The study found differences in AP utilization and HRU

The study found minimal differences in AP utilization

Non-Hispanic Black patients were less likely to be

treated with SGAs, reflecting potential disparities in

Even with the availability of newer SG LAIs, FG LAIs

were found to be broadly used across these patients

CONCLUSIONS

Scan the QR code for

Supported by Janssen Scientific Affairs, LLC.

# Health Disparities Among Patients With Schizophrenia in an Integrated Healthcare System

Sanghyuk Seo,¹ Bridget Healey,² Ronaé McLin,² Naomi Sacks,² Carmela Benson,¹ Leslie Citrome³ <sup>1</sup>Janssen Scientific Affairs, LLC, Titusville, NJ; <sup>2</sup>PRECISIONheor, Boston, MA; <sup>3</sup>New York Medical College, Valhalla, NY

### INTRODUCTION

### Background

# • Schizophrenia is a serious mental illness with a substantial disease burden that may be accompanied by disparities in diagnosis

• Long-acting injectable antipsychotics (LAI) provide an advantage over oral antipsychotics (OAP) with their less-frequent dosing intervals • Newer second-generation antipsychotics (SGA) are generally better tolerated than first-generation antipsychotics

• There is a need to better understand the impact that social determinants of health have on burden and treatment outcomes in patients with schizophrenia

### OBJECTIVE

• To describe the overall burden of schizophrenia and assess health disparities in individuals with schizophrenia from an integrated delivery network perspective

### **METHODS**

### Study Design

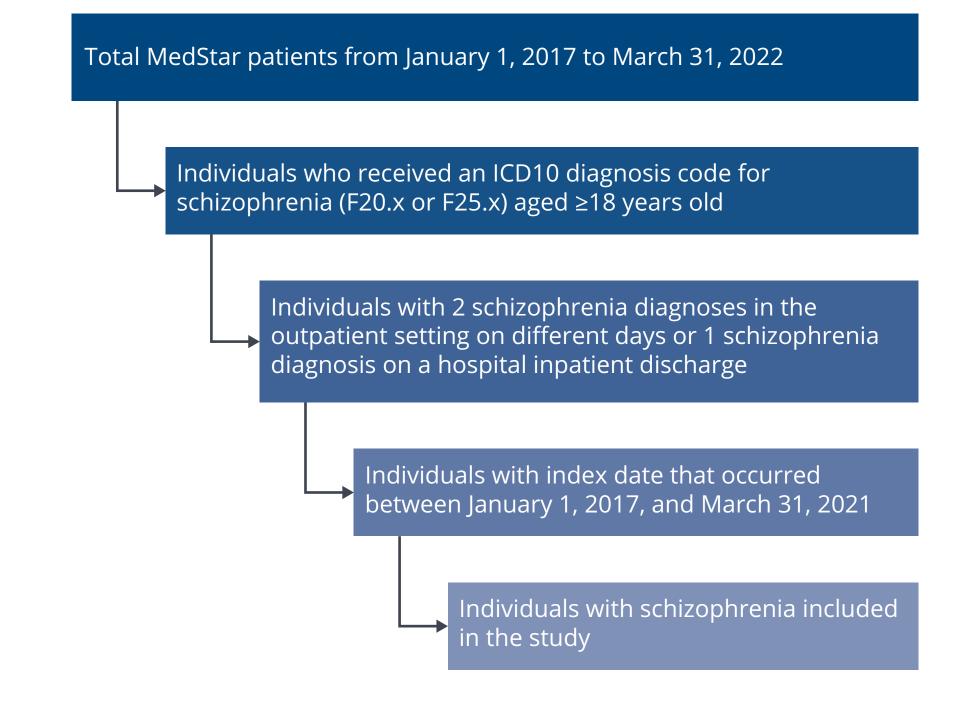
 A retrospective health record data analysis was conducted to examine health disparity within antipsychotic (AP) utilization and healthcare resource utilization (HRU). Analyses of study outcomes were reported in a patient's 12-month post index

- Data source
- The study used electronic medical record data from MedStar Health, an integrated delivery network in the Washington, DC, metropolitan area serving more than 500,000 patients annually

### Study Population

- All individuals aged ≥18 years old with a diagnosis of schizophrenia (International Classification of Diseases, 10th revision, Clinical Modification [ICD-10-CM] diagnosis code F20.x or F25.x) were identified
- Patients with ≥2 diagnoses of schizophrenia from ambulatory (outpatient) encounters on different days OR ≥1 discharge diagnosis of schizophrenia from a hospital inpatient encounter (**Figure 1**)

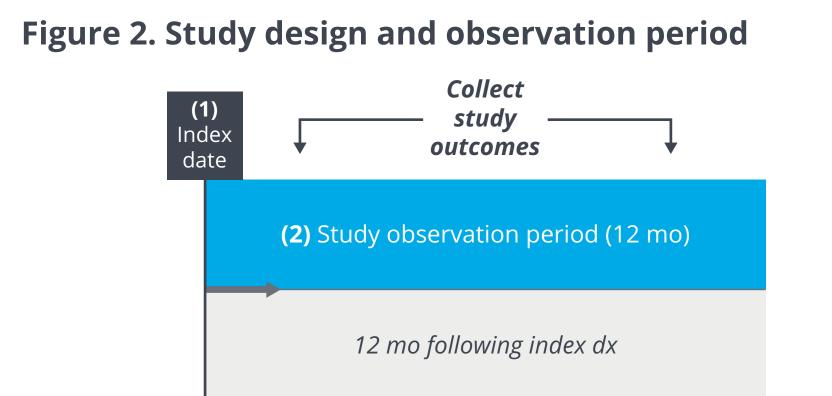
### Figure 1. Patient selection



### **Study Timeframe**

- The data collection timeframe was from January 1, 2017, to March 31, 2022
- The study index date was the date of the first diagnosis for schizophrenia in the diagnosis index date timeframe (January 1, 2017 – March 31, 2021)
- Study outcomes were measured in the 12 months following index (**Figure 2**)

NEUROPSYCHIATRY



(1) First date with a recorded schizophrenia diagnosis between January 1, 2017, and March 31, 2022

March 31, 2022 →

 (1.a) Patients ≥18 years of age as their respective index date (2) ≥2 outpatient setting based diagnoses with schizophrenia OR ≥1 inpatient discharge diagnosis for Schizophrenia

← January 1, 2017

- Demographics, AP utilization, and HRU were analyzed Covariates of interest
- Age (18-24, 25-34, 35-44, 45-54, 55-64, ≥65 years)
- Sex (male, female) Race/ethnicity (non-Hispanic White, non-Hispanic Black,
- other race/ethnicity) Primary health insurance at index (Medicaid, Medicare, other insurance type)

### **Analysis**

- Study results were reported among all individuals in the study population and stratified by covariates. All covariates of interest were categorical with mutually exclusive groups The study was approved by MedStar's Institutional Review
- All statistical analyses were conducted using SAS version 9.3 and R, with tests conducted assuming a two-tailed test of significance and alpha level set a priori at 0.05; all analyses are descriptive
- Statistical methods
- Univariate Measures of central tendency
- Mean, median
- Measures of spread
- Interquartile range, standard deviation, range Measures of frequency of utilization
- Incidence rate, incidence proportion
- Bivariate
- Risk difference, rate difference
- Ratio measures (relative)
- Risk ratio, rate ratio, odds ratio

## RESULTS

Developmental

REFERENCES

Table 1. Patient Demographics	
Demographic and Clinical Characteristics	Overall (N = 10,026)
Sex (n, %)	
Female	4,383 (43.7)
Male	5,643 (56.3)
Age	
Mean (SD)	46.0 (16.0)
Median (IQR)	47.0 (27.0)
Age group (n, %)	
18-24	1,000 (10.0)
25-34	2,021 (20.2)
35-44	1,634 (16.3)
45-54	1,863 (18.6)
55-64	2,216 (22.1)
≥65	1,292 (12.9)
Age cohort (n, %)	
18-34	3,021 (30.1)
35-64	5,713 (57.0)
≥65	1,292 (12.9)
Race/ethnicity (n, %)	
Non-Hispanic White	2,432 (24.3)
Non-Hispanic Black	6,523 (65.1)
Other	1,071 (10.7)
Geography (n, %)	
Rural	229 (2.3)
Urban	9,797 (97.7)
nsurance (n, %)	
Medicare	3,935 (39.2)
Medicaid	4,833 (48.2)
Other	1,258 (12.5)
Body mass index (n, %)	
Underweight (<18.5)	248 (2.5)
Healthy weight (18.5-24.9)	3,050 (30.4)
Overweight (25.0-29.9)	2,768 (27.6)
Obese (≥30)	3,646 (36.4)
Unknown	314 (3.1)
Smoking status (n, %)	
Current smoker	3,911 (39.0)
Former smoker	935 (9.3)
Nonsmoker	4,015 (40.0)
Unknown	1,165 (11.6)
Employment status (n, %)	. ,
Disabled	2,307 (23.0)
Full-time employed	229 (2.3)
Othor	77 (0.9)

rait-uille ellipioyeu	123 (1.2)
Retired	168 (1.7)
Student	149 (1.5)
Unemployed	1,824 (18.2)
Unknown	5,147 (51.3)
Living situation (n, %)	
Housing with support	2,407 (24.0)
Housing without support	3,448 (34.4)
Mental health facility/hospital	31 (0.3)
Unknown/missing	2,975 (29.7)
Unstable or temporary housing/homeless	1,165 (11.6)
Marital status (n, %)	
Divorced	601 (6.0)
Married	726 (7.2)
Separated	162 (1.6)
Single	8,189 (81.7)
Unknown	33 (0.3)
Widowed	315 (3.1)
Elixhauser Sum	
Mean (SD)	3.99 (2.68)
Median (IQR)	3.00 (3.00)
Comorbid psychiatric conditions (n, %)	
Anxiety	3,097 (30.9)
Bipolar disorder	3,201 (31.9)
Depression	2,700 (26.9)
Obsessive-compulsive disorder	163 (1.6)
Posttraumatic stress disorder	834 (8.3)
Disabilities (n, %)	
Any	1,129 (11.3)
Ambulatory	281 (2.8)
Brain Injury	22 (0.2)

### **AP Utilization**

- Patient demographics and baseline characteristics are presented in Table 1
- Among all identified patients, 78% were treated with any AP, 69% with any SGA, 67% with any second-generation oral AP
- (SG OAP), 9% with any SGA LAI, and 23.1% with any first-generation LAI (**Table 2**) • We observed that AP use (any, first-generation AP [FGA], SGA, OAP, or LAI) rates were increasingly lower among older patients
- (age ≥65; 76.1%) than younger patients (age 18-24; 83.3%) (**Table 3**)
- There were no clinically meaningful differences in AP use with regard to sex (77.8% female vs 78.3% male) • There were notable differences in SGA use between patients with Medicaid (71.2%) and Medicare (66.5%) as well as SG OAP
- use between patients with Medicaid (69.5%) and Medicare (64.1%) (**Table 4**) • Compared with non-Hispanic Black patients, fewer non-Hispanic White patients used FGAs (39.4% vs. 42.4%; P<.01) and more
- used second-generation antipsychotics (SGA) (68.0% vs. 64.6%; P<.01) • The odds of FGA long-acting injectable antipsychotic use were 1.45 times higher for non-Hispanic Black vs. non-Hispanic

White patients (*P*<.001)

- HRU outcomes are comparable between males and females, except for outpatient visits where female patients had higher proportion and number of all-cause outpatient visits (63.4%, 6.29 visits per patient) compared with male patients (50.9%, 3.84 visits per patient) (**Figure 3**)
- All-cause inpatient visits are highest for age group 18-24 (74.0%) and trend downward as age increases until ≥65, while
- all-cause outpatient visits are lowest for age group 18-24 (39.2%) and trend upward as age increases (**Table 5**)
- Higher rate of emergency department and inpatient visits and were observed in patients with Medicaid (mean ± SD: 2.08 ± 4.81 and 1.14  $\pm$  1.38) vs Medicare (1.75  $\pm$  6.10 and 0.991  $\pm$  1.31). Alternatively, outpatient visits occurred more frequently for patients with Medicare (6.37  $\pm$  9.50) vs Medicaid (4.08  $\pm$  7.86)

### **Quality Measure Outcomes**

- Overall, 69% received an AP during a mental health hospitalization inpatient stay, but only 18.2% received an outpatient AP prescription after the first mental health hospitalization discharge (**Table 6**)
- The mean time between the first mental health hospitalization discharge to the first outpatient AP prescription was 101 days • Among those receiving AP, more Medicaid patients (73%) received an AP during inpatient stays compared with Medicare

Table 3. AP Utilization by Age

AP, antipsychotic; LAI, long-acting injectable; SAI, short-acting injectable.

**Patients With at Least** 

Patients With at Least 1 AP Utilization (n, %)	All Patients (N = 10,026)
Any AP	7,831 (78.1)
Atypical (second-generation)	6,932 (69.1)
Atypical oral	6,722 (67.0)
Atypical LAI	907 (9.0)
Atypical SAI	413 (4.1)
Atypical other	118 (1.2)
Atypical unknown	595 (5.9)
Typical (first-generation)	4,798 (47.9)
Typical oral	3,993 (39.8)
Typical LAI	2,313 (23.1)
Typical SAI	220 (2.2)
Typical other	46 (0.5)
Typical unknown	317 (3.2)
Clozapine	263 (2.6)

### (n = 1,000) (n = 2,021) (n = 1,634) (n = 1,863) (n = 2,216) (n = 1,292) *P* Value (n, %) 833 (83.3) 1,604 (79.4) 1,287 (78.8) 1,432 (76.9) 1,692 (76.4) 983 (76.1) < 0.001 Any AP Atypical (second generation) 767 (76.7) 1,453 (71.9) 1,139 (69.7) 1,289 (69.2) 1,442 (65.1) 842 (65.2) < 0.001 749 (74.9) 1,414 (70.0) 1,105 (67.6) 1,244 (66.8) 1,398 (63.1) 812 (62.8) < 0.001 Atypical oral 164 (16.4) 225 (11.1) 156 (9.5) 143 (7.7) 140 (6.3) 79 (6.1) < 0.001 Atypical LAI 64 (2.9) Atypical SAI 73 (4.5) 78 (4.2) 69 (6.9) 100 (4.9) 28 (1.5) 27 (1.2) masked Atypical other

Atypical unknown	65 (6.5)	132 (6.5)	103 (6.3)	106 (5.7)	119 (5.4)	70 (5.4)	0.501
Typical (first generation)	598 (59.8)	1,127 (55.8)	821 (50.2)	844 (45.3)	913 (41.2)	495 (38.3)	<0.001
Typical oral	554 (55.4)	996 (49.3)	694 (42.5)	701 (37.6)	693 (31.3)	355 (27.5)	< 0.001
Typical LAI	302 (30.2)	547 (27.1)	380 (23.3)	363 (19.5)	441 (19.9)	280 (21.7)	<0.001
Typical SAI	13 (1.3)	36 (1.8)	36 (2.2)	44 (2.4)	61 (2.8)	30 (2.3)	0.113
Typical other	<10	<10	<10	<10	14 (0.6)	13 (1.0)	0.00549
Typical unknown	26 (2.6)	63 (3.1)	68 (4.2)	51 (2.7)	75 (3.4)	34 (2.6)	0.108
Clozapine	16 (1.6)	54 (2.7)	49 (3.0)	47 (2.5)	67 (3.0)	30 (2.3)	0.225

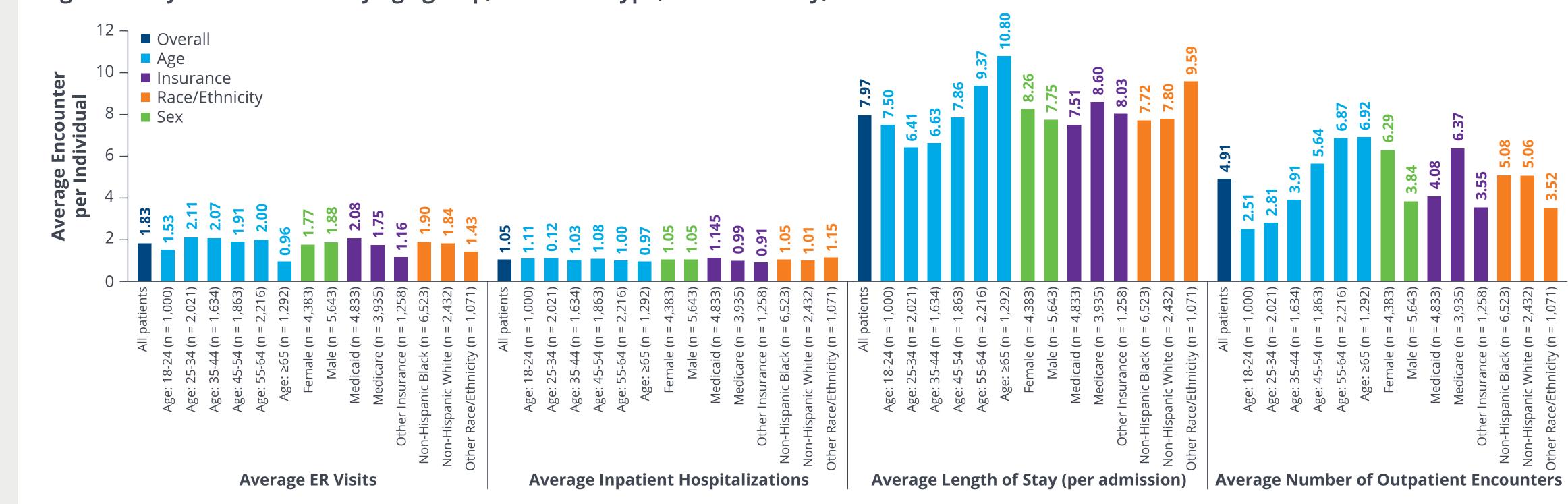
### Table 4. AP Utilization by Insurance Type Patients with at least 1 antipsychotic utilization by Medicare (n = 1,258)(n = 3,935)(n = 4,833)P Value insurance type (n, %) Any antipsychotic 873 (69.4) 2,618 (66.5) Atypical (second-generation) 841 (66.9) 2,521 (64.1) 3,360 (69.5) Atypical oral Atypical LAI 0.00194 Atypical other Masked Atypical unknown 1,687 (42.9) Typical (first-generation) 2,499 (51.7) 612 (48.6) 2,112 (43.7) 541 (43.0) Typical oral Typical SAI 100 (2.1) 0.153 Typical other Masked

AP, antipsychotic; LAI, long-acting injectable; SAI, short-acting injectable.

Typical unknown

Clozapine

### Figure 3. Key HRU measures by age group, insurance type, race/ethnicity, and sex



ER, emergency department.

### Table 5. HRU by Age Group

ER, emergency department; OP, outpatient.

HRU	Variable	Age: 18-24 (n = 1,000)	Age: 25-34 (n = 2,021)	Age: 35-44 (n = 1,634)	Age: 45-54 (n = 1,863)	Age: 55-64 (n = 2,216)	Age: ≥65 (n = 1,292)	<i>P</i> Value
Patients wi	ith ≥1 (n, %)							
All cause	Inpatient hospitalization	740 (74.0)	1,352 (66.9)	1,000 (61.2)	1,080 (58.0)	1,246 (56.2)	764 (59.1)	< 0.001
All cause	ER visit	471 (47.1)	1,117 (55.3)	890 (54.5)	1,002 (53.8)	1,075 (48.5)	511 (39.6)	<0.001
All cause	Any OP	392 (39.2)	840 (41.6)	784 (48.0)	1119 (60.1)	1539 (69.4)	976 (75.5)	<0.001
Average pe	er patient (mean, SD)							
All cause	Inpatient Hospitalization	1.11 (1.05)	1.12 (1.35)	1.03 (1.27)	1.08 (1.48)	1.00 (1.40)	0.965 (1.13)	0.0047
All cause	ER visit	1.53 (3.06)	2.11 (6.28)	2.07 (4.18)	1.91 (4.34)	2.00 (6.97)	0.956 (2.52)	< 0.001
All cause	Any OP	2.51 (5.49)	2.81 (5.82)	3.91 (7.34)	5.64 (9.52)	6.87 (10.4)	6.92 (9.22)	< 0.001

Table 6. AP Utilization Patterns	
----------------------------------	--

AP Treatment Utilization Patterns Among Those With APs; Patients With AP, LAI, and OAP; Study Period: 12 Months Post Index	All Patients	Medicare	Medicaid	Other	
Patient counts	(N = 7,831)	(n = 3,008)	(n = 3,861)	(n = 962)	P Value
AP during Inpatient					
AP during inpatient stay	5,402 (69.0%)	1,922 (63.9%)	2,812 (72.8%)	668 (69.4%)	<0.001
Has AP after first mental health hospitalization discharge	2,654 (33.9%)	1,025 (34.1%)	1,366 (35.4%)	263 (27.3%)	<0.001
Of those, time from discharge to first AP (any setting)					0.659
Mean (SD)	87.3 (95.3)	87.9 (94.8)	86.1 (94.0)	91.7 (104)	
Denominator	2,654	1,025	1,366	263	
Has noninpatient AP after first mental health hospitalization discharge	1,428 (18.2%)	567 (18.8%)	720 (18.6%)	141 (14.7%)	0.00881
Of those, time from discharge to first noninpatient AP					0.737
Mean (SD)	101 (97.5)	104 (97.3)	99.4 (97.2)	99.8 (101)	
Denominator	1,428	567	720	141	





1. McDonagh MS et al. Psychiatr Res Clin Pract. 2020;2(2):76-87. 2. Fett AJ et al. Curr Opin Psychiatry. 2019;32(3):232-241. 3. Heun-Johnson H etal. JAMA Psychiatry. 2021;78(3):311-319.