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CHILD WELFARE AGENCY TIES TO PROVIDERS AND SCHOOLS AND SUBSTANCE ABUSE TREATMENT USE BY ADOLESCENTS

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Abstract

Policy makers and advocates are increasingly encouraging child-serving organizations to work together. The current study examined how child welfare agency ties with substance abuse treatment providers and schools correlated with substance abuse treatment for adolescents receiving child protective services. A sample of adolescents with substance use risk was extracted from a national survey of families engaged with child welfare. Logistic regressions with adjustments for complex survey design used child welfare agency ties to substance abuse treatment providers and schools to predict treatment. As expected, adolescents were more likely to report treatment when child protective services and substance abuse treatment were in the same agency and when child welfare agency directors reported joint planning with schools. However, child welfare agency agreements with substance abuse treatment providers were negatively associated with treatment. This unexpected finding implies that agencies may sometimes cooperate to address problems as well as to improve service utilization.

1. Introduction

Adolescents involved with the child welfare system are disproportionately affected by substance use (Aarons, Brown, Hough, Garland, & Wood, 2001; SAMHSA, 2008b). A San Diego study found almost one in five adolescents ages 13–18 engaged with child welfare to have had a substance use disorder at some point in their lives (Aarons, Brown, Hough, Garland, & Wood, 2001). In addition to a pressing need for prevention, the organizations serving these young people must also help those with substance use disorders to achieve and sustain sobriety.

Substance abuse treatment can help adolescents overcome addiction (Deas & Thomas, 2001; Vaughn & Howard, 2004; Williams & Chang, 2000; Winters & Leitten, 2007), especially if

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tailored to their age group (Brown, Gleghorn, Schuckit, Myers, & Mott, 1996; Catalano, Hawkins, Wells, Miller, & Brewer, 1991; E. F. Wagner, Tubman, & Gil, 2004; Williams & Chang, 2000). Unfortunately, treatment rates remain very low. In 2007, fewer than 10% of adolescents who met DSM-IV criteria received substance abuse treatment (SAMHSA, 2008b). Although parent and adolescent perceptions strongly affect engagement in substance abuse treatment (Dakof, Tejada, & Liddle, 2001), system factors also affect use. Limiting factors include scarcity of treatment providers, inadequate system financing, limited transportation, inaccessible treatment locations and appointment times, and a lack of variety among treatment models (Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007).

Engagement with the child welfare system may help adolescents secure substance abuse treatment. Often, child welfare agencies identify behavioral problems during investigations of maltreatment and subsequent interactions with families. Thus, child protective services may serve as a gateway to behavioral health services (Burns et al., 1995; Leslie et al., 2005; Lyons & Rogers, 2004). Most child welfare agencies do not provide behavioral treatment themselves, but instead refer to providers for these services (Burns et al., 1995). The disruptions associated with families' involvement with child protective services, such as strained relationships with caregivers and in some cases removal from home, may make professional facilitation of service use particularly important. Such facilitation may in turn depend on how staff across agencies work together.

1.1. How child welfare ties to providers may affect entry into substance abuse treatment

The connection between child welfare and substance abuse treatment staff is often challenging for both parties. Limited capacity, especially for adolescent services (Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007), can slow entry into treatment. Child welfare workers sometimes have different beliefs about drug use than those of substance abuse treatment counselors (Drabble, 2007), which may impede coordination. Adolescents may not share relevant information for fear of getting themselves and their families into trouble. Finally, restrictive federal privacy guidelines may impede communication across agencies about substance use and treatment (Legal Action Center, 2006).

One way child welfare agencies and substance abuse treatment providers can improve communication as well as service use is to co-locate. Face-to-face contact between child welfare and substance abuse treatment staff may be particularly important because email is generally not considered secure enough to protect privacy. An integration model entailing co-location of substance abuse treatment with child welfare as well as provision of enabling services was associated with reduced substance use for women with children (Marsh, D'Aunno, & Smith, 2000). Another program for parents engaged with child welfare including joint visits by child welfare workers and substance abuse treatment staff had higher rates of substance abuse treatment use for parents and higher rates of reunification with children who had been removed from their custody (Ryan, Marsh, Testa, & Louderman, 2006). One reason for this model's success may have been direct and frequent communication between child welfare and substance abuse treatment staff.

In general, previous research suggests that integration between child welfare and substance abuse treatment improves utilization. However, previous studies have not examined the potentially differential effects of specific types of coordination. For instance, memoranda of understanding and other formal agreements explicate the intentions and obligations of each party (Imperial, 2005). These may lay the foundation for or follow other cooperative strategies such as joint strategic or operational planning between agency leadership, training staff together, or pooling funds for shared efforts. In the current study, we hypothesized that child welfare –involved adolescents who used substances would be more likely to receive treatment when child protective services and substance abuse treatment were provided by

the same agency and/or child welfare agencies used inter-agency agreements, joint planning, joint training, or joint budgeting to coordinate with substance abuse treatment providers. In order to reveal the potentially distinct effects of different types of ties, these were framed in the current study as five separate predictions.

1.2. How child welfare ties to schools may affect entry into substance abuse treatment

A second potentially key partner for improving substance abuse treatment use for adolescents engaged with child welfare is the school system. As the organizations in which adolescents spend the most time, schools are centrally positioned to identify those with behavioral problems (Brenner, Weist, Adelman, Taylor, & Vernon-Smile, 2007). Schools are also the primary provider of mental health treatment for children (Burns et al., 1995) and thus a major portal into related services (Brenner, Weist, Adelman, Taylor, & Vernon-Smile, 2007). In a national survey, middle school counselors reported that they were generally students' first point of contact for their substance use problems (Burrow-Sanchez, Lopez, & Slagle, 2008).

Despite the important role schools play in identifying child maltreatment and facilitating service use, the different foci of child protective services and education often make it difficult for them to collaborate effectively (Altshuler, 1997; Goren, 1996). Educators may not understand the confidentiality constraints that apply to child welfare caseworkers, and caseworkers may not always fully appreciate how adolescents' living situations affect their classroom functioning (Altshuler, 2003). Inter-agency agreements can make it easier for child welfare caseworkers and school personnel to share information. Joint policy planning can include developing mechanisms to improve adolescents' behavioral health services. Cross-training staff can foster personal contacts that facilitate referrals into treatment, as well as better mutual understanding about each organization's goals and constraints (Hodges, Nesman, & Hernandez, 1999). Finally, joint budgeting may enable child welfare agencies and schools to use resources more effectively. Previous school-based interventions addressing child maltreatment have been traced to improved academic and behavioral outcomes for children (Children's Bureau, 2003). No previous research has examined how child welfare ties to schools affect substance abuse treatment for adolescents.

Cumulatively, findings from previous research suggest that ties between child welfare agencies and schools may improve use of a variety of services for child welfare-engaged adolescents. In the current study, we hypothesized that such adolescents would be more likely to receive needed substance abuse treatment when child welfare agencies reported any of the following with schools: inter-agency agreements, joint planning, joint training, or joint budgeting. As outlined below, we capitalized on a unique national survey to examine these issues.

2. Methods

2.1 Data

The National Survey of Child and Adolescent Well-Being (NSCAW) was a longitudinal investigation authorized by the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PL 104–193) to examine the experiences of children and families interacting with the child welfare system (Dowd et al., 2006). The Administration for Children and Families within the U.S. Department of Health and Human Services funded NSCAW, contracting with the Research Triangle Institute (RTI) International to collect data. A complex sampling design employed two levels of stratification. The first level was comprised of 9 strata representing 8 key states plus a 9th group of 28 additional states. Within these strata a total of 92 child welfare agencies in 97 counties were the primary

sampling units (Dowd et al., 2006). The adolescents in the recruited sample thus represent almost the entire national adolescent population engaged with the US child welfare system (Pfefferman, 1996), with the exception of those in four states in which data collection became infeasible because of administrative and resource barriers.

The initial NSCAW Child Protective Services cohort included 901 children and adolescents aged 11–16 years who were referred and investigated for maltreatment between October 1999 and December 2000 and subsequently received child welfare services, defined as case management, family support, health, and/or social services from the child welfare agency. Others excluded from the current analyses did not receive child welfare services either because their cases were unsubstantiated or because agency staff determined that services were not required.

Data on adolescents' substance abuse treatment experiences were collected through interviews with each adolescent 2–6 months after beginning to receive child protective services (Wave 1, between October 1999 and December 2000) and 18 months after system entry (Wave 3). Adolescents were also asked about substance abuse treatment subsequently whether or not they were continuing to receive child protective services. However, given that child welfare cases tend to close within a year, these later data were excluded from the current study as too far removed from the effects of child welfare case management. In each wave, adolescents were asked to respond directly into computer screens to questions about substance use.

Directors of 86 of the 92 child welfare agencies in the NSCAW sample were interviewed at baseline about the structure of child protective services and ties with behavioral health providers and schools, among other issues.

Investigative caseworkers were interviewed at baseline (Wave 1) about family risk factors. Services caseworkers were interviewed in each subsequent wave about case status and their perception of adolescents' behavioral health needs. Additional information about the number of local providers in each child welfare agency's county and rurality was obtained from the National Survey of Substance Abuse Treatment Services (N-SSATS, 2002) and the 2000 Area Resource Files (ARF), respectively. These contextual data were merged with NSCAW data using county-level identifiers by RTI International upon request.

The original data collection was approved by RTI International's IRB and entailed informed consent by all participants. Analyses for the current study were approved by the IRB at the lead author's institution.

2.2 Sample

Of the 901 adolescents receiving child protective services at baseline, 293 were identified as using substances. Child welfare director responses about agency structure and ties were available for 237 of these adolescents. Listwise deletion for item missingness reduced the final analytic sample to 190 adolescents, 65% of the referent sample, within 66 agencies, 72% of the 92 agencies participating in the study.

Using IVEware in SAS statistical software, we attempted to use multiple imputation to maintain the full sample size. However, high imputation-to-imputation variance in estimated values for inter-agency ties indicated an inability to impute these values reliably, despite incorporation of extensive agency data in the information matrix (Ragunathan, Lepkowski, Hoewyk, & Solenberger, 2001). We therefore used unimputed data for regression analyses. NSCAW probability weights include adjustments for potential bias due to survey non-response (Dowd et al., 2002; Little, 1988). However, the weights do not account for item

non-response. Weighted descriptive statistics conducted to determine if data were missing at random indicated that adolescents in the final sample differed from those excluded through listwise deletion in frequency of being in child welfare agencies having joint budgeting arrangements with substance abuse treatment providers (20%, vs. 0% of the excluded cases, p -value for t -test <0.05) and with schools (10% vs. 0% of the excluded cases, p -value for t -test <0.05).

Statistical power analyses were conducted using Optimal Design to accommodate the clustering of adolescents within agencies (Spybrook, Raudenbush, Liu, Congdon, & Martínez, 2008). Results indicated an 80% likelihood of detecting medium size (~ 0.55) effects for most key independent variables. Larger effect sizes would be necessary to reach 80% likelihood of detection for three key variables: cross-training with schools (~ 0.63), and joint budgeting with both types of partners (~ 0.80). Although we used 95% confidence intervals, we therefore also depict associations with $p < 0.10$. Even at $\alpha = 0.10$, power analysis results indicated less than an 80% likelihood of detecting medium effects sizes for cross-training with schools and joint budgeting with either substance abuse treatment providers or schools.

2.3 Measures

Substance use—NSCAW did not include assessments of adolescents' substance use disorders. The sample was therefore restricted to those who self-reported at baseline use of any drugs (including alcohol or tobacco, but not caffeine) or whose caseworkers reported in waves 1, 2, and/or 3 that they needed treatment for a drug or alcohol problem. Adolescents were asked how often they had used each type of substance in the last 30 days, but not how much they consumed on any given day. We included all adolescents reporting any frequency of substance use because of evidence that use of alcohol and tobacco increases risk of later illegal drug use (Wagner & Anthony, 2002).

Substance abuse treatment—Substance abuse treatment use was indicated by a single 1/0 binary measure based on whether each adolescent responded in waves 1 and/or 3 (i.e., within 18 months of entering child welfare) that he or she had received professional treatment for an alcohol or drug problem from “a mental health, medical, or other alcohol/drug treatment professional, not by a (child welfare) Caseworker.”

Child welfare agency ties with substance abuse treatment providers and schools—The first measure was a 1/0 binary indicator of whether or not child protective services and substance abuse treatment were in a common agency. The next eight separate 1/0 binary measures indicated the following types of ties with substance abuse treatment providers and schools, respectively: (1) inter-agency agreements and memoranda of understanding; (2) joint planning/policy formulation for service delivery; (3) cross-training of staff; and (4) joint budgeting or resource allocation. Agency directors could report any combination of ties.

Control variables—The number of behavioral health facilities within each child welfare agency's county in the year 2000 (N-SSATS, 2002) was used to control for local provider availability. A 1/0 binary measure derived from Area Resource File data indicated whether the child welfare agency was located in a rural county (Beale, 2003).

Another 1/0 binary control variable indicated whether each adolescent was at medium or high substance use risk. We constructed this by dichotomizing an ordinal measure developed by Richard Barth's NSCAW Research Group at the UNC School of Social Work, based on the gateway model of adolescent substance use (e.g., Wagner & Anthony, 2002). In this

measure, adolescents' responses about the frequency of substance use were multiplied by the risk level of the substance to generate 4 categories of risk: none, low, medium, and high. Wall & Kohl (2007) explain the development of this measure and find positive correlations with conduct problems. As the analytic sample for the current study was restricted to adolescents with at least some substance use, we set our control variable =1 only if an adolescent had been categorized as medium or high risk on the ordinal measure.

In addition, believing that other behaviors might attract adult attention to substance use problems, we included the adolescent's total standardized Child Behavioral Checklist score, based on caregiver reports (Achenbach & Edelbrock, 1991). We also controlled for the adolescent's age in years; sex; and African-American, Hispanic, and/or Native American race/ethnicity. Running the model with separate race/ethnicity measures had not changed the results; hence, in favor of parsimony the final model shown uses the single combined measure. The last two covariates used to control for other factors potentially affecting substance abuse treatment were a single binary 1/0 indicator of whether the adolescent experienced any type of out-of-home placement at any wave; and a binary indicator of the absence of medical insurance (SAMHSA, 2009; Sturm & Sherbourne, 2001), both based on caseworker reports. Preliminary analyses had shown that having a child welfare case close during the study period was not associated with substance abuse treatment.

2.4 Analyses

Given multiple adolescents within each agency and theoretical variables at the agency level, the first step of analysis was to decide whether random effects modeling (also known as hierarchical nonlinear or multilevel (Gelman & Hill, 2007)) was appropriate. A fully unconditional random effects model indicated statistically significant variation across agencies in at substance using adolescents' likelihood of reporting substance abuse treatment (De Leeuw & Meijer, 2008). However, with unbalanced data such as NSCAW, estimations of coefficients and standard errors in multilevel models rely on large-sample theory. Particularly with binary dependent variables, a small sample of level-2 units (<100) and small clusters within agencies (which here averaged under 3) can result in biased estimates premised on inaccurate assumptions about variable distributions (Raudenbush & Bryk, 2002). Instead of a random effects model, we therefore used a single level model with post-hoc adjustment to standard errors to accommodate correlations in likelihood of treatment between adolescents within agencies (De Leeuw & Meijer, 2008).

The descriptive statistics shown in Table 1 were generated using Stata 10's -svy- module to accommodate stratification, probability weights, and the within-agency correlation noted immediately above (StataCorp, 2007). Phi tests of bivariate correlation between independent variables assessed possible collinearity. Logistic regression estimated the association between predictors and the odds that adolescents would receive substance abuse treatment, again using Stata's -svy- module to accommodate the complex sampling design (StataCorp, 2007) and adjustment of standard errors to accommodate clustering within agencies. The number of behavioral health care facilities was log-transformed to reflect anticipated diminishing returns to scale.

3. Results

Table 1 lists weighted descriptive statistics for the sample at each wave. None of the correlations (not shown) exceeded 0.5, indicating that collinearity did not impede estimation of the unique effects of each covariate. In this sample of at-risk adolescents, 22% reported having received professional substance abuse treatment within 18 months of becoming involved with child protective services. This reflected fairly consistent reports across waves (not shown), from 16% in wave 1 to 15% in wave 3. Only 13% were in child welfare

agencies whose parent organization also included substance abuse treatment. Frequencies of child welfare agency agreements with providers and schools, policy planning, and cross-training of staff ranged from 33–66%. Joint budgeting or resource allocation was much less common with both partners, at 20% with substance abuse treatment providers and 10% with schools. Just over a third of the adolescents in the sample (36%) were categorized as having medium-to-high substance use risk. The mean total CBCL score (63) was just below the threshold of 64 at which the instrument developer recommends mental health treatment (Achenbach & Edelbrock, 1991). The mean age at baseline was 13 years. Under half (41%) were male, and over half (58%) were African American, Native American, and/or Latino. Almost two-thirds had an out-of-home placement at some point between waves 1 and 3. Only 9% were uninsured.

Table 2 shows the multiple regression results. As predicted, having child welfare and substance abuse treatment within the same agency was positively associated with adolescents' odds of receiving treatment (OR 6.64, $p=0.05$). Joint planning between child welfare agencies and schools was also positively associated with adolescents' odds of receiving substance abuse treatment (OR 4.45, $p<0.05$). In contrast and contrary to our hypothesis, interagency agreements with substance abuse treatment providers were negatively associated with adolescents' odds of receiving treatment (OR 0.20, $p<0.05$).

We also calculated predicted probabilities to illustrate the magnitude of statistically significant associations between agency ties and substance abuse treatment use. All else being equal, at-risk adolescents receiving child protective services from agencies that also provided substance abuse treatment were on average 18% more likely to report treatment. In contrast, adolescents whose child welfare agency directors reported inter-agency agreements with substance abuse treatment were 14% less likely to receive such treatment. Finally, adolescents in child welfare agencies engaged in joint planning with schools were 12% more likely to report substance abuse treatment.

There were a few associations between control variables and treatment use as well. Adolescents with medium or high risk for substance use (OR 6.41, $p<0.01$) and with higher CBCL scores (OR 1.05, $p<0.05$) had higher odds of receiving substance abuse treatment. Boys appeared more likely than girls to report substance abuse treatment (OR 2.62, $p<0.10$). Finally, none of the 15 adolescents in the sample without health insurance received substance abuse treatment.

4. Discussion

Findings from this study indicate that child welfare agency ties with both substance abuse treatment providers and schools may affect substance abuse treatment. When child welfare and substance abuse treatment providers were in the same agency, adolescents were likely to receive treatment. However, besides this structural connection to treatment, this study did not identify any other types of child welfare ties with substance abuse treatment providers that facilitated use.

At the time the current study began, only 13% of the adolescents in the analytic sample were in child welfare agencies with substance abuse treatment available internally. In general, substance abuse treatment tends to be provided by stand-alone facilities on an outpatient basis (SAMHSA, 2008a). There are undoubtedly advantages to providing a single set of related services, without having to report to an agency head who may not fully understand addiction. However, just as previous research has found integration of substance abuse treatment for caregivers with child welfare to improve outcomes (Marsh, D'Aunno, & Smith, 2000; Ryan, Marsh, Testa, & Louderman, 2006), so may in-house substance abuse treatment

availability enhance treatment use among adolescents. The current survey asked only whether substance abuse treatment was in the larger agency and not whether they were co-located. We suspect that co-location would further enhance service use.

The second finding in support of study hypotheses was that at-risk adolescents were more likely to receive substance abuse treatment when their child welfare agency engaged in joint planning with schools. The NSCAW interview question did not specify the focus of this planning, and most planning undoubtedly focuses on issues other than substance abuse treatment. The association found in the current study suggests that, controlling for all other types of inter-agency coordination present, joint planning between child welfare agencies and schools may facilitate substance abuse treatment for adolescents.

Why was joint planning with schools associated with a higher likelihood of substance abuse treatment when inter-agency agreements and cross training were not? Joint planning may generally develop operational mechanisms for schools to communicate with child welfare about adolescent needs, including those related to substance use. For instance, staff may thereby identify whom school personnel can call with questions or concerns about specific adolescents and how to share information without violating privacy restrictions. Joint planning may therefore facilitate service use in ways that broader inter-agency agreements do not.

In theory, cross training between child protective services and schools would also facilitate service use by developing more mutual understanding and personal relationships between the two organizations (Hodges, Nesman, & Hernandez, 1999). The interview question did not address the extent or quality of cross-training or the number of staff involved. It is possible that the cross-training agency directors reported was not sufficient to affect service use. The training also may have focused on personnel or topics that did not yield improved capacity to identify or respond to adolescent substance use.

Finally, contrary to expectation, child welfare agency inter-agency agreements with providers were negatively associated with substance abuse treatment use by adolescents. It is possible that child welfare agencies sometimes employ formal coordination strategies to address problems with service use. For instance, a child welfare agency might pursue a memorandum of agreement with a substance abuse treatment provider because the provider is not initiating treatment quickly enough. Similarly, the provider might develop a memorandum of agreement with a child welfare agency to address burdensome paperwork or concerns about payment. In either case the inter-agency agreement might be both a useful tool and representative of some pre-existing difficulty with the referral relationship. Although neither joint budgeting covariate was statistically significant in the final model, a combined measure of joint budgeting with providers and/or schools run as a post hoc analysis was negative and significant (OR=0.17, $p<0.05$). This suggests that child welfare agencies may use more than one type of formal arrangement to address problems with treatment access.

The first two significant control variables indicated that adolescents with more severe behavioral health problems were more likely to receive substance abuse treatment. In particular, the positive association between medium-high substance use risk and substance abuse treatment was reassuring. It was also unsurprising that caregiver reports of adolescents' behavioral problems independently predicted substance abuse treatment. The Child Behavior Checklist, available through NSCAW only in aggregated form, includes substance use as well as a number of behaviors, such as aggression and withdrawal, that could reflect substance use (Achenbach & Edelbrock, 1991).

In addition, controlling for both substance use and mental health care needs, boys engaged with child welfare may be more likely than girls to use substance abuse treatment. This indicates that child welfare caseworkers and other staff involved in screening may need additional resources to identify substance abuse treatment needs in girls in particular. One possible reason for this is greater involvement by boys in juvenile justice, another conduit into behavioral health care. The finding that no uninsured adolescents received substance abuse treatment was disturbing, but not surprising given the importance of insurance to treatment access (SAMHSA, 2009; Sturm & Sherbourne, 2001).

4.1 Limitations

Key study limitations related to both sampling and measurement. The analytic sample over-represented the frequency of child welfare joint budgeting with both substance abuse treatment providers and schools. It is possible that these differences reflected some unmeasured attribute relevant to substance use treatment on which the child welfare agencies in the final sample differed from child welfare agencies as a whole. Some of the treatment reported by adolescents was likely unrelated to child welfare case management and some may have been provided by mental health therapists or even general medical care practitioners rather than substance abuse treatment counselors. NSCAW data did not include validated substance use assessments and adolescents' self-reports did not include the amounts of drugs adolescents had consumed or the impact of substance use on functioning. Although adolescents were the most knowledgeable about their own experiences, and interviewers strove to protect their privacy by allowing them to enter responses directly onto computer screens, it was possible that some respondents did not accurately report their substance use and/or any treatment they received. Child welfare caseworkers were also unlikely to be aware of all adolescent substance use. Finally, NSCAW data do not indicate the specific type, intensity, or duration of treatment, all of which are critical to effectiveness. Among the results, the confidence interval for the association between substance abuse treatment provision within the larger agency and youth treatment use was extremely wide. This implies that the effect of having substance abuse treatment within the same agency as child protective services varies enormously across sites. Future research should examine what affects the service utilization benefits of being in the same agency.

4.2 Conclusion

Inter-organizational relationships consume substantial amounts of leadership and staff time and thus compete for other strategies for serving children and parents. Understanding how to pursue such cooperation can help agency leadership invest limited resources most effectively toward improved service delivery. The current study was the first specifically examining how a number of specific types of child welfare ties with providers and schools correlated with substance abuse treatment for a particularly vulnerable group of adolescents. Findings did not reveal benefits for all ties examined, and may sometimes indicate problems as much as illustrate solutions. However, results did indicate that integration within agencies as well as connections with schools may improve substance abuse treatment use by adolescents who need these services.

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Descriptive Statistics

Table 1

N=190 adolescents within 66 agencies

Variable Name	Weighted Mean	Standard Error	Min	Max
<i>Dependent Variable</i>				
Substance abuse treatment	22%	--	0	1
<i>Child Welfare Ties with Substance Abuse Treatment</i>				
Substance abuse treatment in agency	13%	--	0	1
Inter-agency agreements	66%	--	0	1
Joint planning/policy formulation	47%	--	0	1
Cross-training of staff	45%	--	0	1
Joint budgeting or resource allocation	20%	--	0	1
<i>Child Welfare Agency Ties with Schools</i>				
Inter-agency agreements	47%	--	0	1
Joint planning/policy formulation	44%	--	0	1
Cross-training of staff	33%	--	0	1
Joint budgeting or resource allocation	10%	--	0	1
<i>Local Service Context</i>				
# of behavioral health facilities (unlogged)	29.41	5.32	1	266
Agency located in non-metro area	16%	--	0	1
<i>Adolescents' Risk for Behavioral Health Problems</i>				
Medium or high substance use risk	36%	--	0	1
Total CBCL score	62.57	1.53	23	90
<i>Other Adolescent Attributes</i>				
Age at baseline (years)	13.22	0.16	11	16
Gender: male	41%	--	0	1
Black and/or Latino/a	58%	--	0	1
<i>Adolescents' Situation</i>				
>= 1 out-of-home placements	65%	--	0	1
Health insurance: self-pay	9%	--	0	1

Table 2
Logistic Regression Model Predicting Substance Abuse Treatment

N=175 adolescents within 66 agencies (Self-pay perfectly predicts failure; dropped 15 observations)

Variable Name	Odds Ratio	Std Error	P> t	95% CI
<i>Child Welfare Ties with Substance Abuse Treatment</i>				
Substance abuse treatment within larger agency	6.64	6.31	*	1.00 43.99
Interagency agreements	0.20	0.13	*	0.05 0.73
Joint planning	0.44	0.37		0.08 2.35
Cross-training of staff	1.90	1.07		0.62 5.80
Joint budgeting	0.29	0.27		0.05 1.81
<i>Child Welfare Ties with Schools</i>				
Interagency agreements	0.37	0.23		0.11 1.25
Joint planning	4.45	2.73	*	1.31 15.11
Cross-training of staff	0.90	0.52		0.29 2.82
Joint budgeting	0.41	0.48		0.04 4.06
<i>Local Service Context</i>				
# of behavioral health facilities	1.03	0.24		0.64 1.65
Agency located in non-metro area	0.72	0.56		0.15 3.34
<i>Adolescents' Risk for Behavioral Health Problems</i>				
Medium- high substance use risk	6.41	3.89	**	1.91 21.44
Total CBCL score	1.05	0.02	*	1.91 21.44

Variable Name	Odds Ratio	Std Error	P> t	95% CI
Other Adolescents' Attributes				
Age (years)	0.62	0.20		0.33 1.17
Gender: Male	2.62	1.50	+	0.83 8.21
Black and/or Latino/a	0.67	0.57		0.12 3.63
Adolescents' Situation				
>=1 out-of-home placements	1.64	0.68		0.72 3.73
Insurance: Self-pay	(dropped)			

+ p<0.10,

* p<0.05,

** p<0.01