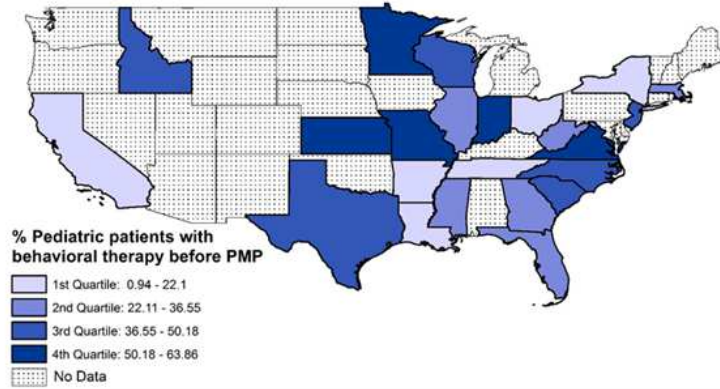


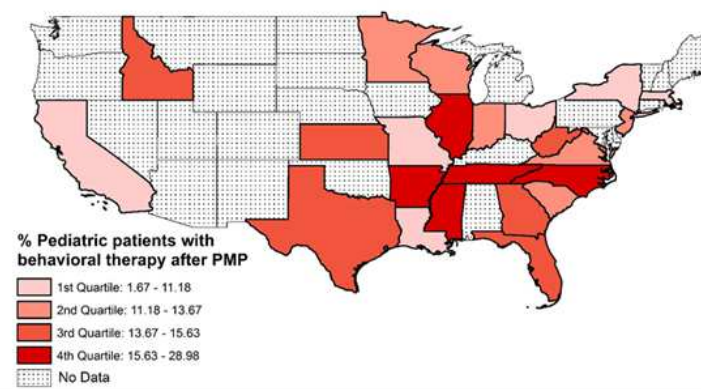
**ONLINE SUPPLEMENT**

Appendix Figure 1. Prevalence of behavioral therapy before and after start of polypharmacy across 29 states, 1999-2010

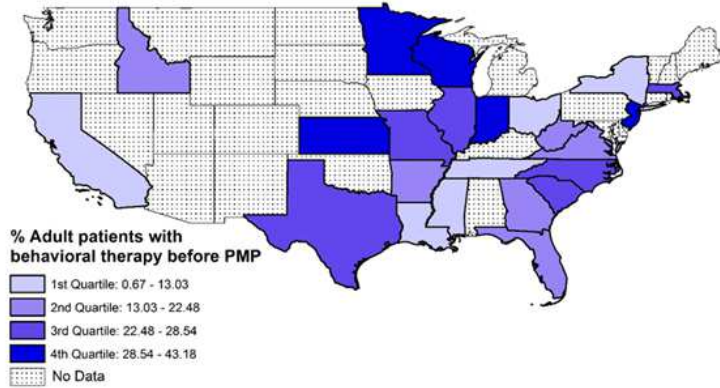
A. Percentage of pediatric patients receiving behavioral therapy prior to starting PMP



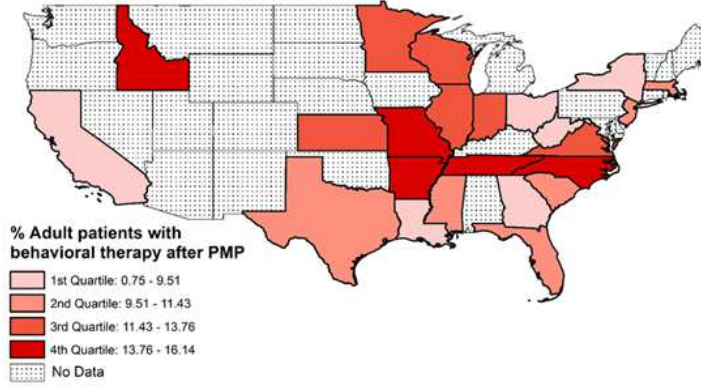
B. Percentage of pediatric patients receiving behavioral therapy after starting PMP



C. Percentage of adult patients receiving behavioral therapy prior to starting PMP



D. Percentage of adult patients receiving behavioral therapy after starting PMP



Appendix Table 1. Prevalence of behavioral therapy surrounding polypharmacy in Medicaid patients across 29 states,

1999-2010

year	Pediatric patients					Adult patients				
	Eligible patients*	Behavioral therapy prior to PMP	%	Behavioral therapy after PMP	%	Eligible patients*	Behavioral therapy prior to PMP	%	Behavioral therapy after PMP	%
1999-2001	34,846	7,456	21.40	8,851	25.40	84,107	8,794	10.46	10,608	12.61
2000-2002	37,349	8,386	22.45	9,986	26.74	85,668	8,681	10.13	11,506	13.43
2001-2003	42,822	9,936	23.20	11,650	27.21	89,149	9,914	11.12	12,738	14.29
2002-2004	49,612	11,520	23.22	18,259	36.80	92,541	10,526	11.37	15,586	16.84
2003-2005	59,886	17,802	29.73	25,677	42.88	110,316	13,352	12.10	21,239	19.25

2004-200 6	46,576	17,910	38.4 5	20,241	43.4 6	82,403	12,744	15.47	15,598	18.93
2005-200 7	36,307	14,654	40.3 6	15,995	44.0 5	71,075	11,551	16.25	13,545	19.06
2006-200 8	31,117	12,091	38.8 6	12,993	41.7 6	56,211	9,369	16.67	10,235	18.21
2007-200 9	31,124	11,365	36.5 2	12,446	39.9 9	53,656	8,317	15.50	9,534	17.77
2008-201 0	28,089	9,083	32.3 4	10,479	37.3 1	48,079	6,216	12.93	7,559	15.72

\*Defined as patients (children and adults) with a minimum of 2-years FFS/PCCM eligibility after the first psychotropic drug claim (index date) and start of polypharmacy ( $\geq 2$  concomitant psychotropics) more than 6 months after index date and at least 6 months FFS/PCCM after start of polypharmacy.

Appendix Table 2. Prevalence of behavioral therapy surrounding polypharmacy across 29 states, 1999-2010

State	Pediatric patients					Adult patients				
	Eligible patients*	Behavioral therapy prior to PMP	%	Behavioral therapy after PMP	%	Eligible patients*	Behavioral therapy prior to PMP	%	Behavioral therapy after PMP	%
Arkansas	4,872	1,077	22.11	1,121	23.01	2,942	413	14.04	474	16.11
California	13,845	130	0.94	231	1.67	71,084	479	0.67	530	0.75
Florida	10,317	2,621	25.40	1,533	14.86	15,117	2,928	19.37	1,535	10.15
Georgia	10,280	3,015	29.33	1,495	14.54	15,403	2,635	17.11	1,350	8.76
Idaho	2,711	1,089	40.17	420	15.49	2,954	664	22.48	428	14.49
Illinois	15,933	5,824	36.55	2,722	17.08	20,831	5,946	28.54	2,474	11.88
Indiana	7,668	4,756	62.02	990	12.91	13,274	5,086	38.32	1,827	13.76
Kansas	3,180	1,919	60.35	436	13.71	2,917	1,225	42.00	357	12.24
Louisiana	14,555	1,461	10.04	1,382	9.50	18,146	1,463	8.06	1,002	5.52
Massachusetts	1,259	319	25.34	124	9.85	1,893	436	23.03	208	10.99
Minnesota	4,484	2,471	55.11	547	12.20	6,563	2,834	43.18	808	12.31
Mississippi	5,101	1,384	27.13	876	17.17	7,821	1,019	13.03	794	10.15
Missouri	6,754	4,313	63.86	755	11.18	21,286	5,699	26.77	2,942	13.82
New Jersey	1,741	758	43.54	215	12.35	5,544	1,775	32.02	548	9.88
New York	11,984	405	3.38	282	2.35	53,481	3,682	6.88	2,412	4.51
North Carolina	14,143	7,097	50.18	2,336	16.52	24,717	6,023	24.37	3,516	14.23
Ohio	15,173	1,713	11.29	1,010	6.66	32,445	2,974	9.17	2,020	6.23
South Carolina	7,266	3,433	47.25	993	13.67	9,572	2,167	22.64	1,068	11.16

Tennessee	5,052	796	15.76	1,464	28.98	18,921	1,316	6.96	3,054	16.14
Texas	23,332	11,489	49.24	3,646	15.63	22,940	5,785	25.22	2,622	11.43
Virginia	4,764	2,620	55.00	590	12.38	6,891	1,549	22.48	794	11.52
West Virginia	3,437	891	25.92	483	14.05	11,915	1,738	14.59	1,133	9.51
Wisconsin	5,991	2,654	44.30	816	13.62	7,503	2,239	29.84	945	12.59

\*Defined as patients (children and adults) with a minimum of 2-years FFS/PCCM enrollment after the first psychotropic drug claim (index date) and start of polypharmacy (≥2 concomitant psychotropics) more than 6 months after index date and at least 6 months enrollment after start of polypharmacy.

## Appendix

### List of Codes for Psychotherapy

CPT	
90804	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an office or outpatient facility, approximately 20 to 30 minutes face-to-face with the patient
90805	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an office or outpatient facility, approximately 20 to 30 minutes face-to-face with the patient; with medical evaluation and management services
90806	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an office or outpatient facility, approximately 45 to 50 minutes face-to-face with the patient
90807	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an office or outpatient facility, approximately 45 to 50 minutes face-to-face with the patient; with medical evaluation and management services
90808	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an office or outpatient facility, approximately 75 to 80 minutes face-to-face with the patient
90809	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an office or outpatient facility, approximately 75 to 80 minutes face-to-face with the patient; with medical evaluation and management services
90810	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an office or outpatient facility, approximately 20 to 30 minutes face-to-face with the patient
90811	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an office or outpatient facility, approximately 20 to 30 minutes face-to-face with the patient; with medical evaluation and management services
90812	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an office or outpatient facility, approximately 45 to 50 minutes face-to-face with the patient
90813	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an office or outpatient facility, approximately 45 to 50 minutes face-to-face with the patient; with medical evaluation and

	management services
90814	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an office or outpatient facility, approximately 75 to 80 minutes face-to-face with the patient
90815	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an office or outpatient facility, approximately 75 to 80 minutes face-to-face with the patient; with medical evaluation and management services
90816	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an inpatient hospital, partial hospital or residential care setting, approximately 20 to 30 minutes face-to-face with the patient
90817	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an inpatient hospital, partial hospital or residential care setting, approximately 20 to 30 minutes face-to-face with the patient; with medical evaluation and management services
90818	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an inpatient hospital, partial hospital or residential care setting, approximately 45 to 50 minutes face-to-face with the patient
90819	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an inpatient hospital, partial hospital or residential care setting, approximately 45 to 50 minutes face-to-face with the patient; with medical evaluation and management services
90821	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an inpatient hospital, partial hospital or residential care setting, approximately 75 to 80 minutes face-to-face with the patient
90822	Individual psychotherapy, insight oriented, behavior modifying and/or supportive, in an inpatient hospital, partial hospital or residential care setting, approximately 75 to 80 minutes face-to-face with the patient; with medical evaluation and management services
90823	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an inpatient hospital, partial hospital or residential care setting, approximately 20 to 30 minutes face-to-face with the patient
90824	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an inpatient hospital, partial hospital or residential care setting, approximately 20 to 30 minutes face-to-face with the patient; with medical evaluation and management services
90826	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an inpatient hospital, partial hospital or residential care setting, approximately 45 to 50 minutes face-to-face with the patient
90827	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an inpatient hospital, partial hospital or residential care setting, approximately 45 to 50 minutes face-to-face with the patient; with medical evaluation and management services
90828	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an inpatient hospital, partial hospital or residential care setting, approximately 75 to 80 minutes face-to-face with the patient
90829	Individual psychotherapy, interactive, using play equipment, physical devices, language interpreter, or other mechanisms of non-verbal communication, in an inpatient hospital, partial hospital or residential care setting, approximately 75 to 80 minutes face-to-face with the patient; with medical evaluation and management services
90857	Interactive group psychotherapy
90832	Psychotherapy, 30 minutes with patient and/or family member

90833	Psychotherapy, 30 minutes with patient and/or family member when performed with an evaluation and management service
90834	Psychotherapy, 45 minutes with patient and/or family member
90836	Psychotherapy, 45 minutes with patient and/or family member when performed with an evaluation and management service
90837	Psychotherapy, 60 minutes with patient and/or family member
90838	Psychotherapy, 60 minutes with patient and/or family member when performed with an evaluation and management service
90839	Psychotherapy for crisis; first 60 minutes
90840	Psychotherapy for crisis; each additional 30 minutes
90846	Family psychotherapy (without the patient present)
90847	Family psychotherapy (conjoint psychotherapy) (with patient present)
90849	Multiple-family group psychotherapy
90853	Group Psychotherapy (other than of a multiple-family group)
90863	Pharmacologic management, including prescription and review of medication, when performed with psychotherapy services
90875	Individual psychophysiological therapy incorporating biofeedback training by any modality, with psychotherapy; 30 minutes
90876	Individual psychophysiological therapy incorporating biofeedback training by any modality, with psychotherapy; 45 minutes
4050F	Patient referral for psychotherapy documented
4060F	Psychotherapy services provided
H CODES	
H0004	Behavioral health counseling and therapy, per 15 minutes
H0017	Behavioral health; residential (hospital residential treatment program), without room and board, per diem
H0018	Behavioral health; short-term residential (non-hospital residential treatment program), without room and board, per diem
H0019	Behavioral health; long-term residential (non-medical, non-acute care in a residential treatment program where stay is typically longer than 30 days), without room and board, per diem
H0036	Community psychiatric supportive treatment, face-to-face, per 15 minutes
H0037	Community psychiatric supportive treatment program, per diem
H0038	Self-help/peer services, per 15 minutes
H0039	Assertive community treatment, face-to-face, per 15 minutes
H0040	Assertive community treatment program, per diem
H0046	Mental health services, not otherwise specified
H2012	Behavioral health day treatment, per hour



H2013	Psychiatric health facility service, per diem
H2017	Psychosocial rehabilitation services, per 15 minutes
H2018	Psychosocial rehabilitation services, per diem
H2019	Therapeutic behavioral services, per 15 minutes
H2020	Therapeutic behavioral services, per diem