

Characteristics of Medicare patients initiating long-acting injectable antipsychotic medications

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Background

- Schizophrenia is a serious chronic and often disabling condition that affects more than 1.5 million people in the United States.¹
- The primary treatment for schizophrenia are antipsychotic medications (AM). Of over 20 FDA-approved AM, at least 10 are available as long-acting injectable (LAI) formulations (i.e., administered every 2-8 weeks (or longer) by a healthcare professional).²
- Most patients with schizophrenia have Medicaid or Medicare coverage.³ Real-world evidence on use of LAI-AM is limited, particularly among those with Medicare coverage.
- Medicare coverage is available using traditional, fee-for-service (FFS) plans as well as privately managed Medicare Advantage (MA) plans. Compared to FFS, MA plans typically have lower out-of-pocket costs, additional benefits, and more restricted provider access.⁴

Objective

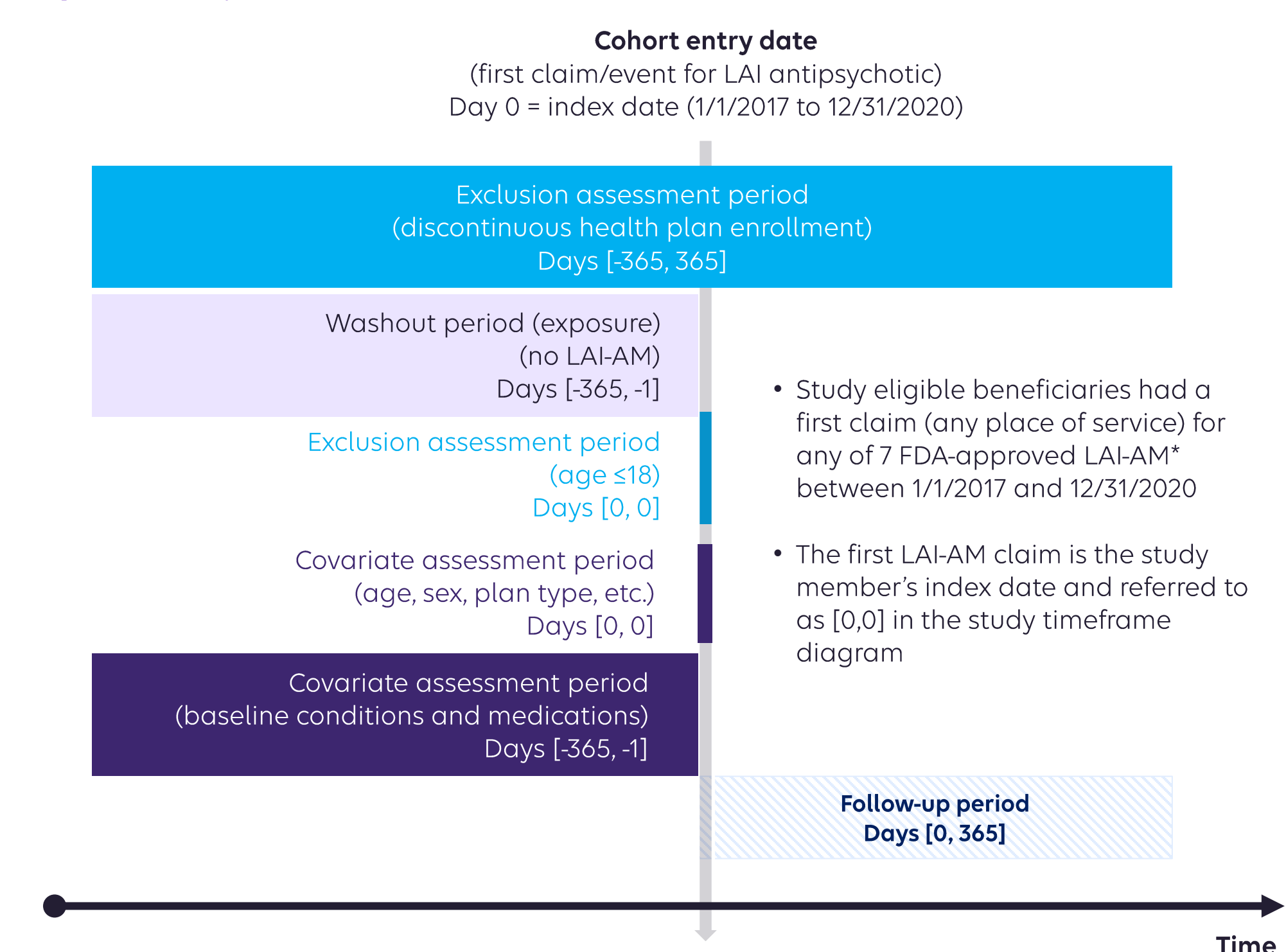
Use claims data to conduct a retrospective, observational study to (1) gain a holistic understanding of patterns of LAI-AM use among beneficiaries enrolled in FFS or MA plans and (2) compare results between the FFS and MA populations.

Methods

Study design and data sources

- Retrospective, observational study using data between 1/1/2016 to 12/31/2021 (study period).
- **Medicare Advantage:** Enrollment files and medical & pharmacy claims from the Healthcare Integrated Research Database (HIRD®) maintained by Carelon Research, representing health plans across the US with members in each of the 50 states.⁵
- **Fee-for-Service Medicare:** Enrollment files and medical & pharmacy claims from a 5% random sample of beneficiaries from the Chronic Conditions Data Warehouse.
- We linked 2020 area-level social determinants of health (SDoH) data from the Agency for Healthcare Research and Quality's SDoH Database⁶ to beneficiary address data using 5-digit ZIP codes. We used selected variables to calculate a socioeconomic status (SES) index score.⁷

Figure 1. Study timeframes



* Fluphenazine decanoate (Prolixin); haloperidol decanoate (Haldol); aripiprazole monohydrate (Abilify Maintena); aripiprazole lauroxil (Aristada, Aristada Injito); olanzapine pamoate (Zyprexa Relprevv); paliperidone palmitate (Invega Sustenna, Invega Trinza, Invega Hafyera); risperidone (Risperdal Consta, RBP-7000 aka Perseris)

Variable definitions and statistical analysis

- We identified psychiatric and other co-occurring conditions via ICD-10-CM diagnosis codes from any position on the claim and from any place of service. Non-pharmacologic treatments were identified via CPT codes. Details about member-level race/ethnicity are available elsewhere.^{8,9}
- Analyses of MA and FFS members were conducted separately; datasets were not linked and no statistical comparisons were conducted between the two populations.
- Descriptive statistics including sample sizes, means and standard deviations for continuous data and absolute/relative frequencies for categorical data are presented.

Results

- MA users were ~5y older than FFS. Individuals who are dual-eligible for Medicaid and Medicare accounted for the majority in both populations. Annual new LAI-AM starts increased over time in MA and decreased in FFS. Majority of patients in both samples were White, NH. Higher diversity and SES in FFS (Table 1, Figure 4).
- 72% (MA) and 78% (FFS) of patients had claims with schizophrenia diagnoses (ICD-10-CM F20, F25) at baseline. Other behavioral health conditions were very common. Substantial non-psychiatric comorbidity burden in both cohorts; moderately higher in MA. (Figures 5a and 5b)
- LAI-AM were not used as first-line treatment in this population, as indicated by the high utilization of oral antipsychotics at baseline. In FFS, 54% of prescriptions were filled in community pharmacies and 37% in long-term care pharmacies (the rest occurred in medical settings).

Figure 2. Patient selection

	Medicare Advantage N (%)	Fee-for-service N (%)
Adult patients with ≥1 LAI-AM	5,432	13,798
With ≥12 months pre-index and ≥12 months post-index continuous health plan enrollment	850 (16%)	6,551 (47%)
Without claims or events for any LAI-AM during the 12-month baseline period; without multiple LAI-AM on index date	525 (62%)	3,180 (49%)

Table 1. Demographic and enrollment characteristics

Characteristic	Medicare Advantage	Fee-for-service
Number of patients	525	3,180
Sex and age		
Male, %	45%	56%
Mean (SD) age, years	53.8 (15.1)	48.6 (15.3)
18 to 39 years, %	20%	32%
40 to 64 years, %	56%	51%
65 to 74 years, %	15%	11%
75+ years, %	9%	5%
MA D-SNP enrollment, %		
D-SNP (dual eligibles only)	47%	
Non-D-SNP (contains duals and non-duals)	53%	
FFS Dual eligibility status, %		
No duals		13%
Partial duals		15%
Full duals		73%
FFS enrollment reason, %		
Old age and survivor's insurance		17%
Disability insurance benefits		83%
Index year, %		
2017	20%	40%
2018	22%	26%
2019	28%	20%
2020	30%	14%
Race/ethnicity, %		
Number of patients with race/ethnicity data available, N (%)	478 (91%)	3,180 (100%)
White, Not Hispanic or Latino	66%	59%
Black or African American, Not Hispanic or Latino	26%	26%
Hispanic or Latino of any race	6%	9%
Asian, Not Hispanic or Latino	2%	2%
American Indian or Alaska Native, Not Hispanic or Latino	<5	1%
Other race, Not Hispanic or Latino	<5	2%
Diversity index*	50.2%	57.1%

D-SNP: Dual Eligible Special Needs Plans ("duals" are eligible for both Medicaid and Medicare due to low income); * Calculated as $100 \cdot (1 - ((R/E)1 + (R/E)2 + (R/E)3 + \dots))$ where R/E[x] represents the fraction of members belonging to each available race/ethnicity category. Reference: <https://www.census.gov/library/visualizations/interactive/racial-and-ethnic-diversity-in-the-united-states-2010-and-2020-census.html> [Accessed 17 Mar 2024].

Figure 3. Geographic region of residence, %

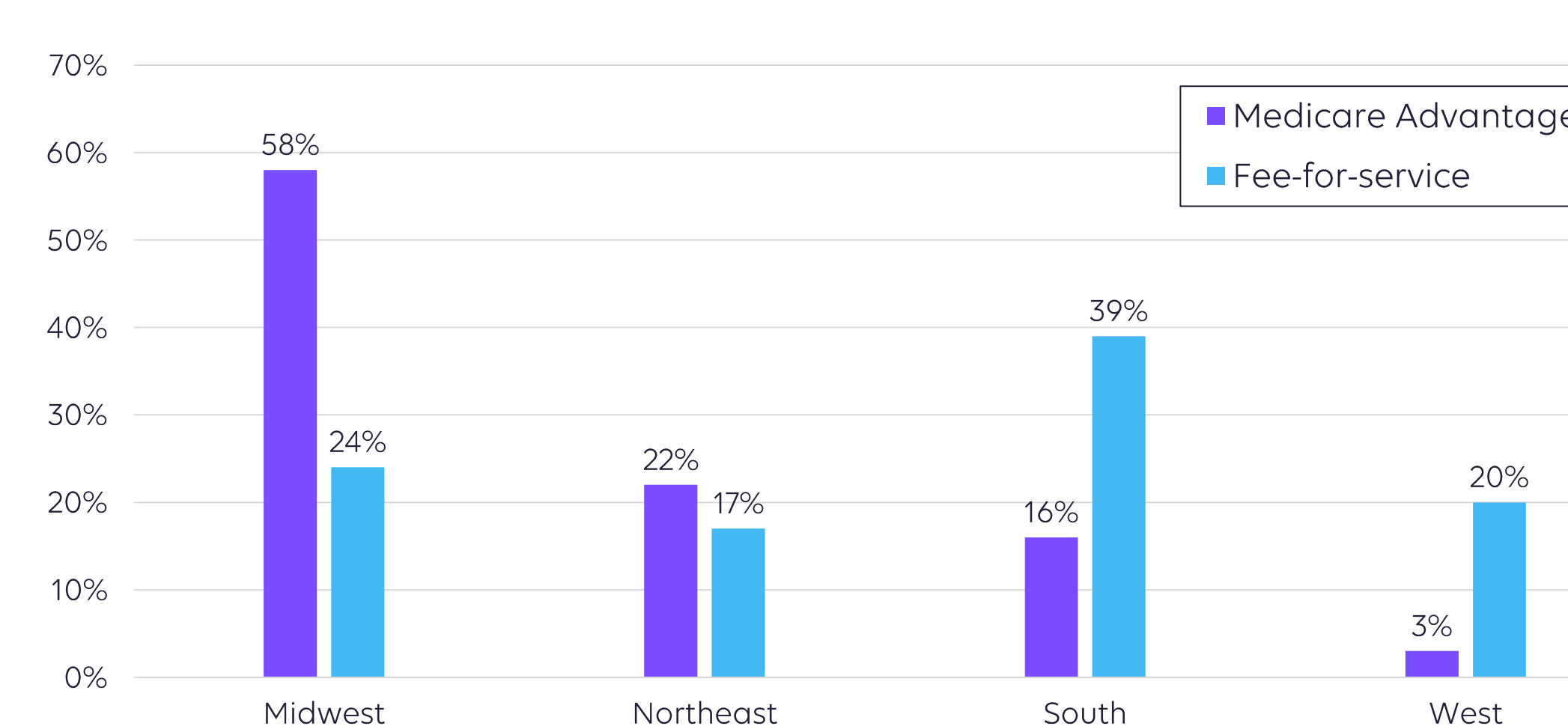
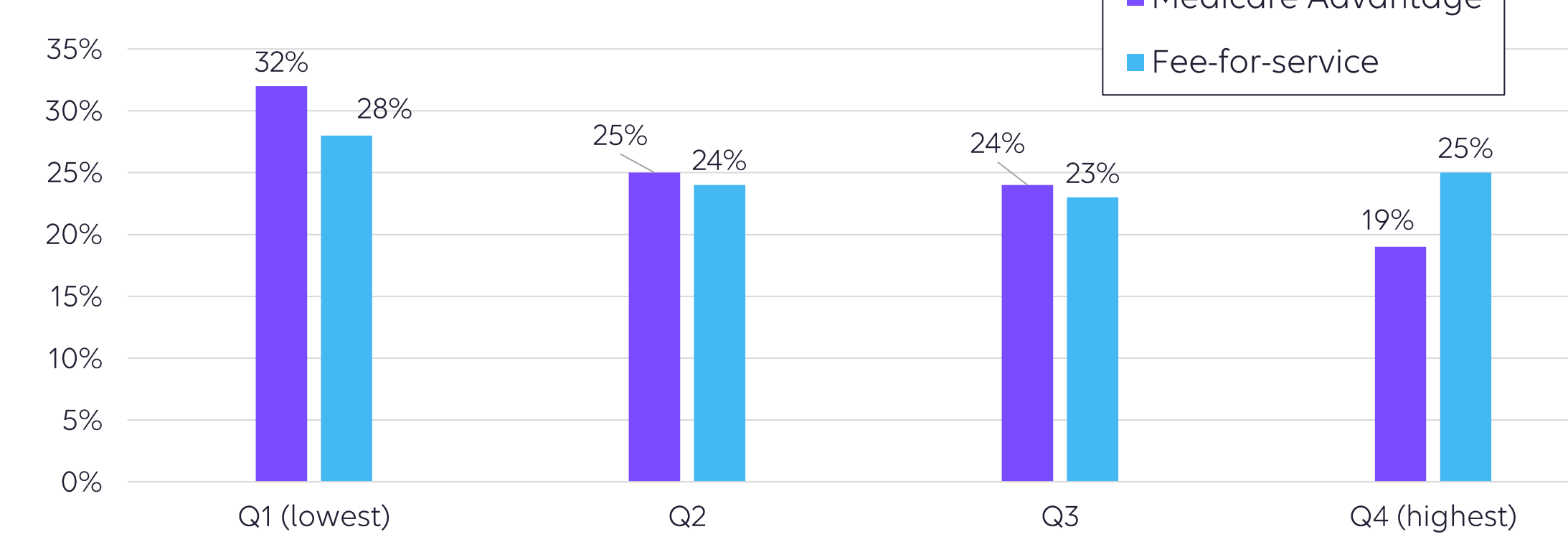


Figure 4. Quartiles of SES index score, %



The socioeconomic status (SES) index is a composite SDoH measure based on seven factors (unemployment rate, poverty rate, median household income, median home value, proportion of not having high school degree, proportion with college degree, proportion of households that average one or more persons per room). The SES index score is reported in quartiles, with "1" indicating a patient is in the top 25% of the SES index score and "4" indicating a patient is in the bottom 25% of the SES index score, using thresholds based on the US national population distribution.

Figure 5a. Psychiatric and other co-occurring behavioral health conditions

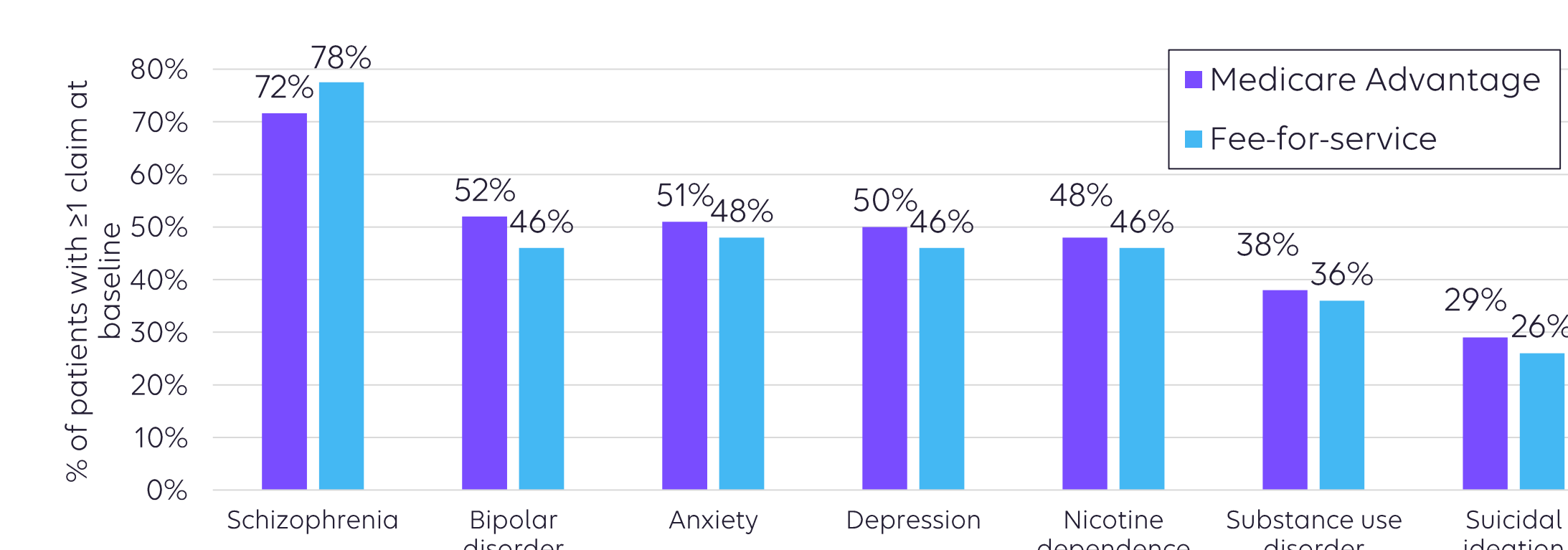


Figure 5b. Non-psychiatric co-occurring conditions

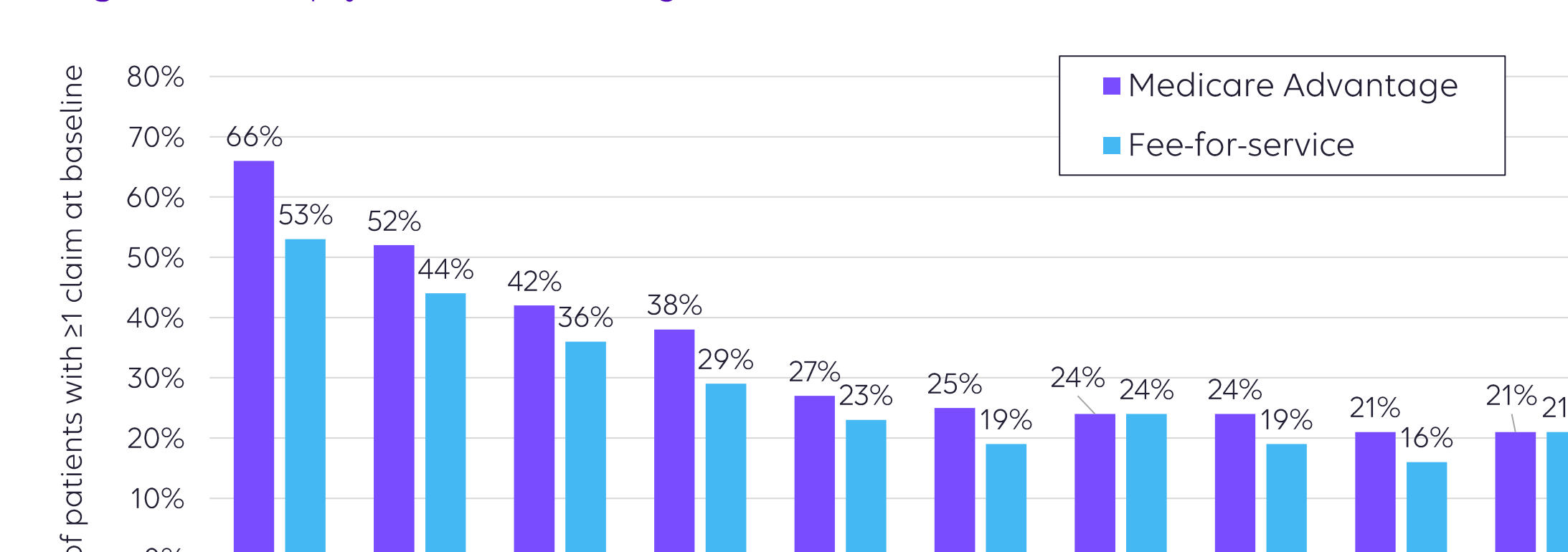


Table 2. Mental health medication use

Characteristic	Medicare Advantage	Fee-for-service
Number of patients, N	525	3,180
Psychotropic medication use at baseline, %		
Typical antipsychotics (orals)	34%	39%
Atypical antipsychotics (orals)	80%	81%
Other psychotropics (antidepressants, anxiolytics, mood stabilizers, etc.)	84%	74%
Type of LAI-AM on index date, %		
Typical antipsychotics (LAI)	22%	27%
Atypical antipsychotics (LAI)	78%	73%
Index LAI-AM formulation, %		
Branded	71%	68%
Generic	22%	23%
Unknown	8%	9%
Index LAI-AM prescriber, %		
Psychiatrist	44%	50%
Primary care physician (PCP)	11%	11%
Other clinicians*	30%	34%

*This includes non-physician clinicians such as nurse practitioners, physician assistants, or licensed clinical social workers. Remainder includes missing/unknown and a small number of psychologists.

Limitations

- Administrative claims are collected for payment purposes rather than research and sometimes lack clinical details (e.g., reason for prescribing an LAI-AM).
- Several characteristics, such as provider preferences, health plan benefit design including the structure of behavioral health coverage, individual-level health-related social needs, family history, etc. were unavailable.
- Because LAI-AM have multiple indications, there is uncertainty about the clinical rationale for their use in a particular patient.
- Parts of the study period overlap with the COVID-19 pandemic, which may impact access to medical care and reduce the generalizability of the results.

Conclusions

- LAI-AM initiators in MA and FFS plans were mostly similar in terms of demographic characteristics, prevalence of mental health conditions, and LAI-AM formulation.
- FFS LAI-AM users were younger, likely reflecting differential enrollment patterns among disabled beneficiaries.
- Future research should investigate patient selection and flows between FFS and MA, LAI-AM treatment patterns and their changes over time, and impacts on follow-up health outcomes (e.g., relapse patterns) and resource utilization.

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Funding and disclosures

MG, KH, CCT are employees of Carelon Research (a wholly owned subsidiary of Elevance Health), which conducts health outcomes research with both internal and external funding, including various private and public entities. MG, KH and CCT are shareholders of Elevance Health.

SdR receives funding from GlaxoSmithKline for a project unrelated to the study described in this poster and conducts research that is funded by state and federal agencies.

YYC has no conflicts to declare.

No funding was received for the conduct of this study.

The full study protocol is available on the RWE Registry (<https://osf.io/registries/rwe/discover>).

