A. Procedure and Diagnostic Codes

<u>Serious Mental Illness</u>: Schizophrenia (F20), Schizotypal disorder (F21) Schizoaffective disorder (F25); Bipolar Disorder (F31); Other Serious Psychiatric Conditions (F22, F28, F29)

<u>Comorbidities</u>: Diabetes (E08-E13), hypertension (I10), ischemic heart disease (I20-I25), overweight and obesity (E66), chronic kidney disease (N18), chronic obstructive pulmonary disease (J44), asthma (J45), cerebrovascular disease (I60-I69), nicotine dependence (F17), substance use disorder (F10-F19)

<u>COVID-19</u>: ICD-10 code (B34.2, B97.29, J12.81, U07.1, U07.2) or Logical Observation Identifiers Names and Codes (LOINC) (94500-6, 94315-9, 94533-7, 94534-5, 94559-2). Excluded if ICD-10 code of B97.89

<u>Mechanical Ventilation</u>: CPT codes (39.65, 31500, A1935Z, 5A1945Z, 5A1955Z, 1015098, 0BH17EZ, 0BH13EZ, 0BH18EZ, and 1022227)

B. Supplemental Analysis

Table S1: Demographic characteristics and comorbidities of unmatched and matched cohorts for persons with and without serious mental illness (SMI) diagnosed with COVID-19 between January 20, 2020 and January 19, 2021.

| | Unmatched | | | | | Matched | | | | |
| | SMI N=85,257 | | No SMI N=2,422,601 | | | SMI N=85,257 | | No SMI N=85,257 | | |
	N	%	N	%	p-value	N	%	N	%	p-value
Age										
18-44 years	38,357	45.0	1,015,466	41.9	<0.0001	38,357	45.0	38,232	44.8	0.55
45-64 years	30,626	35.9	784,430	32.3	<0.0001	30,626	35.9	30,619	35.9	0.98
≥65 years	16,274	19.1	623,705	25.7	<0.0001	16,274	19.1	16,406	19.2	0.42
Sex										
Female	49,797	58.4	1,378,545	56.9	<0.0001	49,797	58.4	49,713	58.3	0.68
Male	35,311	41.4	1,023,647	42.3	<0.0001	35,311	41.4	35,401	41.5	0.66
Race										
White	56,705	66.5	1,624,848	67.1	0.0006	56,705	66.5	56,735	66.5	0.88
Black	19,146	22.5	339,146	14.0	<0.0001	19,146	22.5	19,252	22.6	0.53
Asian	659	0.8	56,924	2.4	<0.0001	659	0.8	6363	0.7	0.52
Other	372	0.4	12,693	0.5	<0.001	372	0.4	321	0.4	0.01
Unknown	8,375	9.8	388,990	16.1	<0.0001	8,375	9.8	8,313	9.8	0.61
Ethnicity										
Non-Hispanic	64,202	75.3	1,6000,114	66.0	<0.0001	64,202	75.3	64,319	75.4	0.51
Hispanic	4,655	5.5	204,181	8.4	<0.0001	4,655	5.5	4,604	5.4	0.59
Unknown	16,400	19.2	618,306	25.5	<0.0001	16,400	19.2	16,334	19.2	0.68
Comorbidities										
Diabetes	19,459	22.8	290,193	12.0	<0.0001	19,459	22.8	19,505	22.9	0.79
Hypertension	36,926	43.3	663,870	27.4	<0.0001	36,926	43.3	37,038	43.4	0.58
Asthma	18,741	22.0	221,723	9.2	<0.0001	18,741	22.0	18,704	21.9	0.83
COPD	11,988	14.1	115,115	4.8	<0.0001	11,988	14.1	11,923	14.0	0.65
Ischemic heart Disease	12,750	15.0	226,124	9.3	<0.0001	12,750	15.0	12,726	12.9	0.87
Overweight/ Obesity	25,551	30.0	384,988	15.9	<0.0001	25,551	30.0	25,570	30.0	0.92
Cerebrovascular Disease	9,463	11.1	132,951	5.5	<0.0001	9.463	11.1	9,457	11.1	0.96
Chronic kidney disease	8,587	10.1	138,917	5.8	<0.0001	8,587	10.1	8,676	10.2	0.47
Nicotine dependence	33,201	38.9	236,148	9.8	<0.0001	33,201	38.9	33,194	38.9	0.97
Substance use disorder	44,696	52.4	315,514	13.0	<0.0001	44,695	52.4	44,695	52.4	1.00

Table S2: Demographic characteristics and comorbidities of unmatched and matched cohorts for persons with and without serious mental illness (SMI) with an inpatient admission and a COVID-19 diagnosis between January 20, 2020 and January 19, 2021.

	Unmatched					Matched				
	SMI N=27,443		No SMI N=459,669			SMI N=27,443		No SMI N=27,443		
	N	%	N	%	p-value	N	%	N	%	p-value
Age										
18-44 years	10,798	39.3	138,142	30.1	<0.0001	10.798	39.3	10,759	30.2	0.73
45-64 years	10,019	36.5	137,452	29.9	<0.0001	10,019	36.5	10,033	36.6	0.90
≥65 years	6,626	24.1	184,075	40.0	<0.0001	6,626	24.1	6,651	24.2	0.80
Sex										
Female	15,446	56.3	262,669	57.1	0.005	15,446	56.2	15,393	56.1	0.65
Male	11,955	43.6	195,722	42.6	0.001	11,955	43.6	12,011	43.8	0.63
Race										
White	17,666	64.4	308,760	67.2	<0.0001	17,666	64.4	17,717	64.6	0.65
Black	6,763	24.6	81,201	17.7	<0.0001	6,763	24.6	6,810	24.8	0.64
Asian	210	0.8	11,183	2.4	<0.001	210	0.8	178	0.6	0.10
Other										
Unknown	2,691	9.8	55,987	12.2	<0.0001	2,691	9.8	2,644	9.6	0.49
Ethnicity										
Non-Hispanic	21,886	79.8	357,741	77.8	<0.0001	21,886	79.8	21,978	80.1	0.33
Hispanic	1,246	4.5	40,736	8.9	<0.0001	1,246	4.5	1,148	4.2	0.04
Unknown	4,311	15.7	61,192	13.3	<0.0001	4,311	15.7	4,317	15.7	0.94
Comorbidities										
Diabetes	7,669	27.9	91,849	20.0	<0.0001	7,669	27.9	7,618	27.8	0.63
Hypertension	13,655	49.8	183,653	40.0	<0.0001	13,655	49.8	13,700	49.9	0.70
Asthma	5,778	21.1	44,778	9.7	<0.0001	5,778	21.1	5,739	20.9	0.69
COPD	5,160	18.8	43,890	9.5	<0.0001	5,160	18.8	5,106	18.6	0.55
Ischemic heart Disease	5,905	21.5	87,069	12.9	<0.0001	5,905	21.5	5,866	21.4	0.69
Overweight and Obesity	8,572	31.2	98,833	21.5	<0.0001	8,5782	32.2	8,572	31.2	1.00
Cerebrovascular Disease	4,125	15.0	51,561	11.2	<0.0001	4,125	15.0	4,114	15.0	0.90
Chronic kidney Disease	3,931	14.3	55,571	12.1	<0.0001	3,931	14.3	3,958	14.4	0.74
Nicotine dependence	11,548	42.1	62,580	13.6	<0.0001	11,548	42.1	11,552	42.1	0.97
Substance use disorder	14,999	54.7	82,543	18.0	<0.0001	14,999	54.7	14,973	54.6	0.82

Table S3: Clinical outcomes within 30 days of COVID-19 diagnosis among persons with and without serious mental illness prior to matching on demographics and comorbid conditions in the first year of the pandemic (January 20, 2020 and January 19, 2021).

	Diagnosed with COVID-19						
	Persons with SMI N=85,257		Persons without SMI N=2,422,601		Persons with versus Persons without SMI (ref)		
	N	%	N	%	Odds Ratio	95% CI	p-value
Admission	23,320	27.3	412,834	17.0	1.83	1.81-1.86	<0.001
Death	926	1.1	20.894	0.9	1.26	1.18-1.35	<0.001
	Diagnosed with COVID-19 with associated inpatient admission						
	Persons with SMI N=27,443		Persons without SMI N=459,669		Persons with versus Persons without SMI (ref)		
	N	%	N	%	Odds Ratio	95% CI	p-value
Mechanical ventilation	1,461	5.3	21,601	4.7	1.14	1.08-1.20	<0.001
Death	699	2.5	14,712	3.2	0.79	0.73-0.85	<0.001

Table S4: Clinical outcomes within 30 days of COVID-19 diagnosis among persons with and without serious mental illness after matching on demographics alone in the first year of the pandemic (January 20, 2020 and January 19, 2021).

	Diagnosed with COVID-19						
	Persons with SMI N=90.159		Persons without SMI N=90.159		Persons with versus Persons without SMI (ref)		
	N	%	N	%	Odds Ratio	95% CI	p-value
Admission	25,267	28.0	15,644	17.4	1.86	1.81-1.90	<0.001
Death	1,003	1.1	675	09.8	1.49	1.35-1.65	<0.001
	Diagnosed with COVID-19 with associated inpatient admission						
	Persons with SMI N=28,090		Persons without SMI N=28,090		Persons with versus Persons without SMI (ref)		
	N	%	N	%	Odds Ratio	95% CI	p-value
Mechanical ventilation	1,596	5.7	1,348	4.8	1.20	1.11-1.29	<0.001
Death	735	2.6	726	2.6	1.01	0.91-1.12	0.81

Table S5: Clinical outcomes within 30 days of COVID-19 diagnosis among persons with and without serious mental illness after matching on demographics and comorbid conditions in the first four months of the pandemic (January 20, 2020 to May 31, 2020).

	Diagnosed with COVID-19						
	Persons with SMI N=18,913		Persons without SMI N=18,913		Persons with versus Persons without SMI (ref)		
	N	%	N	%	Odds Ratio	95% CI	p-value
Admission	3,275	17.3	2,744	14.5	1.23	1.17-1.30	<0.001
Death	348	1.8	295	1.6	1.18	1.01-1.38	0.04
	Diagnosed with COVID-19 with associated inpatient admission						
	Persons with SMI N=5,961		Persons without SMI N=5,961		Persons with versus Persons without SMI (ref)		
	N	%	N	%	Odds Ratio	95% CI	p-value
Mechanical ventilation	267	4.5	273	4.6	0.98	0.82-1.16	0.79

Death	234	3.9	222	3.7	1.06	0.88-1.27	0.57

Table S6: Clinical outcomes within 30 days of COVID-19 diagnosis by positive SARS-CoV2 laboratory test among persons with and without serious mental illness after matching on demographics and comorbid conditions in the first year of the pandemic (January 20, 2020 to January 19, 2021).

	Diagnosed with COVID-19						
	Persons with SMI N=87,566		**Persons without SMI** N=87,566		**Persons with versus Persons without SMI** (ref)		
	N	%	N	%	**Odds Ratio**	**95% CI**	**p-value**
Admission	24,944	28.5	18,108	20.7	1.53	1.50-1.56	<0.001
Death	872	1.0	766	0.9	1.14	1.03-1.26	<0.001
	Diagnosed with COVID-19 with associated inpatient admission						
	Persons with SMI N=29,996		**Persons without SMI** N-29,996		**Persons with versus Persons without SMI (ref)**		
	N	%	N	%	**Odds Ratio**	**95% CI**	**p-value**
Mechanical ventilation	1,207	4.4	1,145	4.1	1.08	0.99-1.17	0,06
Death	705	2.4	690	2.3	1.02	0.92-1.14	0.68

Table S7: Clinical outcomes within 30 days among persons with and without serious mental illness admitted after COVID-19 diagnosis and treated with steroids after matching on demographics and comorbid conditions in the first year of the pandemic (January 20, 2020 to January 19, 2021).

	Diagnosed with COVID-19 with associated inpatient admission and treated with dexamethasone or remdesivir						
	Persons with SMI N=11,081		**Persons without SMI** N=11,081		**Persons with versus Persons without SMI (ref)**		
	N	%	N	%	**Odds Ratio**	**95% CI**	**p-value**
Mechanical ventilation	446	4.6	417	4.2	1.10	0.96-1.26	0.16
Death	280	2.5	275	2.5	1.02	0.86-1.21	0.82

Table S8: Clinical outcomes within 30 days of COVID-19 diagnosis among persons with and without serious mental illness (using diagnostic code within 1 year of study period) after matching on demographics and comorbid conditions in the first year of the pandemic (January 20, 2020 to January 19, 2021).

	Diagnosed with COVID-19						
	Persons with SMI N=72,734		**Persons without SMI** N=72,734		**Persons with versus Persons without SMI (ref)**		
	N	**%**	**N**	**%**	**Odds Ratio**	**95% CI**	**p-value**
Admission	22,565	31.0	15,118	20.8	1.71	1.67-1.76	<0.001
Death	792	1.1	670	0.9	1.18	1.07-1.31	0.001
	Diagnosed with COVID-19 with associated inpatient admission						
	Persons with SMI N=26,902		**Persons without SMI** N-26,902		**Persons with versus Persons without SMI (ref)**		
	N	%	N	%	**Odds Ratio**	**95% CI**	**p-value**
Mechanical ventilation	1,512	5.7	1,448	5.4	1.05	0.98-1.13	0.17
Death	638	2.4	690	2.6	0.92	0.83-1.03	0.15

Table S9: Clinical outcomes within 30 days of COVID-19 diagnosis among persons with and without serious mental illness (using diagnostic codes within 7 years of study period) after matching on demographics and comorbid conditions in the first year of the pandemic (January 20, 2020 to January 19, 2021).

	Diagnosed with COVID-19						
	Persons with SMI N=98,999		**Persons without SMI** N=98,999		**Persons with versus Persons without SMI** (ref)		
	N	**%**	**N**	**%**	**Odds Ratio**	**95% CI**	**p-value**
Admission	26,845	27.1	19,758	20.0	1.49	1.46-1.52	<0.001
Death	1,110	1.1	882	0.9	1.26	1.16-1.38	<0.001
	Diagnosed with COVID-19 with associated inpatient admission						
	Persons with SMI N=26,212		**Persons without SMI** N-26,212		**Persons with versus Persons without SMI (ref)**		
	N	**%**	**N**	**%**	**Odds Ratio**	**95% CI**	**p-value**
Mechanical ventilation	1,168	4.8	1,067	4.3	1.12	1.03-1.22	0.008
Death	615	2.4	613	2.3	1.00	0.90-1.12	0.94