

Online Appendix

A Data Appendix

A.1 Private Health Insurance Claims Data

Sample Definition As described in the text, there are two ways to be included in our sample. First, our sample includes any patient with a diagnosis of OUD (these codes are listed in Table A1) in the first three positions of any non-lab claim (codes used to identify lab procedures are listed in Table A2). Lab claims are excluded because these claims sometimes code a diagnosis that was tested for, regardless of whether the test was positive or negative. Note that beginning with ICD-10, up to 5 diagnosis codes can be listed on any given claim instead of 3 under the ICD-9 system.

Patients receiving take-home buprenorphine treatment for OUD may fill prescriptions without incurring a medical claim and would be excluded by only using diagnosis codes in medical claims. Therefore, we also use prescription drug claims for formulations of buprenorphine used to treat OUD as a second sample inclusion criterion. Some formulations of buprenorphine are primarily used for pain management, while others are used for treating OUD. We identified claims by National Drug Code (NDC), and limited attention to those primarily used for OUD treatment. Specifically, we use the Food and Drug Administration’s Orange Book to identify drugs with buprenorphine as an active ingredient, and then follow Clemans-Cope et al. (2017) by excluding Buprenex (an injectable drug), Butrans transdermal patches, Belbuca buccal films, and their therapeutic equivalents. We merge the Orange Book data with the National Drug Code directory to obtain the set of NDC codes to include. These NDCs correspond to Suboxone sublingual tablets and films, Subutex sublingual tablets, Bunavail buccal films, the Probuphine implant, Zubsolv sublingual tablets, and the generic equivalents.

Variable definitions Tables A2 provide codes we use to identify treatment services in the claims data. Our main utilization variables are indicator variables for having any of these services in the six months following the OUD diagnosis. We do not include detox as a treatment service. Some of the revenue codes specifically indicate that the treatment is for drug treatment; others may be non-specific “residential” or “day treatment” codes. For the latter category, we additionally require a procedure code that specifies drug treatment. “Other treatment” is a catch-all category which includes group counseling, individual counseling, sober homes, and non-specific treatment codes. We also include psychotherapy codes when the primary diagnosis code is a drug-related code.

Our clinical outcome variables are any overdose claim, any drug-related ER claim, and any other ER claim. Drug-related ER claims are identified using the diagnoses in A1. Again, we use the first three positions on each claim, and exclude lab claims. For the ER claims, we use diagnoses on each day and in the first through third spots on each claim line. Because opioids are often used in combination with other drugs, and because some diagnosis codes are non-specific in their drug type, our results focus on “any overdose” and “drug-related” ER visits. Notably, these diagnosis codes exclude alcohol use disorder or alcohol overdoses. In Table A3 we summarize the primary diagnoses for drug-related ER visits.

Table A1: Diagnosis codes

	ICD-9	ICD-10
Opioid use disorder	304.0x, 304.7x, 305.5x	F11.1x, F11.12x, F11.9x
Drug use disorder	304.x, 305.1-305.9	F11-F19
Opioid overdose	965.0x, E850.0, E850.1, E850.2, E935.0, E935.1	T40.0x T40.1x, T40.2x, T40.3x
Any overdose	965.x, 966.x, 967.x, 970.x, 971.x, 977.9, E850-E858	T39.x, T40.x, T42.x, T43.x, T44.x
Drug withdrawal	292	

Treatment spending is sometimes charged at a per diem rate, but in other cases, there may be treatment-associated spending that occurs on a different line from the treatment code, such as for drug tests or psychotherapy fees performed as part of a treatment program. Therefore, we assign each day to one type of spending, and allocate all spending on those days to that day type. For days that have claims in multiple categories, we use the priority order: detox, ER, treatment, inpatient, outpatient, RX spending. Within treatment, we use the priority order: residential, day treatment, other treatment, buprenorphine treatment. Our six-month spending measures use the 180 days of spending before and after diagnosis, where the post-period includes the day of initial diagnosis and the pre-period excludes it.

Table A2: Revenue and procedure codes

	CPT-4/HCPCS	Revenue Code	ICD9/ICD10 Procedure Codes
ER visit		450, 451, 452, 456, 459	9928x
Detox	H0008, H0009, H0010, H0011, H0012, H0013, H0014	116, 126, 136, 146, 156	94.62, 94.65, 94.68, HZ2ZZZZ
Methadone	H0020, J2315		HZ81ZZZ, HZ91ZZZ
Naltrexone	J2135		HZ84ZZZ, HZ94ZZZ
Residential <i>Require both revenue and procedure code</i>	H0017, H0018, H0019	1002 1001, 120, 130, 140, 150, 160, 121, 131, 141, 151, 161, 124, 134, 144, 154, 164, 129, 139, 149, 159, 169	94.64, 94.66, 94.67, 94.69, HZ3x, HZ4x, HZ5x, HZ6x, HZ9x
Day Treatment <i>Require both revenue and procedure code</i>	H0015	906 905, 907, 912, 913	94.64, 94.66, 94.67, 94.69, HZ3x, HZ4x, HZ5x, HZ6x, HZ9x
Other Treatment <i>Require primary drug diagnosis</i>	H0004, H0005, H0006, H0007, H0047, H0050, H2034, H0033, H0016, H2035, H2036, S9475 9080x, 9081x, 9082x, 9083x, 9084x, 9085x, 9086x	529, 944, 1003, 1004, 1005 900, 9811, 914, 915, 916, 918, 919	94.45, 94.64, 94.66, 94.67, 94.69, HZ3x, HZ4x, HZ5x, HZ6x, HZ9x
Lab	80047-89398, G0477, G0478, G0479, G0431, G0434, G0480, G0481, G0482, G0483, G603x, G604x, G605x		

Table A3: Primary diagnosis of drug-related ER visits

Diagnosis codes	Share	Description
304, 305	17%	Drug use disorder
296	7%	Episodic mood disorders
780	7%	Altered mental status/consciousness, hallucinations, syncope and collapse
965, 977	12%	Poisoning
311	5%	Depressive disorder
786	4%	Respiratory symptoms (chest pain, shortness of breath)
303	4%	Alcohol dependence
300	3%	Anxiety
292	3%	Drug-induced mental disorders
298	2%	Other psychoses
789	2%	Abdominal pain
—	46%	All other

B Clinical Literature Review

Two Cochrane reviews have evaluated the clinical evidence for opioid agonist therapy. Cochrane reviews are meta-analyses of medical literature.

The first (Mattick et al., 2009) reviews 11 studies that have compared methadone maintenance treatment to different treatments that did not include opioid agonists (e.g. detoxification, psychosocial counseling, placebo medication, no treatment or waitlist). Primary outcomes studied are retention in treatment, mortality, urinalysis, self-reported heroin use, and criminal activity, for durations of a few weeks up to two years. Their meta-analysis concludes that in these studies, patients are more than four times likely to stay in treatment (.684 compared to .154) when given methadone maintenance, and one-third less likely to report or be found to be using heroin (.463 compared to .701). They do not find statistically significant differences in mortality or criminal activity.

The second (Mattick et al., 2014) (first published in 2002, updated in 2008 and 2014) reviews 31 studies that compare buprenorphine treatment to placebo medication and methadone treatment. They conclude that buprenorphine has similar rates of abstinence from other opioids as methadone, but slightly lower retention rates, suggesting that like methadone, it should be considered an effective treatment for opioid dependence.

There are reasons to expect that the effectiveness of agonists in clinical trial settings may differ from that in non-trial settings. Both Cochrane reviews note that many of the reviewed clinical trials use a higher and fixed dose regimen than the flexible dosing used in non-trial practice. In addition, many of the trials restrict eligibility to active heroin users, who may differ from the average methadone or buprenorphine patient. Finally, most of the studies pair agonist therapy with psychosocial counseling and other services, which may be more intensive or of higher quality than what patients receive outside clinical trials. (However, a few studies have tested for a differential effect of medication with counseling compared to medication-only treatment and have not found statistically significant differences)

Both reviews rate the quality of the evidence from many of the included studies as high, as many are double-blinded with placebo medication, measure intent-to-treat effects to limit attrition bias, and use objective outcome measures.

C Historical Regulation of MAT

As drugs with the potential for abuse, methadone and buprenorphine are regulated under the Controlled Substances Act (CSA). The CSA typically imposes restrictions on prescriptions (e.g. refill limits) and requires that prescribers be registered with the Drug Enforcement Administration (DEA). When the CSA was written in 1970, it included a portion that prohibited the prescribing of any controlled substance “to a narcotic drug dependent person for the purpose of continuing his dependence upon such drugs.” However, methadone had been used for the treatment of OUD since the mid-1960s. In 1974, this prohibition was amended by the Narcotic Addiction Treatment Act to allow prescribing controlled substances for the treatment of dependence at facilities that have fulfilled the requirements to be designated as Opioid Treatment Programs (OTP).

As shown in the top panel of Figure 1, there are currently about 1,300 OTPs, commonly known as methadone clinics. This number has been fairly stable since at least the late 1990s. Burdensome regulation and local opposition are often cited as explanations for this lack of growth. Facilities are mostly concentrated in large, urban centers, creating access problems for other populations (Lewis, 1999). Regulation is also burdensome on the patient side: patients at OTPs must generally report daily (or six times per week) to ingest a single dose of methadone under supervision for the first 90 days of treatment, and the number of take-home doses are gradually increased over the course of two years of treatment.⁴² In contrast, methadone has been prescribed in primary care clinics in Great Britain, Australia, and Canada since the 1970s and earlier (Samet et al., 2018).

In light of the limited ability of methadone to meet the perceived demand for medication-assisted treatment, the CSA was again amended by the Drug Addiction Treatment Act (DATA 2000) in 2000 to allow physicians to obtain a waiver from DEA/SAMHSA in order to prescribe Schedule III, IV, and V substances that are FDA-approved to treat addiction.⁴³ Schedule III drugs may therefore be prescribed by physicians from their practice sites, rather than solely in OTPs.

The first FDA-approved drug meeting the DATA 2000 conditions for opioid use disorder was a formulation of buprenorphine introduced in 2002. Because it is a partial rather than full agonist, buprenorphine is regulated as a Schedule III substance (whereas methadone is a Schedule II substance). To qualify for a waiver to prescribe it, physicians must either hold a board certification in addiction medicine or complete an eight-hour training provided by ASAM and other organizations. In 2016, the Comprehensive Addiction and Recovery Act (CARA) allowed nurse practitioners and physician assistants to also qualify for the waiver if they complete 24 hours of training. Under these laws, prescribers are also subject to patient limits that cap the number of patients a prescriber may treat with buprenorphine at any

⁴²In the last month of their first year, patients can be given a 6-day supply of take-home medication, and after two years of continuous treatment, they may receive a one-month supply. State regulation can be more restrictive than federal requirements.

⁴³The Drug Enforcement Agency classifies controlled substances by medical use and potential for abuse. Schedule I drugs, such as heroin, have no accepted medical uses. Schedule II drugs may have indications for medical use but have a high potential for abuse resulting severe physical or psychological dependence; examples include oxycodone, morphine, and methadone. Schedule III drugs have lower abuse potential than a Schedule II drug but still may lead to moderate physical dependence or high psychological dependence. Schedule IV and V drugs have low potential for abuse and dependence. <https://www.deadiversion.usdoj.gov/schedules/>

given time. These limits were originally set to 30 patients for all providers, and have been increased over time to 100 for prescribers in their first year following waiver receipt and 275 after. Providers must keep detailed records of all patient prescriptions and these are subject to review by the DEA. In 2018, the SUPPORT for Patients and Communities Act was passed, which included a bill called CARA 2.0. This bill made the authority of PAs and NPs to prescribe MAT permanent, and granted temporary authority to nurse specialists, midwives and anesthetists temporary authority. It also authorized funding for grants for FQHCs and clinics to cover the cost of training providers.

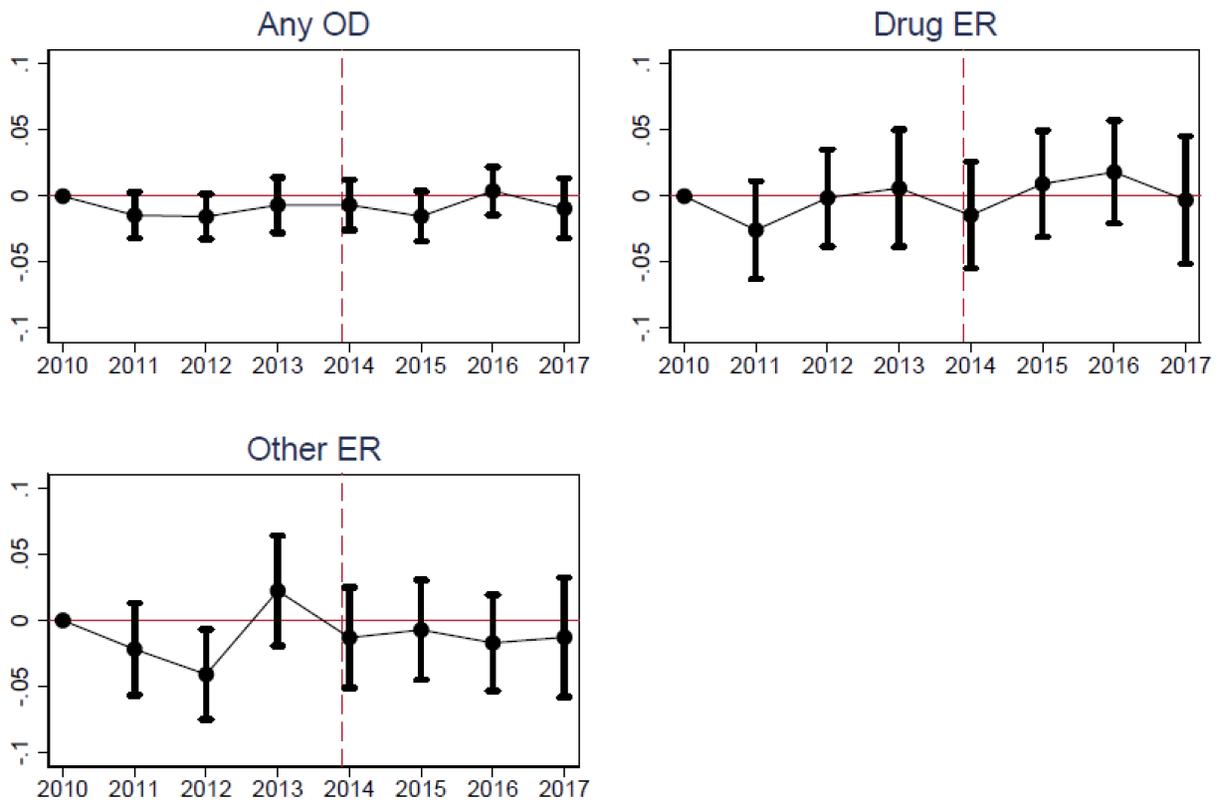
D Results Appendix

Table D1: **Sample composition for baseline, parity, and restricted diagnosis samples**

	Baseline	Parity	Restricted
Controls			
Female	0.43	0.44	0.45
Age 18-24	0.24	0.25	0.22
Age 25-34	0.20	0.19	0.18
Age 35-44	0.20	0.20	0.20
Age 45-54	0.22	0.22	0.24
Age 55-64	0.14	0.15	0.17
Employee	0.46	0.41	0.45
EPO	0.07	0.09	0.07
HMO	0.16	0.03	0.14
POS	0.64	0.76	0.66
PPO	0.13	0.13	0.13
CDHP	0.16	0.22	0.18
Treatment			
Any	0.53	0.53	0.34
MAT	0.30	0.31	0.13
Med-free Res	0.04	0.04	0.04
Med-free OP	0.19	0.18	0.16
Clinical Outcomes			
Overdose	0.05	0.04	0.06
Drug-related ER	0.26	0.25	0.32
Other ER	0.23	0.21	0.25
Spending			
Pre-diagnosis (6m)	11,934	11,159	12,668
Post-diagnosis (6m)	17,513	16,728	18,519
N	78,222	28,325	55,778

Notes: This table compares the demographic composition of our baseline OUD sample (column 1), the sample we use for the parity analysis which excludes self-insured patients, as well as patients diagnosed in 2009 or the second half of 2013 (column 2), and the restricted subsample that excludes patients who received treatment on the day of their diagnosis (column 3)

Figure D1: Effect of small-group parity on clinical outcomes



Notes: This figure shows estimated coefficients and 95 percent confidence intervals on small group \times year indicator variables in the sample of newly diagnosed OUD patients who were not diagnosed in the last six months of 2013. Dashed vertical lines indicate the post period begins in 2014.

Table D2: Relationship between treatment utilization and small-group parity, controlling for trends by patient characteristics

	(1) Any		(2) MAT		(3) Med-free Res		(4) Med-free OP	
Small Group \times Post	-0.010	[0.012]	-0.027**	[0.011]	0.016***	[0.005]	0.001	[0.010]
Small Group	0.025***	[0.008]	0.027***	[0.007]	0.000	[0.003]	-0.002	[0.006]
Female	-0.071***	[0.008]	-0.049***	[0.008]	-0.002	[0.003]	-0.021***	[0.006]
Age 25-34	-0.062***	[0.012]	0.075***	[0.012]	-0.019***	[0.005]	-0.119***	[0.010]
Age 35-44	-0.159***	[0.012]	-0.022*	[0.012]	-0.024***	[0.005]	-0.113***	[0.010]
Age 45-54	-0.276***	[0.012]	-0.099***	[0.012]	-0.028***	[0.005]	-0.148***	[0.010]
Age 55-64	-0.340***	[0.014]	-0.148***	[0.013]	-0.035***	[0.006]	-0.158***	[0.011]
Employee	0.032***	[0.009]	0.076***	[0.009]	-0.011***	[0.004]	-0.032***	[0.007]
POS	0.017*	[0.009]	-0.002	[0.009]	0.021***	[0.004]	-0.002	[0.007]
PPO	0.016	[0.014]	0.018	[0.014]	-0.005	[0.006]	0.003	[0.012]
CDHP	-0.009	[0.012]	-0.017	[0.011]	-0.001	[0.005]	0.009	[0.010]
Female \times Post	-0.009	[0.012]	-0.005	[0.011]	0.001	[0.005]	-0.005	[0.010]
Age 25-34 \times Post	-0.026	[0.019]	0.004	[0.018]	-0.031***	[0.008]	0.002	[0.016]
Age 35-44 \times Post	-0.059***	[0.019]	0.042**	[0.018]	-0.056***	[0.008]	-0.045***	[0.016]
Age 45-54 \times Post	-0.059***	[0.019]	0.029	[0.018]	-0.053***	[0.008]	-0.036**	[0.015]
Age 55-64 \times Post	-0.098***	[0.021]	0.030	[0.020]	-0.059***	[0.008]	-0.079***	[0.017]
Employee \times Post	-0.028**	[0.014]	-0.021	[0.013]	-0.005	[0.006]	-0.002	[0.011]
POS \times Post	0.031	[0.020]	-0.003	[0.019]	-0.010	[0.008]	0.044***	[0.016]
PPO \times Post	0.088***	[0.025]	0.030	[0.024]	-0.020**	[0.010]	0.078***	[0.021]
CDHP \times Post	0.004	[0.017]	-0.001	[0.016]	-0.003	[0.007]	0.009	[0.014]
Constant	0.645***	[0.014]	0.318***	[0.013]	0.051***	[0.006]	0.276***	[0.011]
State-Year FEs	Yes		Yes		Yes		Yes	
Depvar Mean	0.53		0.31		0.04		0.18	
Adj R2	0.13		0.08		0.04		0.05	
Obs	28325		28325		28325		28325	

Notes: This table uses the sample of newly diagnosed patients who were not diagnosed in the six months in beginning July 2013. The unit of observation is a patient i who received a “new” diagnosis of OUD in year t . The independent variable of interest is whether at the time of their diagnosis, the patient was covered in a small-group plan after parity was passed. Except where noted, control variables vary at the patient level. Omitted categories are age 18-24 and EPO/HMO plan type. Standard errors are clustered at the state-year level and reported in brackets.

Table D3: **Relationship between clinical outcomes and small-group parity, controlling for trends by patient characteristics**

	(1)		(2)		(3)	
	Overdose		Drug-related ER		Other ER	
Small Group \times Post	0.002	[0.005]	0.009	[0.011]	0.001	[0.010]
Small Group	-0.001	[0.003]	-0.015**	[0.007]	-0.029***	[0.007]
Female	0.009***	[0.003]	0.037***	[0.007]	0.090***	[0.007]
Age 25-34	-0.025***	[0.005]	-0.049***	[0.011]	0.052***	[0.011]
Age 35-44	-0.030***	[0.005]	-0.052***	[0.011]	0.062***	[0.011]
Age 45-54	-0.015***	[0.005]	-0.035***	[0.011]	0.078***	[0.011]
Age 55-64	-0.019***	[0.006]	-0.032**	[0.013]	0.076***	[0.012]
Employee	-0.021***	[0.004]	-0.063***	[0.008]	-0.062***	[0.008]
POS	0.001	[0.004]	0.005	[0.008]	0.002	[0.008]
PPO	0.005	[0.006]	-0.017	[0.013]	0.020	[0.012]
CDHP	0.004	[0.005]	0.015	[0.011]	0.015	[0.010]
Female \times Post	-0.010*	[0.005]	-0.011	[0.011]	-0.011	[0.010]
Age 25-34 \times Post	0.005	[0.008]	-0.030*	[0.018]	-0.034**	[0.017]
Age 35-44 \times Post	-0.002	[0.008]	-0.057***	[0.018]	-0.045***	[0.016]
Age 45-54 \times Post	-0.018**	[0.008]	-0.074***	[0.017]	-0.055***	[0.016]
Age 55-64 \times Post	-0.008	[0.009]	-0.075***	[0.019]	-0.028	[0.018]
Employee \times Post	0.012**	[0.006]	0.008	[0.013]	0.012	[0.012]
POS \times Post	-0.003	[0.006]	-0.010	[0.013]	0.002	[0.008]
PPO \times Post	-0.016*	[0.009]	-0.014	[0.019]	-0.026	[0.018]
CDHP \times Post	0.000	[0.007]	0.008	[0.015]	-0.005	[0.015]
Constant	0.069***	[0.006]	0.313***	[0.013]	0.185***	[0.012]
State-Year FEs	Yes		Yes		Yes	
Depvar Mean	0.04		0.25		0.21	
Adj R2	0.01		0.03		0.03	
Obs	28325		28325		28325	

Notes: This table uses the sample of newly diagnosed patients who were not diagnosed in the six months in beginning July 2013. The unit of observation is a patient i who received a “new” diagnosis of OUD in year t . The independent variable of interest is whether at the time of their diagnosis, the patient was covered in a small-group plan after parity was passed. Except where noted, control variables vary at the patient level. Omitted categories are age 18-24 and EPO/HMO plan type. Standard errors are clustered at the state-year level and reported in brackets.

Table D4: Relationship between spending outcomes and small-group parity, controlling for trends by patient characteristics

	(1)		(2)		(3)	
	Ln(TX Spend)		Ln(Non-TX Spend)		Ln(Total Spend)	
Small Group \times Post	-0.043	[0.099]	-0.030	[0.072]	0.002	[0.044]
Small Group	0.131**	[0.064]	-0.108**	[0.047]	-0.082***	[0.029]
Female	-0.526***	[0.066]	0.800***	[0.048]	0.365***	[0.030]
Age 25-34	-0.620***	[0.102]	0.076	[0.074]	0.089*	[0.046]
Age 35-44	-1.433***	[0.103]	0.689***	[0.075]	0.241***	[0.046]
Age 45-54	-2.268***	[0.101]	1.261***	[0.074]	0.487***	[0.046]
Age 55-64	-2.811***	[0.117]	1.693***	[0.086]	0.707***	[0.053]
Employee	0.185**	[0.075]	-0.603***	[0.055]	-0.396***	[0.034]
POS	0.285***	[0.076]	0.186***	[0.056]	0.138***	[0.034]
PPO	0.251**	[0.119]	0.186**	[0.087]	0.140***	[0.054]
CDHP	-0.067	[0.099]	-0.007	[0.073]	-0.018	[0.045]
Female \times Post	-0.143	[0.100]	0.065	[0.073]	0.018	[0.045]
Age 25-34 \times Post	-0.359**	[0.0161]	0.186	[0.118]	-0.053	[0.072]
Age 35-44 \times Post	-0.660***	[0.160]	0.335***	[0.117]	-0.039	[0.072]
Age 45-54 \times Post	-0.742***	[0.157]	0.471***	[0.115]	-0.153**	[0.071]
Age 55-64 \times Post	-1.032***	[0.173]	0.719***	[0.127]	-0.071	[0.078]
Employee \times Post	-0.248**	[0.113]	0.112	[0.083]	0.023	[0.051]
POS \times Post	0.115	[0.116]	-0.198**	[0.085]	0.066	[0.052]
PPO \times Post	0.614***	[0.171]	-0.346***	[0.125]	0.115	[0.077]
CDHP \times Post	0.065	[0.139]	-0.098	[0.102]	-0.068	[0.063]
Constant	4.992***	[0.113]	6.617***	[0.083]	8.094***	[0.051]
State-Year FEs	Yes		Yes		Yes	
Depvar Mean	4.07		7.15		8.41	
Adj R2	0.12		0.20		0.16	
Obs	28325		28325		28325	

Notes: This table uses the sample of newly diagnosed patients who were not diagnosed in the six months in beginning July 2013. The unit of observation is a patient i who received a “new” diagnosis of OUD in year t . The independent variable of interest is whether at the time of their diagnosis, the patient was covered in a small-group plan after parity was passed. Except where noted, control variables vary at the patient level. Omitted categories are age 18-24 and EPO/HMO plan type. Standard errors are clustered at the state-year level and reported in brackets.

Table D5: Restricted sample analysis of relationship between OUD patient treatment utilization and share of waived providers

	(1)	(2)	(3)	(4)
	Any	MAT	Med-free Res	Med-free OP
BP MD Share _{ct}	0.005 [0.06]	0.076* [0.04]	-0.035 [0.03]	-0.036 [0.04]
BP MD Share _{c,2008}	0.097 [0.10]	0.042 [0.08]	0.019 [0.04]	0.036 [0.07]
Female	-0.057*** [0.00]	-0.028*** [0.00]	-0.005*** [0.00]	-0.024*** [0.00]
Age 25-34	-0.121*** [0.01]	0.001 [0.01]	-0.027*** [0.00]	-0.095*** [0.01]
Age 35-44	-0.226*** [0.01]	-0.055*** [0.01]	-0.040*** [0.00]	-0.131*** [0.01]
Age 45-54	-0.314*** [0.01]	-0.097*** [0.00]	-0.048*** [0.00]	-0.169*** [0.01]
Age 55-64	-0.374*** [0.01]	-0.127*** [0.00]	-0.057*** [0.00]	-0.190*** [0.01]
Employee	-0.008** [0.00]	0.013*** [0.00]	-0.009*** [0.00]	-0.012*** [0.00]
HMO	0.005 [0.01]	-0.016** [0.01]	-0.023*** [0.00]	0.044*** [0.01]
POS	0.020*** [0.01]	-0.002 [0.01]	-0.003 [0.00]	0.025*** [0.01]
PPO	0.016* [0.01]	-0.007 [0.01]	-0.023*** [0.00]	0.046*** [0.01]
CDHP	-0.004 [0.01]	-0.007* [0.00]	0.001 [0.00]	0.002 [0.00]
Ln(AvgSpend _{ct})	0.009 [0.02]	0.016 [0.01]	0.005 [0.01]	-0.012 [0.01]
Unemp Rate _{ct}	-0.007*** [0.00]	-0.002* [0.00]	-0.001 [0.00]	-0.004*** [0.00]
Constant	0.526*** [0.13]	0.078 [0.10]	0.055 [0.05]	0.393*** [0.10]
State-Year FEs	Yes	Yes	Yes	Yes
Depvar Mean	0.34	0.13	0.04	0.16
Adj R2	0.12	0.04	0.03	0.06
Obs	55778	55778	55778	55778

Notes: This table replicates Table 5 in the sample of patients who did not receive treatment on the same day as their diagnosis. The unit of observation is a patient i who received a “new” diagnosis of OUD in year t while living in county c as described in the text. Except where noted, control variables vary at the patient level. Omitted categories are age 18-24 and EPO plan type. Standard errors are clustered at the county-year level and reported in brackets.

Table D6: **Restricted sample analysis of relationship between OUD patient clinical outcomes and share of waived providers**

	(1)		(2)		(3)	
	Overdose		Drug-related ER		Other ER	
BP MD Share _{ct}	0.036	[0.03]	-0.113*	[0.06]	-0.050	[0.05]
BP MD Share _{c,2008}	-0.049	[0.04]	0.032	[0.10]	0.194**	[0.09]
Female	0.008***	[0.00]	0.018***	[0.00]	0.083***	[0.00]
Age 25-34	-0.036***	[0.00]	-0.067***	[0.01]	0.069***	[0.01]
Age 35-44	-0.044***	[0.00]	-0.107***	[0.01]	0.077***	[0.01]
Age 45-54	-0.040***	[0.00]	-0.109***	[0.01]	0.064***	[0.01]
Age 55-64	-0.042***	[0.00]	-0.127***	[0.01]	0.067***	[0.01]
Employee	-0.013***	[0.00]	-0.065***	[0.00]	-0.071***	[0.00]
HMO	-0.011**	[0.00]	-0.026***	[0.01]	-0.014	[0.01]
POS	-0.007	[0.00]	-0.025***	[0.01]	-0.011	[0.01]
PPO	-0.006	[0.01]	-0.031***	[0.01]	0.007	[0.01]
CDHP	0.000	[0.00]	0.005	[0.01]	0.010**	[0.00]
Ln(AvgSpend _{ct})	0.012	[0.01]	0.010	[0.02]	0.021	[0.01]
Unemp Rate _{ct}	-0.001	[0.00]	-0.000	[0.00]	0.001	[0.00]
Constant	0.006	[0.06]	0.371***	[0.13]	0.018	[0.12]
State-Year FEs	Yes		Yes		Yes	
Depvar Mean	0.06		0.32		0.25	
Adj R2	0.01		0.04		0.03	
Obs	55778		55778		55778	

Notes: This table replicates Table 6 in the sample of patients whose did not receive treatment on the same day as their diagnosis. The unit of observation is a patient i who received a “new” diagnosis of OUD in year t while living in county c as described in the text. Except where noted, control variables vary at the patient level. Standard errors are clustered at the county-year level and reported in brackets.

Table D7: Restricted sample analysis of relationship between OUD patient post-diagnosis spending and share of waived providers

	(1)		(2)		(3)	
	Ln(TX Spend)		Ln(Non-TX Spend)		Ln(Total Spend)	
BP MD Share _{ct}	-0.309	[0.46]	-0.197	[0.32]	-0.436*	[0.25]
BP MD Share _{c,2008}	1.350*	[0.81]	-0.168	[0.49]	0.238	[0.40]
Female	-0.446***	[0.03]	0.571***	[0.02]	0.388***	[0.02]
Age 25-34	-1.104***	[0.06]	0.314***	[0.04]	0.140***	[0.03]
Age 35-44	-1.978***	[0.06]	0.836***	[0.04]	0.367***	[0.03]
Age 45-54	-2.673***	[0.05]	1.181***	[0.03]	0.539***	[0.03]
Age 55-64	-3.184***	[0.06]	1.517***	[0.04]	0.723***	[0.03]
Employee	-0.084**	[0.03]	-0.428***	[0.02]	-0.397***	[0.02]
HMO	0.033	[0.08]	-0.042	[0.04]	-0.033	[0.04]
POS	0.301***	[0.06]	0.101***	[0.04]	0.185***	[0.03]
PPO	0.268***	[0.08]	0.164***	[0.04]	0.227***	[0.04]
CDHP	-0.025	[0.04]	-0.004	[0.03]	-0.025	[0.02]
Ln(AvgSpend _{ct})	0.163	[0.13]	0.225***	[0.07]	0.255***	[0.06]
Unemp Rate _{ct}	-0.073***	[0.01]	-0.056***	[0.01]	-0.055***	[0.01]
Constant	3.525***	[1.08]	5.806***	[0.58]	6.485***	[0.49]
State-Year FEs	Yes		Yes		Yes	
Depvar Mean	2.61		8.13		8.63	
Adj R2	0.11		0.21		0.15	
Obs	55778		55778		55778	

Notes: This table replicates Table 7 in the sample of patients who did not receive treatment on the same day as their diagnosis. The unit of observation is a patient i who received a “new” diagnosis of OUD in year t while living in county c as described in the text. Except where noted, control variables vary at the patient level. Omitted categories are age 18-24 and EPO plan type. Standard errors are clustered at the county-year level and reported in brackets.

Table D8: Relationship between county-level access to waived providers and OUD treatment utilization, omitting county-year controls

	(1)	(2)	(3)	(4)
	Any	MAT	Med-free Res	Med-free OP
BP MD Share _{ct}	0.029 [0.06]	0.169*** [0.05]	-0.035 [0.02]	-0.105*** [0.04]
BP MD Share _{c,2008}	0.156* [0.09]	0.108 [0.09]	0.019 [0.03]	0.029 [0.06]
Female	-0.077*** [0.00]	-0.057*** [0.00]	-0.004*** [0.00]	-0.016*** [0.00]
Age 25-34	-0.078*** [0.01]	0.071*** [0.01]	-0.032*** [0.00]	-0.117*** [0.01]
Age 35-44	-0.185*** [0.01]	-0.010* [0.01]	-0.041*** [0.00]	-0.134*** [0.00]
Age 45-54	-0.303*** [0.01]	-0.092*** [0.01]	-0.046*** [0.00]	-0.165*** [0.00]
Age 55-64	-0.391*** [0.01]	-0.144*** [0.01]	-0.055*** [0.00]	-0.193*** [0.00]
Employee	0.020*** [0.00]	0.046*** [0.00]	-0.010*** [0.00]	-0.016** [0.00]
HMO	0.002 [0.01]	0.001 [0.01]	-0.025*** [0.00]	0.026*** [0.01]
POS	0.011 [0.01]	-0.007 [0.01]	-0.005* [0.00]	0.023*** [0.01]
PPO	0.020** [0.01]	0.013 [0.01]	-0.023*** [0.00]	0.031*** [0.01]
CDHP	-0.010** [0.00]	-0.022*** [0.00]	0.002 [0.00]	0.010** [0.00]
Constant	0.707*** [0.01]	0.319*** [0.01]	0.089*** [0.00]	0.299*** [0.01]
State-Year FEs	Yes	Yes	Yes	Yes
Depvar Mean	0.53	0.30	0.04	0.19
Adj R2	0.13	0.08	0.03	0.05
Obs	78222	78222	78222	78222

Notes: This table replicates Table 5 where we have omitted the county-year variables (average county health care spending and the county unemployment rate). The unit of observation is a patient i who received a “new” diagnosis of OUD in year t while living in county c as described in the text. Except where noted, control variables vary at the patient level. Omitted categories are age 18-24 and EPO plan type. Standard errors are clustered at the county-year level and reported in brackets.

Table D9: Relationship between county-level access to waived providers and OUD patient clinical outcomes, omitting county-year controls

	(1)		(2)		(3)	
	Overdose		Drug-related ER		Other ER	
BP MD Share _{ct}	0.024	[0.02]	-0.103**	[0.05]	-0.006	[0.04]
BP MD Share _{c,2008}	-0.052	[0.03]	-0.009	[0.08]	0.074	[0.07]
Female	0.009***	[0.00]	0.031***	[0.00]	0.086***	[0.00]
Age 25-34	-0.029***	[0.00]	-0.066***	[0.01]	0.050***	[0.01]
Age 35-44	-0.033***	[0.00]	-0.080***	[0.01]	0.061***	[0.01]
Age 45-54	-0.028***	[0.00]	-0.068***	[0.01]	0.059***	[0.01]
Age 55-64	-0.028***	[0.00]	-0.076***	[0.01]	0.067***	[0.01]
Employee	-0.013***	[0.00]	-0.066***	[0.00]	-0.067***	[0.00]
HMO	-0.006*	[0.00]	-0.017**	[0.01]	-0.012*	[0.01]
POS	-0.004	[0.00]	-0.015**	[0.01]	-0.007	[0.01]
PPO	-0.004	[0.00]	-0.024***	[0.01]	0.004	[0.01]
CDHP	0.001	[0.00]	0.008*	[0.00]	0.006	[0.00]
Constant	0.074***	[0.00]	0.354***	[0.01]	0.179***	[0.01]
State-Year FEs	Yes		Yes		Yes	
Depvar Mean	0.05		0.26		0.23	
Adj R2	0.01		0.03		0.02	
Obs	78222		78222		78222	

Notes: This table replicates Table 6 where we have omitted the county-year variables (average county health care spending and the county unemployment rate). The unit of observation is a patient i who received a “new” diagnosis of OUD in year t while living in county c as described in the text. Except where noted, control variables vary at the patient level. Omitted categories are age 18-24 and EPO plan type. Standard errors are clustered at the county-year level and reported in brackets.

Table D10: **Relationship between county-level access to waived providers and OUD patient spending outcomes, omitting county-year controls**

	(1)		(2)		(3)	
	Ln(TX Spend)		Ln(Non-TX Spend)		Ln(Total Spend)	
BP MD Share _{ct}	0.041	[0.46]	-0.631*	[0.35]	-0.222	[0.22]
BP MD Share _{c,2008}	1.423*	[0.76]	-0.442	[0.55]	-0.115	[0.33]
Female	-0.606***	[0.03]	0.846***	[0.02]	0.357***	[0.01]
Age 25-34	-0.829***	[0.05]	0.214***	[0.04]	0.071***	[0.02]
Age 35-44	-1.709***	[0.05]	0.944***	[0.04]	0.290***	[0.02]
Age 45-54	-2.634***	[0.05]	1.520***	[0.04]	0.467***	[0.02]
Age 55-64	-3.369***	[0.05]	2.013***	[0.04]	0.660***	[0.02]
Employee	0.097***	[0.03]	-0.539***	[0.02]	-0.375***	[0.01]
HMO	-0.029	[0.07]	-0.056	[0.05]	-0.060**	[0.03]
POS	0.221***	[0.05]	0.135***	[0.04]	0.158***	[0.02]
PPO	0.267***	[0.07]	0.129***	[0.05]	0.160***	[0.03]
CDHP	-0.077*	[0.04]	-0.002	[0.03]	-0.026	[0.02]
Constant	5.646***	[0.07]	6.399***	[0.05]	8.222***	[0.03]
State-Year FEs	Yes		Yes		Yes	
Depvar Mean	4.08		7.39		8.56	
Adj R2	0.12		0.19		0.14	
Obs	78222		78222		78222	

Notes: This table replicates Table 7, where we have omitted the county-year variables (average county health care spending and the county unemployment rate). The dependent variables use the $\log(x+1)$ transformation for six-month post-diagnosis spending $\$x$. The unit of observation is a patient i who received a “new” diagnosis of OUD in year t while living in county c as described in the text. Except where noted, control variables vary at the patient level. Omitted categories are age 18-24 and EPO plan type. Standard errors are clustered at the county-year level and reported in brackets.