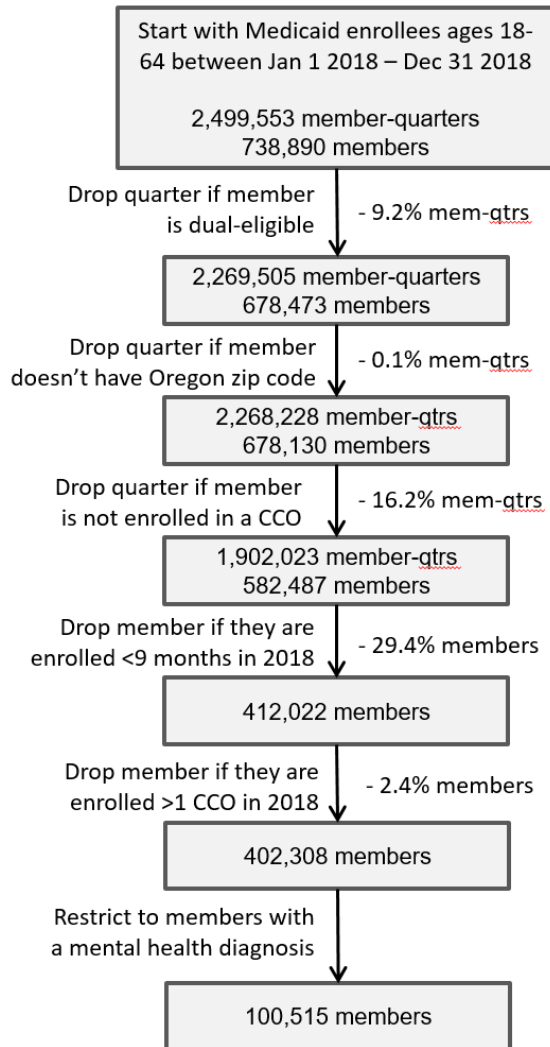Appendix A. Overview of patient cohort selection

Appendix B. Taxonomy codes for mental health provider types

Provider type	Taxonomy codes	Prescribing provider
Psychiatrist	2084A0401X, 2084B0002X, 2084B0040X, 2084F0202X, 2084N0600X, 2084P0015X, 2084P0800X, 2084P0802X, 2084P0804X, 2084P0805X	Yes
Nurse practitioner specializing in mental health	363LP0808X	Yes
Clinical Nurse Specialist specializing in mental health	364SP0807X, 364SP0808X, 364SP0809X, 364SP0810X, 364SP0811X, 364SP0812X, 364SP0813X	No
Psychologist	103G00000X, 103GC0700X, 103T00000X, 103TA0400X, 103TA0700X, 103TB0200X, 103TC0700X, 103TC1900X, 103TC2200X, 103TE1000X, 103TE1100X, 103TF0000X, 103TF0200X, 103TH0004X, 103TH0100X, 103TM1700X, 103TM1800X, 103TP0016X, 103TP0814X, 103TP2700X, 103TP2701X, 103TR0400X, 103TS0200X, 103TW0100X	No
Counselors and therapists	101Y00000X, 101YA0400X, 101YM0800X, 101YP1600X, 101YP2500X, 101YS0200X, 102L00000X, 106H00000X	No
Social workers	104100000X, 1041C0700X, 1041S0200X	No

Appendix C. Characteristics of enrollees with mental health conditions, by CCO

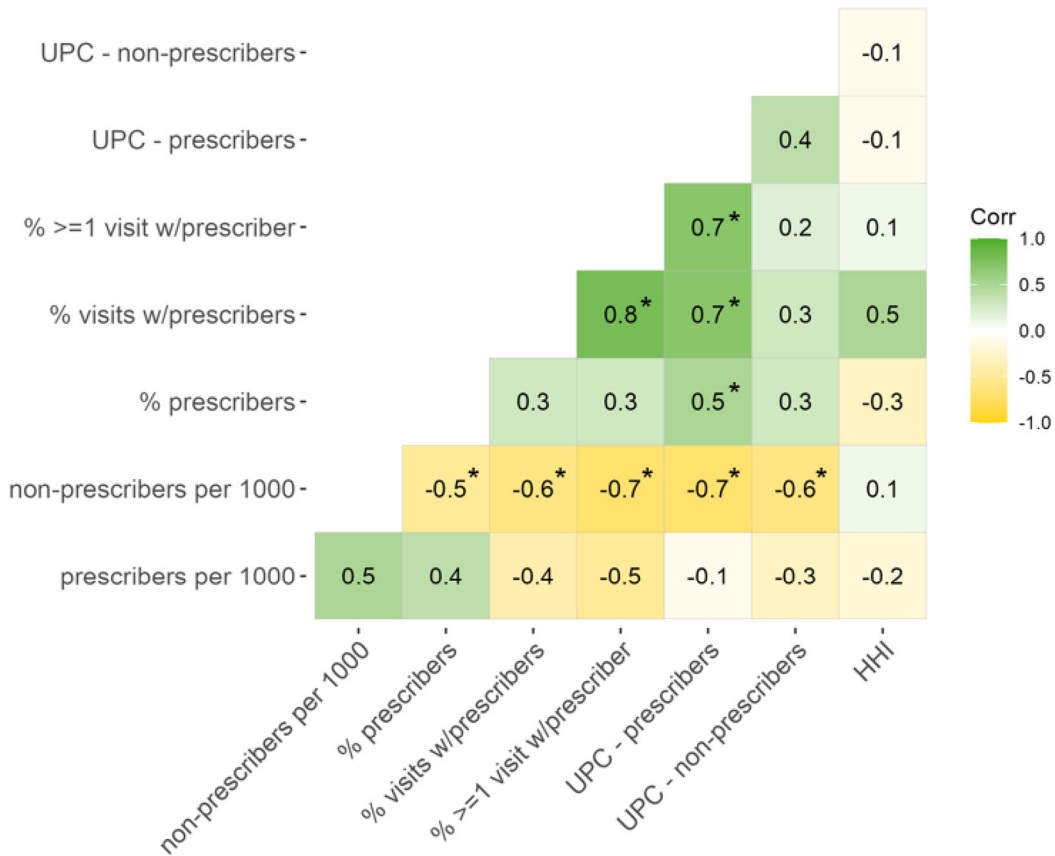|	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	N = 13,309	N = 2,694	N = 4,723	N = 2,409	N = 5,051	N = 10,103	N = 35,994	N = 6,384	N = 3,652	N = 2,091	N = 1,188	N = 933	N = 3,597	N = 6,074	N = 2,313
Age* (yrs), mean	38.11	39.35	38.07	37.47	38.42	37.54	38.15	38.19	38.20	38.04	37.91	39.84	38.78	38.12	40.27
SD	12.77	12.86	12.66	12.53	12.72	12.83	12.37	12.68	12.65	12.80	13.20	13.52	12.73	12.67	13.19
Female gender* (%)	65.9	68.3	68.7	67.2	66.9	68.2	64.0	66.8	66.8	65.6	67.8	67.0	68.2	67.2	66.9
Race-ethnicity* (%)															
White	53.3	62.3	57.1	51.3	55.2	49.1	49.2	57.5	51.9	61.9	50.3	57.3	57.3	56.9	61.0
Hispanic	2.2	1.7	7.2	4.2	3.4	7.1	4.0	2.0	3.0	4.9	6.8	1.6	1.4	2.7	2.2
Black	1.2	0.6	0.7	0.7	0.7	1.0	5.2	0.7	0.7	0.9	0.5	0.5	0.6	0.4	0.5
AI/AN	1.1	0.9	2.3	1.2	1.2	1.3	1.1	1.3	1.3	2.4	1.2	1.4	0.9	1.2	1.3
Other/unknown	42.2	34.5	32.8	42.6	39.6	41.4	40.5	38.5	43.1	29.8	41.2	39.1	39.8	38.8	35.0
Urban residence* (%)	79.0	0.2	0.0	7.1	38.8	73.3	94.8	50.0	72.4	0.0	0.3	0.0	0.0	45.7	0.0
Months enrolled*, mean	11.62	11.59	11.54	11.51	11.62	11.63	11.59	11.58	11.59	11.58	11.53	11.57	11.63	11.56	11.62
SD	0.94	0.97	1.01	1.04	0.93	0.92	0.96	0.97	0.96	0.98	1.01	0.97	0.93	0.99	0.93
Serious Mental Illness* (%)	13.2	12.5	12.6	12.3	11.4	12.7	14.7	13.7	12.0	14.8	14.7	10.8	13.4	9.3	11.9
Total CDPS conditions, mean	2.42	2.54	2.52	2.56	2.36	2.45	2.42	2.46	2.42	2.51	2.31	2.32	2.65	2.33	2.71
SD	1.76	1.87	1.79	1.88	1.78	1.84	1.85	1.81	1.79	1.77	1.71	1.81	1.89	1.71	1.90

Notes: * denotes a statistically significant difference across CCOs (p<0.001). Individuals were identified as having serious mental illness if they had at least one claim for inpatient hospitalization, partial hospitalization in a psychiatric facility, or psychiatric residential care; or if enrollees had two or more other claims for the following primary diagnoses on different dates: Schizophrenia (F20, F25), Bipolar I (F30, F31.0, F31.78), Major Depressive Disorders (F32.2, F32.3, F33.2, F33.3), and other Schizophrenia Spectrum or Psychotic Disorders (F28). AI/AN = American Indian/Alaska Native. CDPS = Chronic Illness and Disability Payment System. The size of the mental health population in each CCO includes all enrollees with any mental health diagnosis matching our inclusion criteria.

Appendix D. Measures of continuity and concentration, by mental health conditions and provider type

	Serious mental illness					Other mental health conditions				
	Continuity (% of patients with 3+ providers)		Continuity (UPC Index)		Concentration (HHI)	Continuity (% of patients with 3+ providers)		Continuity (UPC Index)		Concentration (HHI)
CCO	Prescribers	Non-prescribers	Mean	SD		Prescribers	Non-prescribers	Mean	SD	
A	3.6	16.2	0.73	0.25	126	1.3	3.9	0.86	0.22	72
B	0.6	7.0	0.75	0.22	399	0.0	1.3	0.88	0.2	188
C	0.8	10.3	0.73	0.24	298	0.8	3.0	0.86	0.22	127
D	0.0	23.1	0.77	0.24	528	0.3	4.8	0.87	0.21	340
E	4.0	19.1	0.65	0.25	221	0.6	4.9	0.87	0.22	68
F	1.6	14.8	0.73	0.22	173	0.4	4.2	0.85	0.22	82
G	5.7	14.1	0.69	0.25	44	1.7	3.2	0.85	0.23	18
H	4.4	3.1	0.75	0.23	423	4.2	0.8	0.87	0.22	105
I	4.9	5.4	0.7	0.24	357	1.2	2.1	0.85	0.22	133
J	1.1	4.8	0.69	0.25	768	0.0	2.9	0.83	0.24	360
K	3.7	12.7	0.69	0.23	1387	0.0	3.4	0.87	0.21	280
L	0.0	23.1	0.71	0.24	467	1.3	7.1	0.86	0.23	248
M	5.6	0.8	0.75	0.23	670	0.5	0.4	0.87	0.21	327
N	2.7	17.0	0.68	0.24	303	0.4	3.5	0.83	0.24	100
O	0.0	11.9	0.78	0.21	1196	0.0	3.4	0.89	0.2	508

Notes: In sensitivity analyses, we calculated measures of continuity and concentration for those with serious mental illness and other mental health conditions. All measures were assessed at the level of the CCO health plan. Individuals were identified as having serious mental illness if they had at least one claim for inpatient hospitalization, partial hospitalization in a psychiatric facility, or psychiatric residential care; or if enrollees had two or more other claims for the following primary diagnoses on different dates: Schizophrenia (F20, F25), Bipolar I (F30, F31.0-F31.78), Major Depressive Disorders (F32.2, F32.3, F33.2, F33.3), and other Schizophrenia Spectrum or Psychotic Disorders (F28). Other mental health conditions included enrollees who did not meet the above criteria for SMI, but who had primary psychiatric diagnoses listed in Clinical Classification System Refined categories MBD001-MBD013, MBD027, or EXT021. An additional measure of continuity was calculated as the percentage of patients with at least 3 providers, and was calculated separately for mental health prescribers and non-prescribers. UPC was also calculated separately for prescribers and non-prescribers. UPC=Usual Provider Continuity, HHI=Herfindahl-Hirschman Index, SD=standard deviation

Appendix E. Correlation between additional network measures

	non-prescribers per 1000	% prescribers	% visits w/prescribers	% >=1 visit w/prescriber	UPC - prescribers	UPC - non-prescribers	HHI
UPC - non-prescribers							-0.1
UPC - prescribers						0.4	-0.1
% >=1 visit w/prescriber					0.7*	0.2	0.1
% visits w/prescribers				0.8*	0.7*	0.3	0.5
% prescribers			0.3	0.3	0.5*	0.3	-0.3
non-prescribers per 1000		-0.5*	-0.6*	-0.7*	-0.7*	-0.6*	0.1
prescribers per 1000	0.5	0.4	-0.4	-0.5	-0.1	-0.3	-0.2

Notes: In sensitivity analyses, the relationship between additional network measures was assessed. In particular, UPC and provider-to-enrollee ratio was calculated separately for prescribers and non-prescribers. A measure assessing percent of enrollees with at least one visit with a prescriber was calculated to measure access to prescribers more directly. We find statistically significant positive correlations between measures of prescriber access and prescriber continuity, and statistically significant negative correlations between