

ONLINE SUPPLEMENT

eTable 1. Number of telehealth claims for mental health and substance abuse services by provider specialty, HCCI 2009-13

Provider category	Total	2009	2010	2011	2012	2013
Clinical Psychology	1,950	159	167	327	514	783
Mental Health Professional	1,416	61	98	200	371	686
Psychiatry	9,868	884	1,086	1,523	2,251	4,124
Social Worker	246	*	28	22	68	122
Total	13,480	1,110	1,379	2,072	3,204	5,715

HCCI, Health Care Cost Institute

* denotes cell size of less than 10 observations

eTable 2. Number of telehealth claims mental health and substance abuse services by state and year, HCCI 2009 and 2013

State	2009	2013
Alaska	*	*
Alabama	16	305
Arkansas	*	62
Arizona	98	260
California	12	50
Colorado	*	69
Connecticut	*	*
District of Columbia	*	45
Delaware	*	*
Florida	*	70
Georgia	15	326
Hawaii	*	*
Iowa	47	225
Idaho	*	*
Illinois	*	55
Indiana	*	95
Kansas	*	90
Kentucky	147	316
Louisiana	*	46
Massachusetts	*	*
Maryland	20	*
Maine	*	57
Michigan	*	82
Minnesota	204	570
Missouri	27	344
Mississippi	*	*
Montana	*	17
North Carolina	48	114

State	2009	2013
North Dakota	10	42
Nebraska	*	39
New Hampshire	*	*
New Jersey	*	*
New Mexico	*	31
Nevada	25	24
New York	*	327
Ohio	*	45
Oklahoma	59	166
Oregon	*	*
Pennsylvania	*	50
Rhode Island	*	*
South Carolina	*	25
South Dakota	*	21
Tennessee	43	711
Texas	94	536
Utah	*	*
Virginia	43	197
Vermont	*	*
Washington	94	*
Wisconsin	30	359
West Virginia	*	20
Wyoming	*	11
N/A	39	76

HCCI, Health Care Cost Institute; N/A, not available

* denotes cell size of less than 10 observations

eTable 3. Patient distribution by sex stratified by telehealth and non-telehealth mental health and substance abuse services, HCCI 2009-13

Sex	MH/SA services via telehealth	MH/SA services via non-telehealth	P-value ^a
	Number (%)	Number (%)	
Male	5,289 (39.23)	1,738,676 (43.77)	<.001
Female	8,193 (60.77)	2,233,621 (56.23)	<.001

MH/SA, Mental health and substance abuse; HCCI, Health Care Cost Institute

^a Estimated using test of proportions.

eTable 4: Patient age distribution stratified by telehealth and non-telehealth mental health and substance abuse services, HCCI 2009-13

Age group	MH/SA services via telehealth	MH/SA services via non-telehealth	P-value ^a
	Number (%)	Number (%)	
0-17	1,390 (8.03)	599,281 (11.72)	<.001
18-24	673 (3.89)	309,530 (6.05)	.019
25-34	833 (4.81)	442,335 (8.65)	<.001
35-44	1,940 (11.21)	617,106 (12.07)	.246
45-54	3,754 (21.69)	803,864 (15.72)	<.001
55-64	3,683 (21.28)	805,865 (15.76)	<.001
65-74	2,468 (14.26)	788,959 (15.43)	.108
75-84	1,723 (9.96)	523,280 (10.23)	.712
85+	841 (4.86)	223,205 (4.37)	.488

MH/SA, Mental health and substance abuse; HCCI, Health Care Cost Institute

^a Estimated using test of proportions.

eTable 5. Number (percent) of claims and average reimbursements and charges by CPT code for telehealth and non-telehealth claims for mental health and substance abuse services, HCCI 2009-13

CPT codes	Description	Telehealth				Non-Telehealth			
		Number (%)	Reimbursement, \$	Charges, \$	% of Reimbursements to Charges	Number (%)	Reimbursement, \$	Charges, \$	% of Reimbursements to Charges
90862	Visit focused on monitoring and prescribing of psychopharmacologic agents	4485 (33.27)	22.81	86.84	26.3%	96,160 (2.42)	35.04	92.36	37.9%
99213	Office/outpatient visit for evaluation/management of established patient with low complexity	2771 (20.57)	24.66	90.40	27.3%	80,280 (2.02)	37.63	111.68	33.7%
99214	Office/outpatient visit for evaluation/management of established patient with moderate complexity	959 (7.11)	48.76	145.01	33.6%	76,527 (1.93)	67.54	165.94	40.7%
90801	Psychiatric diagnostic interview examination	758 (5.62)	99.21	241.24	41.1%	110,575 (2.78)	84.31	195.04	43.2%
90806	Psychotherapy, 45 mins with patient and/or family member	501 (3.72)	54.03	159.05	34.0%	816,020 (20.54)	54.08	131.40	41.2%

90805	Evaluation and management (E/M) services including continuing medical diagnostic evaluation and pharmacological management	447 (3.32)	45.20	182.31	24.8%	24,475 (0.62)	49.67	128.17	38.8%
90832	Individual psychotherapy, 30 minutes	420 (3.11)	28.34	83.69	33.9%	17,879 (0.45)	51.78	96.87	53.5%
90834	Individual psychotherapy, 45 minutes	390 (2.89)	45.28	136.41	33.2%	154,569 (3.89)	49.70	134.86	36.9%
99212	Office/outpatient visit for evaluation/management of established patient with problem-focused history and examination	333 (2.47)	8.65	57.72	15.0%	16,017 (0.40)	20.28	75.45	26.9%
90792	Psychiatric diagnostic interview (for prescribers / medical services)	218 (1.62)	88.06	232.68	37.8%	3096 (0.08)	114.78	282.23	40.7%

HCCI, Health Care Cost Institute; CPT, Current Procedural Terminology

eTable 6. Top ten frequently reported CPT codes for mental health and substance abuse services provided via telehealth and non-telehealth, HCCI 2009-13

Mental Health and Substance Abuse (MH/SA) services - Telehealth			Mental Health and Substance Abuse (MH/SA) services - Non-Telehealth		
CPT codes	Description	Number	CPT codes	Description	Number
90862	Visit focused on monitoring and prescribing of psychopharmacologic agents	4,485	90806	Psychotherapy, 45 mins with patient and/or family member	816,020
99213	Office/outpatient visit for evaluation/management of established patient with low complexity	2,771	90834	Individual psychotherapy, 45 minutes	154,569
99214	Office/outpatient visit for evaluation/management of established patient with moderate complexity	959	90801	Psychiatric diagnostic interview examination	110,575
90801	Psychiatric diagnostic interview examination	758	90862	Visit focused on monitoring and prescribing of psychopharmacologic agents	96,160
90806	Psychotherapy, 45 mins with patient and/or family member	501	90847	Psychotherapy services for the treatment of mental disorders	90,319
90805	Evaluation and management (E/M) services including continuing medical diagnostic evaluation and pharmacological management	447	98960	Education/training for patient self-management by a qualified, non-physician health care professional using standardized curriculum	83,508
90832	Individual psychotherapy, 30 minutes	420	99213	Office/outpatient visit for evaluation/management of established patient with low complexity	80,280
90834	Individual psychotherapy, 45 minutes	390	99214	Office/outpatient visit for evaluation/management of established patient with moderate complexity	76,527
99212	Office/outpatient visit for evaluation/management of established patient with problem-focused history and examination	333	95904	Nerve conduction, amplitude and latency/velocity study	72,320
90792	Psychiatric diagnostic interview (for prescribers / medical services)	218	95816	Electroencephalogram (EEG) including recording awake and drowsy	69,496

HCCI, Health Care Cost Institute; CPT, Current Procedural Terminology

eTable 7. Complete descriptions of CPT codes

CPT codes	Description
90862	CPT code 90862 is intended to refer to a visit that is focused on the monitoring and prescribing of psychopharmacologic agents. Relevant history is obtained, a mental status examination is performed, and medical decision making (i.e., assessment of treatment response and ongoing treatment formulation) occurs during such a visit providing all of the elements are documented. Psychopharmacologic agents may be initiated or adjusted during such a visit.
99213	OFFICE OR OTHER OUTPATIENT VISIT FOR THE EVALUATION AND MANAGEMENT OF AN ESTABLISHED PATIENT, WHICH REQUIRES AT LEAST 2 OF THESE 3 KEY COMPONENTS: AN EXPANDED PROBLEM FOCUSED HISTORY; AN EXPANDED PROBLEM FOCUSED EXAMINATION; MEDICAL DECISION MAKING OF LOW COMPLEXITY. COUNSELING AND COORDINATION OF CARE WITH OTHER PHYSICIANS, OTHER QUALIFIED HEALTH CARE PROFESSIONALS, OR AGENCIES ARE PROVIDED CONSISTENT WITH THE NATURE OF THE PROBLEM(S) AND THE PATIENT'S AND/OR FAMILY'S NEEDS. USUALLY, THE PRESENTING PROBLEM(S) ARE OF LOW TO MODERATE SEVERITY. TYPICALLY, 15 MINUTES ARE SPENT FACE-TO-FACE WITH THE PATIENT AND/OR FAMILY.
99214	OFFICE OR OTHER OUTPATIENT VISIT FOR THE EVALUATION AND MANAGEMENT OF AN ESTABLISHED PATIENT, WHICH REQUIRES AT LEAST 2 OF THESE 3 KEY COMPONENTS: A DETAILED HISTORY; A DETAILED EXAMINATION; MEDICAL DECISION MAKING OF MODERATE COMPLEXITY. COUNSELING AND/OR COORDINATION OF CARE WITH OTHER PHYSICIANS, OTHER QUALIFIED HEALTH CARE PROFESSIONALS, OR AGENCIES ARE PROVIDED CONSISTENT WITH THE NATURE OF THE PROBLEM(S) AND THE PATIENT'S AND/OR FAMILY'S NEEDS. USUALLY, THE PRESENTING PROBLEM(S) ARE OF MODERATE TO HIGH SEVERITY. TYPICALLY, 25 MINUTES ARE SPENT FACE-TO-FACE WITH THE PATIENT AND/OR FAMILY.
90801	Psychiatric Diagnostic Interview Examination (CPT code 90801): An E/M service may be substituted for the initial interview procedure, including consultation CPT codes, (CPT codes 99241-99263), provided required elements of the E/M service billed are fulfilled. Consultation services require, in addition to the interview and examination, the provision of a written opinion and/or advice. E/M CPT codes do not include a psychotherapy service.
90806	Psychotherapy, 45 mins with patient and/or family member
90805	CPT codes 90805, 90807, 90809, 90811, 90813, 90815, 90817, 90819, 90822, 90824, 90827, 90829 1. These CPT codes include medical evaluation and management (E/M) services which includes continuing medical diagnostic evaluation as well as pharmacological management. Therefore, the same healthcare provider may not bill pharmacological management (90862) and an E/M service separately on the same day as a psychotherapy service. 2. When the qualified health care provider supplies other services in addition to pharmacological management at the visit, an E/M CPT code may be used. 3. HCPCS code M0064 should be used for a lesser level of drug monitoring such as simple dosage adjustment. M0064 is defined as a brief office visit for the sole purpose of monitoring or changing drug prescriptions used in the treatment of mental, psychoneurotic and personality disorders. Based on the assignment of RVUs, the work involved in M0064 is similar to CPT code 99212. Time spent is generally less than ten minutes.

CPT codes	Description
90832	Individual psychotherapy, 30 minutes (when performed with an evaluation & management service: 90833)
90834	Individual psychotherapy, 45 minutes (when performed with an evaluation & management service: 90836)
99212	OFFICE OR OTHER OUTPATIENT VISIT FOR THE EVALUATION AND MANAGEMENT OF AN ESTABLISHED PATIENT, WHICH REQUIRES AT LEAST 2 OF THESE 3 KEY COMPONENTS: A PROBLEM FOCUSED HISTORY; A PROBLEM FOCUSED EXAMINATION; STRAIGHTFORWARD MEDICAL DECISION MAKING. COUNSELING AND/OR COORDINATION OF CARE WITH OTHER PHYSICIANS, OTHER QUALIFIED HEALTH CARE PROFESSIONALS, OR AGENCIES ARE PROVIDED CONSISTENT WITH THE NATURE OF THE PROBLEM(S) AND THE PATIENT'S AND/OR FAMILY'S NEEDS. USUALLY, THE PRESENTING PROBLEM(S) ARE SELF LIMITED OR MINOR. TYPICALLY, 10 MINUTES ARE SPENT FACE-TO-FACE WITH THE PATIENT AND/OR FAMILY.
90792	Psychiatric diagnostic interview (for prescribers / medical services)
90847	CPT codes 90846, 90847, 90849: CPT codes 90846 and 90847 represent psychotherapy services for the treatment of mental disorders. They should not be used when the service performed is taking a family history or E/M counseling services. E/M counseling services should be coded with the appropriate E/M CPT code according to the time involved. Family counseling does not include the supervision of or therapy with professional caretakers or staff
98960	Education and training for patient self-management by a qualified, non-physician health care professional using a standardized curriculum, face-to-face with the patient (could include caregiver/family) each 30 minutes; individual patient
95904	Nerve conduction, amplitude and latency/velocity study, each nerve; sensory
95816	Electroencephalogram (EEG); including recording awake and drowsy; 20-40 minutes

CPT, Current Procedural Terminology

eTable 8. Number of providers, claims and average number of claims submitted by providers by CPT code for telehealth related to mental health and substance abuse services, HCCI 2009-13

CPT codes	Description	Number of Providers	Number of Claims	Average Claims per Provider
90862	Visit focused on monitoring and prescribing of psychopharmacologic agents	429	4485	10.5
99213	Office/outpatient visit for evaluation/management of established patient with low complexity	321	2771	8.6
99214	Office/outpatient visit for evaluation/management of established patient with moderate complexity	227	959	4.2
90801	Psychiatric diagnostic interview examination	253	758	3.0
90806	Psychotherapy, 45 mins with patient and/or family member	61	501	8.2
90805	Evaluation and management (E/M) services including continuing medical diagnostic evaluation and pharmacological management	70	447	6.4
90832	Individual psychotherapy, 30 minutes	38	420	11.1
90834	Individual psychotherapy, 45 minutes	35	390	11.1
99212	Office/outpatient visit for evaluation/management of established patient with problem-focused history and examination	81	333	4.1
90792	Psychiatric diagnostic interview (for prescribers / medical services)	114	218	1.9

HCCI, Health Care Cost Institute

eTable 9. Most frequently reported Current Procedural Terminology (CPT) codes for mental health and substance abuse services provided via telehealth, HCCI 2009-13

CPT codes	Number
90862	4,485
99213	2,771
99214	959
90801	758
90806	501
90805	447
90832	420
90834	390
99212	333
90792	218
99215	210
90791	181
G0425	158
99232	152
90807	95
90837	85
99205	84
99204	81
99307	72
90808	67
G0427	63
99202	61
90804	60
99308	58
G0459	58
Q3014	56
99203	52
G0406	51
90847	46

CPT codes	Number
99231	46
90833	44
G0408	44
G0426	41
G0407	38
99309	28
99403	26
99211	25
99233	25
H2011	17
90846	16
90839	15
99254	12
M0064	12
90809	*
90802	*
90836	*
90853	*
90863	*
90961	*
96040	*
96101	*
96116	*
96152	*
99201	*
99222	*
99223	*
99238	*
99239	*
99241	*
99242	*

CPT codes	Number
99243	*
99244	*
99245	*
99253	*
99284	*
99306	*
99310	*
99354	*
99402	*
99407	*
99409	*
H0036	*
T1016	*

HCCI, Health Care Cost Institute
* denotes cell size of less than 10 observations

eTable 10. Average reimbursements and charges for the most frequently reported diagnosis codes for mental health and substance abuse services provided via telehealth versus non-telehealth, HCCI 2009-13

Diagnosis codes (ICD-9-CM)	Description	Telehealth		Non-Telehealth	
		Reimbursement, \$	Charges, \$	Reimbursement, \$	Charges, \$
296.32	Major depressive affective disorder, recurrent episode, moderate	30.95	112.93	55.40	136.40
296.33	Major depressive affective disorder, recurrent episode, severe, without mention of psychotic behavior	37.49	123.70	67.78	151.87
311.0	Depressive disorder, not elsewhere classified	46.38	148.47	63.96	141.52
295.70	Schizoaffective disorder	29.25	104.17	51.93	121.30
296.80	Bipolar disorder	31.16	110.55	59.74	141.81
314.01	Attention deficit disorder with hyperactivity	44.89	175.61	64.09	160.75
300.00	Anxiety state	50.12	168.08	60.50	159.36
296.89	Other bipolar disorders	45.45	116.16	55.54	130.58
29530	Paranoid type schizophrenia	26.03	81.43	50.20	111.76
29634	Major depressive affective disorder, recurrent episode, severe, specified as with psychotic behavior	29.76	89.11	59.28	141.31

eTable 11. Number of providers, claims and average number of claims submitted by providers by ICD-9-CM code for telehealth related to mental health and substance abuse services, HCCI 2009-13

ICD-9 Codes	Description	Number of Providers	Number of Claims	Average Claims per Provider
296.32	Major depressive affective disorder, recurrent episode, moderate	218	1,200	5.5
296.33	Major depressive affective disorder, recurrent episode, severe, without mention of psychotic behavior	166	848	5.1
311.0	Depressive disorder, not elsewhere classified	154	832	5.4
295.70	Schizoaffective disorder	157	737	4.7
296.80	Bipolar disorder	127	425	3.3
314.01	Attention deficit disorder with hyperactivity	72	419	5.8
300.00	Anxiety state	92	409	4.4
296.89	Other bipolar disorders	86	390	4.5
295.30	Paranoid type schizophrenia	94	362	3.9
296.34	Major depressive affective disorder, recurrent episode, severe, specified as with psychotic behavior	101	360	3.6

HCCI, Health Care Cost Institute

eTable 12. Complete description of ICD-9-CM diagnosis codes

Diagnosis codes	Description
296.32	Recurr depr psychos-mod (Major depressive affective disorder, recurrent episode, moderate)
296.33	Recur depr psych-severe (Major depressive affective disorder, recurrent episode, severe, without mention of psychotic behavior)
311.0	Depressive disorder, not elsewhere classified
295.70	Schizoaffective dis NOS (Schizoaffective disorder, unspecified)
296.80	Bipolar disorder NOS (Bipolar disorder, unspecified)
314.01	Attn deficit w hyperact (Attention deficit disorder with hyperactivity)
300.00	Anxiety state NOS (Anxiety state, unspecified)
296.89	Bipolar disorder NEC (Other bipolar disorders)
295.30	Paranoid schizo-unspec (Paranoid type schizophrenia, unspecified)
296.34	Rec depr psych-psychotic (Major depressive affective disorder, recurrent episode, severe, specified as with psychotic behavior)
309.28	Adjust dis w anxiety/dep (Adjustment disorder with mixed anxiety and depressed mood)
300.02	Generalized anxiety dis (Generalized anxiety disorder)
300.4	Dysthymic disorder
299.00	Autistic disord-current (Autistic disorder, current or active state)
327.23	Obstructive sleep apnea (Obstructive sleep apnea (adult)(pediatric))
309.0	Adjustmnt dis w depressn (Adjustment disorder with depressed mood)

eTable 13. Top ten frequently reported diagnosis codes (ICD-9-CM) for mental health and substance abuse services provided via telehealth and non-telehealth, HCCI 2009-13

Telehealth			Non-Telehealth		
Diagnosis codes (ICD-9-CM)	Description	Number	Diagnosis codes (ICD-9-CM)	Description	Number
296.32	Major depressive affective disorder, recurrent episode, moderate	1,200	309.28	Adjustment disorder with mixed anxiety and depressed mood	168,296
296.33	Major depressive affective disorder, recurrent episode, severe, without mention of psychotic behavior	848	311.0	Depressive disorder, not elsewhere classified	137,223
311.0	Depressive disorder, not elsewhere classified	832	300.02	Generalized anxiety disorder	133,438
295.70	Schizoaffective disorder	737	296.32	Major depressive affective disorder, recurrent episode, moderate	128,411
296.80	Bipolar disorder	425	300.4	Dysthymic disorder	118,346
314.01	Attention deficit disorder with hyperactivity	419	299.00	Autistic disorder, current or active state	93,377
300.00	Anxiety state	409	327.23	Obstructive sleep apnea (adult)(pediatric)	88,148
296.89	Other bipolar disorders	390	296.33	Major depressive affective disorder, recurrent episode, severe, without mention of psychotic behavior	87,990
295.30	Paranoid type schizophrenia	362	300.00	Anxiety state	74,125
296.34	Major depressive affective disorder, recurrent episode, severe, specified as with psychotic behavior	360	309.0	Adjustment disorder with depressed mood	62,142

HCCI, Health Care Cost Institute