

What can social drivers of health data tell us about health plan members in large real-world databases?

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Background

- *Social drivers of health* (SDOH) are upstream demographic, geographic, and economic factors that influence health plan members' access to healthcare, engagement in care, and health outcomes (Healthy People 2030). *Social needs* are the individual-level factors impacting members' health (U.S. Department of Health and Human Services 2023).
- Health plans and health researchers often lack individual-level social needs data.
- Member address information can be used to link to area-level SDOH data, which can offer insights into how SDOH characteristics correlate with the use of healthcare.

Objectives

1. To describe the SDOH characteristics of health plan members in a large real-world database.
2. To compare healthcare resource utilization across these members by SDOH characteristics and health plan type.

Methods

- **Data Sources:** We used a limited dataset from the Healthcare Integrated Research Database (HIRD®), a large administrative claims database. Details about the HIRD's covered population, data structure, data provenance and quality, and example applications have been previously published (Barron 2025). Member-level claims data were linked to SDOH variables using members' address as of July 31, 2025.
- **Population:** The study population included all members with medical and pharmacy coverage and continuous enrollment in a commercial or Medicare Advantage (MA) health plan from January 1, 2025, through July 31, 2025. Commercial health insurance coverage was stratified into Affordable Care Act (ACA) marketplace health plans and non-ACA health plans.
- **Outcome variables:** We used two claims-based outcome variables to examine differences in healthcare resource utilization:
 - Telehealth use, an indicator showing whether the member had at least one telehealth claim (Avula 2022)
 - Preventive/wellness visits, an indicator showing whether the member had an annual wellness visit (MA members) or preventive care visit (commercial health plan members).
- **Independent variables:** The SDOH variables were:
 - Urbanicity from the National Center for Health Statistics (2013 urban-rural classification scheme)
 - Food access information from the Food Access Research Atlas (2019)
 - Health professional shortage designations from the Health Resources and Services Administration (2024)
 - Socioeconomic status derived from the American Community Survey (2022 5-year estimates)
 - Whole Health Social Driver score that utilizes both area-level and individual-level data from the Whole Health Index (Chi 2023)
- **Analysis:** In this cross-sectional study, we descriptively compared the proportion of members with telehealth use and preventive/wellness visits across members by health plan type and SDOH characteristics. No adjustment or statistical testing were conducted.

References

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3. Chi W et al. The Whole Health Index: A Practical, Valid, and Reliable Tool to Measure Whole-Person Health and Manage Population Health. *NEJM Catalyst* May 30, 2023. doi:10.1056/CAT.23.0015
4. Healthy People 2030. U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Retrieved 27 Mar 2026 from <https://health.gov/healthy-people/objectives-and-data/social-determinants-health>
5. U.S. Department of Health and Human Services. (2023). Addressing Health-Related Social Needs in Communities Across the Nation. Retrieved 31 Mar 2026 from <https://aspe.hhs.gov/sites/default/files/documents/3e76140d0087435cc8832b6f5cf32e18/hhs-coll-to-action-health-related-social-needs.pdf>

Results

Table 1: Study Sample Size and Demographics by Health Plan Type

	Commercial ACA	Commercial non-ACA	Medicare Advantage	OVERALL
Number of members	1,638,774	11,691,351	1,164,249	14,494,374
Number of Census block groups	113,121	233,008	88,471	233,578
Number of Census tracts	52,927	83,179	42,197	83,305
Number of counties	2,447	3,149	2,399	3,154
Mean Age, years	39.2	35.7	71.9	39.0
Age category				
0-17	14%	21%	0%	19%
18-44	43%	43%	2%	40%
45-64	41%	32%	11%	31%
≥65	2%	4%	87%	11%
Sex				
Female	51%	50%	56%	50%
Male	49%	50%	44%	50%
Race/Ethnicity				
White, non-Hispanic	69%	67%	79%	68%
Black, non-Hispanic	6%	10%	13%	10%
Hispanic, any race	11%	11%	4%	10%
Asian, non-Hispanic	7%	7%	2%	6%
Other or unknown	7%	5%	3%	5%
Region				
Northeast	18%	16%	13%	16%
Midwest	20%	25%	52%	27%
South	25%	41%	31%	38%
West	38%	18%	3%	19%

Notes: ACA, Affordable Care Act.

- Of 14.5 million members, 11.7 million (81%) were enrolled in non-ACA commercial health plans (mean age 36 years, 50% female); 1.6 million (11%) in ACA commercial health plans (mean age 39 years, 51% female); and 1.2 million (8%) in MA health plans (mean age 72 years, 56% female).

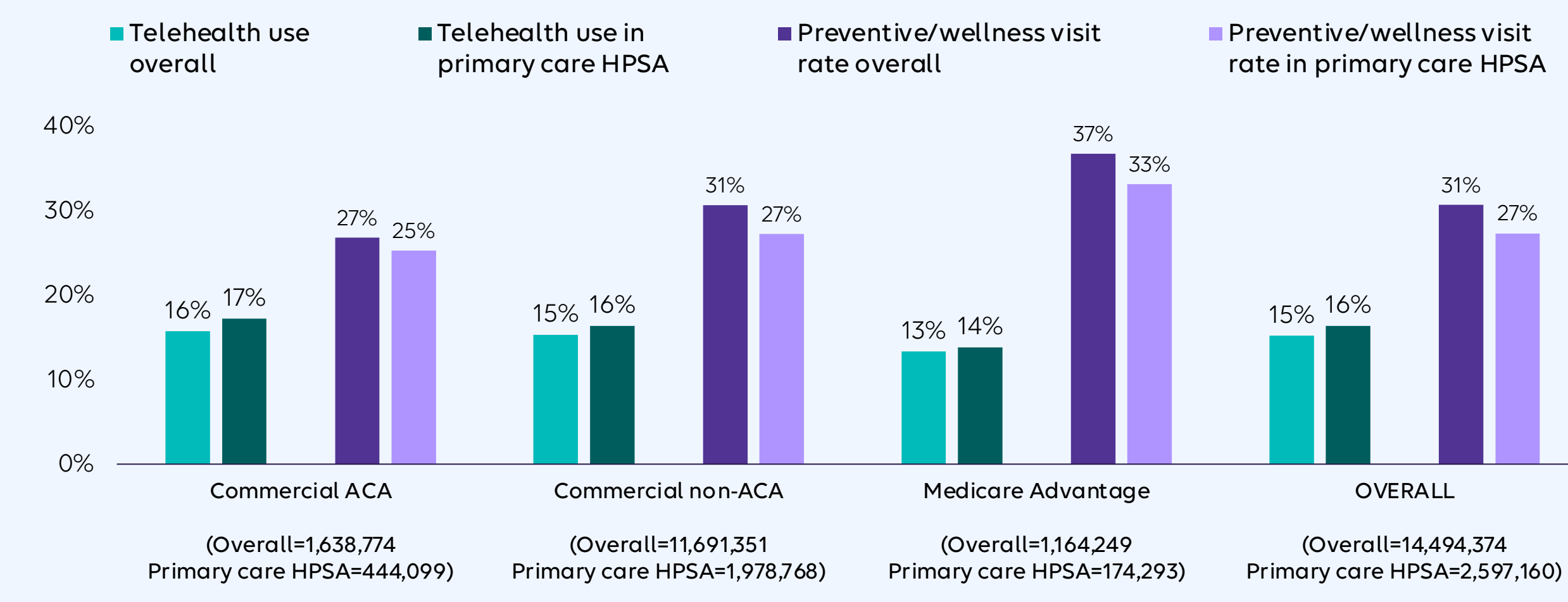
Table 2: SDOH Characteristics by Health Plan Type

	Commercial ACA	Commercial non-ACA	Medicare Advantage	OVERALL
Number of members (denominator)	1,638,774	11,691,351	1,164,249	14,494,374
Urbanicity, %				
Rural	16%	15%	25%	16%
Suburban	24%	28%	25%	27%
Urban	57%	53%	47%	53%
Missing	3%	4%	3%	4%
Access to food, %				
Low access, low income (food desert)	9%	9%	13%	9%
Low access, any income	39%	42%	41%	42%
Missing	7%	9%	6%	8%
Access to healthcare, %				
Medically Underserved Area	33%	30%	19%	29%
Primary care HPSA	27%	17%	15%	18%
Mental care HPSA	23%	20%	16%	20%
Dental care HPSA	6%	6%	5%	6%
Missing	3%	4%	3%	4%
Socioeconomic Status Quartiles				
Q1 (lower SES)	12%	13%	22%	14%
Q2	17%	21%	29%	21%
Q3	23%	26%	26%	25%
Q4 (higher SES)	37%	32%	15%	31%
Missing	10%	8%	8%	9%
Whole Health Social Driver Quartiles				
Q1 (higher social driver)	7%	8%	14%	8%
Q2	29%	32%	42%	32%
Q3	47%	45%	38%	44%
Q4 (lower social need)	17%	15%	7%	14%
Missing	1%	1%	2%	1%

Notes: ACA, Affordable Care Act; HPSA, Health Professional Shortage Area; SDOH, social drivers of health; SES, socioeconomic status. Urbanicity category definitions: large central, medium, and small metros are categorized as urban, large fringe metros are categorized as suburban, and nonmetropolitan and noncore areas are categorized as rural. Categories under "Access to food" and "Access to healthcare" are not mutually exclusive. The SES quartiles and Whole Health Social Driver quartiles use thresholds based on the entire US national population. "Missing" indicates the fraction of members where geographical linking was not possible, or where no data were available for their geography.

- Overall, approximately 16% of members lived in rural counties; rurality was highest among MA members at 25%.
- Living in a health professional shortage area for primary care was most common among members with ACA health plans compared to MA members (27% vs 15%).
- Using two different composite measures of SDOH, most commercial members, including those with ACA health plans, were in the lower half of the social need distribution, while MA members tended to be in the higher half.

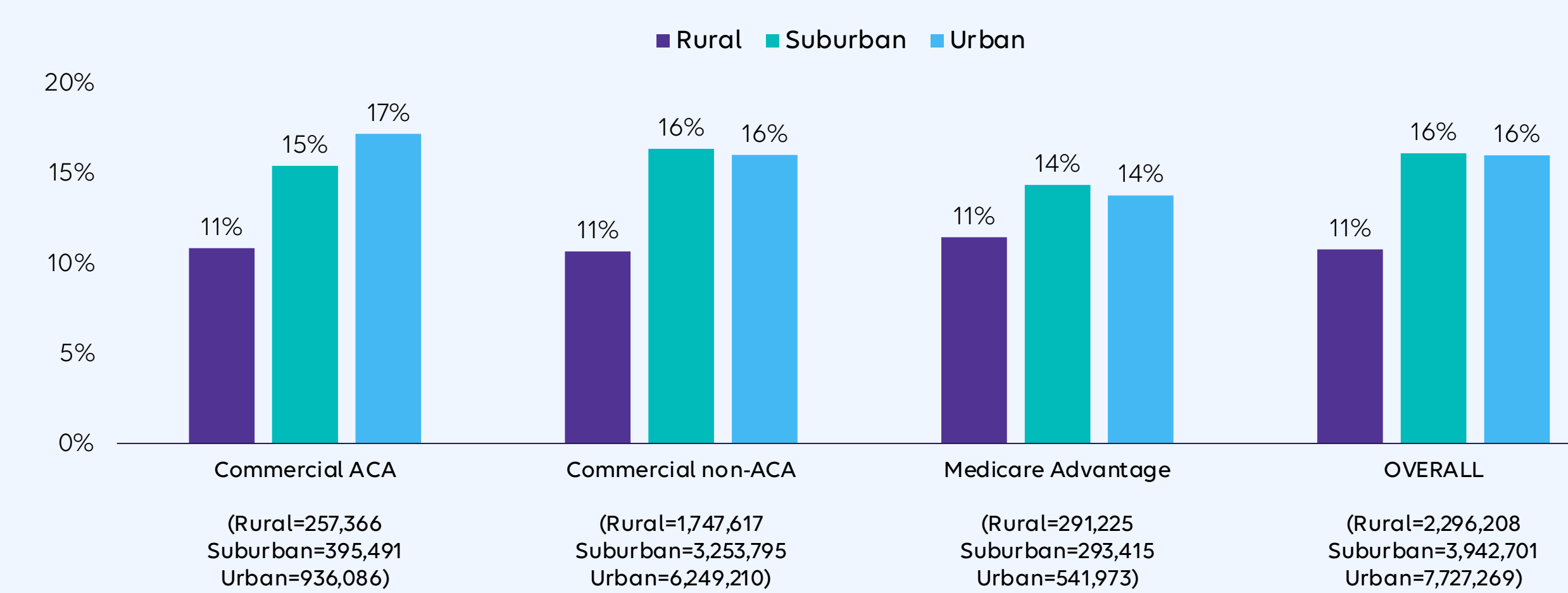
Figure 1: Rates of Telehealth Use and Annual Preventive/Wellness Visits by Health Plan Type, Overall and in Primary Care HPSA Counties



Notes: HPSA, Health Professional Shortage Area

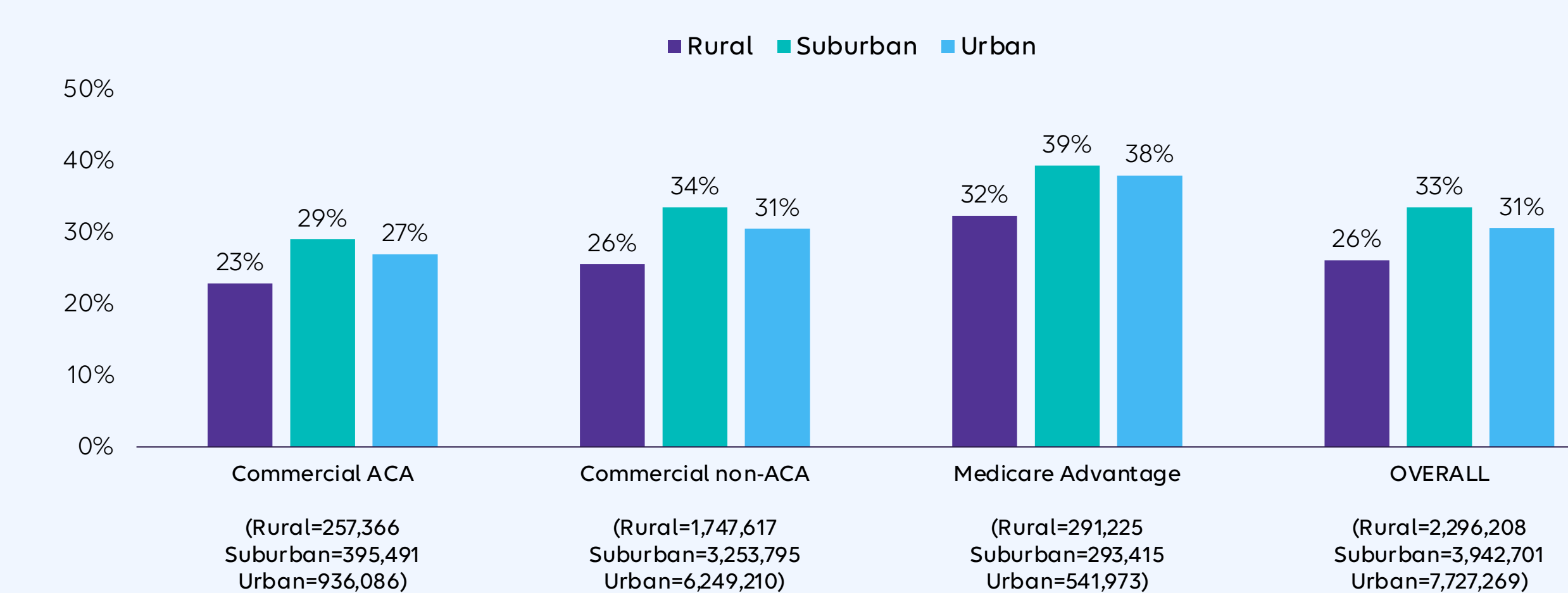
- As shown in Figure 1, the overall proportion of telehealth use in the sample was 15% over the 7-month period, and the overall proportion of completing an annual preventive/wellness visit was 31%.
 - In counties designated as primary care health professional shortage areas (primary HPSA), telehealth use was somewhat higher (16%) while the proportion of annual preventive/wellness visits was lower (27%). This pattern was true across insurance types.
 - Commercial ACA members living in primary HPSA had the highest telehealth use (17%), but the lowest proportion of annual preventive/wellness visits (25%).

Figure 2: Telehealth Use by Urbanicity and Health Plan Type



- Figure 2 shows that members living in rural counties were less likely to use telehealth (11%, versus 16% among members in suburban and urban counties).
 - The difference by urbanicity in telehealth use was greatest among Commercial ACA members (ranging from 11-17%) and lowest among MA members (ranging from 11-14%).

Figure 3: Annual Preventive/Wellness Visit by Urbanicity and Health Plan Type



Notes: ACA, Affordable Care Act

- Figure 3 shows, similarly, that members living in rural counties tend to have lower proportions of completing an annual preventive/wellness visit (26%). However, the highest proportions of these visits occurred among members living in suburban counties, across health plan types (33%).

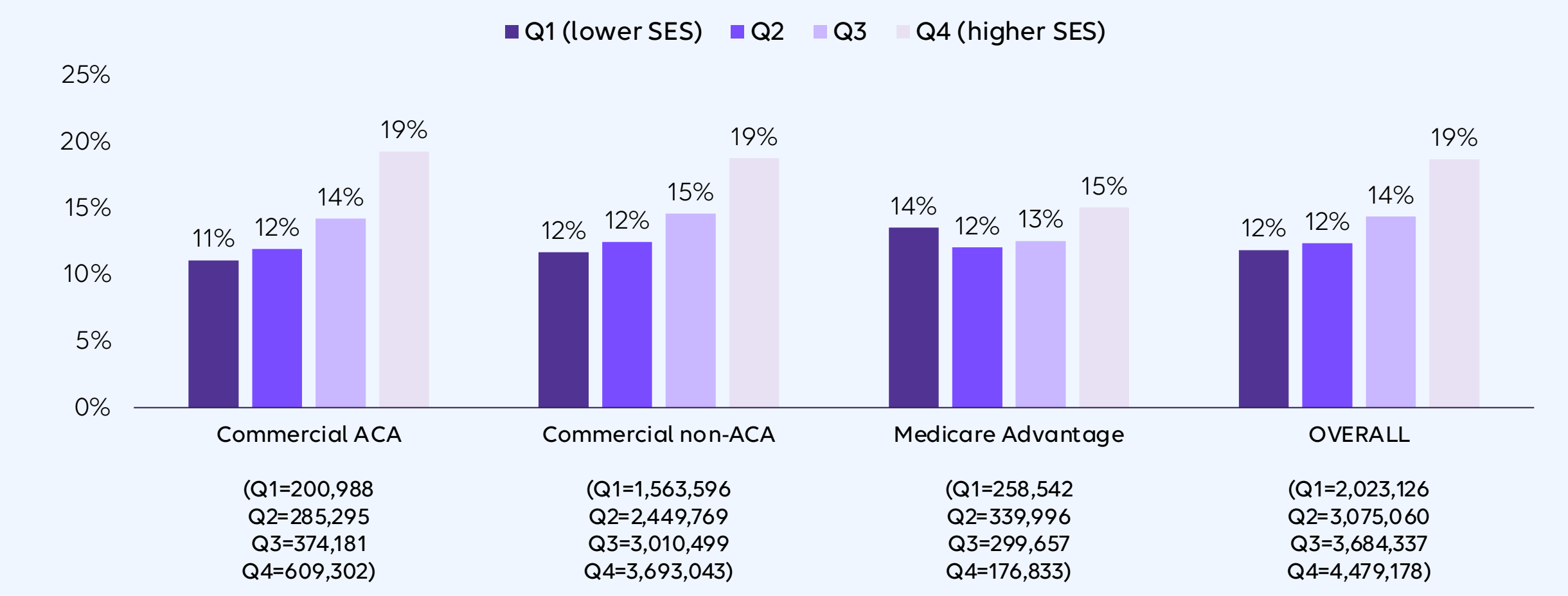
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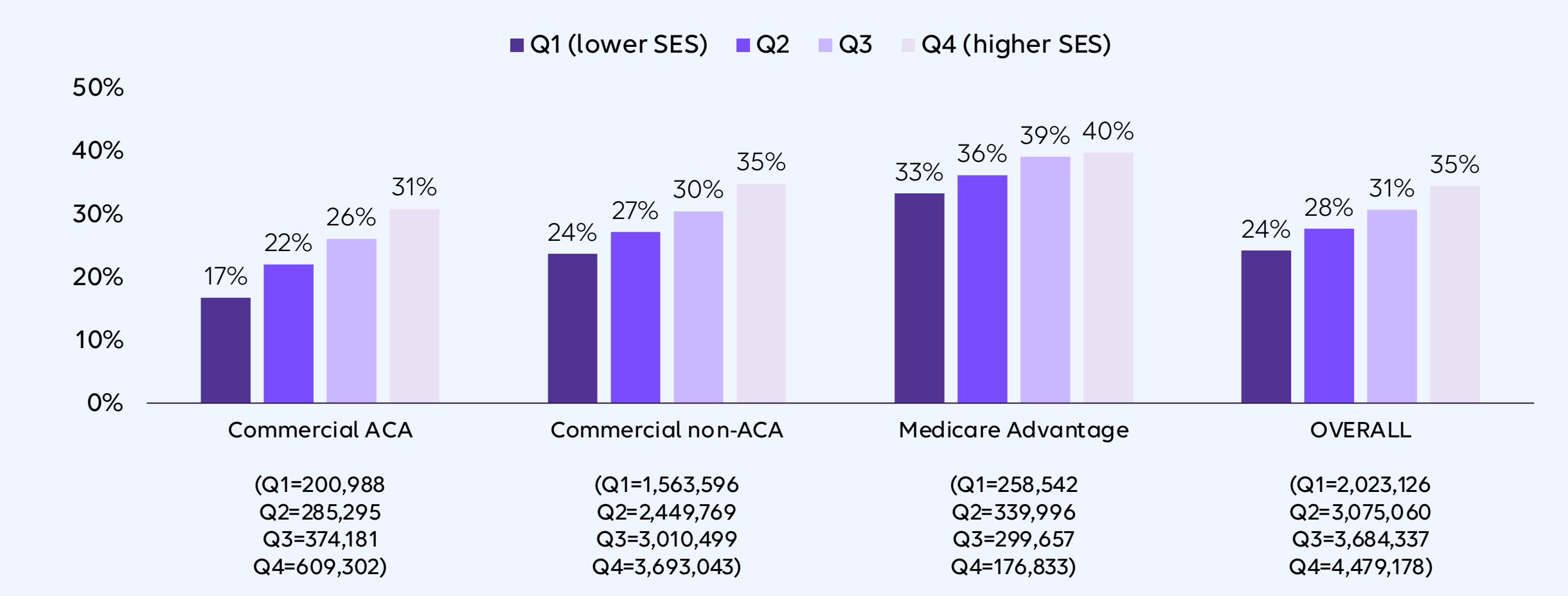
Figure 4: Telehealth Use by Socioeconomic Status Quartile and Health Plan Type



Notes: ACA, Affordable Care Act

- As shown in Figure 4, socioeconomic status quartile was associated with telehealth use overall (12% in the lowest quartile versus 19% in the highest), but less so among MA members.

Figure 5: Annual Preventive/Wellness Visit by Socioeconomic Status Quartile and Health Plan Type



Notes: ACA, Affordable Care Act; SES, Socio-economic status

- The proportion of annual preventive/wellness visits rose steadily by socioeconomic status quartile overall (24% in the lowest quartile versus 35% in the highest) and within health plan types.
 - The proportion of annual preventive/wellness visits varied more widely by SES quartile among commercial health plan members (increase of 14 percentage-points [pp] from Q1 to Q4) than among MA members (increase of 7pp from Q1 to Q4)

Limitations

- The assessment of annual preventive/wellness visits is based on 7 months of observation; patterns may be different over a full 12-month period.
- No statistical testing was conducted, and our findings represent associations rather than causal impacts.
- Requiring continuous enrollment may introduce selection bias by excluding members who switched health plans.
- Individual health-related social needs may differ from the area-level SDOH that this study examined.

Conclusions & implications

- SDOH characteristics such as urbanicity and area-level socio-economic status are associated with both telehealth utilization and completing an annual preventive/wellness visit. These associations are present across health plan types.
- Many area-level social driver variables are readily available from public sources and can be linked to claims data using members' addresses. These data characterize members' circumstances outside clinical settings and can explain some variation in the use of healthcare.
- Members living in rural counties and in lower-income neighborhoods may need more support to access telehealth care and preventive care.