

Supplemental Online Content

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eTable 2. Characteristics Associated with Receipt of OUD-Related Telehealth Services During Study Period Among Beneficiaries With OUD in the Pandemic Cohort by Dual Eligible Status

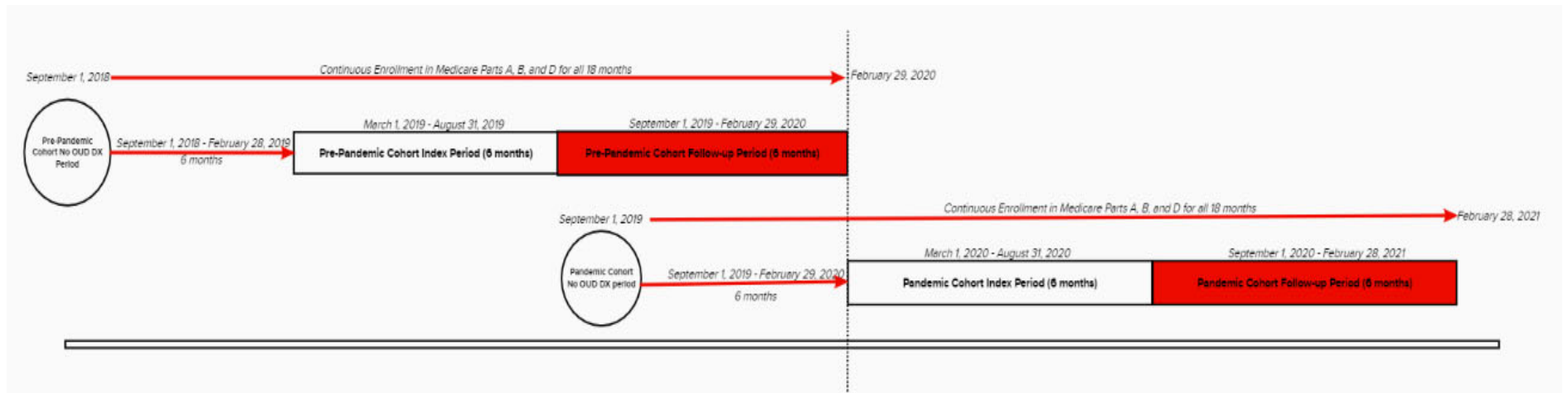
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This supplementary material has been provided by the authors to give readers additional information about their work.

eFigure. Cohort Preindex, Index, and Follow-up Periods for the Prepandemic and Pandemic Cohorts



eTable 1. Definitions and Billing Codes Used for OUD, MOUD, Telehealth, Medically Treated Overdose, and Other Conditions and Services Received

Variables	Definition
Time Spent in Nursing Home	We considered an individual to be a current nursing home resident on any given day if the most recent assessment was not a discharge assessment and less than 150 days old. An individual without an assessment for 150 days was assumed to be discharged from the facility.
Medication Received	NDCs
<i>Buprenorphine from pharmacies</i>	59385001201, 59385001230, 59385001401, 59385001430, 59385001601, 59385001630, 00093365640, 00093365740, 00093365840, 00093365940, 42858035340, 42858049340, 42858050103, 42858050203, 42858058640, 42858075040, 42858083940, 55700057904, 58118315608, 60687048121, 60687049221, 62756045964, 62756045983, 62756046064, 62756046083, 67046099430, 67046099530, 70518071100, 70518071101, 70518071102, 70518155700, 70518162500, 70518221700, 70518221800, 71335035301, 71335035302, 71335035303, 71335035304, 71335035305, 71335035306, 71335035307, 71335095001, 71335095002, 71335095003, 71335095004, 71335095005, 71335095006, 71335095007, 71335115401, 71335115402, 71335115403, 71335115404, 71335115405, 71335115406, 71335115407, 71335115408, 71335115409, 55700056804, 00093360040, 00093360140, 00093360240, 00093360340, 67046099230, 67046099330, 60846097003, 60846097103, 63629727001, 63629727002, 67046099830, 67046099930, 00054017613, 00054017713, 00074201201, 00093537856, 00093537956, 00143924605, 00228315303, 00228315603, 00378092393, 00378092493, 00409201232, 21695051510, 35356055530, 35356055630, 40042001001, 42023017901, 42023017905, 43063066706, 50383092493, 50383093093, 54569657800, 55390010010, 55700030230, 55700030330, 58118017608, 58118017708, 63629712601, 63629712602, 63629712603, 63629712604, 63629712605, 63629712606, 63629712607, 63629712608, 63629712609, 68258299103, 68308020230, 68308020830, 70518044200, 70518201400, 70518221600, 70518222600, 71335116301, 71335116302, 71335116303, 71335116304, 71335116305, 71335116306, 71335116307, 71335116308, 71335116309, 67046099030, 67046099130, 64725093003, 64725192403, 63629712501, 63629712502, 63629712503, 63629712504, 63629712505, 63629712506, 63629712507, 69189059101, 67046099630, 67046099730, 70518065200, 70518065201, 70518065202, 00054018813, 00054018913, 00093572056, 00093572156, 00228315403, 00228315473, 00228315503, 00228315573, 00378876793, 00378876893, 00406192303, 00406192403, 00406800503, 00406802003, 00781721664, 00781722764, 00781723864, 00781724964, 42291017430, 42291017530, 43598057930, 43598058030, 43598058130, 43598058230, 47781035503, 47781035603, 47781035703, 50268014415, 50268014515, 50383028793, 50383029493, 52427069203, 52427069403, 52427069803, 52427071203, 53217013830, 54569640800, 55700018430, 60429058630, 60429058730, 62175045232, 62175045832, 62756096964, 62756096983, 62756097064, 62756097083, 65162041503, 65162041509, 65162041603, 65162041609, 70518100700, 70518168400, 70518231100, 70518232700, 71335129601, 71335129602, 71335137801, 58284010014, 52440010014, 12496010001, 12496030001, 00490005100, 00490005130, 00490005160, 00490005190, 12496120201, 12496120203, 12496120401, 12496120403, 12496120801, 12496120803, 12496121201, 12496121203, 12496128302, 12496130602, 16590066605, 16590066630, 16590066705, 16590066730, 16590066790, 23490927003, 23490927006, 23490927009, 35356000407, 35356000430, 43063018407, 43063018430, 49999039507, 49999039515, 49999039530, 52959030430, 52959074930, 54569549600, 54569573900, 54569573901, 54569573902, 54569639900, 54868570700, 54868570701, 54868570702, 54868570703, 54868570704, 54868575000, 55045378403, 55700014730, 55887031204, 55887031215, 63629403401, 63629403402, 63629403403, 63874108403, 63874108503, 66336001530, 66336001630, 68071138003, 68071151003, 68258299903, 12496127802, 12496131002, 49999063830, 49999063930, 63629409201,

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<i>ER naltrexone from pharmacies</i>	NDCs: 00406009203, 43063046915, 52125072702, 63459030042, 63629530402, 65757030001
<i>Methadone from OTPs</i>	HCPCS: G2067, G2078
<i>Buprenorphine from OTPs</i>	HCPCS: G2068, G2069, G2070, G2071, G2072, G2079
<i>ER naltrexone from OTPs</i>	HCPCS: G2073
ODU and Behavioral Health-Related Services	ICD-10 CM Diagnosis Codes on Part A or B Service Claim
<i>ODU-Related Services</i>	F1110, F1111, F11120, F11121x, F1114, F1115x, F1118x, F1119, F112x F1122x, F1123, F1124, F1125x, F1128x, F1129
<i>Behavioral Health-Related Services</i>	F060, F061, F062, F0630, F0631, F0632, F0633, F0634, F064, F068, F09, F1010, F10120, F10121, F10129, F1014, F10150, F10151, F10159, F10180, F10181, F10182, F10188, F1019, F1020, F10220, F10221, F10229, F10230, F10231, F10232, F10239, F1024, F10250, F10251, F10259, F1026, F1027, F10280, F10281, F10282, F10288, F1029, F10920, F10921, F10929, F1094, F10950, F10951, F10959, F1096, F1097, F10980, F10981, F10982, F10988, F1099, F1110, F11120, F11121, F11122, F11129, F1114, F11150, F11151, F11159, F11181, F11182, F11188, F1119, F1120, F11220, F11221, F11222, F11229, F1123, F1124, F11250, F11251, F11259, F11281, F11282, F11288, F1129, F1210, F12120, F12121, F12122, F12129, F12150, F12151, F12159, F12180, F12188, F1219, F1220, F12220, F12221, F12222, F12229, F12250, F12251, F12259, F12280, F12288, F1229, F1290, F12920, F12921, F12922, F12929, F12950, F12951, F12959, F12980, F12988, F1299, F1310, F13120, F13121, F13129, F1314, F13150, F13151, F13159, F13180, F13181, F13182, F13188, F1319, F1320, F13220, F13221, F13229, F13230, F13231, F13232, F13239, F1324, F13250, F13251, F13259, F1326, F1327, F13280, F13281, F13282, F13288, F1329, F1390, F13920, F13921, F13929, F13930, F13931, F13932, F13939, F1394, F13950, F13951, F13959, F1396, F1397, F13980, F13981, F13982, F13988, F1399, F1410, F14120, F14121, F14122, F14129, F1414, F14150, F14151, F14159, F14180, F14181, F14182, F14188, F1419, F1420, F14220, F14221, F14222, F14229, F1423, F1424, F14250, F14251, F14259, F14280, F14281, F14282, F14288, F1429, F1490, F14920, F14921, F14922, F14929, F1494, F14950, F14951, F14959, F14980, F14981, F14982, F14988, F1499, F1510, F15120, F15121, F15122, F15129, F1514, F15150, F15151, F15159, F15180, F15181, F15182, F15188, F1519, F1520, F15220, F15221, F15222, F15229, F1523, F1524, F15250, F15251, F15259, F15280, F15281, F15282, F15288, F1529, F1590, F15920, F15921, F15922, F15929, F1593, F1594, F15950, F15951, F15959, F15980, F15981, F15982, F15988, F1599, F1610, F16120, F16121, F16122, F16129, F1614, F16150, F16151, F16159, F16180, F16183, F16188, F1619, F1620, F16220, F16221, F16229, F1624, F16251, F16259, F16280, F16283, F16288, F1629, F1650, F1690, F16920, F16921, F16929, F1694, F16950, F16951, F16959, F16980, F16983, F16988, F1699, F17200, F17201, F17203, F17208, F17209, F17210, F17211, F17213, F17218, F17219, F17220, F17221, F17223, F17228, F17229, F17290, F17291, F17293, F17298, F17299, F1810, F18120, F18121, F18129, F1814, F18150, F18151, F18159, F1817, F18180, F18188, F1819, F1820, F18220, F18221, F18229, F1824, F18250, F18251, F18259, F1827, F18280, F18288, F1829, F1890, F18920, F18921, F18929, F1894, F18950, F18951, F18959, F1897, F18980, F18988, F1899, F1910, F19120, F19121, F19122, F19129, F1914, F19150, F19151, F19159, F1916, F1917, F19180, F19181, F19182, F19188, F1919, F1920, F19220, F19221, F19222, F19229, F19230, F19231, F19232, F19239, F1924, F19250, F19251, F19259, F1926, F1927, F19280, F19281, F19282, F19288, F1929, F1990, F19920, F19921, F19922, F19929, F19930, F19931, F19932, F19939, F1994, F19950, F19951, F19959, F1996, F1997, F19980, F19981, F19982, F19988, F1999, F200, F201, F202, F203, F205, F2081, F2089, F209, F21, F22, F23, F24, F250, F251, F258, F259, F28, F29, F3010, F3011, F3012, F3013, F302, F303, F304, F308, F309, F310, F3110, F3111, F3112, F3113, F312, F3130,

	F3131, F3132, F314, F315, F3160, F3161, F3162, F3163, F3164, F3170, F3171, F3172, F3173, F3174, F3175, F3176, F3177, F3178, F3181, F3189, F319, F320, F321, F322, F323, F324, F325, F328, F3289, F329, F330, F331, F332, F333, F3340, F3341, F3342, F338, F339, F340, F341, F348, F3481, F3489, F349, F39, F4000, F4001, F4002, F4010, F4011, F40210, F40218, F40220, F40228, F40230, F40231, F40232, F40233, F40240, F40241, F40242, F40243, F40248, F40290, F40291, F40298, F408, F409, F410, F411, F413, F418, F419, F42, F422, F423, F424, F428, F429, F430, F4310, F4311, F4312, F4320, F4321, F4322, F4323, F4324, F4325, F4329, F438, F439, F440, F441, F442, F444, F445, F446, F447, F4481, F4489, F449, F450, F451, F4520, F4521, F4522, F4529, F4541, F4542, F458, F459, F488, F489, F5000, F5001, F5002, F502, F508, F509, F53, F54, F59, F600, F601, F602, F603, F604, F605, F606, F607, F6081, F6089, F609, F630, F631, F632, F633, F6381, F6389, F639, F641, F642, F648, F649, F6810, F6811, F6812, F6813, F688, F69, F900, F901, F902, F908, F909, F910, F911, F912, F913, F918, F919, F930, F938, F939, F983, F988, F989, F99
Telehealth Services	Only services that are on the Medicare telehealth services list are classified as telehealth eligible and those HCPCS codes billed with the POS = “02” or “95”, “GT”, “GQ”, or “GO” modifiers are considered delivered via a telecommunication system and not in-person. Virtual check-ins were identified using HCPCS codes G2010, G2012 or G0071, as reported by the health care professional on the Part B Claim. E-visits were identified using the CPT codes 99421-99423 or HCPCS codes G2061-G2063, as reported by the rendering health care professional on the Part B Claim.
Medically Treated Drug Overdose	ICD-10 CM Diagnosis Codes: T36-T50
Co-occurring conditions	ICD-10 CM Diagnosis Codes
<i>Substance use disorder</i>	
Alcohol use disorder	F101X, F102X, F109X
Tobacco use disorder	F17
Cannabis use disorder	F121X, F122X, F129X
Cocaine use disorder	F141X, F142X, F149X
Sedative/hypnotic use disorder	F131X, F132X, F139X
Stimulant use disorder	F151X, F152X, F159X
Other psychoactive substance use disorder	F161X, F162X, F169X, F181X, F182X, F189X, F191X, F192X, F199X
<i>Mental health diagnosis</i>	CMS Chronic Condition Warehouse (CCW) Flags: https://www2.ccwdata.org/web/guest/condition-categories
Anxiety	Anxiety Disorders CCW Flag
Bipolar disorder	Bipolar Disorder CCW Flag
Major depression	Depression CCW Flag
Personality disorder	Personality Disorders CCW Flag
Attention deficit hyperactivity Disorder	ADHD, Conduct Disorders, and Hyperkinetic Syndrome CCW Flag
Post-traumatic stress disorder	Post-Traumatic Stress Disorder CCW Flag
Schizophrenia or other psychotic disorder	Schizophrenia and Other Psychotic Disorders CCW Flag
<i>Chronic medical conditions</i>	
Cancer	CCW Flags for: Breast Cancer, Colorectal Cancer, Endometrial Cancer, Lung Cancer, Prostate Cancer, Leukemias and Lymphomas
Diabetes	Diabetes CCW Flag
Cardiovascular and other circulatory	CCW Flags for: Atrial Fibrillation, Acute Myocardial Infarction, Ischemic Heart Disease, Heart Failure, Hypertension
Chronic respiratory disease	CCW Flags for: Asthma, Chronic Obstructive Pulmonary Disease, Bronchiectasis
Viral hepatitis	Viral Hepatitis CCW Flag
HIV	HIV/AIDS CCW Flag

Obesity	Obesity CCW Flag
Liver disease, cirrhosis, and other liver conditions, excluding hepatitis	CCW Flags for: Liver Disease, Cirrhosis, and Other Liver Conditions (excluding Hepatitis)
Acute/chronic pain	CCW Flags for: Migraine and Chronic Headache, Fibromyalgia and Chronic Pain and Fatigue, Rheumatoid Arthritis/Osteoarthritis, Multiple Sclerosis and Transverse Myelitis, Sickle Cell Disease, Spinal Cord Injury, Pressure Ulcers and Chronic Ulcers

eTable 2. Characteristics Associated with Receipt of OUD-Related Telehealth Services During Study Period Among Beneficiaries With OUD in the Pandemic Cohort by Dual Eligible Status

	Dually Eligible Beneficiaries N=36,724	Non-Dually Eligible Beneficiaries N=33,773
	Adjusted ORs[†] (95% CI)	Adjusted ORs[†] (95% CI)
Receipt of MOUD During Study Period		
No MOUD	Ref	Ref
MOUD from OTP only	0.379 (0.323, 0.444)	0.270 (0.182, 0.400)
MOUD from OTP and Pharmacy	3.318 (2.342, 4.700)	4.835 (1.911, 12.235)
ER Naltrexone from Pharmacy only	1.646 (1.132, 2.393)	0.633 (0.141, 2.842)
Buprenorphine from Pharmacy only	4.115 (3.818, 4.437)	2.820 (2.547, 3.122)
Baseline Sex		
Male	Ref	Ref
Female	1.090 (1.028, 1.156)	1.097 (1.034, 1.164)
Baseline Age Group		
18-44	Ref	Ref
45-64	0.966 (0.893, 1.044)	0.880 (0.729, 1.062)
65-74	0.993 (0.902, 1.093)	0.798 (0.662, 0.963)
75 or older	1.097 (0.974, 1.235)	0.744 (0.613, 0.903)
Baseline Race/Ethnicity		
Non-Hispanic White	Ref	Ref
Non-Hispanic African American	0.938 (0.863, 1.018)	0.917 (0.798, 1.053)
Non-Hispanic American Indian or Alaska Native	1.140 (0.912, 1.425)	0.853 (0.566, 1.286)
Non-Hispanic Asian or Pacific Islander	1.460 (1.177, 1.810)	0.791 (0.549, 1.140)
Non-Hispanic Other	1.180 (0.821, 1.697)	0.872 (0.599, 1.270)
Hispanic	1.037 (0.942, 1.142)	0.962 (0.818, 1.131)
Baseline U.S Census Region		
Northeast	Ref	Ref
Midwest	0.893 (0.673, 1.185)	0.731 (0.518, 1.033)
South	0.662 (0.510, 0.858)	0.672 (0.488, 0.924)
West	0.836 (0.632, 1.105)	0.877 (0.625, 1.232)
Baseline County Urban-Rural Status		
Metropolitan	Ref	Ref
Micropolitan	0.968 (0.900, 1.041)	0.938 (0.867, 1.015)
Rural	0.981 (0.817, 1.177)	0.898 (0.726, 1.112)
Time Spent in Nursing Home from Baseline to End of Study		
No time	Ref	Ref
Quantile 1	0.608 (0.503, 0.734)	0.613 (0.506, 0.742)
Quantile 2	0.672 (0.554, 0.816)	0.671 (0.561, 0.802)
Quantile 3	0.572 (0.478, 0.684)	0.636 (0.519, 0.779)
Quantile 4	0.625 (0.543, 0.718)	0.830 (0.576, 1.196)
Baseline Other Substance Use Disorder Diagnosis*		

Alcohol use disorder	0.957 (0.878, 1.042)	0.911 (0.813, 1.021)
Tobacco use disorder	0.876 (0.824, 0.930)	0.915 (0.848, 0.987)
Cannabis use disorder	0.887 (0.805, 0.977)	0.836 (0.697, 1.002)
Cocaine use disorder	1.000 (0.886, 1.129)	0.670 (0.482, 0.932)
Stimulant use disorder	0.908 (0.811, 1.016)	0.772 (0.591, 1.008)
Sedative/hypnotic disorder	1.518 (1.374, 1.677)	1.604 (1.440, 1.787)
Other psychoactive substance use disorder	0.785 (0.720, 0.856)	0.748 (0.649, 0.863)
Baseline Mental Health Diagnosis*		
Anxiety	1.027 (0.962, 1.097)	0.948 (0.890, 1.009)
Bipolar disorder	1.030 (0.958, 1.108)	1.190 (1.073, 1.319)
Major depression	1.091 (1.024, 1.161)	1.158 (1.088, 1.232)
Personality disorder	0.923 (0.831, 1.026)	0.973 (0.836, 1.133)
Attention deficit hyperactivity disorder	1.088 (0.979, 1.210)	0.937 (0.786, 1.116)
Post-traumatic stress disorder	1.227 (1.125, 1.338)	0.985 (0.850, 1.141)
Schizophrenia or other psychotic disorder	0.824 (0.755, 0.900)	0.932 (0.794, 1.094)
Baseline Other Chronic Medical Conditions*		
Cancer	0.882 (0.796, 0.978)	0.889 (0.817, 0.966)
Diabetes	0.932 (0.875, 0.992)	0.926 (0.869, 0.986)
Cardiovascular and other circulatory	0.806 (0.752, 0.864)	0.881 (0.816, 0.951)
Chronic respiratory disease	0.870 (0.819, 0.924)	0.862 (0.808, 0.919)
Viral hepatitis	1.109 (1.013, 1.215)	1.175 (1.001, 1.379)
HIV	1.171 (0.972, 1.411)	1.095 (0.737, 1.628)
Obesity	1.090 (1.026, 1.159)	0.979 (0.919, 1.042)
Liver disease cirrhosis and other liver conditions [±]	0.765 (0.703, 0.831)	0.834 (0.758, 0.917)
Acute/Chronic Pain	1.085 (0.999, 1.177)	1.029 (0.923, 1.148)
Bolded text represents statistically significant results		
‡Models adjusted for all variables in the table		
* Reference group is not having condition		
± Excluding hepatitis		
To enable mutually exclusive groups for the regression analysis, 27 beneficiaries (0.30% of beneficiaries receiving MOUD) who received both buprenorphine and ER naltrexone from pharmacies during the study period were excluded from the analysis		

eTable 3. Characteristics Associated With Receipt of Behavioral Health-Related Telehealth Services During Study Period Among Beneficiaries With OUD in the Pandemic Cohort by Dual Eligible Status

	Dually Eligible Beneficiaries N=36,724	Non-Dually Eligible Beneficiaries N=33,773
	Adjusted ORs' (95% CI)	Adjusted ORs' (95% CI)
Receipt of MOUD During Study Period		
No MOUD	Ref	Ref
MOUD from OTP only	0.690 (0.622, 0.767)	0.542 (0.424, 0.694)
MOUD from OTP and Pharmacy	1.341 (0.930, 1.933)	1.398 (0.516, 3.788)
ER Naltrexone from Pharmacy only	1.445 (1.000, 2.088)	3.032 (0.967, 9.504)
Buprenorphine from Pharmacy only	2.016 (1.868, 2.177)	1.958 (1.769, 2.168)
Baseline Sex		
Male	Ref	Ref
Female	1.244 (1.185, 1.305)	1.193 (1.134, 1.256)
Baseline Age Group		
18-44	Ref	Ref
45-64	1.013 (0.948, 1.083)	0.983 (0.830, 1.163)
65-74	0.926 (0.855, 1.004)	0.811 (0.686, 0.960)
75 or older	0.801 (0.725, 0.885)	0.687 (0.578, 0.817)
Baseline Race/Ethnicity		
Non-Hispanic White	Ref	Ref
Non-Hispanic African American	0.911 (0.852, 0.973)	0.888 (0.789, 1.000)
Non-Hispanic American Indian or Alaska Native	0.991 (0.819, 1.199)	1.013 (0.726, 1.412)
Non-Hispanic Asian or Pacific Islander	1.294 (1.064, 1.575)	0.888 (0.649, 1.215)
Non-Hispanic Other	1.145 (0.830, 1.580)	0.948 (0.695, 1.293)
Hispanic	0.994 (0.916, 1.079)	0.944 (0.818, 1.090)
Baseline U.S Census Region		
Northeast	Ref	Ref
Midwest	0.762 (0.600, 0.968)	0.675 (0.514, 0.886)
South	0.620 (0.498, 0.771)	0.660 (0.514, 0.849)
West	0.786 (0.621, 0.994)	0.811 (0.620, 1.060)
Baseline County Urban-Rural Status		
Metropolitan	Ref	Ref
Micropolitan	0.895 (0.842, 0.950)	0.850 (0.794, 0.909)
Rural	0.853 (0.734, 0.992)	0.697 (0.582, 0.835)
Time Spent in Nursing Home from Baseline to End of Study		
No time	Ref	Ref
Quantile 1	0.580 (0.506, 0.664)	0.751 (0.652, 0.865)
Quantile 2	0.776 (0.674, 0.894)	0.862 (0.754, 0.985)
Quantile 3	0.806 (0.713, 0.910)	0.891 (0.769, 1.033)
Quantile 4	0.840 (0.761, 0.928)	1.168 (0.882, 1.547)

Baseline Other Substance Use Disorder Diagnosis*		
Alcohol use disorder	1.091 (1.017, 1.171)	1.103 (1.005, 1.210)
Tobacco use disorder	1.073 (1.021, 1.128)	1.069 (1.004, 1.139)
Cannabis use disorder	0.951 (0.879, 1.030)	1.022 (0.881, 1.185)
Cocaine use disorder	0.922 (0.834, 1.019)	0.611 (0.472, 0.791)
Stimulant use disorder	0.774 (0.705, 0.850)	0.747 (0.602, 0.926)
Sedative/hypnotic disorder	1.385 (1.266, 1.515)	1.457 (1.321, 1.608)
Other psychoactive substance use disorder	0.927 (0.864, 0.995)	0.936 (0.835, 1.049)
Baseline Mental Health Diagnosis*		
Anxiety	1.599 (1.515, 1.686)	1.547 (1.467, 1.631)
Bipolar disorder	1.608 (1.514, 1.707)	1.840 (1.686, 2.009)
Major depression	1.903 (1.808, 2.003)	2.055 (1.949, 2.167)
Personality disorder	1.109 (1.016, 1.211)	1.434 (1.262, 1.629)
Attention deficit hyperactivity disorder	1.380 (1.257, 1.516)	1.585 (1.362, 1.845)
Post-traumatic stress disorder	1.553 (1.438, 1.678)	1.663 (1.463, 1.891)
Schizophrenia or other psychotic disorder	1.385 (1.291, 1.485)	1.499 (1.312, 1.711)
Baseline Other Chronic Medical Conditions*		
Cancer	0.885 (0.816, 0.960)	0.928 (0.865, 0.995)
Diabetes	0.978 (0.929, 1.023)	0.937 (0.888, 0.989)
Cardiovascular and other circulatory	0.871 (0.820, 0.925)	0.922 (0.862, 0.987)
Chronic respiratory disease	0.974 (0.927, 1.023)	0.951 (0.901, 1.004)
Viral hepatitis	0.916 (0.850, 0.987)	0.995 (0.867, 1.143)
HIV	1.218 (1.043, 1.423)	1.187 (0.845, 1.668)
Obesity	1.108 (1.054, 1.167)	1.005 (0.953, 1.060)
Liver disease cirrhosis and other liver conditions [±]	0.866 (0.812, 0.924)	0.892 (0.825, 0.964)
Acute/Chronic Pain	1.097 (1.024, 1.177)	1.133 (1.028, 1.249)
Bolded text represents statistically significant results		
‡Models adjusted for all variables in the table		
* Reference group is not having condition		
± Excluding hepatitis		
To enable mutually exclusive groups for the regression analysis, 27 beneficiaries (0.30% of beneficiaries receiving MOUD) who received both buprenorphine and ER naltrexone from pharmacies during the study period were excluded from the analysis		

eTable 4. Characteristics Associated With MOUD Retention for at Least 80% of Eligible Days During Study Period Among Beneficiaries With OUD in the Pandemic Cohort Receiving MOUD During the Study Period by Dual Eligible Status

	Adjusted ORs[†] (95% CI) Dually Eligible Beneficiaries N=6,441	Adjusted ORs[†] (95% CI) Non-Dually Eligible Beneficiaries N=2,356
Receipt of OUD-Related Telehealth Service	1.281 (1.127, 1.455)	1.252 (1.024, 1.530)
Receipt of MOUD During Study Period		
MOUD from OTP only	Ref	Ref
MOUD from OTP and Pharmacy	0.394 (0.264, 0.589)	0.263 (0.072, 0.965)
ER Naltrexone from Pharmacy only	0.168 (0.095, 0.295)	1.059 (0.324, 3.463)
Buprenorphine from Pharmacy only	0.536 (0.468, 0.613)	0.775 (0.601, 0.998)
Baseline Sex		
Male	Ref	Ref
Female	0.932 (0.833, 1.043)	0.840 (0.694, 1.018)
Baseline Age Group		
18-44	Ref	Ref
45-64	1.151 (1.008, 1.315)	1.610 (1.134, 2.285)
65-74	1.106 (0.920, 1.329)	1.276 (0.886, 1.839)
75 or older	1.174 (0.799, 1.727)	0.816 (0.521, 1.279)
Baseline Race/Ethnicity		
Non-Hispanic White	Ref	Ref
Non-Hispanic African American	0.659 (0.549, 0.792)	0.885 (0.577, 1.359)
Non-Hispanic American Indian or Alaska Native	0.957 (0.588, 1.557)	0.740 (0.294, 1.862)
Non-Hispanic Asian or Pacific Islander	0.918 (0.497, 1.696)	0.947 (0.266, 3.376)
Non-Hispanic Other	1.099 (0.453, 2.668)	0.146 (0.018, 1.164)
Hispanic	0.841 (0.681, 1.040)	0.713 (0.408, 1.245)
Baseline U.S Census Region		
Northeast	Ref	Ref
Midwest	0.914 (0.664, 1.258)	1.247 (0.901, 1.728)
South	0.953 (0.724, 1.253)	1.111 (0.842, 1.467)
West	0.726 (0.531, 0.992)	0.847 (0.628, 1.143)
Baseline County Urban-Rural Status		
Metropolitan	Ref	Ref
Micropolitan	0.973 (0.843, 1.124)	0.922 (0.727, 1.169)
Rural	1.100 (0.769, 1.576)	0.731 (0.359, 1.487)
Time Spent in Nursing Home from Baseline to End of Study		
No time	Ref	Ref
Quantile 1	0.311 (0.155, 0.625)	0.367 (0.139, 0.966)
Quantile 2	0.631 (0.354, 1.124)	0.453 (0.171, 1.203)
Quantile 3	0.030 (0.004, 0.217)	omitted

Quantile 4	0.267 (0.102, 0.698)	omitted
Baseline Other Substance Use Disorder Diagnosis*		
Alcohol use disorder	0.716 (0.598, 0.858)	0.785 (0.567, 1.087)
Tobacco use disorder	0.936 (0.833, 1.051)	1.038 (0.846, 1.275)
Cannabis use disorder	0.753 (0.614, 0.924)	0.815 (0.519, 1.279)
Cocaine use disorder	0.579 (0.447, 0.750)	0.534 (0.254, 1.123)
Stimulant use disorder	0.550 (0.441, 0.687)	0.635 (0.339, 1.189)
Sedative/hypnotic disorder	0.928 (0.728, 1.183)	0.765 (0.508, 1.151)
Other psychoactive substance use disorder	0.907 (0.780, 1.056)	1.396 (1.036, 1.881)
Baseline Mental Health Diagnosis*		
Anxiety	0.902 (0.791, 1.028)	0.915 (0.745, 1.124)
Bipolar disorder	1.094 (0.948, 1.264)	0.816 (0.601, 1.108)
Major depression	0.899 (0.794, 1.018)	0.946 (0.770, 1.162)
Personality disorder	0.618 (0.484, 0.789)	1.109 (0.702, 1.751)
Attention deficit hyperactivity disorder	0.989 (0.805, 1.214)	0.596 (0.363, 0.977)
Post-traumatic stress disorder	1.062 (0.891, 1.267)	0.916 (0.609, 1.376)
Schizophrenia or other psychotic disorder	0.858 (0.712, 1.034)	0.402 (0.235, 0.688)
Baseline Other Chronic Medical Conditions*		
Cancer	0.837 (0.623, 1.124)	0.570 (0.394, 0.823)
Diabetes	0.927 (0.804, 1.070)	0.897 (0.718, 1.120)
Cardiovascular and other circulatory	0.926 (0.814, 1.055)	0.793 (0.640, 0.983)
Chronic respiratory disease	0.863 (0.756, 0.986)	0.857 (0.682, 1.076)
Viral hepatitis	0.918 (0.786, 1.072)	0.713 (0.493, 1.030)
HIV	0.846 (0.579, 1.236)	0.345 (0.123, 0.969)
Obesity	1.116 (0.975, 1.278)	1.125 (0.905, 1.399)
Liver disease cirrhosis and other liver conditions [±]	0.839 (0.696, 1.011)	0.767 (0.553, 1.064)
Acute/Chronic Pain	0.869 (0.766, 0.987)	0.721 (0.570, 0.913)
Bolded text represents statistically significant results		
†Models adjusted for all variables in the table		
* Reference group is not having condition		
± Excluding hepatitis		
To enable mutually exclusive groups for the regression analysis, 27 beneficiaries (0.30% of beneficiaries receiving MOUD) who received both buprenorphine and ER naltrexone from pharmacies during the study period were excluded from the analysis		

eTable 5. Characteristics Associated With Experiencing Any Medically Treated Drug Overdose During Study Period Among Beneficiaries With OUD in the Pandemic Cohort by Dual Eligible Status

	Adjusted ORs[†] (95% CI) Dually Eligible Beneficiaries N=36,724	Adjusted ORs[†] (95% CI) Non-Dually Eligible Beneficiaries N=33,773
Receipt of OUD-Related Telehealth Service	0.672 (0.622, 0.726)	0.674 (0.619, 0.734)
Receipt of MOUD During Study Period		
No MOUD	Ref	Ref
MOUD from OTP only	0.525 (0.446, 0.618)	0.530 (0.359, 0.783)
MOUD from OTP and Pharmacy	1.409 (0.929, 2.137)	0.857 (0.235, 3.127)
ER Naltrexone from Pharmacy only	0.920 (0.626, 1.351)	0.711 (0.170, 2.972)
Buprenorphine from Pharmacy only	0.901 (0.817, 0.994)	0.889 (0.774, 1.021)
Baseline Sex		
Male	Ref	Ref
Female	1.075 (1.013, 1.141)	1.071 (1.005, 1.142)
Baseline Age Group		
18-44	Ref	Ref
45-64	0.715 (0.660, 0.775)	0.726 (0.591, 0.893)
65-74	0.738 (0.669, 0.813)	0.720 (0.586, 0.885)
75 or older	0.656 (0.580, 0.741)	0.678 (0.548, 0.839)
Baseline Race/Ethnicity		
Non-Hispanic White	Ref	Ref
Non-Hispanic African American	1.120 (1.035, 1.211)	0.906 (0.781, 1.051)
Non-Hispanic American Indian or Alaska Native	0.934 (0.741, 1.176)	1.374 (0.946, 1.997)
Non-Hispanic Asian or Pacific Islander	1.043 (0.813, 1.339)	1.771 (1.252, 2.505)
Non-Hispanic Other	1.014 (0.680, 1.511)	1.670 (1.186, 2.351)
Hispanic	0.913 (0.824, 1.012)	0.899 (0.743, 1.088)
Baseline U.S Census Region		
Northeast	Ref	Ref
Midwest	0.958 (0.825, 1.113)	1.071 (0.916, 1.252)
South	0.844 (0.737, 0.967)	0.920 (0.799, 1.060)
West	0.995 (0.856, 1.156)	1.087 (0.933, 1.269)
Baseline County Urban-Rural Status		
Metropolitan	Ref	Ref
Micropolitan	0.886 (0.823, 0.953)	0.948 (0.873, 1.030)
Rural	0.986 (0.819, 1.187)	1.087 (0.888, 1.331)
Time Spent in Nursing Home from Baseline to End of Study		
No time	Ref	Ref
Quantile 1	1.662 (1.448, 1.906)	2.330 (2.030, 2.674)
Quantile 2	1.626 (1.403, 1.883)	1.698 (1.476, 1.954)

Quantile 3	1.652 (1.455, 1.875)	2.180 (1.877, 2.532)
Quantile 4	1.109 (0.988, 1.245)	1.153 (0.832, 1.597)
Baseline Other Substance Use Disorder Diagnosis*		
Alcohol use disorder	1.131 (1.047, 1.222)	1.286 (1.159, 1.428)
Tobacco use disorder	1.208 (1.136, 1.284)	1.149 (1.065, 1.240)
Cannabis use disorder	1.219 (1.119, 1.328)	1.311 (1.116, 1.539)
Cocaine use disorder	1.407 (1.269, 1.559)	1.666 (1.289, 2.155)
Stimulant use disorder	1.288 (1.166, 1.422)	1.440 (1.152, 1.800)
Sedative/hypnotic disorder	1.349 (1.225, 1.485)	1.254 (1.118, 1.407)
Other psychoactive substance use disorder	1.823 (1.690, 1.967)	1.712 (1.515, 1.934)
Baseline Mental Health Diagnosis*		
Anxiety	1.338 (1.249, 1.434)	1.421 (1.327, 1.521)
Bipolar disorder	1.109 (1.034, 1.189)	1.237 (1.118, 1.369)
Major depression	1.261 (1.181, 1.347)	1.332 (1.244, 1.426)
Personality disorder	1.233 (1.124, 1.353)	0.938 (0.807, 1.090)
Attention deficit hyperactivity disorder	1.040 (0.939, 1.152)	0.915 (0.764, 1.097)
Post-traumatic stress disorder	0.905 (0.831, 0.986)	0.985 (0.852, 1.140)
Schizophrenia or other psychotic disorder	1.083 (1.002, 1.171)	1.397 (1.214, 1.608)
Baseline Other Chronic Medical Conditions*		
Cancer	1.801 (1.651, 1.964)	1.993 (1.847, 2.151)
Diabetes	1.168 (1.099, 1.242)	1.154 (1.081, 1.232)
Cardiovascular and other circulatory	1.444 (1.335, 1.561)	1.516 (1.373, 1.675)
Chronic respiratory disease	1.299 (1.225, 1.378)	1.419 (1.331, 1.514)
Viral hepatitis	1.044 (0.960, 1.136)	1.079 (0.922, 1.263)
HIV	0.964 (0.804, 1.157)	0.887 (0.578, 1.363)
Obesity	1.063 (1.001, 1.129)	1.058 (0.991, 1.130)
Liver disease cirrhosis and other liver conditions [±]	1.538 (1.434, 1.650)	1.624 (1.494, 1.766)
Acute/Chronic Pain	1.233 (1.127, 1.349)	1.580 (1.370, 1.823)
Bolded text represents statistically significant results		
‡Models adjusted for all variables in the table		
* Reference group is not having condition		
± Excluding hepatitis		
To enable mutually exclusive groups for the regression analysis, 27 beneficiaries (0.30% of beneficiaries receiving MOUD) who received both buprenorphine and ER naltrexone from pharmacies during the study period were excluded from the analysis		