



THE LOUIS DE LA PARTE FLORIDA MENTAL HEALTH INSTITUTE



Evaluation of Florida Medicaid Behavioral Pharmacy Practice by Racial/Ethnic Minorities Across the Lifespan

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Evaluation of Florida Medicaid Behavioral Pharmacy Practice by Racial/Ethnic Minorities Across the Lifespan

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Evaluation of Florida Medicaid Behavioral Pharmacy Practice by Racial/Ethnic Minorities Across the Lifespan

Executive Summary

A substantial body of research has documented that racial and ethnic disparities exist in all aspects of psychiatric treatment. Differences are seen in diagnostic designations, treatment practices, and access to mental health services. Racial/ethnic disparities are also seen in the prescription of newer antipsychotic and antidepressant medications. Although medication disparities decreased during the 1990s, the current data indicate that gaps still persist, particularly for African Americans (Blacks). Health care leaders, commercial insurers, and Medicaid administrators realize that in order to improve the quality of care and respond to a more demographically diverse client population, they must understand and reduce racial disparities. Toward this end, our study examined disparities in mental health treatment—specifically, antipsychotic and antidepressant medication use—among Florida’s Medicaid beneficiaries diagnosed with a serious mental illness (SMI).

Methods

This longitudinal study examined four years of Medicaid eligibility, pharmacy, and Baker Act data to determine mental health service use and expenditures for community-dwelling beneficiaries with an SMI. The sample was drawn from the records in the Medicaid eligibility files for fiscal year (FY) 2000–01 of subjects who used Medicaid-funded services and had documentation of an SMI. The study subjects had to have (a) either one inpatient or two outpatient claims related to the SMI diagnosis, and (b) Medicaid eligibility for at least 33 of the 36 months immediately following the first claim documenting a diagnosis of an SMI. Subjects meeting the inclusion criteria were followed using Medicaid, medical, and institution files for FY 01–04.

Key Findings

The study sample comprised 1,273,441 community-dwelling Medicaid beneficiaries who were (a) not enrolled in a Medicaid managed care plan, (b) not living in AHCA areas 1 or 6, or (c) not residing in a nursing home. According to the Medicaid race categorization, 41.7% were identified as White, 26.1% as Black, 19.9% as Hispanic, 0.4% as Oriental, 0.04% as American Indian, and 11.7% as multiracial (non-White and non-Black racial/ethnic groups were classified as Other minorities). In this Medicaid sample, 36,575 individuals were identified as having a diagnosis of an SMI in the baseline year FY 00–01. More than half of beneficiaries with a documented diagnosis of an SMI in that year were non-White (19.6% Blacks and 35.1% Other minorities). While slightly less than half the total sample of persons with an SMI (46.4%) had a diagnosis for a psychotic disorder, 60% of Blacks received this diagnosis, compared with 45.2% of Whites and 39.9% of persons in the Other category.

Perhaps the most striking findings in this study were the disparities found in antidepressant and antipsychotic medication use among Black Medicaid beneficiaries with a diagnosis of an SMI. Across all diagnostic categories studied, Black beneficiaries with a diagnosis of an SMI were less likely than Whites or Other minorities to receive antidepressant and/or antipsychotic medication. Given a diagnosis of major depressive disorder (MDD), significantly more Whites (81.7%) and Other minorities (79.7%) than Blacks (55.4 %) were prescribed an antidepressant medication. Furthermore, among those receiving antidepressant medication, Whites and Other minorities were twice as likely as Blacks to receive a “first-line” antidepressant medication. Similarly, given a diagnosis of major psychosis, Blacks were less likely to receive an antipsychotic medication, and if prescribed an antipsychotic medication, their odds of receiving a newer atypical antipsychotic were less than half that of White and Other minority beneficiaries. These findings have significant implications for differential quality of behavioral health care for Black beneficiaries.

This study found that all beneficiaries with a diagnosis of an SMI received significant numbers of physical and mental health services, but Black beneficiaries had slightly higher median and mean total expenditures, 3% greater use of psychiatric inpatient services, and incurred higher mean and median behavioral health outpatient services than Whites or Other minorities. Our study’s findings of persisting disparities in antipsychotic and antidepressant prescribing patterns for Blacks are consistent with the prior research findings of others.

Study Limitations

A number of limitations are associated with these analyses. First, the study relies solely on Medicaid administrative fee-for-service data and Baker Act data. The administrative data used had limitations: record keeping is imperfect, data containing coding errors may be incomplete, and lags occur in the data entry process. Importantly, Medicaid administrative data only contain information about prescriptions that were filled. It does not document prescriptions that were prescribed by a provider but not filled or prescriptions that were picked up by the patient but were not actually consumed by the patient. The service use and expenditure data reported in this study do not include out-of-pocket costs or private-pay services, and hence the true behavioral-health and physical-health service costs are underestimated. Additionally, beneficiaries who have a diagnosis of an SMI but do not use Medicaid-funded services are not included in this study. Finally, the approach to racial/ethnic group classification used in the Medicaid data is a source of concern. For the present analyses, we recoded race into three categories of White, Black, and Others. It is expected that a significant portion of the Other category might be Hispanics. However, the current data are insufficient to draw any inference with regard to Hispanic populations.

Policy Implications

This study adds to our knowledge of mental health disparities within the Medicaid population and provides new information about service use patterns and expenditures by race/ethnicity for persons diagnosed with an SMI. These study findings could be used to develop new Medicaid policies and drug-prescribing guidelines aimed at reducing mental health disparities, particularly for Black Medicaid beneficiaries. We suggest that Florida use its extensive purchasing power (e.g., through contract requirements and financial incentives) to reduce racial/ethnic disparities and promote change by providers and managed care organizations. Furthermore, Medicaid contract requirements should reinforce the antidiscrimination requirements of Title VI of the Civil Rights Act that mandate health plans to provide culturally and linguistically appropriate services. The State of Florida could impose data collection and reporting requirements on health plans and on the Medicaid program to monitor performance and observe progress in the reduction of pharmaceutical disparities. Additional research is needed to explain continuing prescribing disparities for Black Medicaid beneficiaries with an SMI.

Background

Racial/Ethnic Disparities

Despite a deluge of reports published in the last decade documenting racial and ethnic disparities in health status, the situation remains largely unchanged. In fact, the racial gap in mortality in the United States has not substantially improved in the last 40 years (Satcher, Fryer, McCann, Troutman, 2005). A growing body of literature—including the recent Surgeon General’s report on culture, race, and ethnicity and the Institute of Medicine (IOM) report on unequal treatment (Smedley, Stith, & Nelson, 2003; U.S. Department of Health and Human Services, 2001)—has documented significant disparities in the quality and quantity of health care received by minority groups and has called for corrective action (U.S. Department of Health and Human Services, 2000, 2001; Virnig et al., 2004). Currently, health care leaders, including commercial insurers and Medicaid administrators, realize that to improve the quality of care and respond to a more demographically diverse client population, they must understand and reduce racial disparities (Lurie, 2005). To this end, our study addresses disparities in mental health treatment, specifically antipsychotic and antidepressant medication use, among Florida’s Medicaid beneficiaries with an SMI.

A substantial body of research documents that racial and ethnic disparities exist in all aspects of psychiatric treatment (Baker & Bell, 1999; Lehman et al., 2004; Moy, Dayton, & Clancy, 2005; Nicole, 2005; Schneider, Zaslavsky, & Epstein, 2002). Differences are seen in diagnostic designations, treatment practices, and access to mental health services (Baker & Bell, 1999; Barrio et al., 2003; Breakey & Dunn, 2004; DelBello, 2002; Lin & Cheung, 1999; Lin & Finder, 1983).

Evidence for Disparities in Pharmacotherapy

Although medication disparities decreased during the 1990s, current data indicate that gaps persist, particularly for African Americans (Daumit et al., 2003; Epstein & Ayanian, 2001; Herbeck et al., 2004). Racial/ethnic disparities are also seen in the prescription of newer antipsychotic and antidepressant medications (Kouyoumdjian, Zamboanga, & Hansen, 2003; Pi & Simpson, 2005; Sramek & Pi, 1999; Sohler, Brome, Lavelle, Craig, & Mojtabei, 2004; Mallinger, Fisher, Brown, & Lamberti, 2006), and there is evidence that African Americans and Hispanics are less likely than Whites to receive second-generation atypical antipsychotic (AA) medications and newer antidepressants, such as selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs) (Daumit et al., 2003; Jeste, Rockwell, Harris, Awad, & Vorganti, 1999; Melfi, Croghan, Hanna, & Robinson, 2000; Schneider et al., 2002). When compared with Whites, minorities have substantially higher usage rates of older “typical” antipsychotic (TA) medication and older tricyclic antidepressant (TCA) medication. They also have lower usage rates of antidepressant medication for newly diagnosed episodes of depression (Alegria et al., 2002). Kuno & Rothbard (2002), in a study of antipsychotic medications

prescribed to a sample of Medicaid beneficiaries, observed that, after controlling for insurance status and severity of illness, minorities were less likely to receive newer and more expensive “first-line” medications. Other research indicates that prescribed dosages of antipsychotics and antidepressants differ significantly by race, ethnicity, and age (Jeste et al., 1999; Kouyoumdjian et al., 2003; Pi & Simpson, 2005; Schneider et al., 2002; Sohler et al., 2004; Dartmouth Medical School, 1999; Zito, Safer, Zuckerman, Gardner, & Soeken, 2005).

Although it might be inferred from existing studies with national samples that racial and ethnic differences exist in every region of the country and for all types of mental health treatment, recent research indicates that sizable variations in the degree of disparities exist across regions and between types of care (Baicker, Chanda, Skinner, & Wennberg, 2004; Epstein & Ayanian, 2001; Wells, Klap, Koike, & Sherbourne, 2001; Williams & Jackson, 2005). Additional research is thus required to accurately gauge state-specific conditions and inform public policy. Given the importance of antipsychotic and antidepressant medications in treatment for persons with an SMI, the present study will investigate variations in usage rates among Medicaid beneficiaries in Florida.

Study Design

The primary aim of this study was to investigate whether ethnic minorities with an SMI achieve equal access to first-line antipsychotic and antidepressant medications. In addition, service use patterns and costs for White and ethnic minority populations within the Florida Medicaid Program were examined.

Specific aims and hypotheses were as follows:

Aim 1: To examine the demographic and diagnostic characteristics of community-dwelling Medicaid beneficiaries diagnosed with an SMI.

Hypothesis 1: As a group, Medicaid beneficiaries with minority status will be younger than White beneficiaries, and persons with minority status will be more likely to have a diagnosis of psychosis.

Aim 2: To examine the relationship between race/ethnicity and the likelihood of receiving newer antidepressant and second-generation antipsychotic medication (given a diagnosis of an SMI).

Hypothesis 2: There will be an inverse relationship between minority status and the likelihood of receiving second-generation antipsychotic medication and newer antidepressants.

Aim 3: To investigate the use and cost of Medicaid-funded mental health services for subpopulations of beneficiaries diagnosed with an SMI.

Hypothesis 3: Among study groups, African American Medicaid beneficiaries will have the highest rates of psychiatric hospitalization and diagnosis of psychotic disorder. Overall, persons with minority status will use fewer outpatient mental health services and incur lower total health care costs than White Medicaid beneficiaries.

Aim 4: To investigate the relationship between race/ethnicity and the likelihood of receiving an involuntary psychiatric (or Baker Act) examination.

Hypothesis 4: Minority populations with an SMI will be more likely than Whites to have a Baker Act examination during the 36-month study period.

Aim 5: To determine the predictors of second-generation antipsychotic and newer antidepressant drug treatment.

Hypothesis 5: Minority status and age will be the strongest predictors of second-generation drug use.

Research Questions

In examining the Medicaid beneficiaries with an SMI, we addressed the following questions in this study:

1. What are the demographic and diagnostic characteristics of different racial and ethnic populations?
2. Does minority status correlate with rates of involuntary psychiatric or Baker Act examination?
3. Does provision of second-generation antipsychotic and newer antidepressant medication vary by race/ethnicity?
4. Do minority populations use fewer outpatient mental health services and have lower total health care costs than Whites?

5. What are the predictors of second-generation antipsychotic and antidepressant drug use?

Methods

The study examined four years of Medicaid eligibility, and Medicaid medical, institutional, and pharmacy claims—along with Baker Act data—to determine mental health service use and costs for community-dwelling beneficiaries with an SMI. The ICD-9-CM codes used to identify the study sample are presented in Table 1.

Table 1
Diagnosis Group Definitions

Diagnosis	Description
Major Psychotic Disorder	Anyone with an ICD-9 diagnosis code beginning with 295 (schizophrenia), 297.1 (delusional disorder), 297.3 (shared psychotic disorder), 298.8 (brief psychotic disorder), or 298.9 (psychotic disorder NOS)
Bipolar Disorder	Anyone without a major psychotic disorder and with an ICD-9 diagnosis code beginning with 296.0, 296.4, 296.5, 296.6, 296.7, or 296.80
Major Depressive Disorder	Anyone without a major psychotic disorder or bipolar disorder and with an ICD-9 diagnosis code beginning with 296.2, 296.3, 296.89, 296.90
Additional Codes for Children with an SMI*	Anyone with an ICD-9 diagnosis code beginning with 312, 313.81, or 314
No SMI Diagnosis	Persons with none of the above diagnoses
Mental Disorder Other Than SMI	Anyone without any of the above disorders and with an ICD-9 diagnosis code between 290 and 294.9 or 300, 308.0-308.9, 309.81, and 315.99

*SMI = Serious mental illness.

This retrospective study analyzed data for four age categories: children (ages 1-11 years), adolescents (subdivided into ages 12-18 years and 19-21 years), adults (ages 22-64 years), and elders (age ≥ 65 years). The study determined average per user per month (PUPM) Medicaid expenditures for all healthcare services for each racial/ethnic group. Logistic regression models examined the relative importance of relevant predictors for second-generation antipsychotic or AA medication use and for newer SSRI and SNRI antidepressant medication use in the study population.

Sampling Procedures

The sample included all community-dwelling Florida Medicaid beneficiaries who met the following criteria:

- a) were 1 year of age or older and continuously Medicaid-eligible during the period FY 00-04;
- b) had a diagnosis of an SMI as indicated by having either at least one inpatient or two outpatient claims containing ICD-9-CM codes shown in Table 1;
- c) were continuously enrolled for at least 33 of 36 months after the date of the claim that identified them as having an SMI; and
- d) were not enrolled in a Medicaid managed care plan, living in AHCA areas 1 or 6, or living in a nursing home (data for these individuals were not available).

Using FY 00-01 data as the baseline year enabled us to follow all subjects for a minimum of three years, through June 30, 2004.

Regression Analysis

In the regression analysis, the dichotomous dependent variable was whether a subject received a newer, more expensive atypical antipsychotic (AA) or an older and less expensive typical antipsychotic (TA) drug. Patients were categorized as either being (a) beneficiaries who were prescribed an AA or (b) beneficiaries who were prescribed a TA. Patients with an SMI who were not prescribed these medications were not included in this analysis. Subjects were placed in the antipsychotic medication group regardless of whether they were concurrently taking antidepressants.

Below are the variables entered into the model:

- Age: coded as a continuous variable;
- Gender: coded as a dichotomous variable, 0=Male, 1=Female;
- Race: coded as a categorical variable, Racew = 1 if subject is White, 0 if subject is not White; Race b = 1 if subject is Black, 0 if subject is not Black; the reference group was “Others”;
- SMI Diagnosis:
 - Psy = 1 if Major psychotic is the diagnosis, 0 if not
 - Bip = 1 if Bipolar disorder is the diagnosis, 0 if not

Major Depressive Disorder is the reference group.

A similar model was used to examine the predictors for newer SSRI or SNRI antidepressants versus the older and less expensive TCA antidepressants. The medication variable contained values of 0 (older) and 1 (newer).

Results

Study Question 1:

Among Medicaid beneficiaries with an SMI, what are the demographic and diagnostic characteristics of different racial and ethnic populations?

The initial sample comprised 1,273,441 individuals who were not enrolled in a Medicaid managed care plan, not living in AHCA areas 1 or 6, nor living in a nursing home and were also included in the Medicaid beneficiary data file at the time of entry into the study (FY 00–01). According to the Medicaid race categorization schema, 41.7% were identified as White, 26.1% as Black, 19.9% as Hispanic, 0.4% as Oriental, 0.04% as American Indian, and 11.7% as multiracial. More detailed information on this population is available in Appendix A. For the sake of clarity and simplicity of analysis, we regrouped the beneficiaries into three groups: “White,” “Black,” and “Other” (which included all individuals other than Whites and Blacks). Given the small numbers of Orientals and American Indians and a high likelihood of Hispanics being coded as multiracial, it is assumed that a sizable proportion of subjects in the “Other” category are actually Hispanic individuals. This assumption is supported by a recent analysis that estimated that about 60% of persons in the Other category are Hispanics (Chiriboga et al., 2005).

From among all Medicaid beneficiaries in the initial sample, 36,575 individuals were identified as having an SMI diagnosis in the baseline year FY 00–01. More than half of these beneficiaries were non-White (45.2% were Whites, 35.1% Others, and 19.6% Blacks). Their demographic and diagnostic characteristics are summarized in Table 2.

Table 2
Demographic Characteristics of Beneficiaries with an SMI (FY 00-01)

Descriptive Characteristic	White N =16,546 (45.24%)	Black N =7,182 (19.64%)	Other N = 12,847 (35.13%)	All N =36,575
Age at Study Entry				
1-11	572 (3.46%)	502 (6.99%)	798 (6.21%)	1872 (5.12%)
12-18	1254 (7.58%)	807 (11.24%)	859 (6.69%)	2920 (7.98%)
19-21	473 (2.86%)	247 (3.44%)	203 (1.58%)	923 (2.52%)
22-64	13586 (82.11%)	5352 (74.52%)	9855 (76.71%)	28793 (78.72%)
65 and Older	661 (3.99%)	274 (3.82%)	1132 (8.81%)	2067 (5.65%)
Mean Age	40.88	37.25	44.19	41.33
Sex				
Male	6756 (40.83%)	3134 (43.64%)	4480 (34.87%)	14370 (39.29%)
Female	9790 (59.17%)	4048 (56.36%)	8367 (65.13%)	22205 (60.71%)

Descriptive Characteristic	White N =16,546 (45.24%)	Black N =7,182 (19.64%)	Other N = 12,847 (35.13%)	All N =36,575
Mental Health Diagnosis				
Major Psychotic Disorder	7482 (45.22%)	4357 (60.67%)	5137 (39.99%)	16976 (46.41%)
Bipolar Disorder	2889 (17.46%)	436 (6.07%)	1173 (9.13%)	4498 (12.30%)
MDD*	6175 (37.32%)	2389 (33.26%)	6537 (50.88%)	15101 (41.29%)
Alcohol or Drug Disorder				
Alcohol use	38 (0.23%)	13 (0.18%)	25 (0.19%)	76 (0.21%)
Drug use	84 (0.51%)	44 (0.61%)	31 (0.24%)	159 (0.43%)
AHCA District				
2	1069 (54.46%)	660 (33.62%)	234 (1.82%)	1963 (5.37%)
3	2336 (65.71%)	786 (22.11%)	433 (3.37%)	3555 (9.72%)
4	2221 (57.85%)	1090 (28.39%)	528 (4.11%)	3839 (10.50%)
5	2407 (75.43%)	355 (11.13%)	429 (3.34%)	3191 (8.72%)
7	1554 (48.17%)	701 (21.73%)	971 (7.56%)	3226 (8.82%)
8	1072 (69.12%)	176 (11.35%)	303 (2.36%)	1551 (4.24%)
9	1229 (54.87%)	569 (25.40%)	442 (3.44%)	2240 (6.12%)
10	1457 (48.25%)	889 (29.44%)	674 (5.25%)	3020 (8.26%)
11	3201 (22.88%)	1956 (13.98%)	8833 (68.76%)	13990 (38.25%)
Dual Eligibility				
Yes	5067 (30.62%)	1802 (25.09%)	2546 (19.82%)	9415 (25.74%)
Baker Act				
Yes	2112 (12.76%)	904 (12.59%)	971 (7.56%)	3987 (10.90%)

*MDD = Major depressive disorder.

Age and Sex

The mean age of Medicaid beneficiaries with a documented diagnosis of an SMI was 41.3 years. Among beneficiaries diagnosed with an SMI, Blacks were the youngest population with a mean age of 37.2 years, compared with 40.9 years for Whites and 44.1 years for Others. As expected in a Medicaid-enrolled population, the majority of the subjects (60.7%) were female, and this pattern was consistent across the racial/ethnic groups (59% female for Whites, 56% female for Blacks, and 65% female for Others).

Diagnosis

The study found that Blacks were more likely to receive a diagnosis of psychotic disorder. While slightly less than half (46.4%) of the total sample of persons with an SMI had a diagnosis for a psychotic disorder, 60% of Blacks received this diagnosis, compared with 45.2% of Whites and 39.9% of Others. Bipolar disorder was more frequently documented for White beneficiaries (17.4%) than for Blacks (6.0%) or Others (9.1%). About half (50.8%) of persons in the Other group received a diagnosis of major depressive disorder (MDD), while only 33.2% of Blacks and 37.3% of Whites received that diagnosis.

Geographic Information and Dual Eligibility

The geographical distribution of Medicaid beneficiaries observed in this study generally reflects the geographical distribution of minority populations in the state of Florida. The majority (68.7%) of beneficiaries residing in District 11 (Miami) fall into the Other category (presumably Hispanics), and three quarters (75.4%) of the beneficiaries residing in District 5 (St. Petersburg) were White. District 2 (Tallahassee) had the highest proportion (33.6%) of Black beneficiaries (see Appendix A).

The White Medicaid beneficiaries diagnosed with an SMI had the highest rate of dual Medicare eligibility (30.6%), followed by Blacks (25%). In comparison, only about one fifth (19.8%) of Other Medicaid beneficiaries with minority status were dually eligible for Medicare. To the degree that Medicare eligibility is a surrogate measure for age, these findings are roughly consonant with the age structure of Florida's ethnic/racial groups.

Study Question 2:

Does minority status correlate with rates of involuntary psychiatric or Baker Act examination?

The data indicate that among persons with an SMI, a similar proportion of Whites (12.7%) and Blacks (12.5%) experienced an involuntary psychiatric or Baker Act examination during the 3-year follow-up period. Those in the Other category had a comparatively lower rate (7.5%) of involuntary psychiatric examination. The reasons for these differences are unknown and beyond the scope of this study.

Study Question 3:

Does provision of second-generation antipsychotic and newer antidepressant medication vary by race/ethnicity?

Drug Prescription Findings

Prescription of Antipsychotic Medication. The majority (92.1%) of Medicaid beneficiaries with an SMI diagnosis who were receiving antipsychotic medication were adults, 7.9% (or 1,939) individuals taking antipsychotic medication were 18 years old or younger, and 3% (732) were 1 to 11 years old.

Among adults with an an SMI diagnosis who were 19 years of age and older, more than half (67.9%) received antipsychotic medication, while less than half (40.5%) of those aged 1-18 received antipsychotic medication. The majority of all persons receiving antipsychotic medication were prescribed AAs. Among persons receiving antipsychotics, 91.2% of Whites, 82.6% of Blacks and 91.2% of Other minorities received AAs, alone or in combination with TAs. Across all groups, 10.4% of beneficiaries receiving antipsychotic medication received the older TA medications alone.

Table 3a
Sample Characteristics by Antipsychotic Medication Prescribed

Descriptive Characteristic	Atypical Antipsychotics Only N = 15,722 (100%)	Typical Antipsychotics Only N = 2,558 (100%)	Atypical and Typical Antipsychotics N = 6,261 (100%)	Neither Atypical nor Typical Antipsychotics N = 12,034 (100%)
Age at Study Entry				
1-11	679 (4.3%)	7 (0.3%)	46 (0.7%)	1140 (9.5%)
12-18	995 (6.3%)	33 (1.3%)	179 (2.9%)	1713 (14.4%)
19-21	350 (2.2%)	26 (1.0%)	158 (2.5%)	289 (3.2%)
22-64	12894 (82.0%)	2310 (90.3%)	5628 (89.9%)	7961 (66.2%)
65 and Older	804 (5.1%)	182 (7.1%)	250 (4.0%)	831 (6.9%)
Mean Age	41.87	47.38	42.94	38.50
Sex				
Male	6458 (41.1%)	1241 (48.5%)	3140 (50.2%)	3531 (29.3%)
Female	9264 (58.9%)	1317 (51.5%)	3121 (49.9%)	8503 (70.7%)
Race/Ethnicity				
White	7201 (45.8%)	962 (37.6%)	2874 (45.9%)	5509 (45.8%)
Black	2423 (15.4%)	841 (32.9%)	1580 (25.2%)	2338 (19.4%)
Other	6098 (33.5%)	755 (27.5%)	1807 (28.9%)	4187 (34.8%)
SMI Diagnosis				
Major Psychotic Disorder	8193 (52.1%)	2032 (79.4%)	5245 (83.8%)	1506 (12.5%)
Bipolar Disorder	2353 (15.0%)	176 (6.9%)	442 (7.1%)	1527 (12.7%)
MDD*	5176 (32.9%)	350 (13.7%)	574 (9.2%)	9001 (74.8%)

*MDD = Major depressive disorder.

Prescription rates for antipsychotic medication varied across racial/ethnic and diagnostic groups within the SMI population. For example, while 92.6% of the White beneficiaries (and 91.5% of Other minorities) with a diagnosis of major

psychotic disorder received a prescription for AA medication, slightly fewer Blacks (88.2 %) received these medications (see Table 3b). The finding of reduced AA prescription rates for Blacks diagnosed with major psychotic disorder is consistent with previous research on prescribing patterns for African Americans (Baker & Bell, 1999; Herbeck et al., 2004).

Table 3b
Antipsychotic Prescription Rates for Persons
with a Diagnosis of Major Psychosis
(N = 16,976)

	Received Antipsychotic N = 15,470	No Antipsychotic N = 1,506
	n (%)	n (%)
White n = 7,482	6929 (92.6%)	553 (7.4%)
Black n = 4,357	3841 (88.2%)	516 (11.8%)
Other n = 5,137	4700 (91.5%)	437 (8.5%)

Among all individuals with a diagnosis of bipolar disorder, 66% received antipsychotic medication. More than half (65.1%) of the White beneficiaries, 61.5% of Blacks and 70.2% of Other minorities received some type of antipsychotic medication (see Table 3c).

Table 3c
Antipsychotic Prescription Rates for Persons
with a Diagnosis of Bipolar Disorder
(N = 4,498)

	Received Antipsychotic N = 2,971	No Antipsychotic N = 1,527
	n (%)	n (%)
White n = 2,889	1,880 (65.1%)	1,009 (34.9%)
Black n = 436	268 (61.5%)	168 (38.5%)
Other n = 1,173	823 (70.2%)	350 (29.8%)

As expected, compared with persons diagnosed with major psychosis or bipolar disorder, fewer beneficiaries (40%) diagnosed with MDD were prescribed an antipsychotic medication. Nearly half (48%) of persons in the Other category, 30.8% of Blacks, and 36.1% of Whites with documentation of MDD were prescribed an antipsychotic medication (see Table 3d).

Table 3d
Antipsychotic Prescription Rates for Persons
with a Diagnosis of Major Depressive Disorder (MDD)
(N = 15,101)

	Received Antipsychotic N = 6,100	No Antipsychotic N = 9,001
	n (%)	n (%)
White n = 6,175	2,228 (36.1%)	3,947 (63.9%)
Black n = 2,389	735 (30.8%)	1,654 (69.2%)
Other n = 6,537	3,137 (48.0%)	3,400 (52.0%)

Prescription of Antidepressant Medication

Table 4a presents results regarding the prescription of antidepressant medication for beneficiaries with a diagnosis of an SMI. A total of 25,349 individuals (69.3% of all beneficiaries with an SMI) received antidepressant medication. Among individuals 18 years old or younger with a diagnosis of an SMI, 52.5% received antidepressant medication. In comparison, 75.5% of the adults in the sample received some type of antidepressant medication.

Table 4a
Sample Characteristics by Antidepressant Medication (N = 36,575)

Descriptive Characteristics	Newer Antidepressants Only N = 20,956	Older Antidepressants Only N = 1,173	Both Newer and Older Antidepressants N = 3,220	Neither Newer nor Older Antidepressants N = 11,226
Age (Years) at Study Entry				
1–11	760 (3.63%)	54 (4.60%)	71 (2.20%)	987 (8.79%)
12–18	1,537 (7.33%)	33 (2.81%)	65 (2.02%)	1,285 (11.45%)
19–21	478 (2.28%)	9 (0.77%)	29 (0.90%)	407 (3.63%)
22–64	16,977 (81.01%)	975 (83.12%)	2,886 (89.63%)	7,955 (70.86%)
65 and Older	1,204 (5.75%)	102 (8.70%)	169 (5.25%)	592 (5.27%)
Mean Age	42.35	46.10	45.91	37.62
Sex				
M	7,292 (34.80%)	484 (41.26%)	926 (28.76%)	5,668 (50.49%)
F	13,664 (65.20%)	689 (58.74%)	2,294 (71.24%)	5,558 (49.51%)

Descriptive Characteristics	Newer Antidepressants Only N = 20,956	Older Antidepressants Only N = 1,173	Both Newer and Older Antidepressants N = 3,220	Neither Newer nor Older Antidepressants N = 11,226
Race / Ethnicity				
White	10,046 (47.94%)	476 (40.58%)	1,645 (51.09%)	4,379 (39.01%)
Black	2,908 (13.88%)	274 (23.36%)	344 (10.68%)	3,656 (32.57%)
Other	8002 (32.53%)	423 (32.82%)	1,231 (38.23%)	3,191 (28.43%)
SMI Diagnosis				
Major Psychotic Disorder	8,703 (41.53%)	606 (51.66%)	1,113 (34.57%)	6,554 (58.38%)
Bipolar Disorder	2,780 (13.27%)	107 (9.12%)	462 (14.35%)	1,149 (10.24%)
MDD*	9,473 (45.20%)	460 (39.22%)	1,645 (51.09%)	3,523 (31.38%)

*MDD = Major depressive disorder.

There is substantial variation in antidepressant prescription patterns across racial/ethnic populations diagnosed with MDD. Among all beneficiaries with a diagnosis of MDD, 76.6% received antidepressant medication paid for by Medicaid. In this study sample, only 55.4% of Blacks with a diagnosis of MDD received any antidepressant medication, compared with 81.7% of Whites and 79.7% of Other minorities (Table 4b).

Table 4b
Antidepressant Prescription Rates for Persons
with a Diagnosis of Major Depressive Disorder
(N = 15,101)

	Received Antidepressant N = 11,578	No Antidepressant N = 3,523
	n (%)	n (%)
White n = 6,175	5,042 (81.7%)	1,133 (18.3%)
Black n = 2,389	1,323 (55.4%)	1,066 (44.6%)
Other n = 6,537	5,213 (79.7%)	1,324 (20.3%)

Across all racial/ethnic groups, more than half (74.4%) of all persons diagnosed with bipolar disorder received antidepressant medication (see Table 4c). The prescription pattern for persons with bipolar disorder shows that Black beneficiaries were least likely to receive antidepressant medication. A little more than half (53.4 %) of Blacks, compared with 76% of Other minorities and 77% of Whites with bipolar disorder, received some type of antidepressant medication.

Table 4c
Antidepressant Prescription Rates for Persons
with a Diagnosis of Bipolar Disorder
(N = 4,498)

	Received Antidepressant N = 3349	No Antidepressant N = 1149
	n (%)	n (%)
White n = 2,889	2224 (77.0%)	665 (23.0%)
Black n = 436	233 (53.4%)	203 (46.6%)
Other n = 1,173	892 (76.0%)	281 (24.0%)

More than half (61.3%) of the beneficiaries with a diagnosis of major psychosis received antidepressant medication. Less than half of Black beneficiaries (45.2%), 69.1% of Other minorities, and 65.5% of Whites with that diagnosis were prescribed antidepressant medication (see Table 4d).

Table 4d
Antidepressant Prescription Rates for Persons
with a Diagnosis of Major Psychosis
(N = 16,976)

	Antidepressant N = 10,422	No Antidepressant N = 6,554
	n (%)	n (%)
White n = 7482	4,901 (65.5%)	2,581 (34.5%)
Black n = 4357	1,970 (45.2%)	2,387 (54.8%)
Other n = 5,137	3,551 (69.1%)	1,586 (30.9%)

Study Question 4

Do Medicaid beneficiaries with minority status use fewer outpatient mental health services and have lower total health care costs than White Medicaid beneficiaries?

Table 5a
Medicaid Expenditure Data for White Medication Users with an SMI

Services	Total N = 14,965			
	Mean PUPM** (median)	Number of Users Older than 3 yrs	3-Year Penetration Rate	Annual Total Cost (\$)*
Inpatient Hospitalization (Psychiatric)	532.24 (262.36)	3456	23%	22,073,072
Inpatient Hospitalization (Non-Psychiatric)	170.52 (66.86)	6031	40%	12,341,038
Total Inpatient Costs	362.93 (112.26)	7902	53%	34,414,111
Behavioral Health Outpatient Services	206.17 (71.13)	14833	99%	36,697,553
Emergency Physician Services	9.91 (4.24)	6947	46%	826,547
All Other Services	277.76 (84.61)	14735	98%	49,113,698
Total Outpatient Costs	482.45 (239.13)	14965	100%	86,637,798
Pharmacy Costs (Psychotropics)	233.99 (165.93)	14965	100%	42,020,600
Pharmacy Costs (All Other)	212.47 (126.40)	14794	99%	37,719,608
Total Pharmacy Costs	444.04 (367.45)	14965	100%	79,740,209
Total Medicaid Expenditures	1118.12 (787.95)	14965	100%	200,792,119

*Average annual cost was computed by dividing the expenditures for the 36 months of the study by 3.

**PUPM = Per user per month.

Among beneficiaries with an SMI, most were prescribed either an antidepressant or antipsychotic medication. Of those not so prescribed, fewer were Whites (9.5%) than Blacks (20%) or Other minorities (22.9%). Overall, beneficiaries with a diagnosis of an SMI who received medication also received significant numbers of physical and mental health services. Black beneficiaries had slightly higher median and mean total expenditures, 3% greater use of psychiatric inpatient services, and higher mean and median behavioral health outpatient services than Whites or Other minorities (see Tables 5a-5c).

Table 5b
Medicaid Expenditure Data for Black Medication Users with an SMI

Services	Total N = 5733			
	Mean PUPM** (Median)	Number of Users	3-Year Penetration Rate	Annual Total Cost (\$)*
Inpatient Hospitalization (Psychiatric)	677.30 (346.27)	1518	26%	12,337,609
Inpatient Hospitalization (Non-Psychiatric)	220.09 (67.41)	1919	33%	5,068,227
Total Inpatient Costs	504.17 (175.23)	2877	50%	17,405,836
Behavioral Health Outpatient Services	275.91 (136.99)	5684	99%	18,819,203

Services	Total N = 5733			
	Mean PUPM** (Median)	Number of Users	3-Year Penetration Rate	Annual Total Cost (\$)*
Emergency Physician Services	12.05 (3.98)	2591	45%	374,497
All Other Services	345.54 (86.50)	5620	98%	23,302,893
Total Outpatient Costs	617.72 (318.94)	5733	100%	42,496,594
Pharmacy Costs (Psychotropics)	184.03 (122.30)	5733	100%	126,60,282
Pharmacy Costs (All Other)	178.33 (71.73)	5624	98%	12,035,136
Total Pharmacy Costs	358.97 (258.81)	5733	100%	24,695,419
Total Medicaid Expenditures	1229.69 (808.09)	5733	100%	84,597,850

*Average annual cost was computed by dividing expenditures for the 36 months of the study by 3.

**PUPM = Per user per month.

Table 5c
Medicaid Expenditure Data for Other Medicaid Beneficiaries with an SMI

Services	Total N = 9,902			
	Mean PUPM** (Median)	Users Older than 3 Years	3-Year Penetration Rate	Annual Total Cost (\$)*
Inpatient Hospitalization (Psychiatric)	639.38 (333.48)	2263	23%	17,363,129
Inpatient Hospitalization (Non-Psychiatric)	225.54 (87.31)	3549	36%	9,605,096
Total Inpatient Costs	468.58 (172.79)	4796	48%	26,968,226
Behavioral Health Outpatient Services	160.87 (49.84)	9824	99%	18,964,243
Emergency Physician Services	8.38 (3.39)	4405	44%	443,057
All Other Services	235.13 (108.63)	9831	99%	27,738,204
Total Outpatient Costs	396.77 (222.54)	9902	100%	47,145,504
Pharmacy costs (Psychotropics)	222.27 (155.75)	9902	100%	26,411,082
Pharmacy costs (All other)	243.82 (164.27)	9839	99%	28,787,004
Total Pharmacy Costs	464.54 (367.53)	9902	100%	55,198,086
Total Medicaid Expenditures	1088.26 (745.07)	9902	100%	129,311,817

*Average annual cost was computed by dividing expenditures for the 36 months of the study by 3.

**PUPM = Per user per month.

Study Question 5:

What are the predictors of second-generation atypical antipsychotic (AA) and newer SSRI/SNRI antidepressant drug use?

Predictors of Receiving Second-Generation AA Medication

Findings from our regression model predicting prescription of AA medication are presented in Table 6a. Being female ($p < .0001$) and of younger age ($p < .0001$) were statistically significant predictors of receiving the more expensive AA medication rather than the older and less expensive TA medication. This finding is consistent with the results reported in other studies (Daumit et al., 2003; Kuno & Rothbard, 2002). Compared with persons in the Other minority category, Black beneficiaries were significantly less likely to receive an AA medication ($p < .0001$), and White beneficiaries had about the same odds of receiving AA medication such as clozapine or olanzapine. Antipsychotic medication users with a diagnosis of major psychotic or bipolar disorder were less likely to receive AA medication than patients with a diagnosis of MDD.

Table 6a
Predictors of Receiving Second-Generation AA Medication

Predictor Variable		Odds Ratio	χ^2 (df 1)	P
Age	Continuous	0.969	364.42	<. 0001
Gender	1=Female 0=Male	1.246	24.45	<. 0001
White	1=White 0=Not White	1.035	0.44	0. 5083
Black	1=Black 0=Not Black	0.487	163.10	<. 0001
Major Psychotic Disorder	1=Psychotic 0=Not Psychotic	0.425	185.47	<. 0001
Bipolar Disorder	1=Bipolar 0=Not Bipolar	0.755	8.27	0. 0040

Predictors of Newer Antidepressant Medication

The results from the regression model predicting prescription of newer SSRI/SNRI antidepressant medication are presented in Table 6b. The dependent variable in this model was whether a subject received a newer (and more expensive) SSRI/SNRI antidepressant or an older (and less expensive) TCA antidepressant drug. Individuals were placed into one of two categories: (a) subjects who were prescribed a newer antidepressant and (b) subjects who were prescribed an older antidepressant. Individuals with an SMI who were not prescribed any antidepressant medications were excluded from the analysis. All subjects taking SSRIs or SNRIs were placed into the newer antidepressant group regardless of whether they were concurrently taking older antidepressants or antipsychotics. Subjects taking TCAs were placed in the older antidepressant medication category regardless of their antipsychotic usage.

Table 6b
Predictors of Receiving Newer Antidepressant Medication

Predictor Variable		Odds Ratio	χ^2 (df 1)	P
Age	Continuous 1-100	0.982	76.72	< .0001
Gender	1=Female 0=Male	1.413	29.40	< .0001
White	1=White 0=Not White	1.067	0.86	0.3541
Black	1=Black 0=Not Black	0.515	63.67	< .0001
Major Psychotic Disorder	1=Psychotic 0=Not Psychotic	0.712	26.51	< .0001
Bipolar Disorder	1=Bipolar 0=Not Bipolar	1.068	0.35	0.5530

Being female ($p < .0001$) and having a younger age ($p < .0001$) were statistically significant predictors of receiving a newer SSRI or SNRI antidepressant rather than a TCA antidepressant. Compared with persons in the Other minority category, Black beneficiaries were significantly less likely to receive a newer antidepressant medication ($p < .0001$), and White beneficiaries had about the same odds of receiving newer antidepressant medication as minorities in the Other category. Not surprisingly, the data reveal that patients with a diagnosis of MDD were more likely than patients with a diagnosis of major psychosis to receive newer antidepressant medication ($p < .0001$) (See Table 6b).

Study Limitations

A number of limitations are associated with these analyses. First, the study relies solely on Medicaid administrative fee-for-service data and Baker Act data. The administrative data used had limitations: record keeping is imperfect, data contain coding errors may be incomplete, and lags occur in the data entry process. Importantly, Medicaid administrative data only contain information about prescriptions that were filled. It does not document prescriptions that were prescribed by a provider and not filled or prescriptions that were picked up by the patient but were not actually consumed by the patient. The service use and expenditure data reported in this study does not include out-of-pocket costs or private-pay services, and hence the true behavioral- and physical- health service costs are underestimated. Additionally, beneficiaries who have a diagnosis of an SMI but do not use Medicaid-funded services are not included in this study. Finally, the approach to racial/ethnic group classification used in the Medicaid data is a source of concern. For the present analyses, we recoded race into three categories of White, Black, and Others. It is expected that a significant portion of the Other category might be Hispanics. However, the current data are insufficient to draw any inference regarding Hispanic populations.

Discussion

The most striking findings in this study were the disparities in psychotropic prescription use among Black Medicaid beneficiaries with a diagnosis of an SMI. Our data show that across all diagnostic categories studied, Blacks were less likely than Whites or Other minorities to receive antidepressant or antipsychotic medication. Given a diagnosis of MDD, the majority (81.7%) of Whites and 79.7% of Other minorities received some antidepressant medication, while for Blacks it was only 55.4% (see Table 4b). Furthermore, Whites and Other minorities were twice as likely as Blacks to receive a “first-line” newer SSRI or SNRI antidepressant medication (see Table 6b). Similarly, given a diagnosis of major psychosis, Blacks were less likely to receive an antipsychotic medication and, if they did, were much less likely to receive an antipsychotic medication than Whites or Other minority beneficiaries (see Table 6a).

Black beneficiaries were more frequently diagnosed with a psychotic disorder. Slightly less than half of our total sample of persons with an SMI (46.4%) had a diagnosis of a psychotic disorder, but 60% of Blacks received this diagnosis, compared with 45.2 % of Whites and 39.9% of persons of Other minorities. While all beneficiary groups with an SMI received significant physical and mental health services, Black beneficiaries had slightly higher median and mean total expenditures, 3% greater use of psychiatric inpatient services, and higher mean and median behavioral health outpatient services than Whites or Other minorities (see Tables 5a-5c). Our findings of disparities in antipsychotic and antidepressant prescribing patterns for Blacks are consistent with previous research (Baicker et al., 2004; Daumit et al., 2003; Kuno & Rothbard, 2002).

Policy Implications

This study adds to our knowledge of mental health disparities within the Medicaid population and provides new information about service use patterns and expenditures for persons with an SMI by race/ethnicity. Study findings could be used to develop new Medicaid policies and drug-prescribing guidelines aimed at reducing mental health disparities, particularly for Black Medicaid beneficiaries. We suggest that Florida use its extensive purchasing power, through contract requirements and financial incentives, to reduce these racial/ethnic disparities and to promote change by providers and managed care organizations. Furthermore, Medicaid contract requirements should reinforce the antidiscrimination requirements of Title VI of the Civil Rights Act that require health plans to provide culturally and linguistically appropriate services. The State of Florida could impose data collection and reporting requirements on health plans and on the Medicaid program to monitor performance and observe progress in the reduction of pharmaceutical disparities. Additional research is needed to explain continuing prescribing disparities for Black Medicaid beneficiaries with an SMI.

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Appendix A

Baseline Sample Characteristics of Medicaid Beneficiaries (FY 00-01)

	White N = 533,970 (41.77%)	Hispanic N = 254,767 (19.93%)	Black N = 333,864 (26.11%)	Oriental N = 5,516 (0.43%)	Am. Indian N = 543 (0.04%)	Other N = 149,781 (11.72%)	Total N = 1,278,441 (100%)
Age at study entry							
1–11	127,283 (23.84%)	90,025 (35.34%)	107,143 (32.09%)	1,895 (34.35%)	195 (35.91%)	36,428 (24.32%)	362,969 (28.39%)
12–18	62,851 (11.77%)	37,328 (14.65%)	55,132 (16.51%)	773 (14.01%)	83 (15.29%)	8,808 (5.88%)	164,975 (12.90%)
19–21	24,983 (4.68%)	12,346 (4.85%)	17,382 (5.21%)	238 (4.31%)	30 (5.52%)	2,141 (1.43%)	57,120 (4.47%)
22–64	200,134 (37.48%)	89,510 (35.13%)	114,322 (34.24%)	2,130 (38.61%)	189 (34.81%)	44,195 (29.51%)	450,480 (35.24%)
65 and older	118,115 (22.12%)	25,543 (10.03%)	39,748 (11.91%)	479 (8.68%)	46 (8.47%)	58,115 (38.80%)	242,046 (18.93%)
Mean Age	36.53	25.38	27.71	24.92	24.07	45.98	33.05
Sex							
M	197,551 (37.00%)	96,740 (37.97%)	122,905 (36.81%)	1,985 (35.99%)	195 (35.91%)	60,896 (40.66%)	480,272 (37.57%)
F	336,340 (62.99%)	158,003 (62.02%)	210,895 (63.17%)	3,530 (64.00%)	348 (64.09%)	88,786 (59.28%)	797,902 (62.41%)
Mental Health Diagnosis							
Major Psychotic Disorder	10,380 (1.94%)	783 (0.31%)	5,891 (1.76%)	15 (0.27%)	2 (0.37%)	5,712 (3.81%)	22,783 (1.78%)
Bipolar Disorder	4,657 (0.87%)	318 (0.12%)	662 (0.20%)	2 (0.04%)	2 (0.37%)	1,286 (0.86%)	6,927 (0.54%)
MDD*	10,968 (2.05%)	3,231 (1.27%)	3,638 (1.09%)	18 (0.33%)	3 (0.55%)	6,029 (4.03%)	23,887 (1.89%)
Other MH** Dx*** (also Child Dx)	12,252 (2.29%)	3,212 (1.26%)	4,527 (1.36%)	44 (0.80%)	8 (1.47%)	3,666 (2.45%)	23,709 (1.85%)
No MH Dx	495,713 (92.84%)	247,223 (97.04%)	319,146 (95.59%)	5,437 (98.57%)	528 (97.24%)	133,088 (88.86%)	1,201,135 (93.95%)
Alcohol or Drug Disorder							
Alcohol use	336 (0.06%)	25 (0.01%)	134 (0.04%)	0 (0.0%)	0 (0.0%)	100 (0.07%)	595 (0.05%)
Drug use	361 (0.07%)	23 (0.01%)	246 (0.07%)	1 (0.02%)	1 (0.18%)	87 (0.06%)	719 (0.06%)
Baker Act							
Baker Acted yes	8,321 (1.56%)	841 (0.33%)	2,904 (0.87%)	15 (0.27%)	4 (0.74%)	1,973 (1.32%)	14,058 (1.10%)

	White N = 533,970 (41.77%)	Hispanic N = 254,767 (19.93%)	Black N = 333,864 (26.11%)	Oriental N = 5,516 (0.43%)	Am. Indian N = 543 (0.04%)	Other N = 149,781 (11.72%)	Total N = 1,278,441 (100%)
ADCA District (Sum % across for district)							
2	50,856 (54.60%)	1,560 (1.67%)	34,085 (36.60%)	463 (0.50%)	67 (0.07%)	6,104 (6.55%)	93,135 (7.29%)
3	102,037 (63.15%)	8,341 (5.16%)	39,870 (24.68%)	330 (0.20%)	117 (0.07%)	10,884 (6.74%)	161,579 (12.64%)
4	74,620 (52.74%)	68,662 (4.85%)	47,131 (33.31%)	952 (0.67%)	66 (0.05%)	11,857 (8.38%)	141,492 (11.07%)
5	65,735 (69.34%)	5,280 (5.57%)	14,976 (15.80%)	961 (1.01%)	49 (0.05%)	7,802 (8.23%)	94,803 (7.42%)
7	59,925 (41.85%)	29,928 (20.90%)	35,406 (24.73%)	1,221 (0.85%)	51 (0.04%)	1,6651 (11.63)	143,182 (11.20%)
8	50,510 (54.05%)	19,722 (21.11%)	13,673 (14.63%)	231 (0.25%)	29 (0.03%)	9,280 (9.93%)	93,445 (7.31%)
9	48,763 (40.52%)	20,563 (17.09%)	39,786 (33.06%)	429 (0.36%)	47 (0.04%)	10,756 (8.94%)	120,344 (9.41%)
10	31,812 (31.48%)	15,793 (15.63%)	40,403 (39.98%)	415 (0.41%)	30 (0.03%)	12,610 (12.48%)	101,063 (7.91%)
11	49,712 (15.09%)	146,714 (44.54%)	68,534 (20.81%)	514 (0.16%)	87 (0.03%)	63,837 (19.38%)	329,398 (25.77%)
Dual Eligibility							
Dual Eligibility	132,005 (24.72%)	18,823 (7.39%)	49,548 (14.84%)	242 (4.39%)	37 (6.81%)	63,751 (42.56%)	264,406 (20.68%)

*MH=mental health.

** Dx = diagnosis