The influence of state-level policy environments on the activation of the Medicaid SBIRT reimbursement codes

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Abstract:

Aims: To examine how institutional constraints, comprising federal actions and states' substance abuse policy environments, influence states' decisions to activate Medicaid reimbursement codes for screening and brief intervention for risky substance use in the United States. **Methods:** A discrete-time duration model was used to estimate the effect of institutional constraints on the likelihood of activating the Medicaid reimbursement codes. Primary constraints included federal Screening, Brief Intervention and Referral to Treatment (SBIRT) grant funding, substance abuse priority, economic climate, political climate and interstate diffusion. Study data came from publicly available secondary data sources. **Results:** Federal SBIRT grant funding did not affect significantly the likelihood of activation ($P = 0.628$). A \$1 increase in per-capita block grant funding was associated with a 10-percentage point reduction in the likelihood of activation ($P = 0.003$) and a \$1 increase in per-capita state substance use disorder expenditures was associated with a 2-percentage point increase in the likelihood of activation ($P = 0.004$). States with enacted parity laws ($P = 0.016$) and a Democratic-controlled state government were also more likely to activate the codes. **Conclusion:** In the United States, the determinants of state activation of Medicaid Screening, Brief Intervention and Referral to Treatment (SBIRT) reimbursement codes are complex, and include more than financial considerations. Federal block grant funding is a strong disincentive to activating the SBIRT reimbursement codes, while more direct federal SBIRT grant funding has no detectable effects.

Article:

Introduction

Only one-quarter of patients with substance abuse (SA) disorders receive treatment [1], and the social costs of excessive substance use exceed $200 billion per year in the United States [2-4]. To address the unmet treatment need for and excessive social costs of SA in the United States, two recent pieces of federal legislation—the Mental Health Parity and Addiction Equity Act and the Patient Protection and Affordable Care Act (ACA)—mandate and provide equitable insurance coverage for behavioral health (BH) treatment services and promote increased access to these services through integrated medical settings [5]. The integration of primary and BH care, a major policy focus of the ACA, faces several challenges, such as weak economic conditions, an unstable political climate, and a lengthy implementation time-line [6]. Furthermore, states maintain significant control over the implementation of reforms, and states vary significantly in their priority and capacity to implement these laws, especially with regard to Medicaid.

Evidence from other countries suggests that the United States is not alone in struggling to implement a comprehensive approach to dealing with substance use disorders. Studies from across Europe [7], Latin America [8, 9] and Australia [10] all suggest that countries face institutional barriers in implementing and sustaining alcohol screening and brief intervention, perhaps the most studied comprehensive approach to dealing with substance use disorders [11]. This paper examines the influence of federal funding levels and elements of a state's SA policy environment on the decision to activate the optional Medicaid Screening, Brief Intervention and Referral to Treatment (SBIRT) reimbursement codes to identify potential challenges in implementing state-level health-care financing reforms. SBIRT is an early intervention and treatment service for individuals with or who are at-risk to develop SA disorders; it can be integrated effectively into general medical settings and is a major federal policy initiative [11]. SBIRT is a Grade B preventive service and is included in the ACA's essential health benefits package [12, 13]. Existing Medicaid guidelines allow for reimbursement of SBIRT, but it remains an elective financing mechanism for states that do not expand Medicaid.

Background

SBIRT is based on a public health model adapted from the clinically tested screening and brief intervention (SBI) procedures. Screening involves a structured screening instrument, such as the Alcohol Use Disorders Identification Test (AUDIT), Alcohol Substance Involvement Screening Test (ASSIST) or Cut-down, Annoyed, Guilt, Eye-opener (CAGE) [14, 15]. A few validated screening instruments comprise fewer than three questions [16, 17]. Brief intervention is a short, therapeutic consultation focusing upon normative feedback and information and self-help materials [11]. The SBIRT model also includes referral to treatment, which links individuals to treatment if their screening scores are above certain thresholds or indicate dependence symptoms [11]. SBI was developed originally for risky alcohol use, and its clinical efficacy and cost-effectiveness have been demonstrated widely in various medical settings, domestically and internationally [18, 19]. The scope of SBIRT has been expanded to include illicit drug use and tobacco, but the evidence is limited on SBIRT's effects on non-alcohol substances. Although a World Health Organization cross-national randomized trial found that illicit drug SBI was effective [16] prominent, recent US-based randomized trials found SBIRT to be ineffective in reducing illicit drug use [20-22]. Because the available evidence base is limited primarily to

alcohol SBI, the Grade B rating for SBIRT is limited to alcohol SBI with adults and pregnant women.

To date, SBIRT has been provided largely through public funding. The Substance Abuse and Mental Health Services Administration (SAMHSA) has played a major role in funding SBIRT implementation grants across the country since the early 2000s, including 17 medical residency cooperative agreements, at least 15 state cooperative agreements and 12 targeted capacity expansion campus SBI grants [23]. A major goal of the SBIRT grant program is to develop sustainable programs in the absence of grant funding.

More generally, almost half of BH services are funded through Medicaid (25%) and other state and federal revenues (24%) [24, 25]. States receive federal supporting funds through matching funds from Medicaid and through mental health (MH) and substance abuse prevention and treatment (SAPT) block grant allocations. For both funding streams, states maintain substantial control over the service mix that is reimbursable in their state, and states vary substantially in terms of services covered and per-capita spending rates. State policy can directly influence the types of services provided, and states often choose to avoid funding SA services through Medicaid.

Two recognized sets of procedure codes are used to reimburse service delivery for Medicaid beneficiaries: Current Procedural Terminology (CPT) and Healthcare Common Procedure Coding System (HCPCS). CPT codes have higher reimbursement rates and are preferred to the HCPCS codes for that reason alone. Combinations of the CPT, Medicare and Medicaid codes may be approved for use for State Medicaid Plans (SMPs). The CPT codes cover alcohol SBI lasting 15–30 minutes (99408) and greater than 30 minutes (99409). Medicare uses similar codes (G0396/G0397 or G0442/G0443). Medicaid code H0049 covers alcohol/drug screening, and H0050 covers alcohol/drug SBI. CPT and Medicare SBIRT reimbursement codes were eligible for activation by states on 1 January 2007, and the Medicaid codes were eligible on 1 January 2008. Fornili & Alemi published a guide to the complex, four-step process that requires coordination between multiple agencies [26].

A qualitative study by Fussell *et al*. found that, as of July 2010, 28 states had activated Medicaid SBIRT codes and 19 had assigned reimbursement amounts [27]. They concluded that reimbursement codes are not an adequate mechanism to incentivize states to provide SBIRT and cite three themes in their analysis: (1) difficulties in selecting between the three available code sets; (2) differential and often low reimbursement rates; and (3) competing priorities for time and resources.

We test these claims empirically, focusing upon whether institutional constraints affect a state's decision to activate the codes. A recent study examining the activation of state MH parity laws over 25 years found four significant predictors of activation: economic climate, political party control, presence of a strong advocacy group and interstate influences [28]. Other studies have examined the role of state-level institutional constraints for BH policy and are used to identify empirically testable institutional constraints: increasing treatment providers' use of psychotropic medications [29]; the acceptance of Medicaid funding at out-patient treatment centers [30]; and the differential provision of services between publicly and privately financed treatment

providers [31]. We use constraints from these four papers to examine the activation decision empirically.

**Methods**

Conceptual framework

Hernandez & Uggen's framework is derived from a theory of political institutions used to explain social spending patterns [28, 32, 33]. Hernandez & Uggen extend this framework to state MH parity laws, focusing on a political ideology constraint and three institutional constraints to explain adoption at the state level: economic pressures, organizational structures and diffusion. In this analysis, we replace the organizational constraint with SA-specific constraint from Miller & Moulton [31]. We also extend the model by including federal constraints to capture other policy system effects.

A third extension of this paper is to examine more common and more narrow types of institutional change. The literature on institutions has attempted to classify institutional constraints according to the time it takes for change in the constraints to occur [34-36]. The MH parity laws used in Hernandez & Uggen fit into either Williamson's governance structure or Ostrom's collective-choice rules that take decades to evolve, requiring resources and the involvement of public and private actors [28, 35, 36]. Activation of the SBIRT reimbursement codes occurs through a smaller network of agencies on a much shorter time-frame [37].

Figure 1 describes a nested institutional framework in which the federal rule change to allow reimbursement for SBIRT creates a choice for states: activate or do not activate the reimbursement code [35]. Two of the constraints are tested empirically, noted in Fig. 1 with a solid line: federal funding influence and state SA priority. State SA priority is defined as capacities to deliver services and legislative or bureaucratic support of SA treatment [29-31]. The framework also accounts for the three other institutional constraints in Hernandez & Uggen, represented by dashed lines. The anticipated effects of the main constraints are as follows:

> Hypothesis 1: states receiving higher levels of SA discretionary grants and SAPT block grants will be more likely to activate the SBIRT reimbursement codes than states receiving less federal funding.

> Hypothesis 2: states with a higher SA priority will be more likely to activate the SBIRT reimbursement codes than states with a lower SA priority.
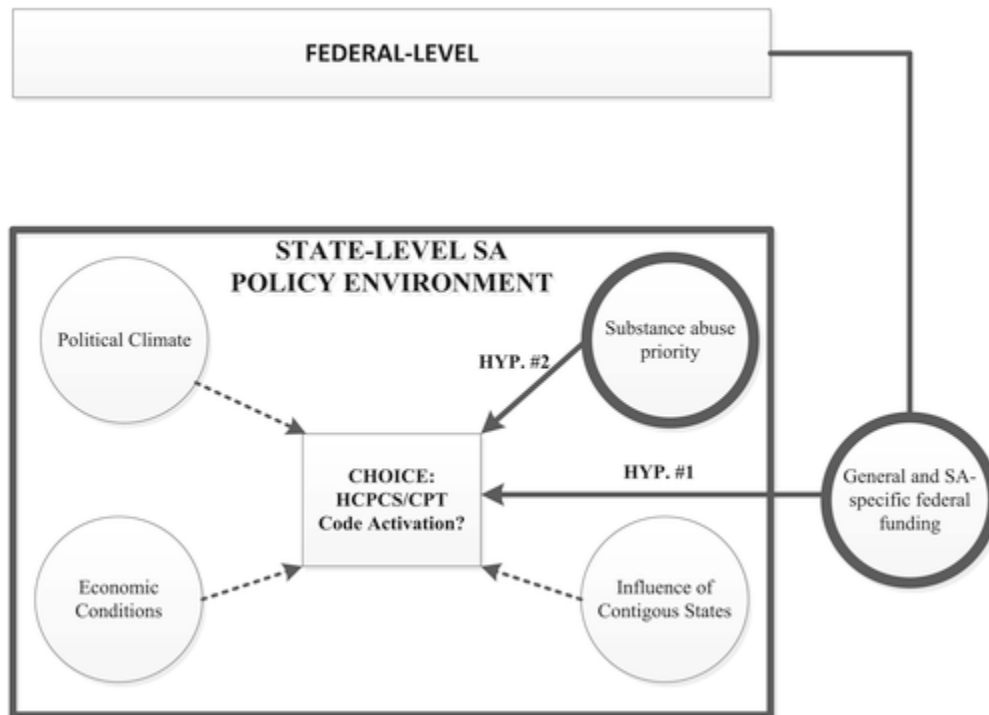
Figure 1. Conceptual framework of the state substance abuse policy environment

There is no monitoring or sanctioning of the states related to SBIRT code activation; the decision to activate the codes is optional. For hypothesis 1, SA discretionary grants (e.g., SBIRT grant program) may provide an indirect incentive to states by increasing awareness regarding the reimbursement codes and by reducing program development costs so that states are better able to sustain an existing program. States with higher levels of SAPT block grant funding may need to contribute fewer state funds to provide SBIRT services relative to states with lower federal funding.

States with a higher priority to provide SA prevention and treatment are more likely to be aware of the availability of the SBIRT reimbursement codes and better able to maneuver the four-step activation process. The first measure of priority is state-appropriated SA funding, a direct measure of a state's willingness to devote public resources towards BH services and an indirect measure of capacity. Secondly, the presence of parity laws measures the state legislatures'/bureaucracies' receptiveness or openness to social policy for BH.

A critical distinction in the conceptual models is that these two measures of SA priority represent institutional constraints—not choices—within the state. Although the state ultimately determines the level of general SA treatment funding, budget changes within a state are relatively static but for sharp, infrequent deviations [38]. The state's funding level at the beginning of the analysis is an expressed preference that remains relatively stable across time, constraining the feasible actions by policymakers. Budget changes associated with activation or other large policy actions would produce meaningful covariation in an empirical model.

Referring back to the other constraints in the state-level box in Fig 1, states in relatively worse economic situations are less likely to have the additional appropriations needed to support a

change in the SMP. Furthermore, states with a Democratic-controlled state government are more likely to prioritize Medicaid or to appoint administrators who favor the expansion of Medicaid services. Finally, the influence of contiguous states is included in the framework as a potential confounding factor, but we do not expect a discernable effect found elsewhere [28, 39, 40]. We hypothesize that competition and emulation across states is unlikely to develop in a short period and that informal channels of communication are not strong enough to produce change.

Empirical methods

A logistic discrete-time duration model was used to estimate the effect of the institutional constraints on the probability of activating the SBIRT reimbursement codes. The following equation is estimated:

$$\Pr(ACTIVATE_{ij} = 1, |j \geq j-1, X) = \Lambda(\alpha_j + \beta_1 F_{ij} + \beta_2 S_{ij} + \beta_3 P_{ij} + \beta_4 E_{ij} + \beta_5 I_{ij} + \beta_5 D_{ij})$$

$ACTIVATE_{ij}$ refers to whether state i activated its codes at year j and is observed. Λ refers to the logistic cumulative distribution function, α_j are year-specific intercepts, F_{ij} is a vector of federal influence variables, S_{ij} is a vector of state SA priority variables, E_{ij} is a vector of economic variables, P_{ij} is a vector of political variables, I_{ij} is a vector of interstate variables and D_{ij} is a vector of other controls. A logit specification is used to estimate the model, where X is the matrix of the variables listed in the index function.

Cluster standard errors are used for robustness. To model time dependence in the model, a set of categorical indicators for 2-year intervals was used. Two-year intervals are used to avoid perfect prediction issues. Inspection of the hazard function revealed piecewise jumps; therefore, using time indicators allows for the most flexibility in modeling time dependence. Linear, quadratic and logarithmic time trends were also fitted, and were less precise in terms of fit statistics and coefficient standard error estimates than the indicators. Odds ratios and average marginal effects are presented.

Data

The full sample comprised 50 states across 5 years for a total of 250 state-year observations. Territories and the District of Columbia are excluded from the sample. Once a state activates the HCPCS/CPT code, future observations were removed from the panel, resulting in an analysis sample of 187 state-year observations.

The dependent variable was a binary measure of activation of any HCPCS/CPT code for SBIRT. Data were obtained from state Medicaid websites and verified against existing reports in the literature [27].

The effective dates of the HCPCS/CPT codes were almost universally 1 January of a given year; all included covariates were lagged to ensure temporally consistent measurement. Federal influence constraints were measured with indicator variables for SAMHSA SBIRT grant funding and continuous measures of per-capita SAPT block grant funding levels and the Federal Medical Assistance Percentage (FMAP) rate. Three variants of SBIRT grant funding were included in

three separate models: (1) an indicator for receipt of an SBIRT implementation grant; (2) an indicator for receipt of any SBIRT grant funding from SAMHSA; and (3) a set of indicators for having SBIRT grant funding in the observed year, being a former recipient of SBIRT grant funding or never having received funding [23, 40]. We include the three variants of indicators to differentiate the effects of the different grant mechanisms. SBIRT implementation grants are a cooperative agreement with the state for a large-scale implementation of SBIRT within the state. Implementation grants have been used since 2003. Other types of SBIRT grants include medical residency grants (2008–14 only), professional training grants (2013–16 only) and targeted capacity expansion grants for colleges and universities (2005–08 only). We expect that the implementation grants would have the most direct effect on code activation, as the goal of the grants is to improve the state-level continuum of care. The grants also require a sustainability plan to ensure that SBIRT is provided long-term. The other SBIRT grants have a more targeted set of goals and occur on a smaller scale, but may still influence state policy.

FMAP, a percentage bound between 50 and 85%, indicated the federal match for expenditures on social assistance programs and was determined formulaically based on the state's income. Block grant awards and FMAP were publicly available [41, 42].

For state SA priority constraints, per-capita state-funded expenditures were obtained from the Uniform Reporting System. A single binary indicator was included for states that have a limited, full or comprehensive parity law [28, 43]. Four characteristics of the SMP were also included to measure the penetration of community-based care and integrated treatment in the SMP: coverage for the evidence-based practice assertive community treatment (ACT) and three payment rules (allows consultation, team consultation or collateral contracts) [44]. States that incorporate these features into the SMP plan may be more willing to activate the SBIRT reimbursement codes. State-level prevalence of heavy alcohol use and binge alcohol use were measured using publicly available data from the Behavioral Risk Factor Surveillance System; prevalence measures of illicit drug use were not used due to collinearity concerns [45].

Political constraints were measured by a binary indicator for whether Democrats control both the state legislature and the governor's seat [46, 47]. The primary measure of economic condition was the state-wide unemployment rate from the Bureau of Labor Statistics, which was centered at the national unemployment rate [48]. For the interstate variables, the model included regional indicators based on the four main Census block regions and the percentage of states within the four major Census block regions with an active code. State-level percentages of Hispanic individuals and individuals aged 65 years or older taken from the Census were also included as a control measure for state-level demographic heterogeneity and centered to the national average.

Results

Twenty-seven states (54%) activated the SBIRT HCPCS/CPT code between 2007 and 2011: one in 2007, 15 in 2008, six in 2009, two in 2010 and three in 2011. Table 1 provides summary descriptive statistics and bivariate tests of means and proportions. Activating states were about half as likely as non-activating states to have received an SBIRT implementation grant and spent on average almost $4 more per-capita on SA treatment with state funds. The activating states were 32% more likely to have an enacted parity law and had higher percentages of SMPs that

covered the ACT or payment rules allowing collateral contracts. Conversely, a lower percentage of activating states allowed payment for team consultation under Medicaid.

Table 1. Summary statistics.

Independent variables	Activating states 2007–11 ($n = 135$)				Non-activating states 2007–11 ($n = 115$)			
	Mean	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**
Federal SBIRT initiatives								
Any SBIRT implementation grant***	16.30%	0.37	0	1	30.43%	0.46	0	1
Any SBIRT grant funding	38.52%	0.49	0	1	36.52%	0.48	0	1
Current SBIRT grant funding	34.07%	0.48	0	1	30.43%	0.46	0	1
Former SBIRT grant funding	4.44%	0.21	0	1	6.09%	0.24	0	1
Never had SBIRT grant funding	61.48%	0.49	0	1	63.48%	0.48	0	1
Other federal influence								
Federal Medical Assistance percentage**	58.69	7.82	50	72.47	61.21	8.16	50	76.29
Per-capita SAPT block grant funding	5.33	1.01	3.84	8.40	5.17	0.85	4.01	8.15
Substance abuse priority								
Per-capita state-appropriated SA spending***	8.46	8.50	0.41	51.66	4.75	3.15	0.77	14.06
Any parity law***	85.19%	0.36	0	1	52.17%	0.50	0	1
State Medicaid plan characteristics (binary)								
EBPs—covers ACT**	70.37%	0.46	0	1	56.52%	0.50	0	1
Payment rule—allows consultation	55.56%	0.50	0	1	60.87%	0.49	0	1
Payment rule—allows team consultation***	11.11%	0.32	0	1	26.09%	0.44	0	1
Payment rule—allows collateral contracts*	66.67%	0.47	0	1	56.52%	0.50	0	1
BRFSS Alcohol Use prevalence measures								
Binge alcohol use	15.41	3.18	6.60	24.3	14.98	3.20	8.20	23.2
Heavy alcohol use*	5.16	1.26	1.90	8.1	4.87	1.07	2	8.2
Economic conditions								
Unemployment rate***	−0.81	1.22	−3.30	2.20	−0.24	1.81	−5.80	4.20
Political climate								
Full Republican control (binary, m.e. dummy)	17.78%	0.38	0	1	22.61%	0.42	0	1
Full Democrat control (binary, m.e. dummy)	8.15%	0.27	0	1	13.04%	0.34	0	1
Split party control* (binary, m.e. dummy)	74.07%	0.44	0	1	64.35%	0.48	0	1
Influence of contiguous state								
% of states in Census block region with adoption	25.75%	0.22	0	0.615	24.55%	0.21	0	0.615
Northeast region* (binary, m.e. dummy)	22.22%	0.42	0	1	13.04%	0.34	0	1
Midwest region*** (binary, m.e. dummy)	14.81%	0.36	0	1	34.78%	0.48	0	1
West region* (binary, m.e. dummy)	29.63%	0.46	0	1	21.74%	0.41	0	1
South region (binary, m.e. dummy)	33.33%	0.47	0	1	30.43%	0.46	0	1
State demographics								
Percentage Hispanic*	9.09	7.14	1.14	37.76	11.36	12.01	1.04	46.44
Percentage aged 65 years or older***	17.83	2.24	10.7	22.72	18.56	1.81	14.1	23.46

Two-sample tests of means were conducted for continuous variables. Two-sample tests of proportions were conducted binary variables. ACT = Assertive Community Treatment; BRFSS = Behavioral Risk Factor Surveillance System; EBP = evidence-based practice; SAPT = Substance Abuse Prevention and Treatment; SBIRT = Screening, Brief Intervention and Referral to Treatment; SD = standard deviation. * $P < 0.10$; ** $P < 0.05$; *** $P < 0.01$.

Table 2. Effect of state-policy environment constraints on the likelihood of activation of the SBIRT HCPCS/CPT codes.

Independent variables	Model 1	Model 2	Model 3
Federal SBI initiatives			
Any SBIRT implementation grant	1.400 (0.971)		
Any SBIRT grant funding		0.286 (0.242)	
Current SBIRT grant funding			0.321 (0.254)
Former SBIRT grant funding			0.081 (0.144)
Other federal influence			
Per-capita SAPT block grant funding	0.333*** (0.122)	0.340*** (0.106)	0.339*** (0.100)
FMAP	1.023 (0.050)	1.008 (0.052)	1.008 (0.051)
SA priority			
Per-capita state-appropriated SA spending	1.216* (0.090)	1.268** (0.120)	1.295** (0.127)
Any parity law	8.027*** (6.935)	7.914*** (6.379)	8.098*** (6.774)
Economic conditions			
Unemployment rate	0.678** (0.121)	0.699** (0.121)	0.697** (0.125)
Influence of contiguous state			
% of states in Census block region with adoption	1.035 (0.052)	1.039 (0.051)	1. 056 (0.059)
Northeast region	0.217 (0.202)	0.192 (0.205)	0.148* (0.159)
Midwest region	0.029** (0.044)	0.022*** (0.032)	0.004*** (0.026)
West region	0.588 (0.407)	0.503 (0.393)	0.513 (0.404)
State demographics			
Percentage Hispanic	0.904*** (0.033)	0.932 (0.043)	0.932 (0.045)
Percentage aged 65 years or older	0.614*** (0.114)	0.594** (0.125)	0.614** (0.129)
State Medicaid Plan characteristics			
Payment rule—allows consultation	0.365 (0.246)	0.458 (0.401)	0.443 (0.381)
Payment rule—allows team consultation	0.420 (0.336)	0.260* (0.205)	0.249* (0.149)
Payment rule—allows collateral contracts	7.082*** (4.761)	9.060*** (6.632)	8.684*** (6.347)
EBPs—covers ACT	3.524** (2.256)	4.102** (2.741)	4.452** (2.867)
BRFSS alcohol use prevalence measures			
Heavy alcohol use	0.612 (0.327)	0.653 (0.321)	0.611 (0.298)
Binge alcohol use	1.644* (0.441)	1.628* (0.417)	1.656** (0.411)
χ^2	105.88	92.02	119.26
Model d.f.	20	20	21
Pseudo-R^2	0.26	0.28	0.28
AIC	156.27	153.52	154.71

Models 1–3 differ by which measure of federal SBIRT initiatives they include. Odds ratios are reported for all models. All models include a time indicator for 2009–10 and for 2011, with 2007–08 as the referent period. Democratic-state control was omitted due to perfect prediction issues. For the parity law indicators, no parity laws/mandates-only is the referent category. For the regional indicators, South is the referent category. 2007 is the referent category for the time indicators. ACT = Assertive Community Treatment; AIC = Akaike Information Criterion; BRFSS = Behavioral Risk Factor Surveillance System; EBP = evidence-based practice; FMAP = Federal Medical Assistance Percentage; SA = substance abuse; SAPT = Substance Abuse Prevention and Treatment; SBIRT = Screening, Brief Intervention and Referral to Treatment. * $P < 0.10$; ** $P < 0.05$; *** $P < 0.01$.

Table 2 describes the main results from the discrete-time duration models. Three separate models are presented for each of the variants measuring SAMHSA SBIRT grants described earlier. In the first model, having an SBIRT implementation grant is associated with 40% increased odds of activating the HCPCS/CPT codes, or an average differential effect of 3 percentage points. For the other two models, the main effects for the federal SBIRT grant variables estimate show

reduced odds of activation. Model 2 states that had received any type of SBIRT grant had 71% reduced odds of activating the reimbursement codes, or an average differential effect of 10%. In model 3, relative to states that have not received federal SBIRT funding, states with current SBIRT grant funding had 68% reduced odds (10% less likely on average) and former SBIRT grantee states had 82% reduced odds (13% less likely to activate the codes on average). Across all models, the odds ratios are not statistically significant. For model 3, the average differential effects are statistically significant.

The other main measure of federal influence, per-capita SAPT block grant funding, has a statistically significant effect, reducing the relative odds of activation by approximately 76% for each $1 per-capita increase. The average marginal effect for per- capita SAPT block grant funding was an approximately 10 percentage point reduction ($P = 0.001$). Across all models, the effects of the SA priority variables are positive and significant except for model 1. A $1 increase in per-capita state-appropriated SA spending is associated with a 22% increase in the likelihood of activating the codes, although the average marginal effect was approximately 2 percentage points ($P = 0.004$). Having an enacted parity law increased the likelihood of activation eightfold, or approximately a 15 percentage point increase on average. Regarding SMPs, consultation and team consultation clauses do not have statistically significant effects, but allowing collateral contracts increases the odds of activation eightfold, and covering ACT increases the relative odds of activation fourfold. The estimated effects for the harmful alcohol use variables have opposing signs, which is driven by multicollinearity. A principal components analysis (not presented here) indicated that the alcohol variables have a small, net-positive effect on the probability of activation.

Referring to the other institutional constraints in Table 2, the unemployment rate and the Midwest region had a significant negative relationship to activation. Having a Democratically controlled state government was omitted due to perfect prediction. There were few instances in which a state was under full Democratic control, and the HCPCS/CPT code was activated in each instance in the observed sample. The influence on contiguous states was negligible, suggesting no strong presence of interstate diffusion.

Discussion

This study examined the impact of federal funding and state-level institutional constraints on the activation of SBIRT Medicaid reimbursement codes. The institutional framework developed in this study can identify states that could be challenged in implementing financing reforms and the institutional reasons behind resistance. Medicaid expansion will increase eligibility to people 138% under the federal poverty level, and the increase in eligibility is likely to include a disproportionate number of individuals with BH conditions. This will place a higher demand on the treatment and financing capacity of states that choose to expand. States that do not expand Medicaid are likely to see stagnant growth in BH treatment funding as block grant funding streams critical to BH treatment provision lessen in importance federally [5, 6]. Finally, another ACA incentive related to SBIRT is a 1% match bonus on preventive services in Medicaid, similar to, but broader than, the reimbursement codes.

Hypothesis 1 posited that federal influence of the SAMHSA SBIRT grant programs and SAPT block grant funding would increase the likelihood of activating the codes. The null results for the SBIRT grant funding estimated in the model have two implications for Medicaid and SA policy. First, the model may understate the timeline needed for SBIRT to penetrate the state policy environment. As noted elsewhere, a critical selling point of SBIRT is potential cost-savings to the Medicaid program [49, 50]. Given that many states were in the midst of an SBIRT grant, this could indicate a time-lag effect. Code activation could be tied more closely to discretionary federal funding requirements at the outset of the implementation grants to reduce the time to activation.

Secondly, the null effects may indicate that reimbursement codes are a weakly powered incentive to alter Medicaid reimbursement procedures. The existing complexity of Medicaid financing lowers the appeal of voluntary financing mechanisms [27]. Given the multi-step process of activating the codes, other overarching constraints within the policy environment probably have a more influential role in changing Medicaid payment rules. These findings suggest that a 1% match on preventive services in Medicaid may be a weak incentive at the state level to alter the SMP.

The significant reduction in likelihood of activation for the per-capita SAPT block grant was opposite the hypothesized effect. One interpretation of this effect is that higher per-capita block grant funding provides a disincentive to activating the codes, signifying a mismatch between state and federal policymakers regarding the priorities for block grant funding. With a persistent level of funding, states may opt against appropriating more funding to Medicaid for SA services. As a part of the ACA, the SAPT block grant funding is likely to be less important, as federal funding is diverted to broader Medicaid benefits packages to resemble MH and general health-care funding [5]. States not expanding Medicaid may be affected disproportionally if they are reliant upon federal block grant funding changes as a primary funding mechanism.

The existence of parity laws increased the likelihood of code activation substantially, while per-capita state-appropriated SA treatment funding increased the likelihood of activation by a smaller margin. These constraints point to existing capacity, infrastructure and priority towards Medicaid-provided SA treatment services and integrated care arrangements. Because SBIRT is a BH service intended for a general health setting, the SA priority constraints are a good barometer for the readiness or capacity to converge the disparate financing and provider systems. Qualitatively, evidence of barriers to activation include confusion regarding which code to use, variation in payment rate and requirements and competing health policy priorities [27]. Anecdotal evidence suggests that an SBIRT financing expert is needed to help guide state policy makers through SMP modifications, as well as federal representatives to navigate between the Centers for Medicare and Medicaid Services and SAMHSA regarding SBIRT financing. Referring back to the ACA, existing funding capacity and priority for SA services exert a strong influence upon policymaking behavior, suggesting that the increased demands on the treatment system imposed by Medicaid expansion may be met by resistance in states with lower capacity or infrastructure. While capacity and infrastructure are not necessarily alterable by federal policy in the short term, understanding the influence of these constraints can help to identify and anticipate states that may struggle to implement reforms.

A final noteworthy finding is the early adopter effect: 14 of 27 states activated their codes in 2008. This signifies higher levels of existing priority among state legislators and administrators or the presence of a policy entrepreneur(s) able to champion activation of the codes [51]. This individual(s) would need to have the means to prioritize code activation on the legislative and bureaucratic agendas and the clout to navigate across these organizations. Qualitative evidence of policy entrepreneurs has been noted elsewhere in studies of successful health-care reforms at the state level [52]. This finding is not measured directly by the model, but findings from a SAMHSA cross-site evaluation have noted the importance of SBIRT 'champions' that are critical to implementation and sustainability [53, 54]. An alternative and complementary explanation for slow activation after 2008 is the Great Recession. Many states turned on the codes prior to the Great Recession and those that may have been considering activation stopped once the economy turned.

Several limitations should be noted. First, the sample size is small, leading to potential power issues and high standard errors. The limited number of potential activations also prevented the use of state fixed effects to control for possible unobserved heterogeneity between the states. Secondly, the key constraint measurements were selected based on their performance in other studies, and they are assumed to be valid measures when applied to state-level SA policy environments. Thirdly, the introduction and passage of the ACA itself may explain the heavy right-censoring. A final, broader limitation is that this study does not examine the utilization of the reimbursement codes once they are activated. Further research is needed to understand whether the HCPCS/CPT codes actually act as an incentive for treatment providers to provide SBIRT.

While the ACA pushes the integration of health and BH at the federal level, states maintain significant control in implementing reform efforts. Based on federal funding levels and state SA priority, states are differentially able and willing to activate the SBIRT HCPCS/CPT codes. States relying upon block grant funding will face a challenge as federal policy focuses more on Medicaid service expansion. For states with a lower priority, activating these codes is potentially inefficient or inconsequential—the trade-off in devoting resources to SBIRT from other general health settings may prove inequitable or too costly. Similarly, states with high priority can be responsive to such initiatives.

Although the empirical results of this study apply primarily to the United States, the institutional framework presented here can be translated to other countries. While much of BH treatment policy is decentralized to the states in the United States, most other developed nations have centralized policies. In these centralized policy systems, it is important to understand how political climate, economic conditions, intra- and international diffusion and substance abuse priority contribute to policy decisions and how this varies from the United States. One potential avenue for this research is cross-national comparisons of institutional constraints in European or Latin American nations that implement SBIRT policies. Institutional analyses improve understanding of policy systems at the national and subnational levels and have utility beyond the United States.

Declaration of interests
None.

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