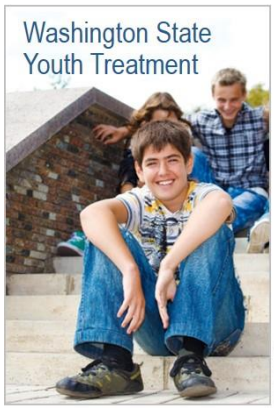

Washington State Youth Treatment Implementation (WSYT-I) Program

Final Evaluation Report

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In collaboration with the Health Care Authority, Division of Behavioral Health and Recovery, Jared Langton, Washington Recovery Youth Services Program Director. This report was funded by Substance Abuse and Mental Health Services Administration Grant Number 1H79TI025995-01.

THE WASHINGTON STATE YOUTH TREATMENT IMPLEMENTATION (WSYT-I) Program provided enhanced substance use disorder (SUD) treatment and recovery support services for youth (ages 12-18) with a SUD diagnosis, including those who had co-occurring SUD and mental health disorder diagnoses. Funded by the federal Substance Abuse and Mental Health Services Administration (SAMHSA) from 2016 through 2019, the program was designed to improve access, quality, coordination, and the continuum of care through implementation of evidence-based standardized assessment and SUD treatment, in conjunction with care coordination and recovery support services. This report describes the participants, services, and outcomes of the program, as implemented by five community-based provider sites across Washington.

The WSYT-I project provided enhanced treatment and recovery support services for youth who had a substance use disorder diagnosis, including those with co-occurring mental health needs.

Key Findings

1. **WSYT-I participants reported reduced substance use and fewer negative consequences after enrollment.** In interviews conducted 6 months after program intake, WSYT-I participants reported increased rates of abstinence, reduced criminal justice involvement, and fewer health, behavioral health, or social consequences from alcohol and drug use.
2. **Youth who received WSYT-I or similar services were more likely to complete SUD treatment than those who received standard SUD treatment services.** Youth who received enhanced SUD treatment and recovery support services under the WSYT-I or similar programs had higher rates of treatment completion than a group of comparison youth who shared similar baseline characteristics to WSYT-I participants.
3. **Participation in WSYT-I or similar services led to higher rates of SUD treatment utilization after program enrollment.** Compared with youth in the comparison group, participants of WSYT-I and similar services received more SUD outpatient and case management services during a 12-month follow-up period.

Washington State Youth Treatment Implementation Program

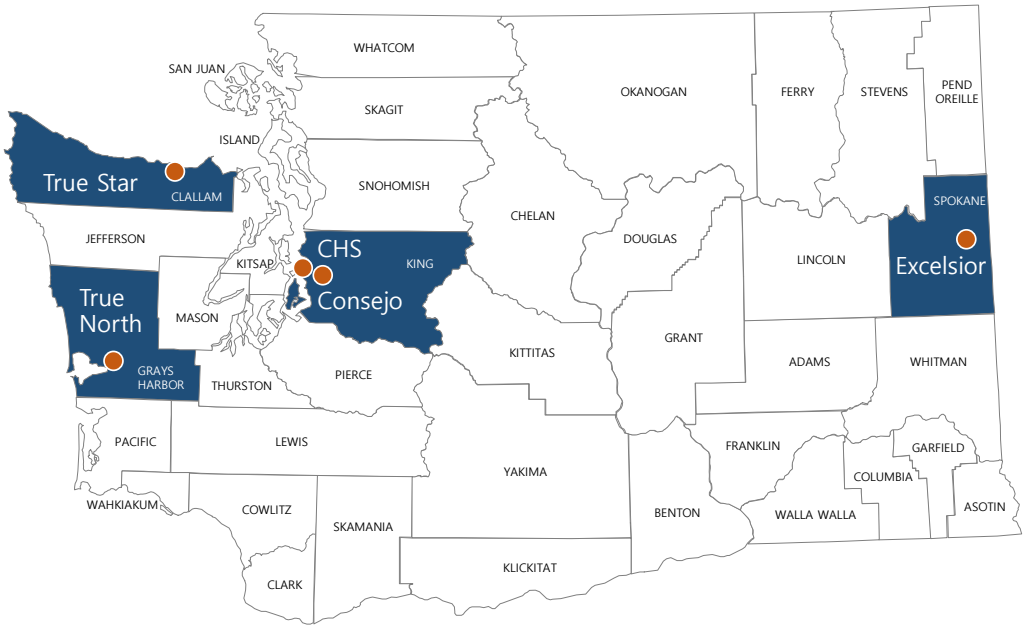
The Washington State Health Care Authority (HCA), Division of Behavioral Health and Recovery (DBHR) received a grant from SAMHSA to implement the Washington State Youth Treatment Implementation (WSYT-I) program. The overall objectives of the project were to improve health outcomes for youth with SUD treatment needs and expand the qualified workforce for youth SUD treatment. The program provided enhanced SUD treatment and recovery support services through: 1) the use of an evidence-based standardized assessment tool called Global Appraisal of Individual Needs (GAIN); 2) implementation of a family centered evidence-based practice called Adolescent Community Reinforcement Approach (A-CRA); and 3) care coordination and recovery support services. The WSYT-I grant also supported infrastructure improvements such as workforce development and developing payment strategies for evidence-based practices in the current funding environment. This evaluation report focuses on outcomes of youth who received enhanced SUD treatment and recovery support services from the WSYT-I program.

Cumulative Enrollment
As of September 2018

Site	
True North (Grays Harbor)	120
True Star (Clallam)	117
Center for Human Services (King)	106
Consejo (King)	103
Excelsior (Spokane)	88
TOTAL	**534**

Four community-based provider sites in Clallam, Grays Harbor, and King Counties began offering WSYT-I enhanced services in 2016. A fifth site in Spokane County joined the program in 2017. While the four initial sites implemented the full package of evidence-based assessment, evidence-based treatment, and recovery support services, the fifth site only provided care coordination and recovery support services in addition to standard treatment services. Two provider sites, True Star in Clallam County and True North in Grays Harbor County, participated in the earlier SAMHSA-funded Substance Abuse Treatment Enhancement and Dissemination (SAT-ED) Program, which provided similar enhanced services from 2013 to 2016 (Pavelle, et al., 2016).

FIGURE 1
WSYT-I Participating Sites
Total Enrollment = 534



Participant Characteristics

A total of 534 participants enrolled in the WSYT-I program between January 2016 and September 2018. This does not include participants who initially enrolled but failed to engage in any WSYT-I services. All participants exited the program as of March 2019. Demographic information was available for about 90 percent of the participants from Washington's Integrated Client Database. Across all WSYT-I sites, participant age ranged from 12 to 18. About half of the participants were 15 or 16. Participants were more likely to be male than female (59 percent vs. 41 percent). The two rural sites in Grays Harbor and Clallam counties had a more balanced gender composition, while the urban sites in King and Spokane counties enrolled more male participants than female participants.

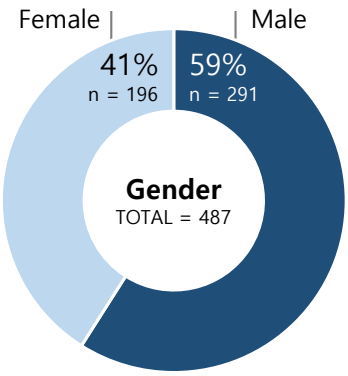
More than half (55 percent) of participants were minorities. Participants of Hispanic origin accounted for 27 percent of the program enrollees. About 12 percent of participants were African Americans, and 17 percent were American Indian/Alaskan Native. Asian and Pacific Islander youth accounted for 8 percent of participants. The two sites in the urban areas of King County, which served a more diverse population than other sites, enrolled more minority participants than white participants. One of the two sites enrolled predominantly Hispanic youth. The large number of minority youth enrolled in the WSYT-I program is consistent with the program's service goals.

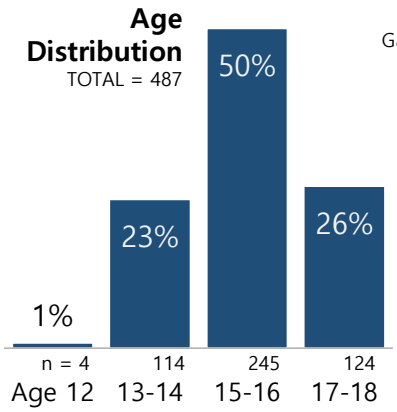
Sexual orientation information was available for 430 of the 534 participants (81 percent). Among all participants, 42, or 8 percent reported being gay, lesbian, bisexual, or questioning.

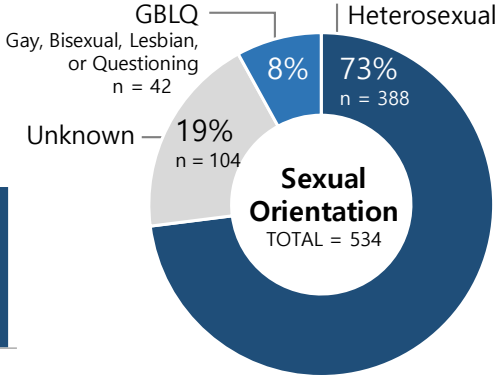
FIGURE 2

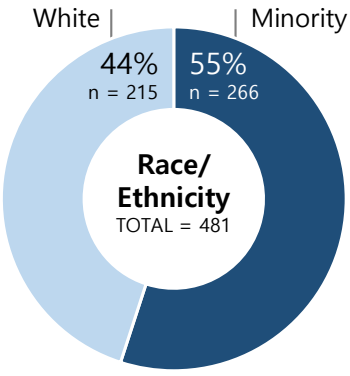
Demographics

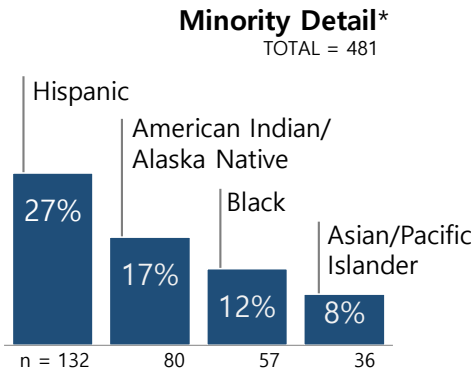
Total Enrollment = 534











*Note that the total of all four groups exceeds 266 (55 percent) because several youth are members of more than one racial/ethnic group.

Gender by Site	Male
True North	53%
True Star	53%
CHS	61%
Consejo	73%
Excelsior	64%

Minority by Site	Percent
True North	43%
True Star	37%
CHS	67%
Consejo	95%
Excelsior	42%

Behavioral Health Characteristics

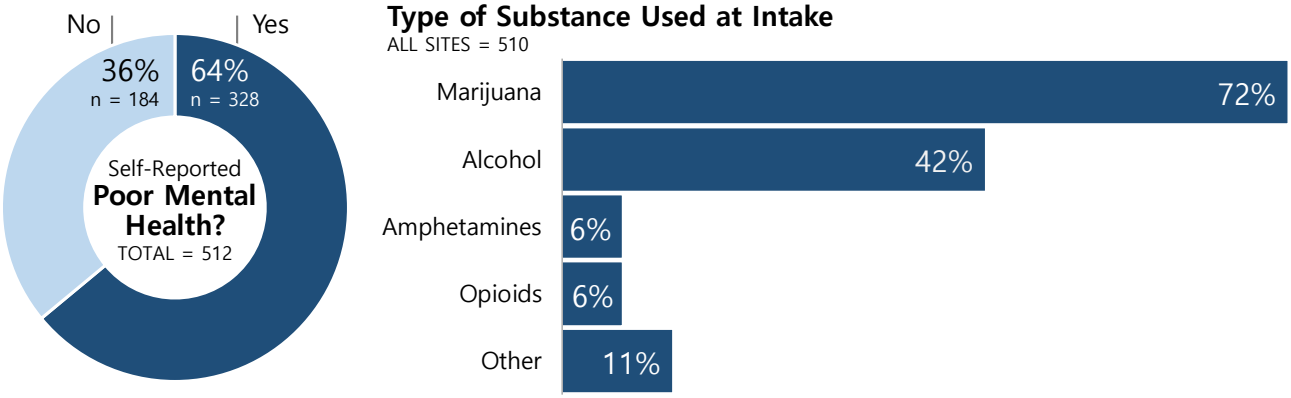
Marijuana and alcohol were the most commonly used substances among WSYT-I participants at baseline, based on Government Performance Results Act (GPRA) intake interviews. About 72 percent of participants reported using marijuana during the 30 days prior to intake, compared to 42 percent who reported using alcohol. Other types of substances were used by a considerably smaller number of participants. About 6 percent of the participants reported using meth or other amphetamines, 6 percent reported using opioids, and 11 percent reported using other drugs.[1] These patterns were similar across all WSYT-I sites.

One priority of the WSYT-I program was to enhance treatment and recovery support for youth with co-occurring SUD and mental health disorders. Overall, 64 percent of WSYT-I participants reported poor mental health status before entering the program during GPRA intake interviews.[2] There was considerable variation across sites regarding baseline mental health status. In Excelsior (Spokane), which served predominantly youth with co-occurring conditions, 99 percent of the participants reported poor mental health during the 30-day period prior to enrollment. The two sites located in urban King County had lower percentages of participants with poor mental health status at baseline than other sites. About 25 percent of participants from Consejo and 43 percent of participants from CHS reported poor mental health at baseline.

FIGURE 3

Mental Health Status and Substance Use

Total Enrollment = 534



WSYT-I Services

Four of the five community-based WSYT-I sites implemented Global Appraisal of Individual Needs (GAIN) assessments and provided treatment following the Adolescent Community Reinforcement Approach (A-CRA). GAIN is a biopsychosocial assessment developed to collect an individual's information on substance use, risk behaviors, mental health, living situation, service utilization, and an array of other domains. The assessment is a validated tool to evaluate the severity of SUD problems and support treatment placement and planning (Gray et al., 2018). The A-CRA program is an SUD treatment model that assists youth to achieve and maintain abstinence by providing family, social,

[1] Opioids include heroin, prescription opioids, and non-prescription methadone. Amphetamines include both methamphetamines and other amphetamines (e.g., Uppers, Speed, Ice, Chalk, Crystal, Glass, Fire, Crank). Other drugs include cocaine, hallucinogens, tranquilizers, inhalants, and other illegal drugs. Percentages do not sum to 100% because one client may use more than one type of substance.

[2] Self-reported any day during the past 30 days with experiences of serious depression, anxiety, hallucinations, trouble focusing or remembering, trouble controlling violent behavior, attempted suicide, or has been prescribed medication for psychological/emotional problems, not due to alcohol and substance use.

educational, and vocational reinforcers that make the alcohol- and drug-free life style more rewarding (NIDA, 2014). A-CRA was designated in SAMHSA's National Registry of Evidence-based Programs and Practices (NREPP) as an evidence-based practice for youth in SUD treatment, and was one of the programs that had received the most funding support from SAMHSA to address adolescent substance use disorders (Hunter, et al., 2017).

All five sites provided recovery support services to participating youth. These services, as defined by DBHR's Recovery Support Services – Adolescent Substance Abuse (RSS-ASA) manual, are "non-clinical services that assist individuals and families to recover from alcohol and drug problem." The WSYT-I program funds a recovery support service coordinator at each provider site to oversee participants' recovery processes, maintain regular contact with participants and families, assess participants' needs, and facilitate the delivery of individualized services. The program provides a broad array of recovery support services that aim to provide "person-centered services that address the unique needs of youth participating in or transitioning out of formal treatment services in their community."[3]

Youth Receiving Individualized Recovery Support Services

Site	N	%
True North (Grays Harbor)	106	88%
True Star (Clallam)	108	92%
Center for Human Services (King)	61	58%
Consejo (King)	44	43%
Excelsior (Spokane)	62	71%
TOTAL	**381**	**71%**

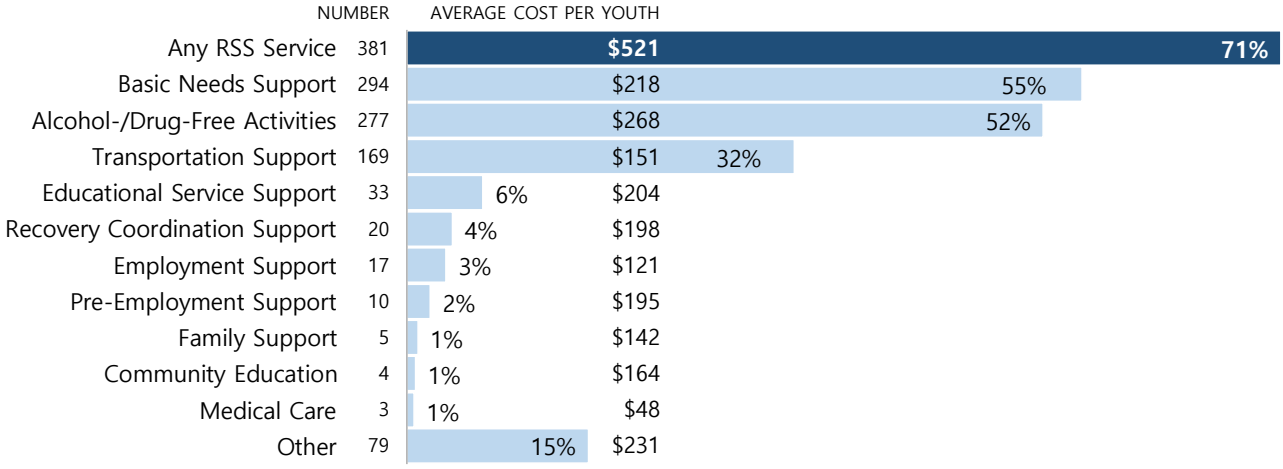
We collected data on the types and costs of recovery support services provided to WSYT-I participants. In total, 381 WSYT-I participants (71 percent) received at least one individualized recovery support service after enrolling in the WSYT-I program. Figure 4 shows the range of services received by WSYT-I participants. The most common types of recovery support services were alcohol- or drug-free activities (e.g. group field trips and gym memberships) and basic needs support (e.g. food and clothing). Over half of participants received these two types of services. A total of 169 participants (32 percent) received transportation support (e.g., bus passes and gas cards).

Among participants who received any recovery support services, the average cost of services was $521. Providers reported the highest per-client cost on alcohol- and drug-free activities, basic needs and other recovery support services.

FIGURE 4

Recovery Support Services

Total Enrollment = 534



[3] Recovery Support Services – Adolescent Substance Abuse (RSS-ASA): Recovery Support Services Guidelines. Developed by Division of Behavioral Health and Recovery, Washington State Health Care Authority.

Self-Reported Outcomes

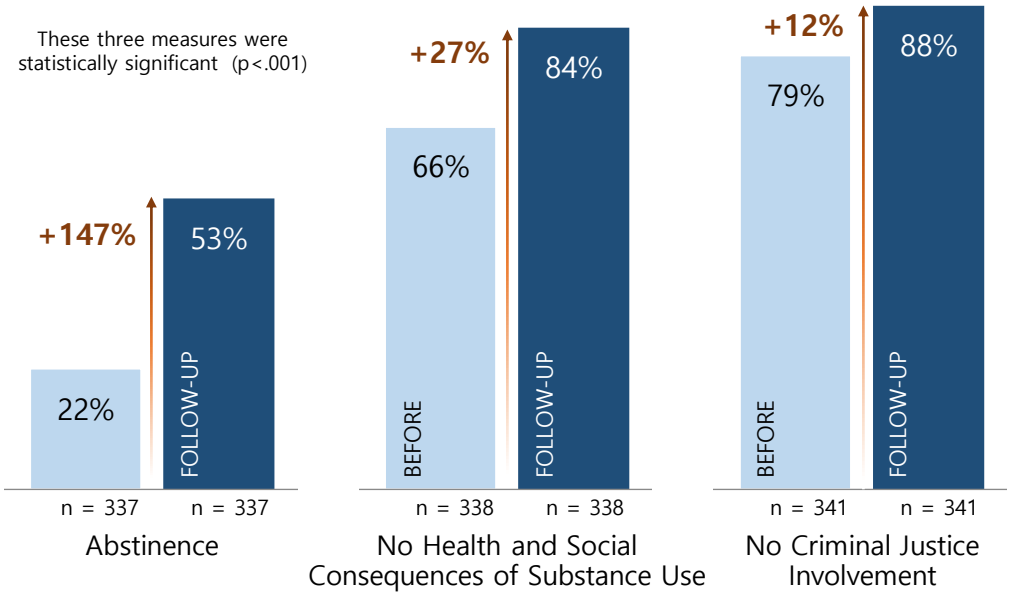
Self-reported outcomes were available for WSYT-I participants who were interviewed using Government Performance Results Act (GPRA) tools as part of SAMHSA's performance measurement requirements of the grant. Participants were interviewed at baseline, 6 months post-baseline, and discharge. This section of the report summarizes findings comparing the outcomes from participants' intake interviews with reassessments 6 months after intake. Analyses were restricted to participants who reported outcomes at both intake and 6-month follow-up interviews.

Overall, participants reported increased rates of abstinence, reduced health and social consequences from alcohol and drug use, and less criminal justice involvement. At intake, 22 percent of the participants reported no alcohol or drug use during the 30 days before intake. The rates of abstinence more than doubled to 53 percent at 6-month post-baseline reassessments. Regarding consequences of alcohol and drug use, about two out of three participants reported no health, behavioral, or social consequences due to substance use at baseline. This rate improved to 84 percent at 6-month reassessments, representing an increase of 27 percent. A total of 79 percent of the participants reported no criminal justice involvement at baseline. The rates improved to 88 percent at reassessments. These changes were statistically significant ($p<0.01$). We did not find significant changes on other GPRA performance measures assessed (see Appendix Table 1).

FIGURE 5

Self-reported Abstinence, Crime, Social and Health Consequences

Total Enrollment = 534



Impact Evaluation: WSYT-I and SAT-ED

In the impact evaluation, we examined the outcomes of WSYT-I participants compared with those in a comparison group constructed through statistical matching. To ensure that we had available administrative data prior to and after WSYT-I enrollment, we limited the impact evaluation to WSYT-I participants who received Medicaid or SCHIP benefits, and those who had at least a 12-month follow-up data availability. Specifically, we included 179 WSYT-I participants who:

- Enrolled in WSYT-I between January 2016 and September 2017;
- Had an SUD treatment episode within 45 days of enrollment;
- Received Medicaid or SCHIP coverage for at least one month in 12-month windows both before and after enrollment in WSYT-I; and
- Received WSYT-I services in the four provider sites that offered evidence-based assessment and treatment, as well as recovery support services. Participants served by Excelsior Treatment Center in Spokane did not receive evidence-based assessment (GAIN) or treatment (A-CRA), and therefore were not included in the impact evaluation.

Prior to WSYT-I program, Washington State implemented the SAT-ED program, which also offered GAIN assessment, A-CRA based treatment, and recovery support services. The SAT-ED impact evaluation found that SAT-ED participants were significantly more likely to complete SUD treatment when compared with a matched comparison group. The participants also showed promising improvements in key outcome indicators in employment and juvenile justice involvement, although these promising program effects were not statistically significant (Pavelle et al., 2016). The two provider sites which offered SAT-ED services also participated in the WSYT-I program.

Because the WSYT-I and SAT-ED programs offered very similar services, we included 190 SAT-ED participants in the impact evaluation to form a combined WSYT-I/SAT-ED treatment group. Due to increased statistical power, the larger combined sample gave us a better chance of detecting program effects than a smaller sample would have allowed.

The WSYT-I/SAT-ED group included a total of 363 youth. Propensity score matching methods were used to construct a comparison group (n=363) with youth who entered into publicly funded outpatient SUD treatment during the same quarter as the WSYT-I/SAT-ED group youth. The WSYT-I/SAT-ED and comparison groups were matched based on demographic characteristics, substance use and mental health history, behavioral health and physical health service utilization, criminal justice involvement, and other baseline indicators (see Appendix Table 2). This section of the report presents findings from the impact evaluation by comparing the outcomes of the WSYT-I/SAT-ED group and the comparison group.

Substance Use Disorder Treatment Episode Measures

The quality and success of the current episode of outpatient SUD treatment was measured using Washington Circle measures, including treatment initiation and engagement (Garnick et al., 2009). Past research has demonstrated that these metrics, which measured the frequencies and timeliness of services received, were associated with successful treatment outcomes (Garnick et al., 2012). Additionally, we examined the completion rates of the current SUD treatment episode.

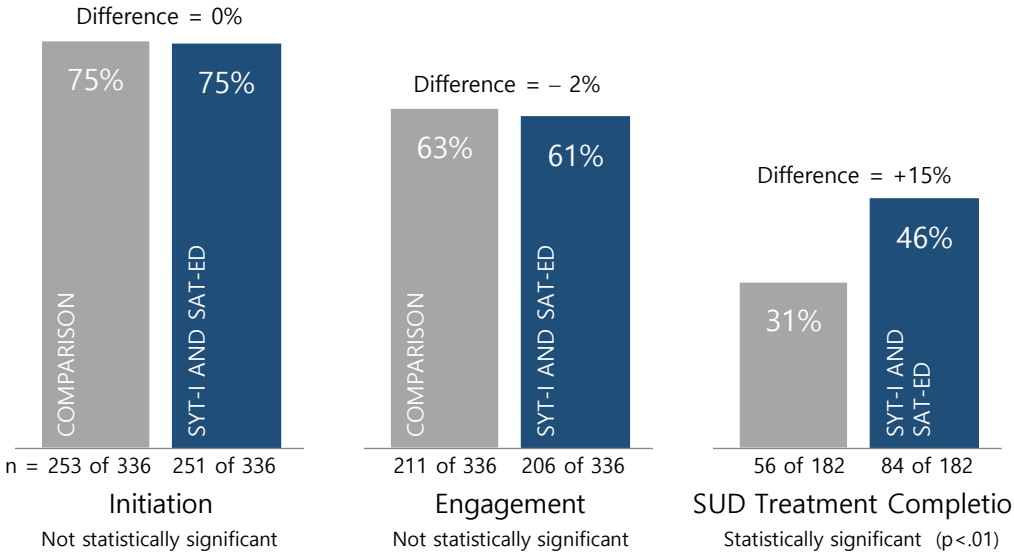
Figure 6 shows the outcomes of the SUD treatment episode that WSYT-I and SAT-ED participants experienced when enrolled in SYT-I and SAT-ED. A total of 75 percent of the participants met initiation standards, and 61 percent met engagement standards. The rates of successful initiation and engagement for WSYT-I and SAT-ED participants were not significantly different from those of the comparison group. Among the participants who had treatment discharge data, the results indicated

that WSYT-I and SAT-ED participants were more likely to be discharged as completing treatment than the comparison group (46 percent vs. 31 percent). The difference in treatment completion rates between the two groups was statistically significant (p<.01).

FIGURE 6

Treatment Initiation, Engagement and Completion of the Current Treatment Episode

Total Sample Size = 672



Initiation – Client received at least one additional outpatient SUD treatment service within 14 days of intake.

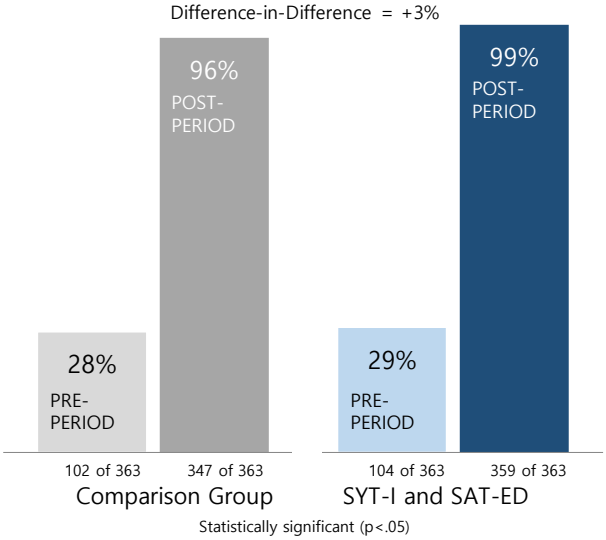
Engagement – Client received at least two additional outpatient SUD treatment services within in 30 days after initiation.

Completion – Client was discharged as completing treatment. Discharge status was not available for all STY-I, SAT-ED, and comparison group members due to non-reporting. Only matched pairs with known discharge status were included in this analysis. Baseline characteristics not balanced between the two groups (ASMD>.2) were included as control variables when we tested statistical significance. Reported rates of completion for matched pairs are shown above.

Substance Use Disorder Treatment Utilization

FIGURE 7

SUD Outpatient Treatment Services



We examined the difference-in-difference in SUD treatment utilization rates for SYT-I and SAT-ED participants and the comparison youth. Results indicated that participation in the WSYT-I and SAT-ED programs led to increased utilization of SUD outpatient treatment services.

- During the 12-month period prior to enrollment, 28 percent of the WSYT-I/SAT-ED group and 29 percent of the comparison group received SUD outpatient services.
- During the 12-month follow-up period, 99 percent of the WSYT-I/SAT-ED group and 96 percent of the comparison group received SUD outpatient service.
- The difference-in-difference of 3 percentage points was statistically significant.

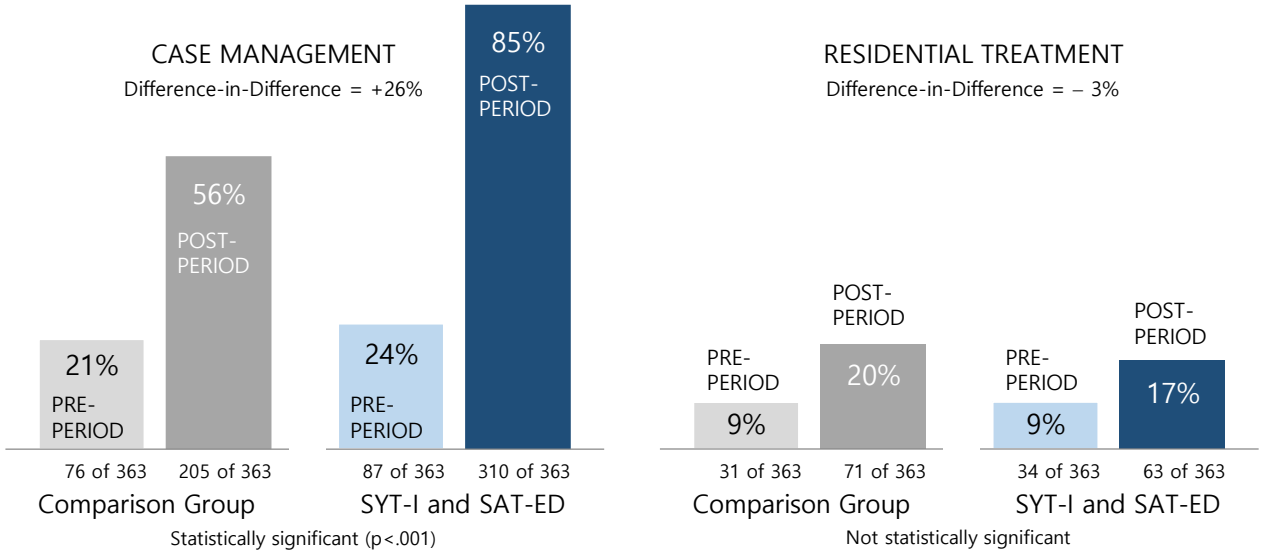
Compared with the pre-enrollment period, the WSYT-I/SAT-ED group also had a greater increase in case management services in the follow-up period than the comparison group.

- During the 12 months prior to enrollment, fewer than 25 percent of both the SYT-I/SAT-ED group and the comparison group received any SUD case management service.
- During the 12-month follow-up period, slightly more than half of the comparison group had SUD case management, while 85 percent of the WSYT-I/SAT-ED group received such services.
- The difference-in-difference of 26 percentage points indicated that participation in WSYT-I/SAT-ED significantly increased the utilization of case management services.

For both the WSYT-I/SAT-ED and the comparison groups, more youth received SUD residential treatment during the follow-up period than the pre-enrollment period. The increase was slightly smaller among the STY-I/SAT-ED youth than among the comparison youth. The difference, however, was not statistically significant.

FIGURE 8

SUD Case Management and Residential Treatment Services



Q. What is a Difference-in-Difference?

Difference-in-differences (DID) are calculated as the difference in change overtime between the treatment and comparison groups. For example, to calculate the DID of case management service utilization, we followed the steps below:

- Calculate pre-post change in case management utilization rate of the WSTY-I/SAT-ED group:

  24% in pre-period and 85% in the post period = +61%

- Calculate pre-post change in case management utilization rate of the comparison group:

  21% in pre-period and 56% in post-period = +35%

- Calculate the difference-in-difference:

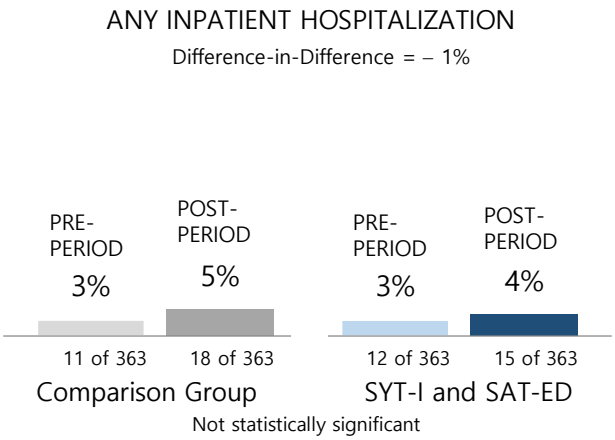
  (+61%) – (+35%) = 26%

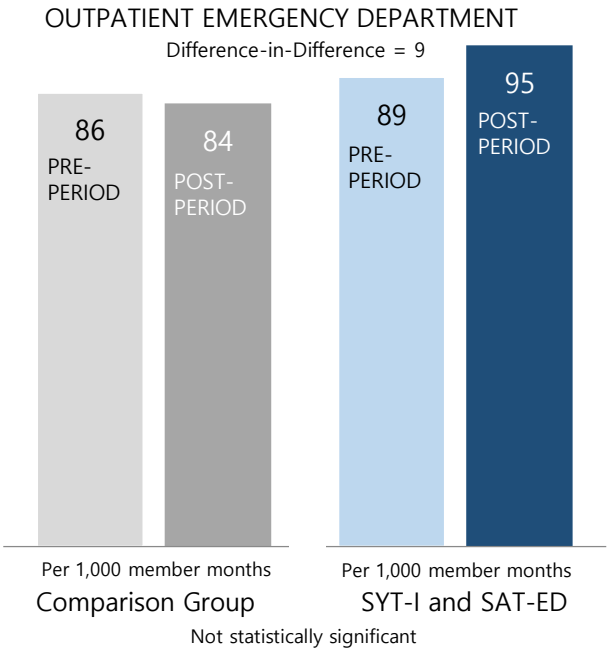
Medical Utilization

We examined the utilization of medical services of WSYT-I/SAT-ED participants and the comparison group members. Overall, the WSYT-I and SAT-ED participants had rates of utilization comparable to those of the comparison group. Inpatient hospitalization was uncommon among both groups, and the rates remained stable in the pre-enrollment and follow-up periods. We did not find statistically significant differences in outpatient ER visits between the two groups (p=0.47).

FIGURE 9

Inpatient Hospitalization and Outpatient Emergency Department Use



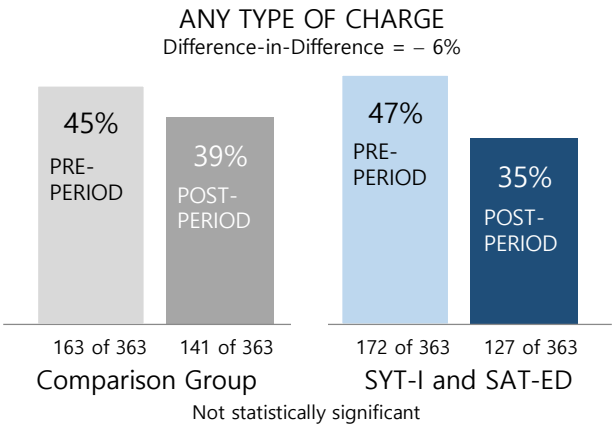


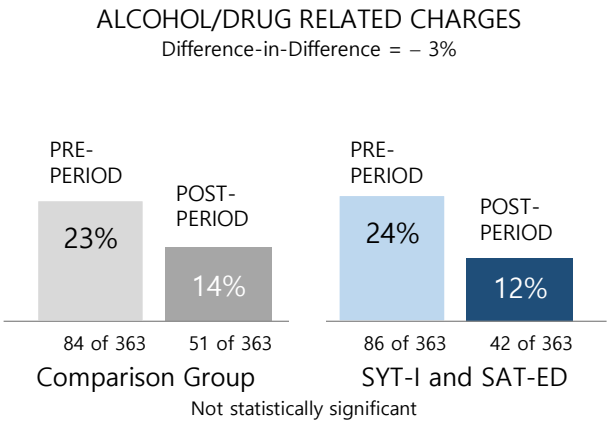
Criminal Justice Involvement

To evaluate the impact of WSYT-I/SAT-ED services on criminal justice involvement, criminal charges before and after program enrollment were analyzed. We also examined criminal charges related to alcohol and drug use, which may include offenses such as driving under the influence (DUI), drug possession and drug delivery. Both the WSYT-I/SAT-ED and comparison groups had fewer charges in the 12-month follow-up period compared to the pre-enrollment period. The difference in reduction between the two groups was not statistically significant.

FIGURE 10

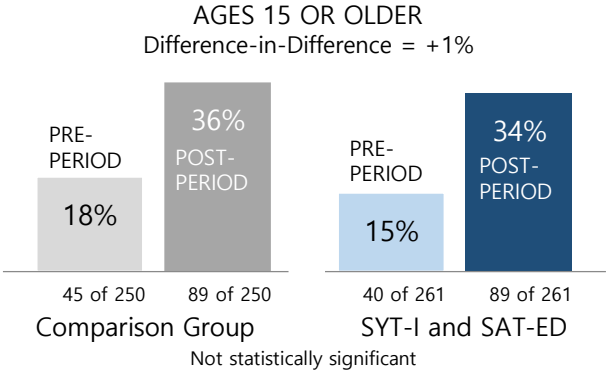
Any Type of Charge and Alcohol/Drug Related Charges





Employment Income

FIGURE 11
Any Employment Income



For participants ages 15 or older, we examined their employment income before and after enrollment. As expected, more youth reported employment income during the 12-month follow-up period than the 12-month baseline period. The increase in the percentage of individuals with employment earnings was comparable between the WSYT-I/SAT-ED group and the comparison group.

Discussion

This report summarizes the demographic characteristics, services received, and outcomes of a group of youth who participated in the WSYT-I program and received enhanced SUD treatment and recovery support services. We also present findings from an impact evaluation, which compared the outcomes of youth participating in the WSYT-I and SAT-ED programs with a group of comparison youth who shared similar baseline characteristics and entered into SUD outpatient treatment services at similar times. Results show positive relative improvement among program participants in some areas.

Self-reported results from GPRA interviews indicated that participants of WSYT-I had improved outcomes 6 months after program enrollment in several areas. More youth reported abstinence from alcohol or drug use at 6-month follow-up interviews than at the baseline. During the same time period, fewer youth reported having criminal justice involvement and health, behavioral health, or social consequences from alcohol and drug use.

The impact evaluation revealed that youth who received enhanced services under the WSYT-I and SAT-ED programs were more likely to complete treatment. Participation in the WSYT-I and SAT-ED programs led to increased utilization of SUD outpatient and case management services. These findings indicated that WSTY-I and SAT-ED services positively impacted youth treatment outcomes in these areas.

Study Limitations

There were two main limitations for this study.

1. Because the evidence-based treatment (A-CRA), assessment (GAIN), and recovery support services were provided for the same program participants, we were unable to unpack program impact and evaluate the effectiveness of each component of the WSYT-I program separately. One provider site, Excelsior Treatment Center in Spokane, offered recovery support services coupled with "business-as-usual" SUD treatment. However, the provider site joined the program one year later than other sites. The small number of enrollees at this site did not allow us to conduct a separate analysis for this provider site.
2. Data were not available for some outcomes that may be impacted by successful SUD treatment. Notably, education outcomes of program participants were not available to the evaluation team at this time, although many of them reported being in school. Future studies should address the impact on education for in-school youth receiving enhanced SUD treatment.

Supporting Tables

TABLE 1

Selected GPRA Performance Measures at Intake and 6-Month Follow-up

	Number of Cases	Intake	6 Month Follow-up	Rate of Change 0-6 Months
Abstinence from Use	337	22%	53%	+147%***
Stability in Housing	353	86%	87%	+1%
Currently Employed or In School	352	89%	89%	-0%
No Health/Behavioral/Social Consequences	338	66%	84%	+27%***
No Criminal Justice Involvement	341	79%	88%	+12%***
Socially Connected	349	73%	76%	+4%
No Self-Reported Poor Mental Health	341	33%	38%	+21%
Good Physical Health	351	83%	86%	+4%

NOTE: ***Statistically significant (p<.001).

DEFINITIONS:

Abstinence from Use: A person is considered abstinent if for the past 30 days she/he did not use alcohol or illegal drugs.

Housing Stability: A youth is considered "Housed" if for most of the time in the past 30 days they: (a) "Own/Rent Apartment, Room, or House"; or (b) Live in "Someone else's apartment, room, or house."

Employment/Education: A person is considered currently employed or in school if enrolled in school or a job training program either full- or part-time (including on summer break) OR if employed full- or part-time.

No Health/Behavioral/Social Consequences: A person is considered to have experienced no health/behavioral/social consequences if the person did not experience stress or emotional problems, or give up important activities due to alcohol or drug use during the past 30 days.

No Criminal Justice Involvement: A person is considered to have no involvement in the criminal justice system if she/he was not arrested the past 30 days.

Social Connectedness: A person is considered socially connected if in the past 30 days the person had (a) attended any self-help groups for recovery; (b) had an interaction with family and/or friends that are supportive of his/her recovery.

No Self-Reported Poor Mental Health: Did not reported any day during the past 30 days with experiences of serious depression, anxiety, hallucinations, trouble focusing or remembering, trouble controlling violent behavior, attempted suicide, or been prescribed medication for psychological/emotional problems, not due to alcohol and substance use.

Good Physical Health: Reported excellent, very good, or good health at the time of the interview.

TABLE 2

Baseline Characteristics of WSYT-I/SAT-ED Participants and Comparison Group

	WSYT-I and SAT-ED TOTAL = 363	**Comparison Group** TOTAL = 363
Gender		
Male	55.4%	54.3%
Female	44.6%	45.7%
Average Age	15.3	15.3
Minority Group (Categories not mutually exclusive)		
American Indian or Alaskan Native	20.7%	19.6%
Asian or Pacific Islander	4.7%	4.1%
Black or African American	10.7%	10.2%
Hispanic	22.9%	23.1%
Sexual Orientation		
Heterosexual	89.5%	89.5%
Gay, lesbian, bi-sexual, or questioning	7.5%	7.5%
Sexual orientation unknown	3.0%	3.3%
County of Residence		
Urban, high density	21.1%	21.1%
Other	78.9%	78.9%
Substance Use (Reported at admission of the current treatment episode)		
Alcohol use in past 30 days: 1-3 days	28.9%	27.0%
Alcohol use in past 30 days: 4-12 days	13.5%	11.0%
Alcohol use in past 30 days: 13+ days, but not daily	4.7%	4.7%
Alcohol use in past 30 days: daily	3.3%	3.0%
Marijuana use in past 30 days: 1-3 days	10.5%	11.3%
Marijuana use in past 30 days: 4-12 days	21.2%	21.2%
Marijuana use in past 30 days: 13+ days, but not daily	18.2%	18.5%
Marijuana use in past 30 days: daily	31.7%	29.8%
Any opiate use in past 30 days	9.1%	11.8%
Any meth and amphetamines use in past 30 days	10.5%	10.2%
Any other drug use in past 30 days	9.1%	11.1%
Age at first use (across all reported drugs)<12 years	24.8%	23.4%
SUD Treatment prior to enrollment		
Outpatient treatment: None	71.3%	71.9%
Outpatient treatment: 1-10 days	13.5%	13.2%
Outpatient treatment: 11-30 days	9.1%	6.9%
Outpatient treatment: 31+ days	6.1%	8.0%
Residential treatment: Any	9.4%	8.5%
Case management: Any	24.0%	20.9%
Withdrawal management: Any	0.6%	0.8%
Assessment: Any	63.9%	63.9%
Mental Health Treatment Services		
Outpatient	42.4%	41.6%
Inpatient	3.9%	3.6%
Crisis service	14.9%	14.3%

	WSYT-I and SAT-ED TOTAL = 363	Comparison Group TOTAL = 363
Mental Health Diagnoses		
Depression	25.9%	26.4%
Anxiety disorder	19.0%	20.4%
Bipolar/Mania	3.6%	4.1%
Psychotic disorder	3.0%	1.0%
ADHD	12.9%	11.8%
Disruptive/impulse/conduct disorder	10.7%	10.7%
Psychotropic Medication		
Antipsychotic Rx	3.9%	5.0%
Antidepressant Rx	19.8%	21.2%
Anxiety Rx	6.3%	5.0%
ADHD Rx	11.8%	11.6%
Mania Rx	0.3%	0.6%
Other Behavioral Health Indicators		
SUD treatment need in in 24 months prior to enrollment	62.0%	62.5%
Mental health treatment need in 24 months prior to enrollment	68.6%	67.6%
Social Service Use		
Basic Food	65.0%	65.8%
TANF	16.5%	15.7%
Any child welfare services	44.1%	43.8%
Any out-of-home placements in 12 months prior to enrollment	8.5%	9.4%
Any out-of-home placements during the enrollment month	7.4%	8.0%
Health Status and Health Services		
Any month receiving Medicaid disabled coverage	4.4%	4.4%
High risk for chronic illness (DxRx score>1)	6.3%	6.9%
Inpatient hospitalization	3.3%	3.0%
Emergency department visits: no visit	47.7%	47.9%
Emergency department visits: 1 visit	28.9%	27.8%
Emergency department visits: 2 visits	13.5%	16.3%
Emergency department visits: 3+ visits	9.9%	8.0%
Criminal Justice Involvement		
JRA services	9.9%	12.1%
Any charges	47.4%	44.9%
Any AOD-related charges	23.7%	23.1%
Any convictions	43.3%	40.5%
Any AOD-related convictions	19.6%	19.3%
Other Baseline Indicators		
Employed	4.4%	3.9%
Unstable housing	9.4%	8.0%

NOTE: Baseline is defined as 12 months prior to enrollment, unless otherwise indicated. All differences shown had absolute standardized mean difference (ASMD) less than 0.1, indicating acceptable balance, except for "county of residence", for which ASMD is not a suitable measure of balance. The comparison group members were exact matched on the urbanicity of county of residence, resulting in perfect balance between the two groups on this variable.

STUDY DESIGN OF THE IMPACT EVALUATION

We used a quasi-experimental longitudinal design to evaluation the impact of the enhanced services provided by the WSYT-I and SAT-ED programs. Key behavioral health, health, service utilization, and social indicators for WSYT-I and SAT-ED participants before and after program enrollment were compared with those of a group of comparison youth who received publicly funded, business-as-usual SUD treatment.

WSYT-I and SAT-ED Treatment Group:

- Enrolled in WSYT-I or SAT-ED at any site except Excelsior (Spokane) between January 2013 and September 2017;
- Ages 12-18 at the time of enrollment;
- Received SUD outpatient treatment services within 45 days of enrollment at the provider site; and
- Had Medicaid Title 19 or SCHIP coverage in at least one month during the 12-month windows before and after the enrollment month.

Comparison Pool:

- Received publicly funded SUD outpatient treatment between January 2013 and September 2017;
- Ages 12-18 at the time of admission;
- Did not receive treatment services at the WSYT-I or SAT-ED provider sites; and
- Had Medicaid Title 19 or SCHIP coverage in at least one month during the 12-month windows before and after the admission month.

Propensity score matching. To identify a group of comparison youth that share similar baseline characteristics as the treatment group, we employed a statistical method called propensity score matching. We developed an algorithm-based model that predicts the probability of being in the WSYT-I/SAT-ED group with a wide array of indicators that may be correlated with SUD treatment outcomes. These indicators included demographic characteristics, behavioral health history, social service utilization, and criminal justice involvement. An iterative process was adopted to identify interactions of baseline indicators and develop the algorithm that achieves strong balance. The unit of analysis was SUD outpatient treatment episode. Comparison treatment episodes with admission dates in the same quarter as the WSYT-I and SAT-ED youth were matched based on the propensity scores obtained from the algorithm. Matching was conducted with replacement using the nearest neighbor method. One comparison youth may be matched to multiple treatment youth, and multiple treatment episodes from one comparison youth may be matched to different treatment youth. To test the balance between the comparison and treatment groups after matching, we examined the absolute standardized mean difference (ASMD) for baseline measures. See Appendix Table 2 for details of baseline matching indicators.

Analytical approach. We assessed whether WSYT-I and SAT-ED services had an impact on youth outcomes using generalized estimating equations (GEE). This approach allowed us to evaluate longitudinal data which were also clustered.

DATA SOURCES AND MEASURES

Data used for this report included interviews collected by the provider sites to meet federal reporting requirements and administrative data from the Integrated Client Data Base (ICDB).

Government Performance and Results Act (GPRA) Client Outcome Measures. The WSYT-I providers were required to conduct GPRA interviews for all participants at program intake, 6-month follow-up, and discharge. The GPRA interviews were conducted face-to-face, and included measures on alcohol and drug use, mental and physical health, and other social outcomes related to substance use such as education, employment, criminal justice, and social connectedness. We report the results of the GPRA outcome measures for WSYT-I participants in the section "Self-reported Outcomes".

Integrated Client Data Base (ICDB). Administrative data came from the Integrated Client Database (ICDB), a set of longitudinal client databases containing 20 years of detailed service risks, history, costs, and outcomes (Mancuso, 2014).

- **Demographic characteristics:** Age, race, gender, and county of residence information came from compiled client records in the ICDB. Sexual orientation information was retrieved from DBHR's electronic data system Behavioral Health Data System (BHDS).
- **Behavioral health indicators:** Information on the current SUD treatment episode, including types of substance, frequency of use, and age of first use across reported drugs came from BHDS. Information about mental health diagnoses, SUD and mental health treatment history was retrieved from BHDS and the Medicaid electronic data system ProviderOne, including encounter records submitted by the Behavioral Health Organizations.

  - **Mental health treatment need:** Mental health treatment need was defined as having at least one mental health diagnosis, prescription or service recorded in the administrative data.
  - **Substance use disorder treatment need:** Substance use disorder treatment need was defined as having at least one substance use disorder diagnosis, prescription or service recorded in the administrative data, or having a drug- or alcohol-related arrest from Washington State Patrol.
- **Health care indicators:** Medical eligibility, emergency department visits, medical inpatient hospitalization were identified from the ProviderOne medical claims and encounter records for Medicaid/SCHIP clients.
- **Social service use:** Recipients of TANF and Basic food were identified from client records in the ICDB. Homelessness and housing instability indicators were based on living arrangement code recorded during eligibility determination. These data elements were originally integrated from the Automated Client Eligibility System (ACES). Child welfare indicators, including receipt of child welfare services and out-of-home placements were ICDB data elements originally integrated from FamLink data system maintained by the Department of Children, Youth, and Families.
- **Criminal justice involvement:** Criminal justice involvement was measured as receiving any service from Juvenile Rehabilitation, or having any arrest, charge, conviction records in the Washington State Patrol (WSP) data and the WSIPP Criminal History Database.

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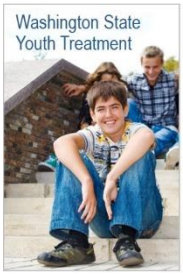

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