Appendix 1: Frequency of chronic comorbid conditions and antipsychotic treatment characteristics among Medicaid patients with schizophrenia

	Prevalent Schizophrenia by Year									
	2004		2005		2006		2007		2008	
Total (N)	N = 21,351		N = 21,594		N = 20,723		N = 16,910		N = 17,263	
By Comorbidity [a]	N	%	N	%	N	%	N	%	N	%
No Comorbidity	12,182	57.1%	11,866	55.0%	10,894	52.6%	8,242	48.7%	8,262	47.9%
Diabetes	3,995	18.7%	4,211	19.5%	4,328	20.9%	3,865	22.9%	4,000	23.2%
Hyperlipidemia	3,420	16.0%	3,882	18.0%	4,257	20.5%	4,072	24.1%	4,223	24.5%
Hypertension	6,508	30.5%	6,976	32.3%	6,980	33.7%	6,203	36.7%	6,430	37.3%
Charlson Comorbidity Index (M±SD)	0.85 ± 1.49		0.89 ± 1.53		0.94 ± 1.58		1.06 ± 1.74		1.09 ± 1.77	
By Medication										
Any Antipsychotic	19,731	92.4%	19,851	91.9%	18,848	91.0%	15,349	90.8%	15,692	90.9%
Aripiprazole	3,529	16.5%	3,210	14.9%	2,891	14.0%	2,535	15.0%	2,499	14.5%
Clozapine	1,645	7.7%	1,613	7.5%	1,500	7.2%	1,324	7.8%	1,265	7.3%
Olanzapine	6,727	31.5%	5,025	23.3%	3,863	18.6%	3,078	18.2%	2,970	17.2%
Olanzapine/Fluoxetine	133	0.6%	111	0.5%	67	0.3%	45	0.3%	27	0.2%
Paliperidone	0	0%	0	0%	0	0%	757	4.5%	1,315	7.6%
Quetiapine	5,055	23.7%	5,453	25.3%	5,031	24.3%	4,167	24.6%	4,318	25.0%
Risperidone	7,891	37.0%	8,074	37.4%	7,619	36.8%	6,171	36.5%	5,922	34.3%

Ziprasidone	2,586	12.1%	2,803	13.0%	2,689	13.0%	2,198	13.0%	2,181	12.6%
Typical Antipsychotic[b]	6,760	31.7%	6,694	31.0%	6,541	31.6%	5,079	30.0%	5,374	31.1%
Antipsychotic Fills Per Person (M±SD)	14.8 ± 13.4		13.9 ± 12.6		13.2 ± 12.4		14.3 ± 13.3		14.3 ± 12.8	

[a] Comorbidity frequencies do not sum to 100% because people may be counted in more than one metabolic comorbidity group

[b] Typical antipsychotics were excluded from analyses

Appendix 2: Descriptive statistics for pooled annual cross-sections (2004-2008) of patients with schizophrenia using antipsychotic medications

	Antipsychotic Non-Adherent		Antipsychotic Adherent	
	N = 35,590		N = 51,425	
Eligible Population	N	%	N	%
Average Age (M±SD)	41.0 ± 12.0[**]		44.2 ± 11.8	
Age 18-34	11135	31.3[**]	11769	22.9
Age 35-54	19524	54.9[**]	28579	55.6
Age 55+	4931	13.9[**]	11077	21.5
Male	18480	51.9	26689	51.9
White Race	11011	30.9[**]	24640	47.9
Black Race	21408	60.2[**]	21947	42.7
Missing Race	3171	8.9	4838	9.4
Enrolled in Capitated Plan	14493	40.9[**]	18034	35.1
MHSA Coverage	33930	95.3[**]	48683	94.7
Pre-period Psychotherapy	12311	34.6	17673	34.4
Pre-period Psychiatrist Use	8427	23.7	12043	23.4
Charlson Index				
Charlson 0-1	20014	56.2[**]	27054	52.6
Charlson 1-2	8252	23.2[**]	13029	25.3
Charlson 2-3	3088	8.7[**]	5139	10.0
Charlson 3+	4236	11.9[**]	6203	12.1
Comorbid Diabetes	4,138	11.6[**]	8,211	16.0
Comorbid Hyperlipidemia	3,070	8.6[**]	7,839	15.2
Comorbid Hypertension	9,233	25.9[**]	15,610	30.4
One Metabolic Condition	7,533	21.2[**]	13,415	26.1
Two Metabolic Conditions	3,188	9.0	6,505	12.7

Three Metabolic Conditions	844	2.4[**]	1,745	3.4
Antipsychotic Used				
Aripiprazole	6,152	17.3[*]	8,512	16.6
Clozapine	1,108	3.1[**]	6,239	12.1
Olanzapine	8,175	23.0[**]	13,488	26.2
Olanzapine/Fluoxetine	210	0.6[**]	173	0.3
Paliperidone	871	2.5	1,201	2.3
Quetiapine	10,345	29.1[**]	13,679	26.6
Risperidone	15,371	43.2[**]	20,306	39.5
Ziprasidone	5,267	14.8[*]	7,190	14.0
Antipsychotic Copay > $0	19949	56.1[**]	26526	51.6
Comorbid Medication Adherence				
Antidiabetic Drugs (M±SD)	61.8 ± 27.4[**]		84.5 ± 21.5	
Antihyperlipidemics (M±SD)	58.9 ± 28.3[**]		81.9 ± 22.9	
Antihypertensives (M±SD)	60.8 ± 28.6[**]		84.4 ± 22.4	

* P < 0.01; ** P < 0.001; MHSA = Mental Health Substance Abuse Coverage in Medicaid Program
Medication adherence measured by the proportion of days covered (PDC) and dichotomized at a PDC > 80% for antipsychotic adherence
Among all antipsychotic users (Not restricted to antipsychotic users with comorbid cardiometabolic medication use).

Appendix 3. Adjusted annual healthcare utilization and cost differences between adherent and non-adherent antipsychotic users across each individual comorbid cardiometabolic medication cohort

Utilization and Cost Differences [a]	Anti-Diabetes Medication Cohort (N=12,349)		Anti-Hypertensive Cohort (N=24,843)		Statin Cohort (N=10,909)	
	Value	95% CI	Value	95% CI	Value	95% CI
EMERGENCY ROOM						
Annual Odds of ER Use (OR)	0.34	0.30 - 0.39 [***]	0.30	0.28 - 0.34 [***]	0.38	0.33 - 0.44 [***]
ER Visits Per Person Per Year (number) [b]	-0.32	-0.39 to -0.24 [***]	-0.33	-0.38 to -0.28 [***]	-0.30	-0.38 to -0.22 [***]
ER Expenditures Per Person Per Year ($) [b]	-531	-660 to -403 [***]	-574	-661 to -487 [***]	-480	-476 to -348 [***]
OUTPATIENT						
Outpatient Visits Per Person Per Year (number)	0.19	0.14 - 0.23 [***]	0.28	0.24 - 0.31 [***]	0.08	0.02 - 0.15 [*]
Outpatient Expenditure Per Person Per Year ($)	1694	1266 - 2123 [***]	2415	2105 - 2724 [***]	792	171 - 1414 [*]
INPATIENT						
Annual Odds of Inpatient Admission (OR)	0.38	0.33 - 0.43 [***]	0.34	0.31 - 0.37 [***]	0.36	0.30 - 0.42 [***]
Inpatient Admissions Per Person Per Year [c]	-0.21	-0.29 to -0.12 [***]	-0.20	-0.26 to -0.15 [***]	-0.20	-0.28 to -0.11 [***]
Inpatient Expenditures Per Person Per Year ($) [c]	-5028	-7136 to -2919 [***]	-5078	-6459 to -3698 [***]	-4599	-6708 to -2491 [***]
MEDICATION						
Medication Expenditures Per Person Per Year ($)	3470	3262 - 3677 [***]	3412	3278 - 3547 [***]	3528	3323 - 3734 [***]

TOTAL

Overall Healthcare Expenditures Per Person Year ($)	1293	-27 to 2613	1688	830 - 2546 [***]	2033 782 - 3284 [**]

[a] Multivariate model covariate adjusted for age, race, gender, basis of Medicaid eligibility, presence of a copayment for antipsychotic treatment, Medicaid provider capitation, Medicaid Mental Health Substance Abuse coverage, patient use of a psychiatrist, psychotherapy use, Charlson Comorbidity Index, and specific antipsychotic medication initiated.
[b] Among users
[c] Among those admitted
Note: [***]p<0.001, [**]p<0.01, [*]p<0.05

The sample includes pooled annual cross-sections of Medicaid patients (2004-2008) who have schizophrenia. Patients contribute to the analysis only during years that they have a schizophrenia diagnosis coded and at least one prescription claim for an antipsychotic and qualify for at least one cardiometabolic medication cohort.

Appendix 4: Two Sensitivity Analyses of Expenditures Shown in Table 3

Expenditure Differences ($)	Antipsychotic Adherence					
	Antipsychotic Adherent		Antipsychotic Non-Adherent		Antipsychotic Non-Adherent	
	Cardiometabolic Medication Adherence					
	Cardiometabolic Non-Adherent		Cardiometabolic Adherent		Cardiometabolic Non-Adherent	
	Value	95% CI	Value	95% CI	Value	95% CI
EMERGENCY ROOM (ER)						
ER Expenditures (Full Model - Table 3) [a]	303	212 - 395 [***]	382	261 - 503 [***]	668	578 - 757 [***]
ER Expenditures (Sensitivity Analysis 1) [a]	272	170 - 374 [***]	391	258 - 524 [***]	716	608 - 825 [***]
ER Expenditures (Sensitivity Analysis 2) [a]	282	179 - 385 [***]	392	259 - 524 [***]	717	609 - 825 [***]
OUTPATIENT (OP)						
OP Expenditures (Full Model - Table 3)	-1134	-1400 to -869 [***]	-975	-1390 to -560 [***]	-2749	-3042 to -2457 [***]
OP Expenditures (Sensitivity Analysis 1)	-1119	-1500 to -738 [***]	-1371	-1806 to -936 [***]	-3038	-3443 to -2633 [***]
OP Expenditures (Sensitivity Analysis 2)	-996	-1380 to -612 [***]	-1294	-1730 to -859 [***]	-2991	-3397 to -2586 [***]
INPATIENT (IP)						
IP Expenditures (Full Model - Table 3) [b]	1958	275 - 3640 [*]	2414	439 - 4389 [*]	5857	4187 - 7526 [***]

	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
IP Expenditures (Sensitivity Analysis 1) [b]	535	-1309 to 2379	1919	-244 - 4082	5812	3739 - 7884 ***
IP Expenditures (Sensitivity Analysis 2) [b]	863	-1112 to 2837	2289	66 - 4513 *	5952	3811 - 8093 ***
MEDICATION (Rx)						
Rx Expenditures (Full Model - Table 3)	-256	-387 to -124 ***	-1651	-1794 to -1508 ***	-3099	-3225 to -2972 ***
Rx Expenditures (Sensitivity Analysis 1)	-230	-403 to -57 ***	-1706	-1893 to -1519 ***	-3347	-3515 to -3178 ***
Rx Expenditures (Sensitivity Analysis 2)	-196	-367 to -24 *	-1685	-1873 to -1498 ***	-3284	-3454 to -3114 ***
TOTAL						
Total Expenditures (Full Model - Table 3)	359	-451 to 1169	-1467	-2472 to -463 ***	-1128	-2020 to -236 *
Total Expenditures (Sensitivity Analysis 1)	-738	-1728 to 252	-2081	-3255 to -906 ***	-1380	-2632 to -129 *
Total Expenditures (Sensitivity Analysis 2)	-138	-1211 to 936	-1839	-3032 to -647 **	-970	-2260 to 320

[a] Among users [b] Among those admitted

Note: ***p<0.001, **p<0.01, *p<0.05. Expenditures are reported as per person per year. Reference group is adherent to antipsychotics and cardiometabolic medications. The first row within each expenditure category reflects the values from Table 3 from the full model. The second row within each category (sensitivity analysis 1) reflects sensitivity analysis restricting the sample by excluding patients in capitated plans and those without Medicaid Mental Health Substance Abuse coverage. The third row within each category (sensitivity analysis 2) further restricts the model from sensitivity analysis 1 by excluding the indicators for cardiometabolic condition counts and the psychiatrist and psychotherapy use variables.