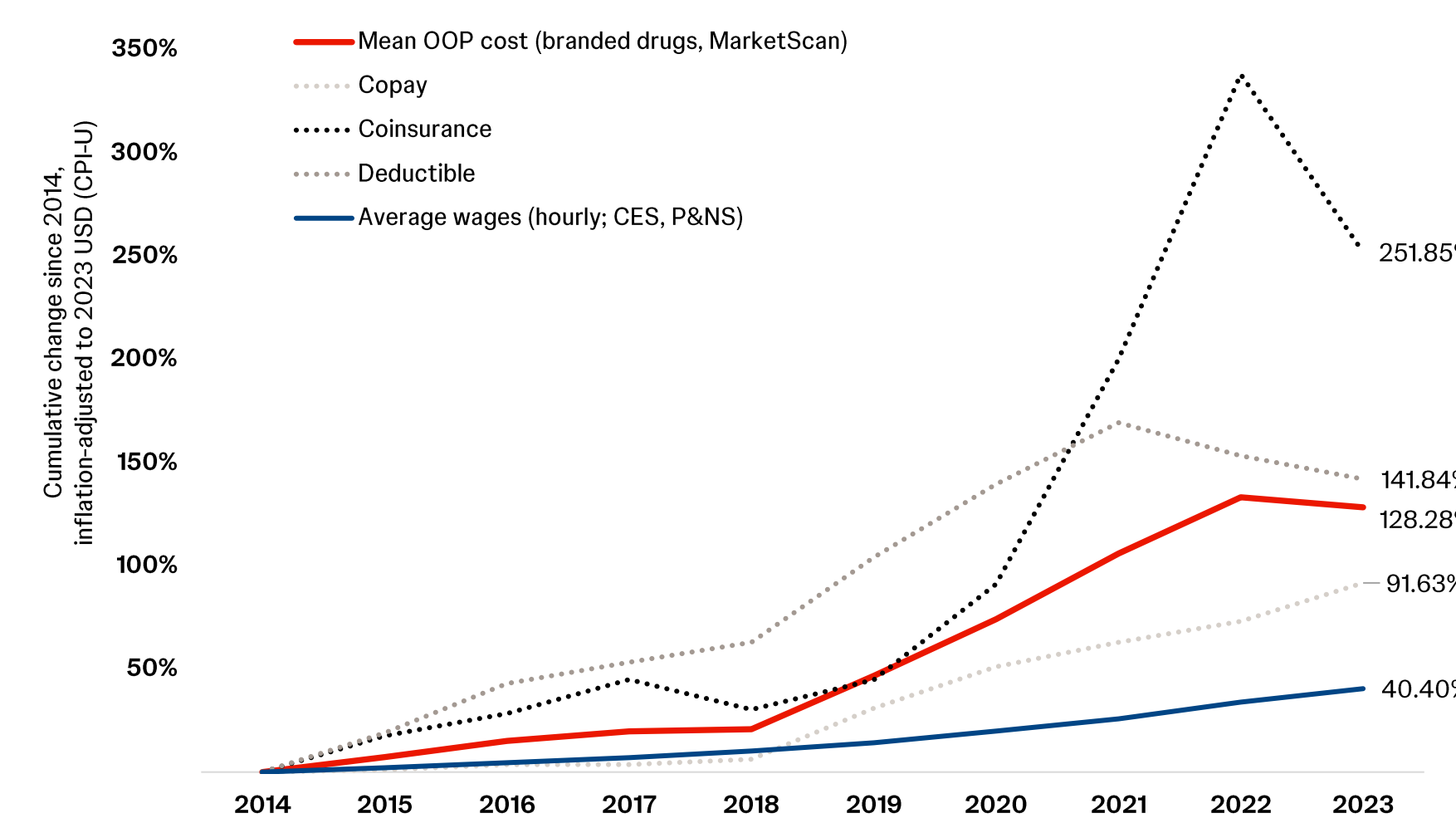
- Shares reflect annual OOP totals, summing deductible, coinsurance, and copay spending across all brand-drug claims
- Over time, brand OOP shifted away from copays, toward deductibles and coinsurance
- Coinsurance became a much larger contributor to patient spending over the decade, rising 53% as a share of OOP cost (17% to 26%) and 252% in real dollar terms (\$64 to \$225)

Figure 3: OOP vs. Other Benchmarks



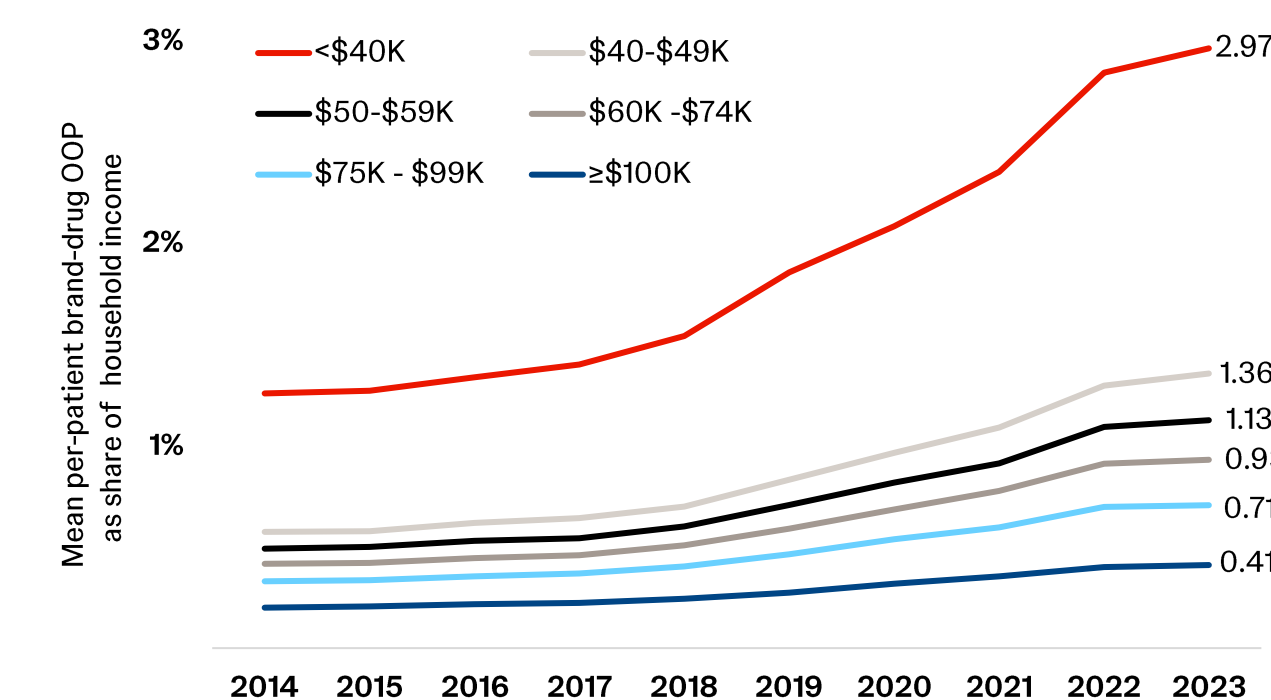
- Patient OOP growth outpaced all other tracked benchmarks across both time periods
- OOP rose in 2014–2018 amid declining utilization and minimal net-price market growth for branded medications, and surged in 2019–2023 while medication prices declined sharply and premiums remained relatively flat
- Patterns suggest rising OOP may not be sufficiently explained by changes in drug utilization: Claims per patient increased 16% (5.87→6.82), whereas OOP per claim rose 95% (\$64→\$125), about a sixfold larger increase (2014–2023)

Figure 4: Growth in OOP Components and Wages



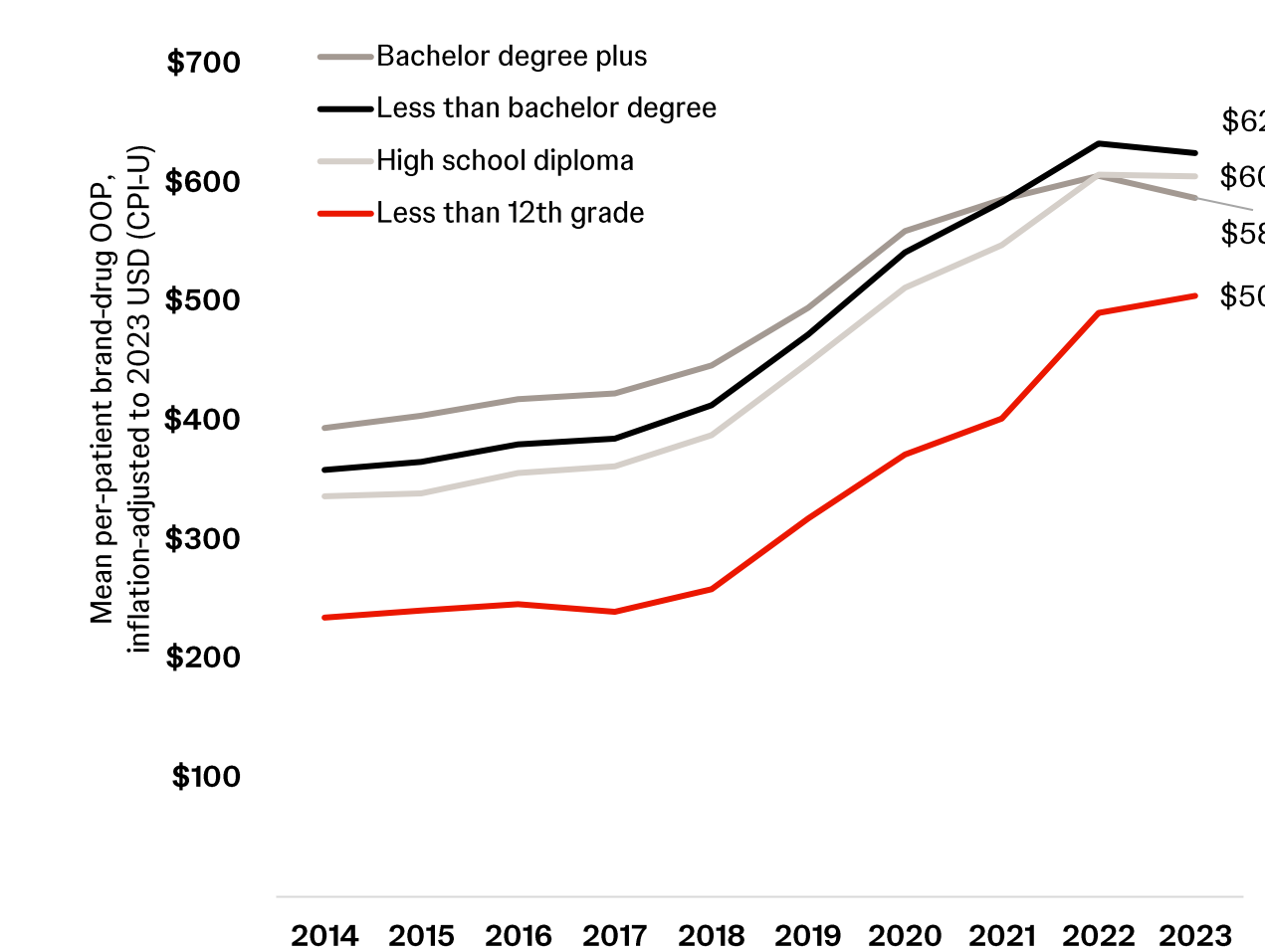
- Compared with wage growth as an external affordability benchmark, OOP in MarketScan employer plans increased about three times as much as workers’ earnings between 2014–2023 (+128% vs +40%); coinsurance showed the largest relative increase and peaked in 2022
- On an annual basis, total OOP growth exceeded wage growth in 8 of 10 years, falling below wages only in 2018 and 2023

Figure 5: OOP Burden by Income



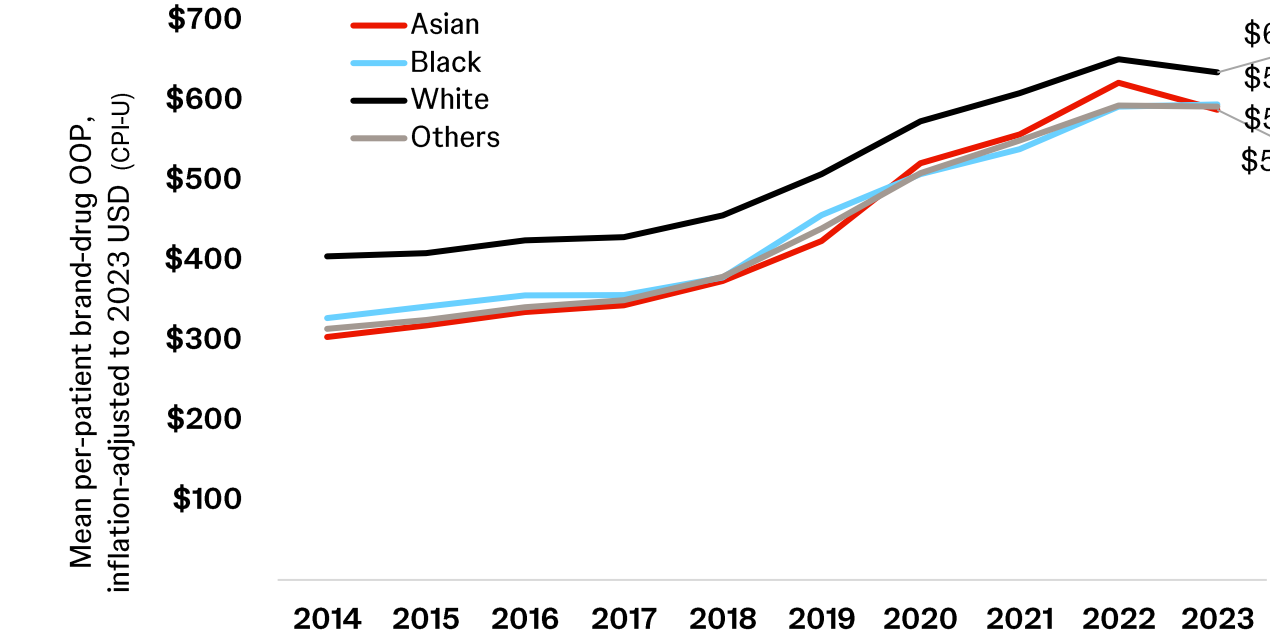
- Patients in higher income bins as grouped by Optum spent more in absolute dollars, but OOP as a share of income was substantially higher in lower-income households
- The relative burden further escalates by spending intensity: In a subgroup analysis of the top 10% spenders, those <\$40K spent 6.28% of household income in 2014 vs 16.19% in 2023 (~158% increase), a relative burden seven times that of those with ≥\$100k (2.26%) in 2023
- Notably, this burden measure undercounts total patient financial liability as premium contributions, generic drug and medical OOP expenses are not included

Figure 6: OOP by Education



- Differences persisted in OOP levels across Optum education groups, but converged over time—driven by the steepest increases faced by patients with the lowest educational attainment (e.g., ~95% rise since 2018)
- In 2023, other groups plateaued or dipped slightly, while the <12th grade group continued to rise—suggesting sustained cost pressure among those with the least formal education

Figure 7: OOP by Race



- White patients had the highest average OOP in Optum, but relative growth was steeper among Asian and Black patients, narrowing absolute gaps over time
- Divergent growth trajectories across racial/ethnic groups underscore that “average” trends can obscure important variation in patient cost exposure over time
- Understanding racial inequities requires consideration of other contextual factors, including income, plan design, and clinical need

Conclusions

For patients who rely on branded therapies, OOP rose sharply over the study period—with higher levels among those with greater clinical need and growth that outpaced changes in medication use

Patients with multiple comorbidities and from lower-income households faced disproportionate burdens, underscoring how average trends can mask substantial heterogeneity in patient exposure and affordability

A substantial gap between OOP and wage trends suggests that commercially insured patients may have borne rising OOP cost burdens without comparable gains in purchasing power

While descriptive and not causal, the observed patterns appear to be less consistent with underlying medication price, premium, or utilization trends as the main explanation for rising burdens, and more consistent with patient exposure to higher variable cost sharing

The growing role of deductibles and, especially, coinsurance suggests that less predictable forms of cost exposure may shift financial risk onto patients and may further exacerbate disparities

More research beyond the “average beneficiary” is needed to inform benefit structures that improve affordability and better protect high-need populations

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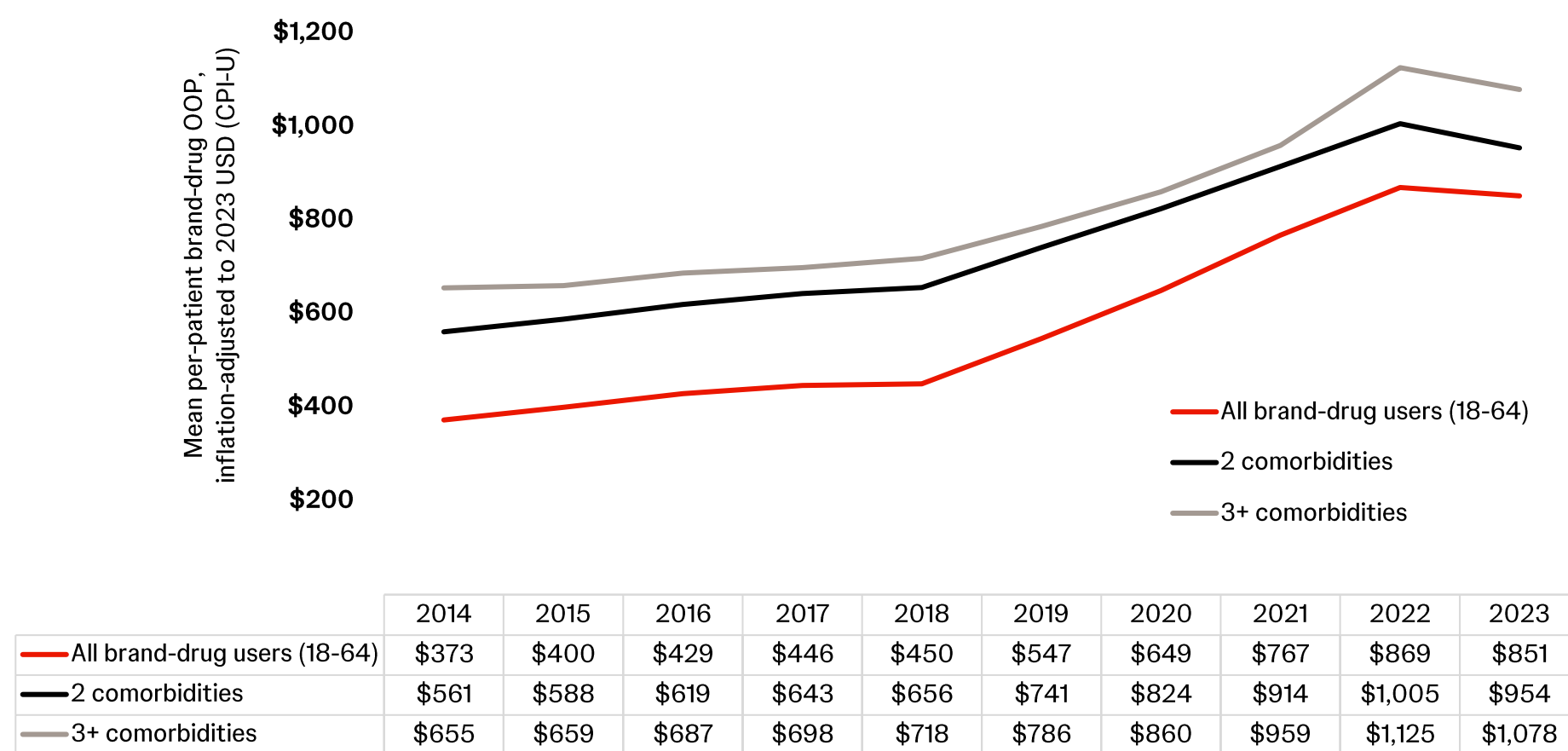
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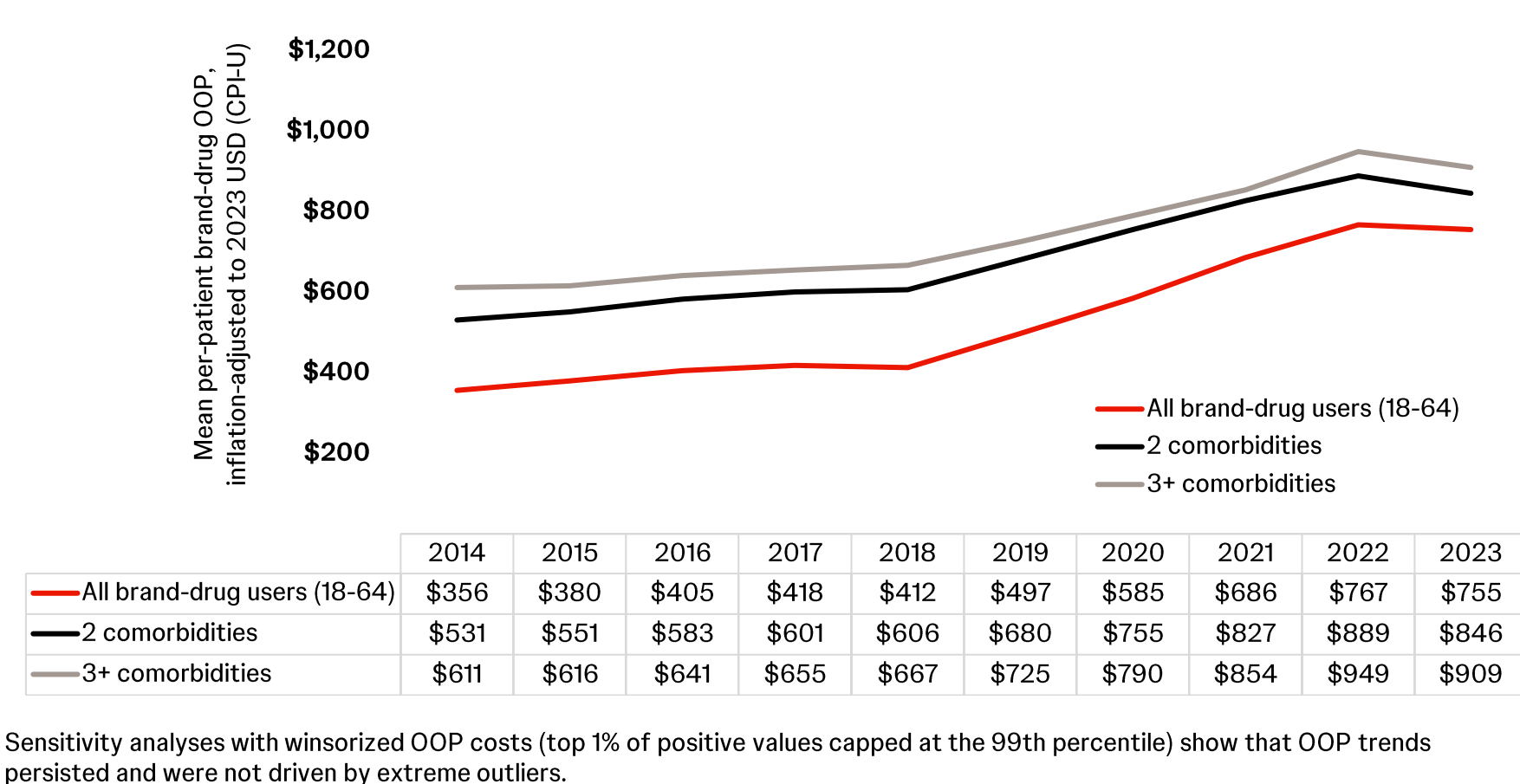
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Digital Poster Appendix

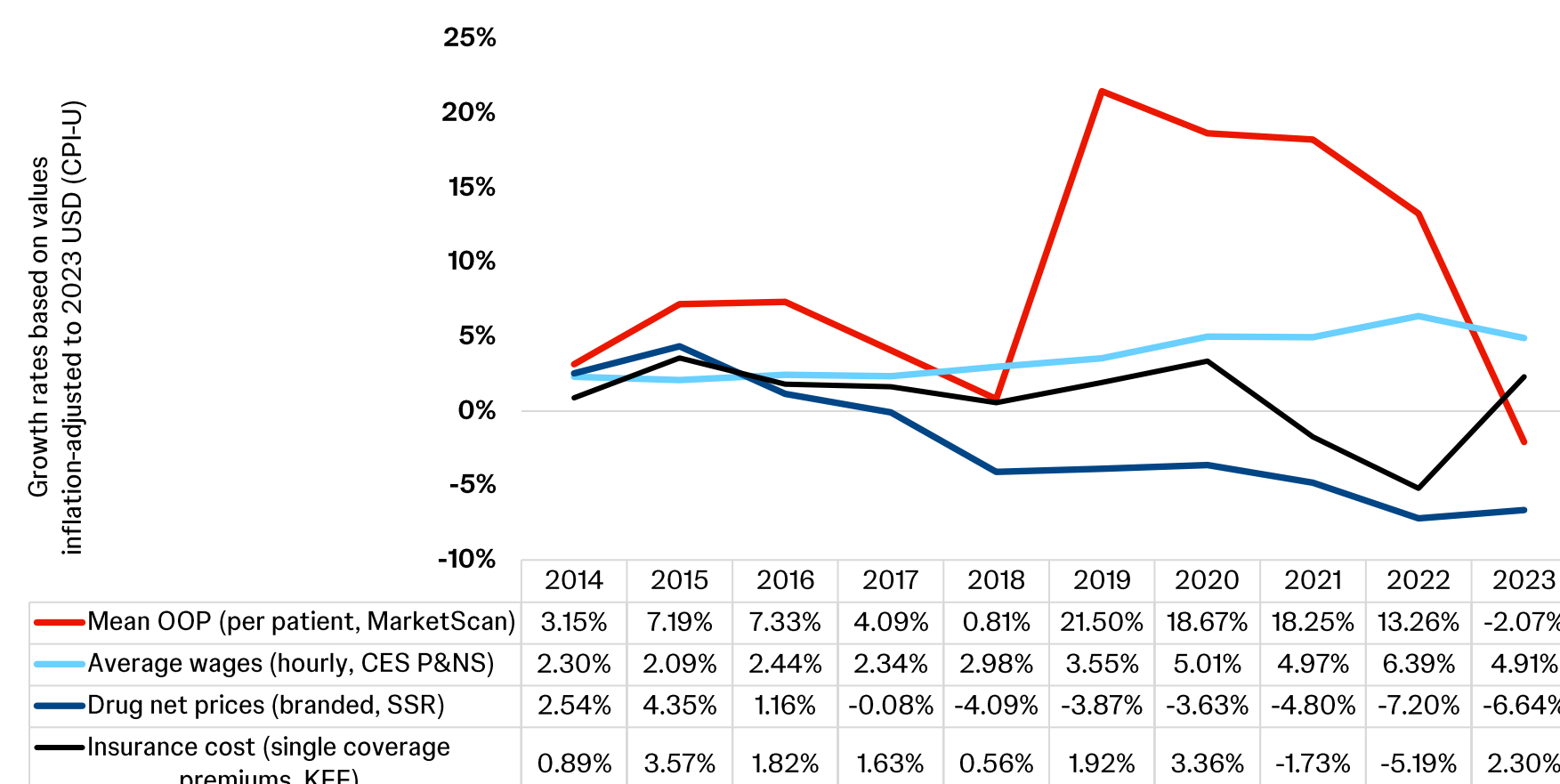
OOP by Comorbidity (w/ Data Table)



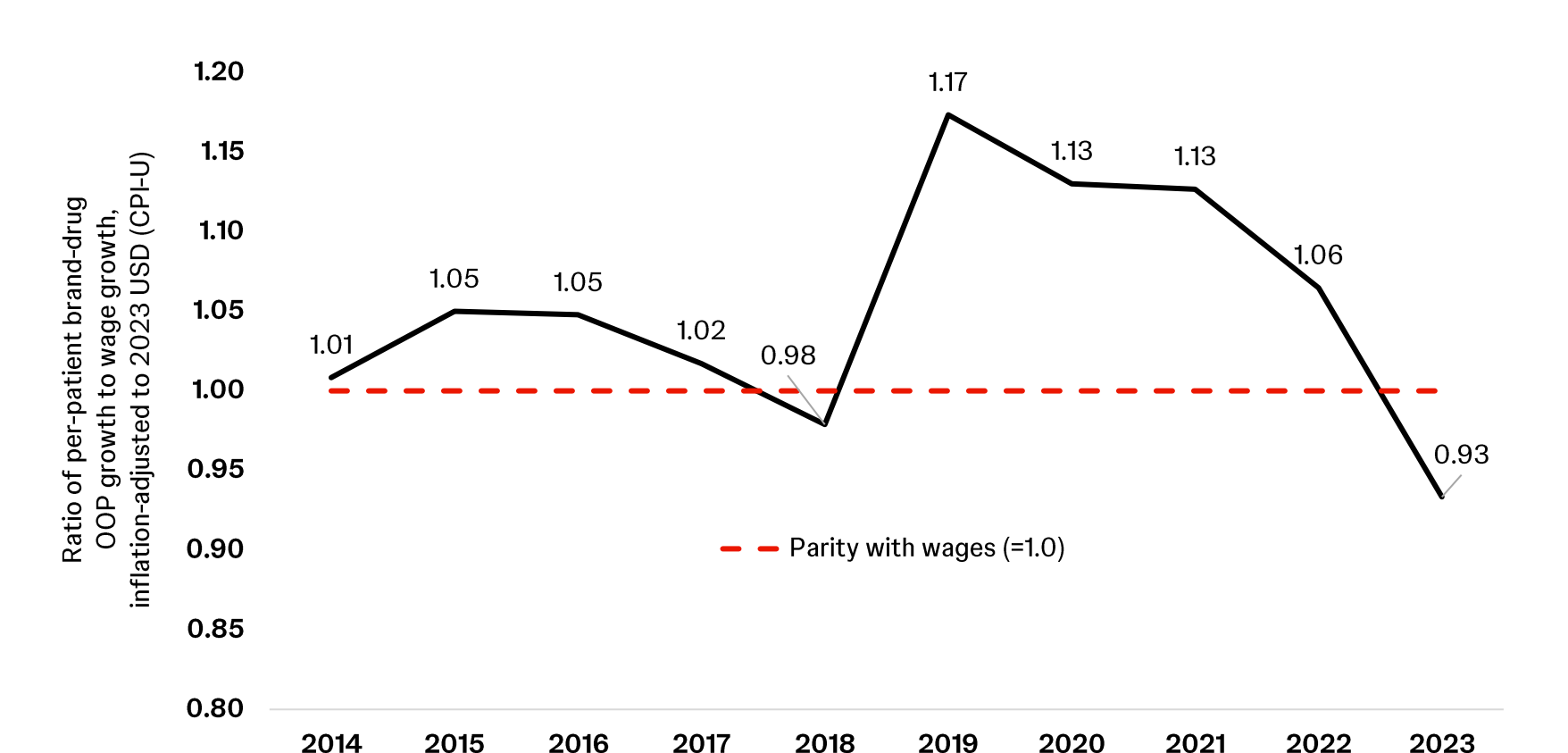
OOP by Comorbidity (Truncated Analysis)



OOP vs. Other Benchmarks (Annual Growth Rates)



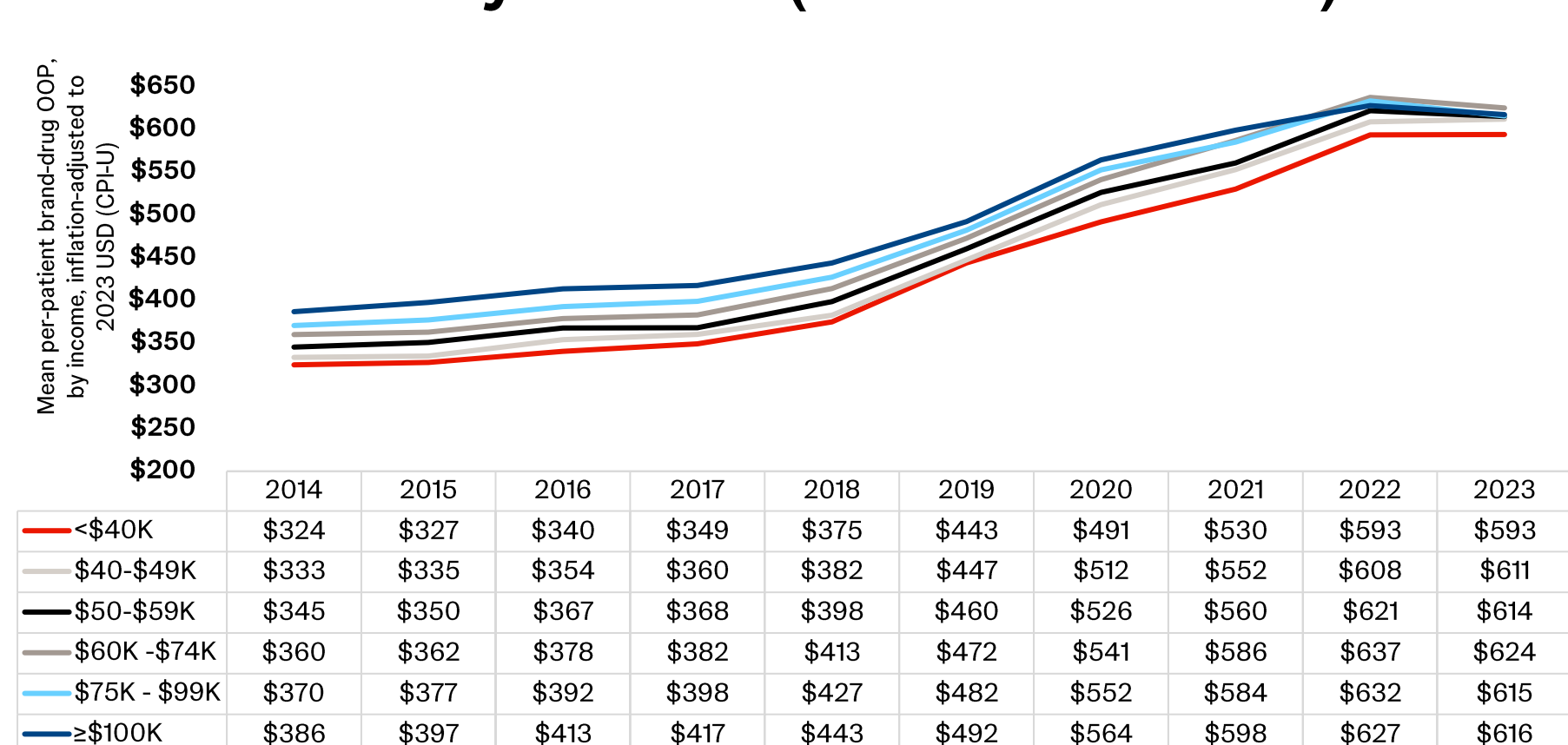
Annual OOP Growth to Wage Growth (Ratio)



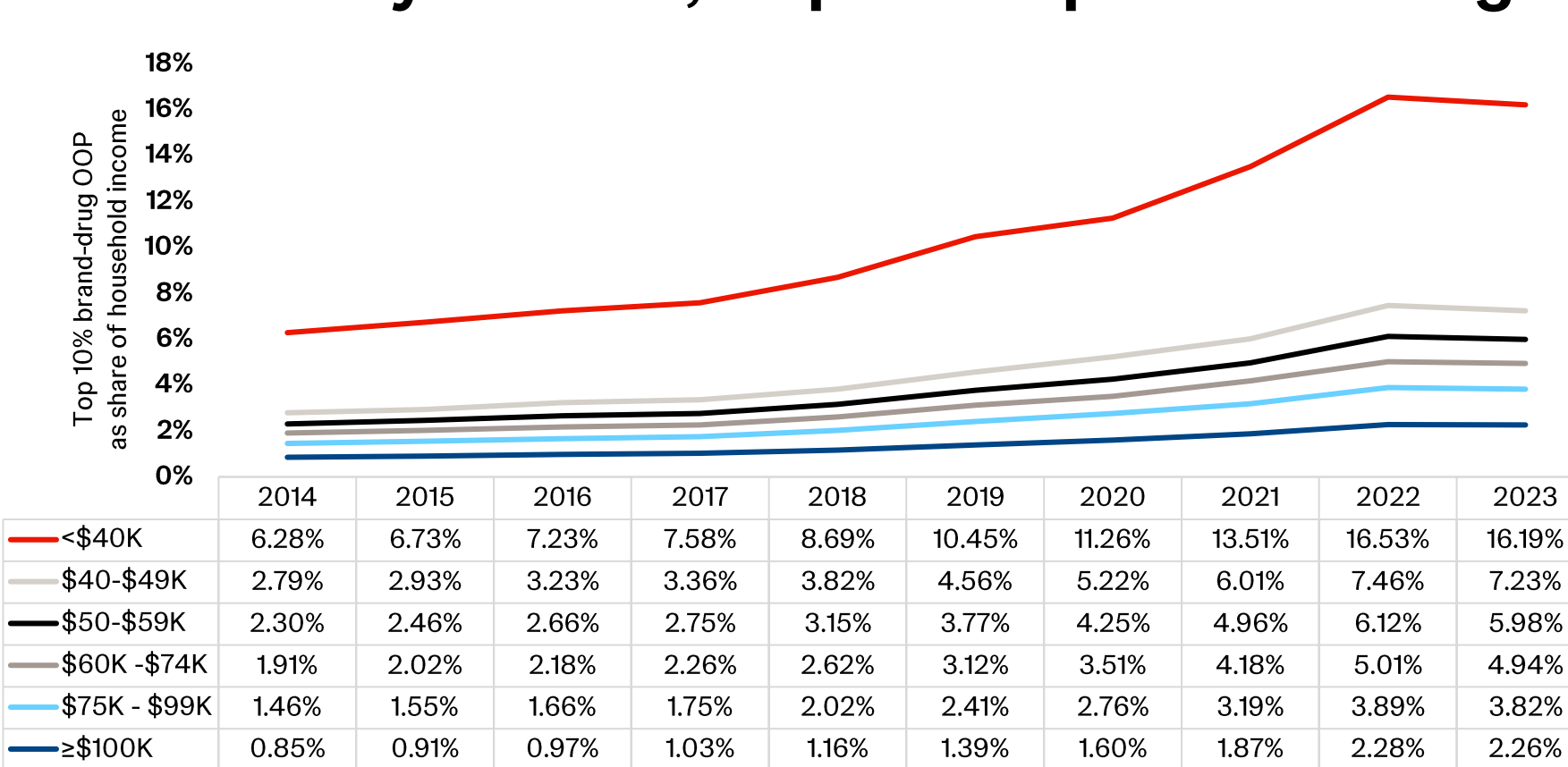
MarketScan Utilization Data

Year	Brand claims per person	Mean OOP per brand user (nominal)	Mean OOP per brand claim (2023 CPI-U)	Mean OOP per brand claim (nominal)	Mean OOP per brand claim (2023 CPI-U)
2014	5.87	\$290	\$373	\$49	\$64
2015	5.73	\$311	\$400	\$54	\$70
2016	5.55	\$338	\$429	\$61	\$77
2017	5.49	\$359	\$446	\$65	\$81
2018	5.34	\$371	\$450	\$69	\$84
2019	5.67	\$459	\$547	\$81	\$96
2020	6.12	\$551	\$649	\$90	\$106
2021	6.97	\$682	\$767	\$98	\$110
2022	6.77	\$835	\$869	\$123	\$128
2023	6.82	\$851	\$851	\$125	\$125

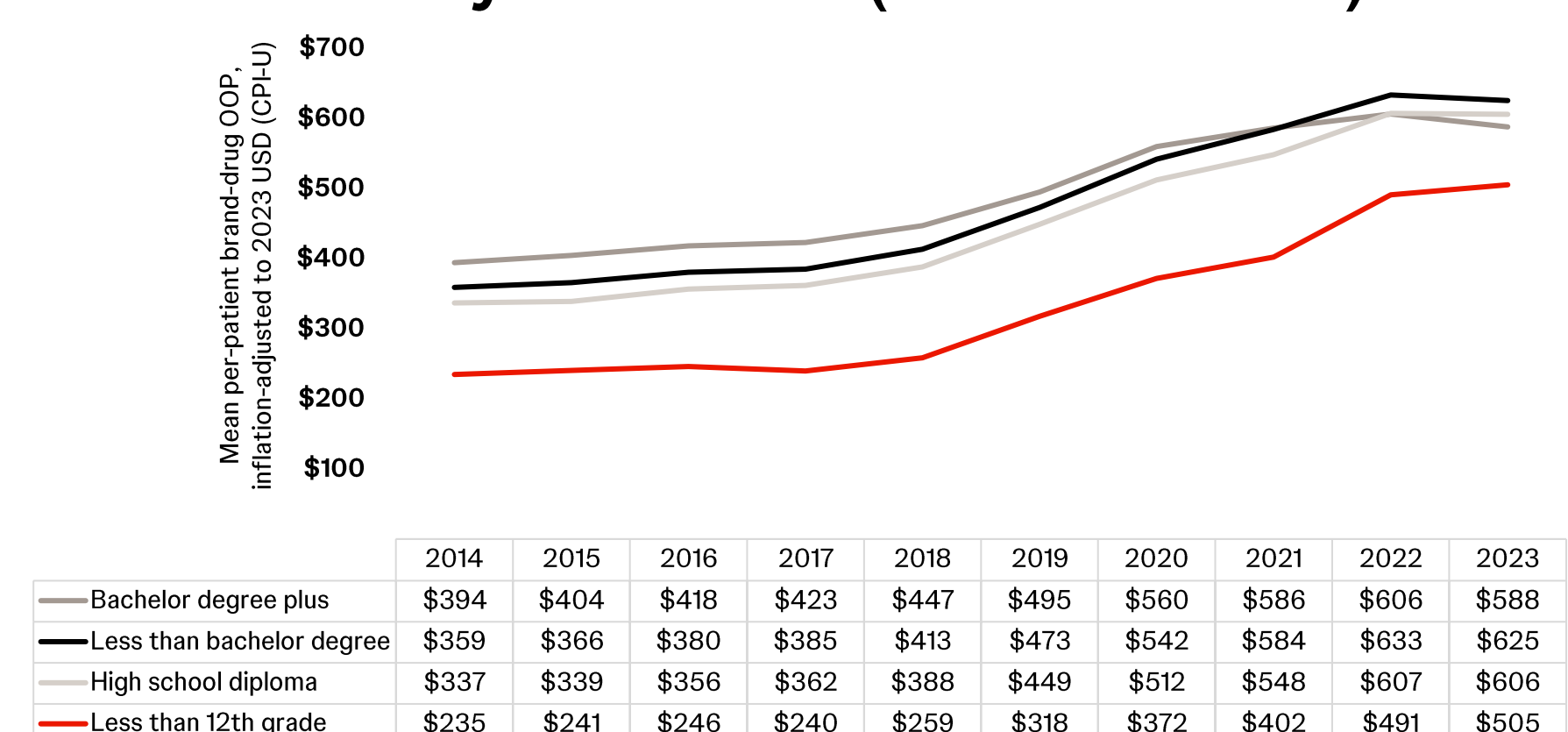
OOP by Income (Absolute Levels)



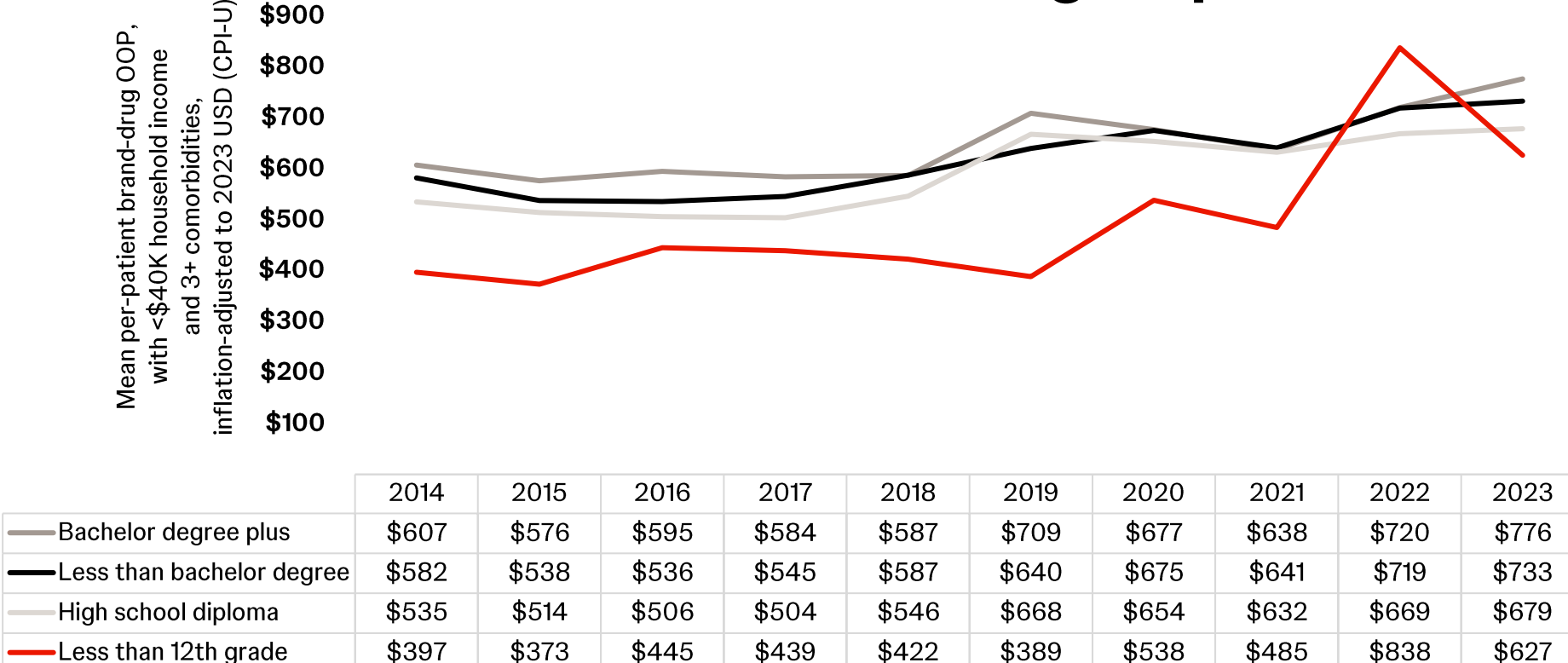
OOP Burden by Income, Top 10% Spenders Subgroup



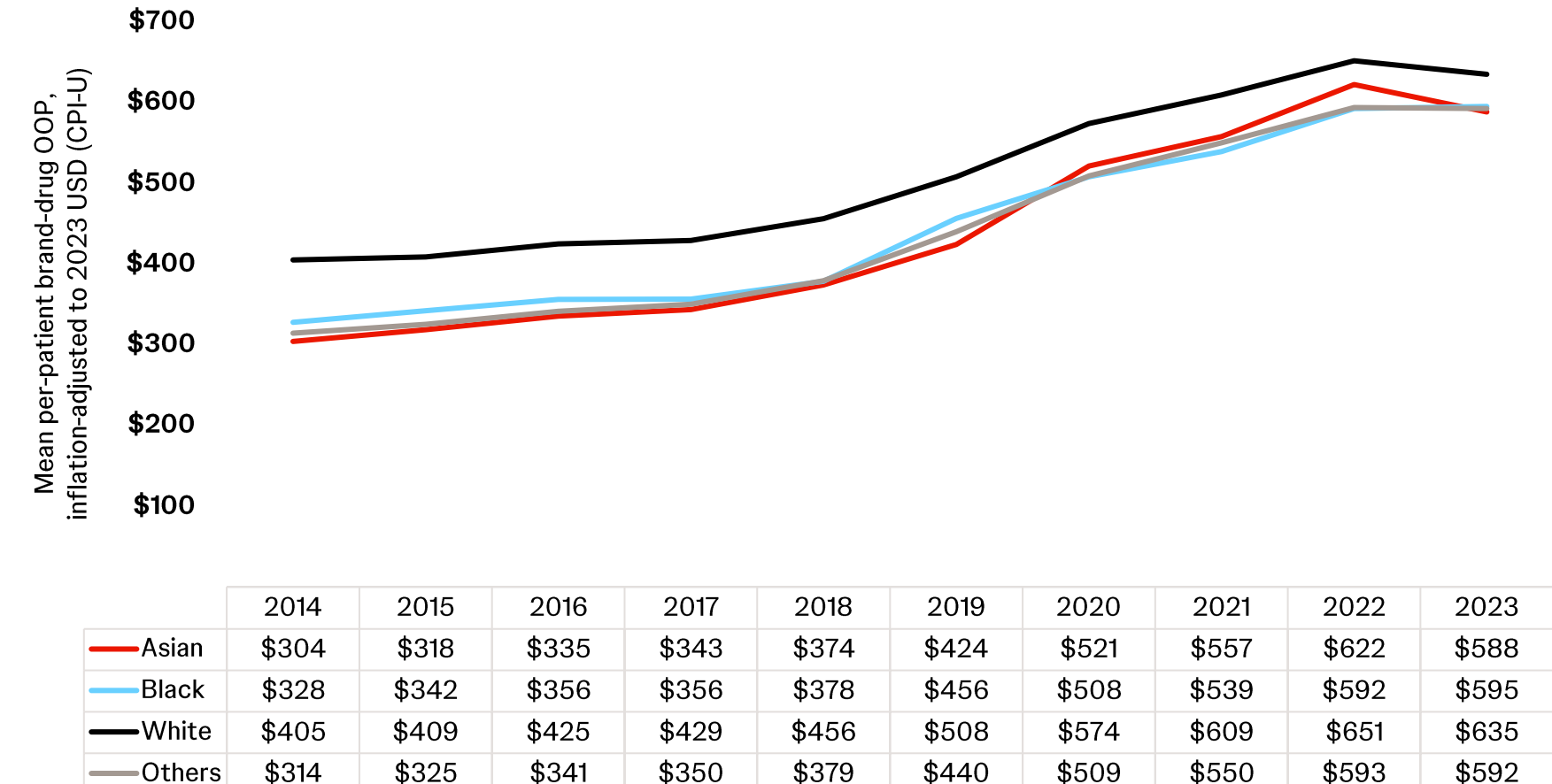
OOP by Education (w/ Data Table)



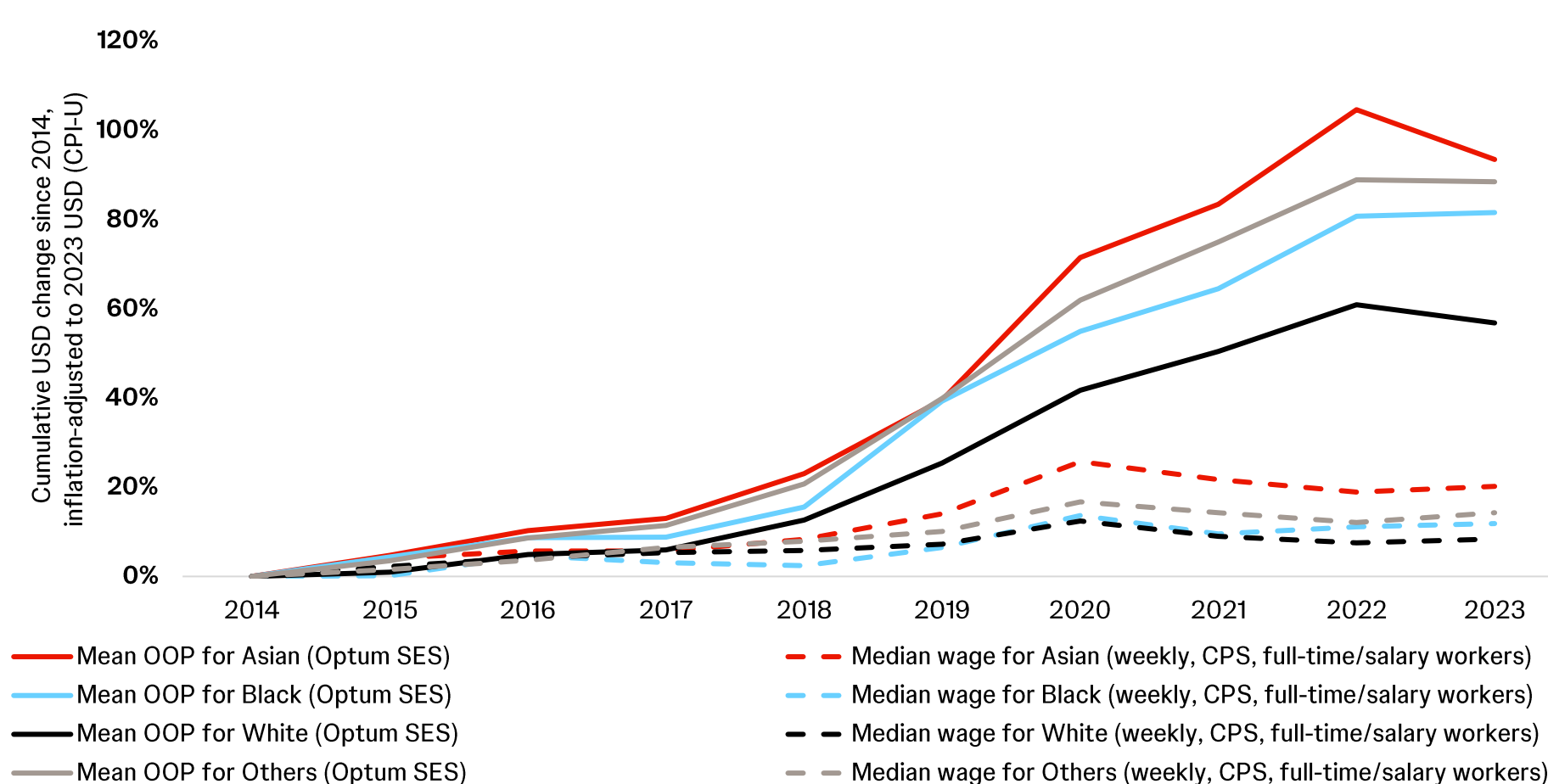
OOP by Education, 3+ Comorbidities and <\$40K Household Income Subgroup



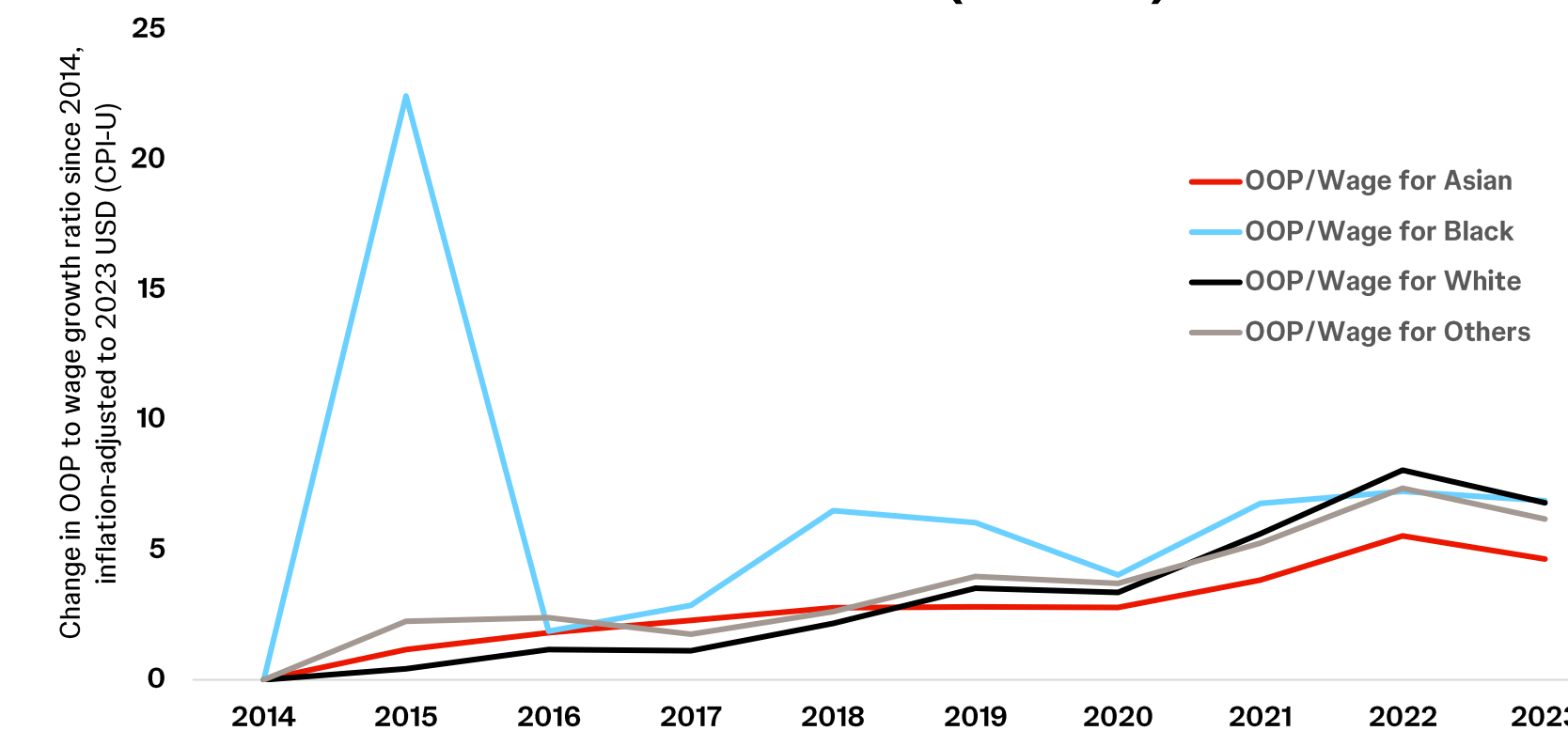
OOP by Race (w/ Data Table)



Growth in OOP and Wages by Race



OOP Growth vs. Wage Growth by Race, Relative to 2014 (Ratio)



For subgroup analyses of education level and 3+ comorbidities in Optum data, sample sizes were substantially lower in some categories. They ranged from 100-195 for annual beneficiaries with less than a 12th-grade education (total 2014-2023 = 1,845) to 5,087-6,558 annually for those with a high-school diploma (total 2014-2023 = 82,696), 4,307-5,791 annually for those with less than a bachelor's degree (total 2014-2023 = 70,718), and 334-537 annually for those with a bachelor's degree or higher (total 2014-2023 = 6,443).

Mean annual OOP cost by race were derived from Optum SES; wage growth was based on median wage obtained from BLS CPS for full-time/salary workers. All values were inflation-adjusted to 2023 USD (CPI-U). The graph indicates, for example, that for Black beneficiaries in 2023, the rate of OOP growth had been 6.88 times the rate of wage growth relative to 2014.

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