PACIFIC INSTITUTE FOR RESEARCH AND EVALUATION

Vermont School-based Substance Abuse Services

Final Evaluation Report

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Acknowledgments

This report was prepared by the Pacific Institute for Research and Evaluation (PIRE) for the Vermont Department of Health (VDH), Division of Alcohol and Drug Abuse Programs (ADAP). Authors are Amy Livingston and Bob Flewelling.

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Introduction

Vermont's School-Based Substance Abuse Services (SBSAS) program was initiated in 2012 as a mechanism to support substance use prevention and early intervention services in selected Supervisory Unions/School Districts throughout the state. In the initial cycle of SBSAS, awards of up to $40,000 each year were made to twenty-one Supervisory Unions (SUs) and School Districts based on a competitive process that took into consideration need, readiness, and strength of the plan included in their applications. These initial grants were for three years (State FY 13-15) and grantees also received funding for a fourth year (FY 16). For the purposes of this report, this grant cycle will be referred to as Cycle 1.

For state fiscal year 2017, awards of $40,000 each were made to twenty SUs, again based on a competitive process. These awards were also three-year (FY17-19) continuation grants contingent on satisfactory performance and the availability of funds. This grant cycle will be referred to as Cycle 2.

The SBSAS grants are aimed at the following Healthy Vermonter 2020 objectives:

- Reduce past month use of alcohol, marijuana and other illicit substances among adolescents (12-17)
- Reduce binge drinking among adolescents (12-17)

In addition, the following intermediate outcomes were also identified as a focus for this grant, as based on the logic models for the SBSAS initiative developed in collaboration with ADAP (see Appendix A: School-based Substance Abuse Services Logic Model):

- Increase the percent of schools that have integrated substance use prevention into their Coordinated School Health Teams (Cycle 1) and their Whole School, Whole Community, Whole Child (WSCC) initiatives (Cycle 2).
- Increase the percent of students reporting that teachers really care about them and give them a lot of encouragement.
- Increase the percent of students reporting that they matter in their community.
- Increase the percent of students reporting that there is an adult in their school that they can talk to if they have a problem (added for Cycle 2).
- Increase the percent of students perceiving risk of having five or more drinks.
- Increase the percent of students perceiving risk of using marijuana.

For both grant cycles, all SUs receiving SBSAS funds were required to participate in Vermont's biennial administration of the Youth Risk Behavior Survey (YRBS) and the School Health Profiles (SHP), deliver screening and referral to substance misuse and mental health services and conduct activities that support the CDC's Coordinated School Health (Cycle 1) and Whole School, Whole Community, Whole Child (Cycle 2) frameworks. In addition to these

required activities, SUs could choose from a menu of additional prevention and early intervention activities. These included:

- evidence-based classroom curricula addressing the prevention of substance use,
- peer leadership/youth empowerment groups,
- provision of prevention-related information to parents,
- evidence-based parent education programs,
- teacher and support staff training on alcohol, tobacco and other drug prevention, and
- educational support groups.

Each funded SU had the ability to decide how to allocate their SBSAS funds, and to choose which schools within their district would implement the required and optional activities.

Evaluation Approach

To a great extent, the grantees and their SBSAS-funded activities funded under cycle 1 of the SBSAS program remained the same for cycle 2. For evaluation purposes it is therefore reasonable to view both cycles as a single 7-year program and focus this evaluation on the entire program. Process evaluation serves the very important purpose of describing how the program was implemented, how implementation varied across grantees, barriers that were encountered, and insights regarding activities that were executed well and/or seemed especially important. In this report, the process evaluation findings focus primarily on cycle 2 activities, but they also summarize the previously reported findings from cycle 1 and note any significant shifts in implementation that may have occurred with the cycle 2 funding.

For outcome evaluation purposes, the reasons for looking across the entire timeframe of the program (i.e., both cycles) are especially compelling. Outcome data, supplied by the YRBS, are available for every odd-numbered year over the entire timeframe of the SBSAS program. Findings regarding outcomes for more limited timeframes have been inconsistent, fluctuating over time and across outcome measures. Additionally, any outcomes observed in cycle 2, especially among high school students, could be connected to cycle 1 activities rather than, or in addition to, activities implemented during cycle 2. Analyzing outcome measures over the entire span of the program provides a clear and definitive baseline year (2011) prior to any SBSAS-funded activity, and four subsequent data points in which to track outcomes over time. This approach is designed to help assess the degree to which the SBSAS grants program, in its entirety to date, has led to observable net improvements in targeted outcomes.

To facilitate this approach to outcome evaluation, we focus on the group of SUs that were funded in <u>both</u> cycles and then compare them to the group of SUs that were not funded in either cycle. Appendix B provides a list of the SUs and their SBSAS funding status. We also focus on YRBS data from <u>high school</u> students only. Substance use prevalence rates for middle school students, even for alcohol and marijuana, are based on relatively small numbers of students who report use. Trends and patterns for these rates, therefore, can fluctuate widely across SUs and across years. Additionally, by examining outcome measure trends across the entire 8-year span (2011-2019), any impacts of SBSAS would likely be more evident among high school students due to their longer exposure to the strategies implemented.

As in all previous reports, the outcome analysis will again focus on these three questions:

1) have substance use rates and risk factors declined in the funded SUs (collectively)?

2) have the funded SUs outperformed non-funded SUs in terms of reducing substance use and risk factor rates (over the entire 2011-2019 time period)?

3) are there certain characteristics of SUs that are associated with better outcomes (among the funded SUs)?

Process Evaluation

Data Sources

For both cycles, data on implementation was collected through online survey platforms (Survey Monkey for Cycle 1 and Survey Gizmo for Cycle 2). For Cycle 2, grantees were required to submit reports through Survey Gizmo on each of the required and optional activities being implemented twice a year in January and July. These reports include quantitative data on reach of their programs, progress on key components of each activity, and narrative on progress, lessons learned and training and technical assistance needs.

SUs receiving SBSAS funding were also required to participate in the School Health Profiles (SHP), a tool developed by the Centers for Disease Control (CDC) to assess school health policies and practices. The SHP is administered at middle and high schools every two years by VDH and consists of two questionnaires; one that is completed by the Principal and the other that is completed by the Lead Health Education Teacher. VDH has been able to add some SHP indicators that are specifically relevant to SBSAS in order to assess funded schools' capacity to address alcohol and drug prevention, referral to services as well as their use of the WSCC framework. For Cycle 2, the SHP were completed by schools in the late winter/early spring of 2018 and the indicators relevant to SBSAS were analyzed for this evaluation by VDH Health Surveillance. A comparison of some of the 2018 School Health Profiles indicators from funded and non-funded schools will be provided in the section on WSCC below.

A third process evaluation data source for Cycle 2 includes data collected through interviews with four SUs that were identified because they had received SBSAS funding through both cycles of the grant and because trends in their high school student substance use rates from the 2011 to 2019 administration of the YRBS compared favorably to the state as a whole. The purpose of these interviews was to gain insights into how these SUs achieved success on these outcome measures and how SBSAS may have contributed to their success.

This section will summarize data from all of the sources described above. A detailed summary of Cycle 1 process data was included in a previous report submitted to ADAP in June of 2016[1] so only a brief recap is provided here.

[1] Vermont School-Based Substance Abuse Services State Fiscal years 2013-2015 Executive Summary: Final Evaluation Report, https://www.healthvermont.gov/sites/default/files/documents/2017/02/ADAP_SBSAS%20Evaluation%20Report%20Exec%20Summary%20Final.pdf

Required Activities

Whole School, Whole Community, Whole Child

> *"This has been an incredible support team. The cross connection of domains and personal connections to the individuals and their work has strengthened the overall Wellness of the district."*
>
> SBSAS grantee on the WSCC team

All grantees were required to support the Whole School, Whole Community, Whole Child (WSCC) model, which is the Center for Disease Control's (CDC) framework for addressing the health and wellness of students. SBSAS grantees were expected to form a WSCC team with representatives from across the SU. These teams were expected to meet four times a year and to review and update policies that support student wellness including policies to address student alcohol and drug use. Table 1 below shows the average number of WSCC team meetings per year and the number of SUs meeting or exceeding the expected four meetings per year for Cycle 2. All SUs reported that the WSCC team met at least twice each year, and the majority met the recommended four times per year.

Table 1. WSCC Meeting Frequency

Grant Year	Average number of WSCC team meetings during the year	Number of SUs meeting or exceeding 4 WSCC meetings/year (N=20)
Year One (school year 2016-2017)	7 (range 2-14)	15
Year Two (school year 2017-2018)	8 (range 2-17)	18
Year Three (school year 2018-2019)	5 (range 2-12)	13

All but one SU updated their wellness policies at some point during the three-year grant cycle, but only half of the SUs reported updating their alcohol and drug policies during that time.

Some of the successes that were reported by grantees related to WSCC included:

- Many SUs have a very active WSCC or wellness team with broad representation from schools, parents, and community partners
- The WSCC framework helps the team to organize their work and prioritize health and wellness needs within the SU
- Engagement with community partners has been important for advancing this work
- Stipends for the extra time involved in participating in WSCC can be helpful for the chair and/or staff

Several challenges were also reported:

- Difficult to find time for the team to meet and to have representation from all schools within the SU
- The WSCC framework includes a lot of different components and it can be difficult to work on all of them at the same time. Some have chosen to focus on one or two components per year and others have found that having smaller subcommittees focused on specific components of wellness can help keep moving the work forward.
- Schools within the SU have different priorities and leadership structures so can be challenging to come together to work on wellness across the SU
- SU mergers have disrupted this work because of staffing changes and uncertainty
- Can be a slow process to move policy changes through the administration and school board

As noted above, the School Health Profiles include a number of measures of schools' capacity to address a variety of topics related to students' health and wellness, including some measures related to schools' WSCC wellness team participation and capacity to address substance use issues. A comparison based on 2018 School Health Profiles data found that schools from within SBSAS-funded SUs were significantly more likely to report several desirable features than schools from non-funded SUs, as shown in Table 2. In 2018 schools within an SBSAS-funded SU were significantly more likely to report having assessments for student alcohol or other drug use, representatives participating in a district-wide WSCC wellness team, and the lead health educator receiving professional development on alcohol or other drug use prevention. These are all areas that are the direct focus of required and optional grant activities and we believe it is reasonable to assume that SBSAS has contributed to these strengths within schools receiving SBSAS funds.

Table 2. Percent of SBSAS Funded and Non-Funded Schools With Relevant Features

2018 School Health Profiles Indicator	SBSAS Funded Schools[2]	Non-Funded Schools
School provides assessment for alcohol or other drug use, abuse or dependency	60**	39
School has representatives or participates on a SU or district-wide 'Whole School, Whole Community, Whole Child' (WSCC) wellness team	75*	60
During the past two years the lead health educator received professional development on alcohol or other drug-use prevention	63**	42

[2] Statistical significance for difference between funded and non-funded schools noted: *p<.10 and **p<.05

There are a few additional School Health Profile measures where there is a notable, but not statistically significant, difference (of greater that five percentage points) between the groups, and in most of these cases the differences are favorable to the schools that are receiving SBSAS funding. Specifically, SBSAS-funded schools were more likely to have:

- Reviewed health and safety data such as YRBS data or fitness data as part of the school's improvement planning process
- The school health council, committee, or team identify student health needs based on a review of relevant data
- Provided students with referrals to any organization or health care professionals not on school property for alcohol or other drug abuse treatment
- Linked parents and families to health services and programs in the community
- Screening and referral procedures for students who are self-referred or referred by staff for suspected drug and/or alcohol problems
- Covered all seven key alcohol and drug use prevention topics in a required course for students in any of grades 6-12

A difference between the required Coordinated School Health efforts in Cycle 1 and the required WSCC model in Cycle 2 is that the Coordinated School Health efforts were organized and implemented primarily at the school level. The School Health Profiles implemented during Cycle 1 did show that schools within a funded SU were significantly more likely to have a school health team that offers guidance on the development of policies or coordinates activities on health topics. The WSCC model emphasizes coordinated health and wellness activities at the SU level, and the effects of these efforts are reflected in the most recent School Health Profiles findings above.

Screening and Referral

The other required activity for grantees was screening and referral for possible substance use and/or mental health disorders using one of two evidence-based screening tools; the CRAFFT or the GAIN Short Screener. School-based screenings are intended to identify students who could benefit from early intervention services, including additional assessment and either brief intervention or other clinical services from a school or community-based clinician if needed. Data on screening and referral were collected through the twice-yearly Survey Gizmo reports. A summary of screening and referral data across all grantees is provided in Table 3.

SBSAS grantees were using primarily "selective screening" practices, in which students are selected for screening by teachers, peers, or parents who are concerned about a student or because the student has violated the school's alcohol and drug policies. Consequently, the overall percent of enrolled students (in grades 6-12) who were screened each year was only 6.4 percent in years one and two, increasing to 7 percent in year 3. This percentage also varied widely across the grantees from less than 1 percent to right around 30 percent. In addition to the slight overall increase in year three, a larger percentage of SUs in that year screened 10 percent or more of their 6-12th grade students, as compared to the previous year (35 percent of SUs in year three vs. 20 percent in year two). This could be due to an increased focus on

more proactive screening by some SUs as described in the narrative of their Survey Gizmo reports. One grantee reported screening all freshman during the final year of the grant.

Table 3. Summary of screening and referral for substance use

Grant Year	Total number of students screened	Total percent of students in grades 6-12 screened	Percent of students screened with positive result	Percent of students who screened positive who were referred for additional services	Percent of students who received recommended services
Year One (school year 2016-2017)	1187	6.4%	28.5%	92.6%	62.6%
Year Two (school year 2017-2018)	1170	6.4%	35.0%	90.5%	58.1%
Year Three (school year 2018-2019)	1280	7.0%	29.9%	82.5%	59.2%

In 2018 PIRE conducted a review of the literature on universal school-based screening[3] and found that while rigorous research evidence is still lacking regarding the benefits of universal screening in schools, there is compelling conceptual justification for why the approach could effectively be used to identify more at-risk students, and do so earlier, than selective screening practices. Recommendations based on this review were made for future administration of the SBSAS grant, including an option in the next funding cycle for grantees to receive extra funds in order to pilot a universal screening approach.

> *We have learned that it is most effective to screen universally; for example, the entire freshman class as this has enabled us to identify those who are struggling with either mental health or substance use issues but are able to remain under the radar.*
>
> SBSAS grantee on screening procedures

During Cycle 2, ADAP continued to track the number of screenings and the percent of those who screened positive that were referred for further assessment as a measure on the VDH Alcohol and Other Drug Use Scorecard[4], with a target value of 90%. Table 3 shows that this

[3] Pacific Institute for Research and Evaluation, 2018. Vermont School-Based Substance Abuse Services: Summary of Published Guidelines and Recent Studies Regarding School-based Screening for Substance Use and Mental Health Issues (Middle Schools and High Schools). Submitted to: Vermont Department of Health, Division of Alcohol and Drug Abuse Programs, December 2018.

[4] http://healthvermont.gov/hv2020/dashboard/alcohol_drug.aspx

target was met for the first two years of Cycle 2, but in year three the percent went down to 82.5%. The reason for this decline is not clearly identifiable through the data sources available. Reasons for not providing referrals reported by grantees have been fairly consistent over time and include the fact that some students who screen positive may already be connected to counseling or other services, along with students' and/or parents' lack of willingness to accept a referral and/or recognize their use as a problem. The legalization of small amounts of marijuana for adult personal use in 2018 could be a contributor as some grantees have reported that students are less likely to identify marijuana use as a problem.

> *We now have a consistent protocol in place to help identify students and get them the help that they need. Because of this students' needs have been addressed in a more timely manner with more a focus around what specific treatment is needed.*
>
> SBSAS grantee on screening procedures

Successes related to screening and referral reported by grantees include:

- Streamlined procedures for staff and students to refer students for screening and review of these protocols at the beginning of the school year has helped improve the process of referring students for screening
- Having school-based clinicians makes it easier for students to follow through on referrals
- Many SAPs have strong relationships with community agencies which makes the referral process go more smoothly

Challenges include:

- An increase in students being referred to the SAP for vaping nicotine, marijuana or both
- Students and/or their parents are sometimes reluctant to seek help or see an outside service provider
- In some areas few providers are available to provide clinical services to adolescents
- Transportation to access community services is a barrier for some students and families

During Cycle 1 there were similar patterns with respect to the percent of students screened, with the overall average of students being screened each year remaining under 10 percent. However, the percent who screened positive and were referred for additional services in Cycle 1 went up steadily in each year. As noted above, it is not entirely clear why there was a decline in the percent of students referred for services in the final year of Cycle 2. Cycle 1 grantees reported very similar successes and challenges related to screening and referral.

Optional Activities

In addition to the two required activities described above, SBSAS grantees were able to select from six additional optional activities to implement within their schools. Table 4 provides summary data for these optional activities from each year of implementation. Almost all of the 20 grantees chose to implement peer leadership groups and to deliver prevention information to parents across all three years of Cycle 2. Fewer chose to implement prevention curricula in

the classroom, training to teachers and staff on prevention topics and current trends on youth substance use, and educational support groups, though still the majority of grantees did implement these activities. Very few grantees chose to implement evidence-based parent education programs, likely due to the challenges noted below with engaging parents in prevention activities.

Successes related to the implementation of optional activities include:

- Grantees appreciated the flexibility to select from the optional activities those that are the best fit for the needs and capacity of their SUs.
- Developing leadership skills among youth, especially when students have a voice in the decision making.
- The ability to provide trainings to staff so that they are more educated on current substance use trends.
- More consistent prevention education in classrooms in some SUs.

> *This grant has been KEY to having the capacity to address SA issues as well as mental health issues in our school. The Student Assistance Program, Parent Information, Student Empowerment Groups, Student Support Groups, School Curriculum and Staff Training funded by the SBSAS grant has created a comprehensive approach for addressing these issues in our SU.*
>
> SBSAS grantee on overall success of the grant in their SU

Challenges include:

- Identifying prevention curricula that meet state standards, can be implemented within the time constraints within a school, and are relevant to students.
- Engaging parents to participate in events and educational classes.

Table 4. Summary of optional activities by grant year

Activity	Number served or reached		
	Year One (school year 2016-2017)	Year Two (school year 2017-2018)	Year Three (school year 2018-2019)
Support of classroom health curricula with a primary focus of substance abuse prevention education	**7237** (16 grantees)	**9221** (18 grantees)	**5750** (17 grantees)
Advising and training of peer leadership groups	**1112** (19 grantees)	**1315** (19 grantees)	**1196** (20 grantees)
Delivery of information on prevention to parents	**13469** (20 grantees)	**11470** (19 grantees)	**9312** (19 grantees)
Evidence-based Parent Education Program	**136** (5 grantees)	**72** (3 grantees)	**46** (3 grantees)
Delivery of teacher and support staff training on current substance use trends and prevention topics	**1122** (16 grantees)	**1454** (16 grantees)	**1690** (15 grantees)
Delivery of educational support groups	**1395** (17 grantees)	**2098** (17 grantees)	**805** (19 grantees)

A similar proportion of grantees chose to implement each of the optional activities in Cycle 1, with the exception of evidence-based parent education. In Cycle 1 more than twice as many grantees opted to implement this activity. Many of the same challenges with engaging parents were reported by grantees during Cycle 1, which may have led to fewer grantees selecting this activity during Cycle 2.

Interviews with Four SBSAS Grantees

In May of 2020 interviews were conducted with the grant coordinators for four SUs; Barre, Two Rivers, Windham Northeast, and Windham Southwest. These four SUs were identified for the interview because they had received SBSAS funding through both cycles of the grant and because trends in their high school student substance use rates from the 2011 to 2019 administration of the Youth Risk Behavior Survey (YRBS) compared favorably to the state as a whole. The purpose of these interviews was to gain insights into how these SUs attributed success for these outcome measures and how SBSAS may have contributed to their success. A full report of the interview findings was shared with ADAP in June 2020[5]. Several key findings are described below.

1) Having an SAP makes a huge contribution to the purpose and implementation of SBSAS. The SAP plays an important and unique role in maintaining a focus on substance use prevention within the SU through individual student support, staff training, youth development efforts, parent engagement and connecting students to services within the community. In addition, having the same person in that role over time also is important so that they are able to develop trusting relationships with students, staff, and community partners. We acknowledge that because three of the four respondents are SAPs there could be some positive bias regarding the role and contributions of the SAP.

2) These SUs seem to have effective protocols in place for staff and students to refer students for screening for possible substance use issues. That said, it is significant that the respondent from the SU that plans to implement universal screening has anticipated more referrals to services once the universal screening is underway and has planned for additional school-based clinician hours. This is an implicit acknowledgement that current screening procedures likely aren't catching all the students who need services, and is consistent with what has been suggested in the literature regarding an important potential benefit of universal screening.

3) Barriers to students who require further assessment and/or clinical services continue to exist and include a lack of available services that are appropriate for adolescents, the need for parent involvement, and transportation. These barriers are reduced when there are school-based clinicians available to meet with students.

[5] Pacific Institute for Research and Evaluation, 2020. Summary of interviews with four Supervisory Unions who received SBSAS funding. Submitted to: Vermont Department of Health, Division of Alcohol and Drug Abuse Programs, June 2020.

4) Strong partnerships with local community coalitions can be mutually beneficial by enhancing the prevention work being done within schools and facilitating better saturation of prevention messages and events throughout the community.

5) Feedback on the SBSAS grant on the whole was very positive. Respondents noted the benefits of having these funds available to support prevention infrastructure and foster community partnerships and appreciate having the flexibility to choose which optional activities are the best fit for their SU. Challenges identified included a perceived shift by ADAP away from ensuring that SUs have qualified staff to do prevention work, lack of reminders about reporting, and a need for understanding why certain demographic data elements are requested in grant reporting. Interest was expressed by one respondent in having an opportunity for SAPs from funded SUs to get together for discussion and information sharing.

Outcome Evaluation

Data Sources and Measures

YRBS

The outcome measures for the evaluation are all derived from the YRBS, years 2011 through 2019. This survey collects information from students in grades 6 through 12 and is administered in nearly all middle and high schools in Vermont every two years. Within each participating school, all students capable of responding to the survey questions are invited to participate. The data files, which were provided by the Vermont Department of Health, included respondent weights designed to reflect the demographic composition of each SU with respect to grade level, gender, and racial/ethnic minority status.

Outcome measures available in the YRBS were selected based on their direct relevance to the stated goals of the SBSAS grants program and its various components. As explained earlier, we chose to focus on data from high school students only. Appendix Table C1 displays the YRBS-based outcome measures used for the analysis. Behavioral outcomes include five substance use measures plus self-reported suicide attempts. The latter was included due to the potential positive effect of the WCCC component of SBSAS on student mental health. These six behavioral measures were all coded as either yes (the behavior was reported) or no (the behavior was not reported). The timeframes for when each behavior occurred varied across measures, varying from within the past 30 days to the entire lifetime.

Other outcome measures examined include perceived level of risk from binge drinking and from marijuana use, perceived presence of caring teachers and other adults at school, and the perceived level to which the respondent feels that they matter in their community. These measures have been shown to predict future substance use among adolescents. Even though most of these measures were assessed using scaled responses (e.g., four options ranging from no risk to great risk, or five options ranging from strongly agree to strongly disagree), cut points were used to dichotomize each measure into just two values; high or low on each measure. All such cut-points are identified in the Table C1. With this approach, the measures could be reported as prevalence rates, in the same manner as the behavioral outcome measures. Furthermore, they were coded in the direction such that lower rates for each measure are desirable, just like the behavioral measures, and reflect reduced risk of misusing substances. For example, desirable changes for the percent of students who perceive no risk or only slight risk from using alcohol (i.e., “low perceived risk”), or who strongly disagree or somewhat disagree that they matter in their community (i.e., “low perceived caring”), would be for these measures to <u>decrease</u> over time.

Grantee Attributes

Characteristics of the SBSAS grantees we examined regarding the association with outcome measures include a number of implementation measures along with two background variables. The implementation measures were based on regularly submitted reports (described in the

Process Evaluation Data Sources section above). To limit the number of attributes examined, we included only those attributes for which there was already some indication of their association with outcomes from prior analyses.[6] The intent was to confirm if these associations remained even when examined over the entire timeframe (i.e., both cycles) of the SBSAS grants program. Background characteristics examined were the size of the SU in terms of numbers of students enrolled and whether the SU was within (or mostly within) the service area of a Partnerships for Success (PFS) cohort 1 grantee.[7]

The implementation measures and SU enrollment size were based on data collected for school years 2014-15[8] through school years 2018-19, and then consolidated across years into single measures used to characterize each SU across this five year span. After consolidating, continuous measures, such as the enrollment size and percent of students screened, were collapsed into either "high" and "low" categories, based on the midpoint of their distribution. This procedure helped to reduce the influence of single SUs that may have had extreme values, although the general patterns of association with outcomes was similar for both approaches. The attribute measures and how they were defined are shown in Table C2.

Findings

Trends among SBSAS-funded SUs

Values of the outcome measures across the five YRBS administrations between 2011 and 2019 are displayed in Figures 1 through 11. The solid blue lines track the changes over time in the actual values of these measures among the SBSAS-funded SUs, collectively. The dashed blue lines show the statistically determined linear trend[9] for each measure. The linear trend provides a standardized measure for characterizing the direction and slope (i.e., rate of change) in the values over the entire time period of interest (i.e., cycles 1 and 2 of the SBSAS grants).

In examining the data for the SBSAS-funded SUs only (i.e., the blue lines), the plots show that the change over time for the majority of outcome measures was in the desired (i.e., downward) direction. Rates of any alcohol use, binge drinking, cigarette use, and prescription drug misuse, all trended downward. Marijuana use was the only substance use measure examined that showed an upward trend among the SBSAS SUs (this was true as well for the non-SBSAS group of SUs). This was despite the slight decreases in marijuana use through 2015, as they were followed by sizeable increases in 2017 and again in 2019. The other behavioral measure examined here, attempted suicide, also increased in prevalence over the 8-year timeframe.

Consistent with the trends in use, the figures show overall decreases in the percent of students who perceive low risk from binge drinking, along with increases in the rate of low perceived risk

[6] Findings from these analyses were provided in the previously cited 2016 SBSAS Cycle 1 Final Evaluation Report Executive Summary and an interim report on SBSAS Cycle 2 Outcomes prepared for ADAP in February 2019.

[7] Finding from the PFS evaluation showed that the six regions funded through the initial round of Vermont's PFS grant in 2012 experienced more favorable YRBS-based substance use outcomes than other areas of the state from 2013 through 2017.

[8] Data for school years before 2014/15 were collected at the school rather than the SU level.

[9] This technique finds the best fitting line through the data points in a way that minimizes the differences between points on the line and the actual data points across the five years of the survey.

from using marijuana. Notably, however, the percent of students perceiving low risk from marijuana use did not increase between 2017 and 2019 but rather showed a slight decrease, even though the overall trend was in the upward direction. The data also show (see Figure 11) a decreasing trend in the percent of students who perceive low support (i.e., they do not matter) in their community.

Due to the changes in items included in the YRBS questionnaires, the measure for perceived caring and support by teachers and other adults in the school was different in 2017 and 2019 than the one used in the earlier years. For this reason, these two measures are shown separately (in Figures 9 and 10) and only show data points for the years in which each measure was available. Among SBSAS SUs, the rates of low perceived caring (and encouragement) from teachers decreased through 2015, but low perceived teacher and adult support (as measured by having a teacher or other adult to talk with) increased between 2017 and 2019.

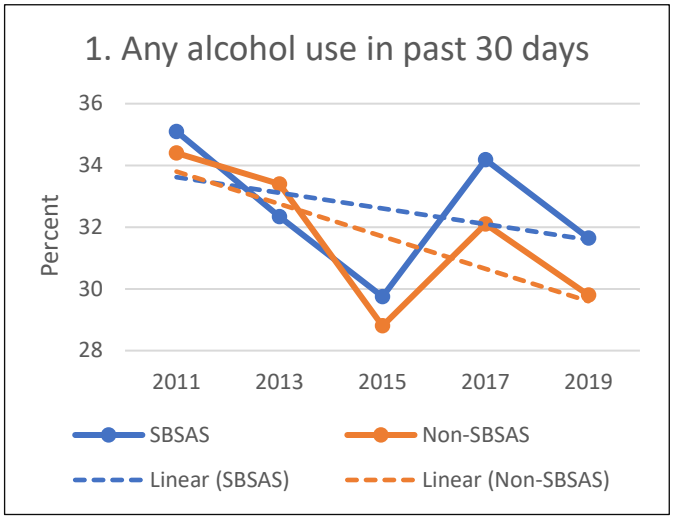
Comparison of trends for SBSAS and non-SBSAS SUs

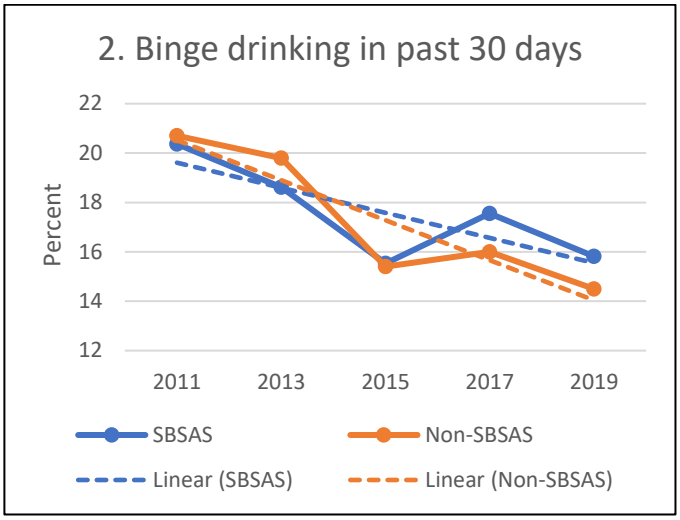
Figures 1 through 11 also show the actual values and linear trends for the group of SUs that were not funded by SBSAS in either cycle. These data are represented by the orange lines. What is most notable about the entire set of outcomes examined is that their values and patterns of change over time are very similar for both the funded and non-funded groups. This applies to both the linear trend lines and to the year-to-year deviations from the trends as reflected in the data points for each year of the survey. To the extent that they do differ, the majority of the outcomes exhibit a linear trend that is slightly more favorable to the non-SBSAS group of SUs. The only measures for which the SBSAS-funded group experienced more favorable outcomes over time (i.e., a more favorable linear trend) were cigarette use and prescription drug misuse. The slopes for several measures were virtually identical for the two groups, and none of the differences in linear trends between SBSAS and non-SBSAS groups were statistically significant.[10] The values of the outcome measures for each group and each year are provided in the Appendix Table D1. This table also shows the linear slope values for each group. Favorable trends (i.e., negative slopes) for either group are shaded in green. Slope comparisons that are favorable to the SBSAS group are identified by check marks in the right-most column.

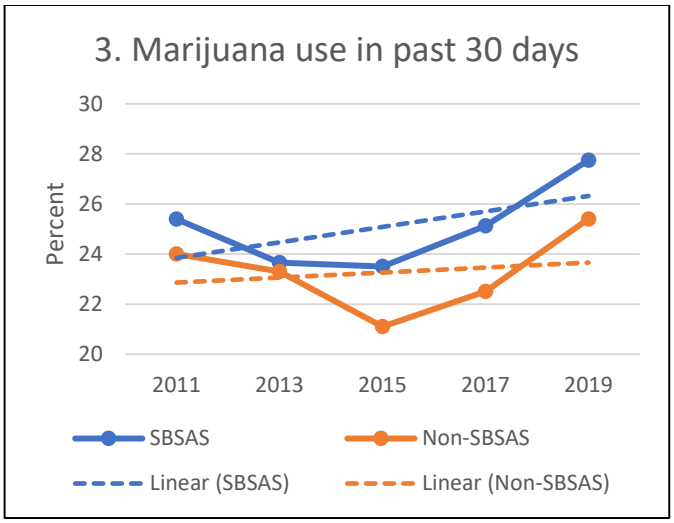
Closer examination of the plots, particularly with respect to differences in time-related patterns between the two groups, confirms a pattern that has already been reported in the SBSAS Cycle 1 Evaluation Final Report. The SBSAS-funded SUs generally did experience more favorable outcomes than the non-SBSAS group from 2011 to 2013. These favorable patterns, however, did not continue into the rest of the time period, but instead tended to reverse themselves and thereby led to very few net gains among SU-funded SUs compared to the non-funded group across the entire eight year timespan through 2019.

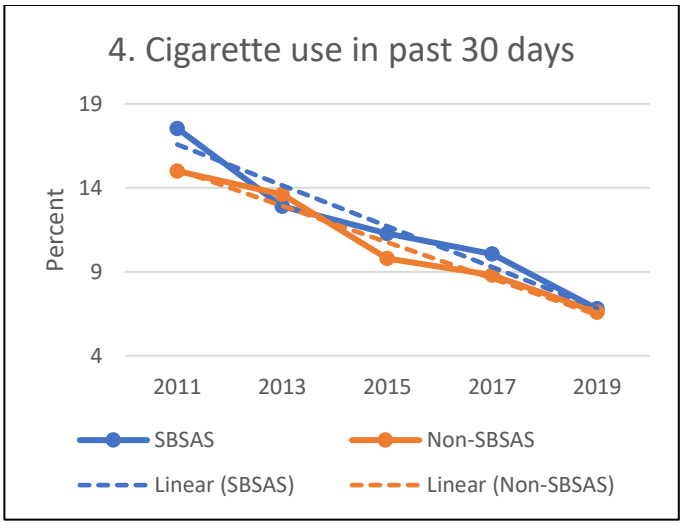
[10] Statistical significance was determined using a t-test to compare the mean slopes between the two groups. To accurately reflect the data shown in Figures 1 through 11, the SU-specific slopes were weighted by the number of students in grades 9 through 12 in each SU that provided YRBS data.

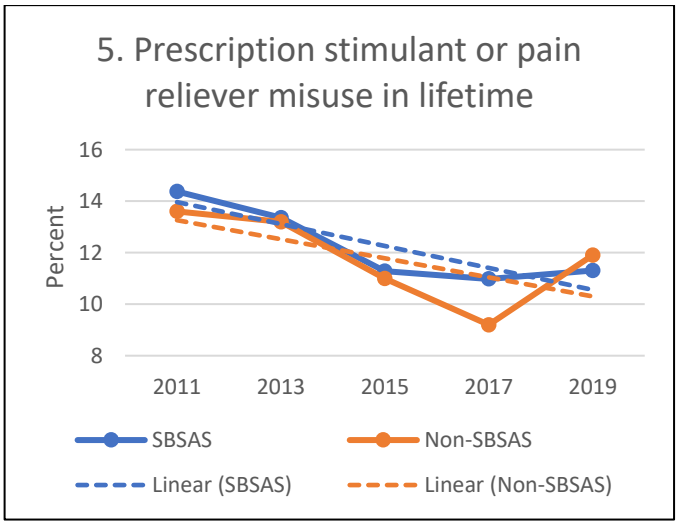
Figures 1-6. Trends for behavioral outcome measures, SBSAS vs. non-SBSAS SUs.

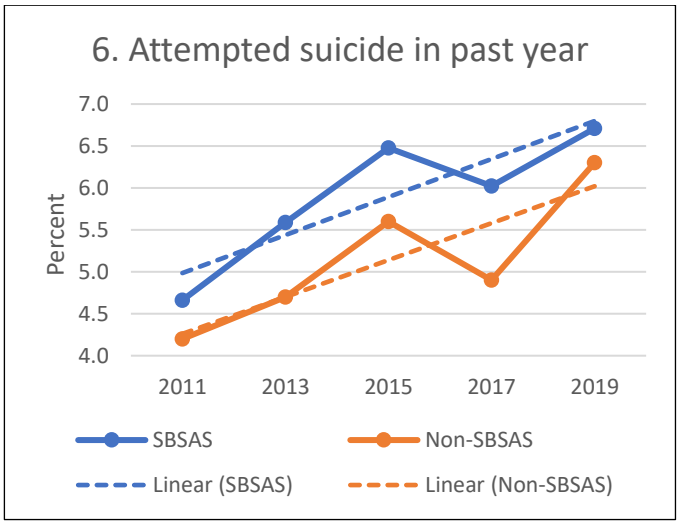




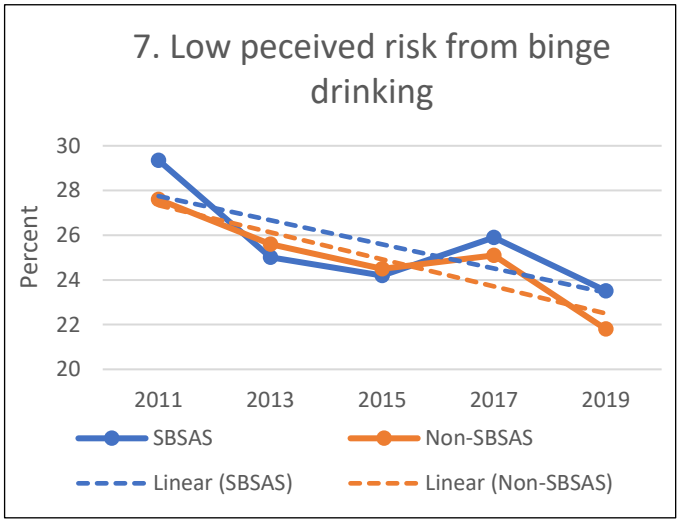


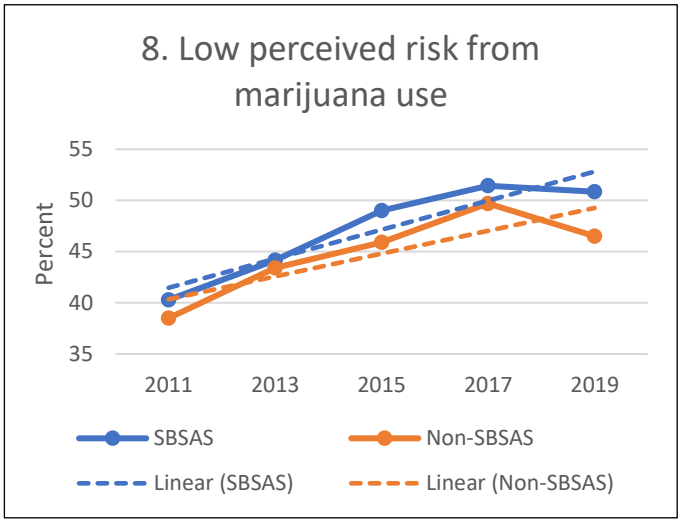


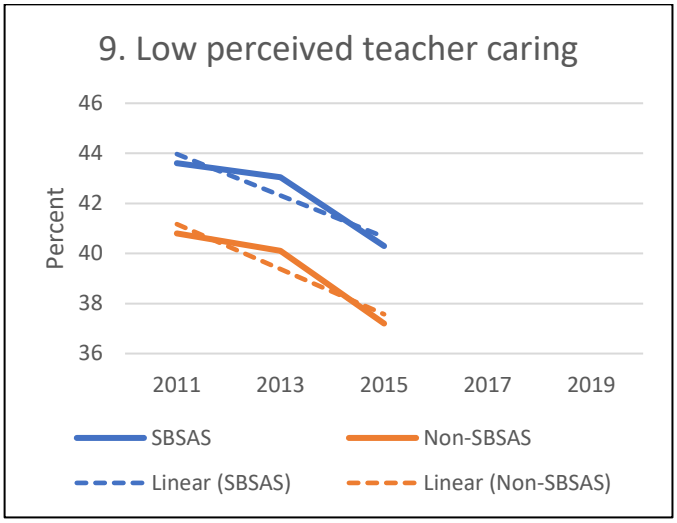


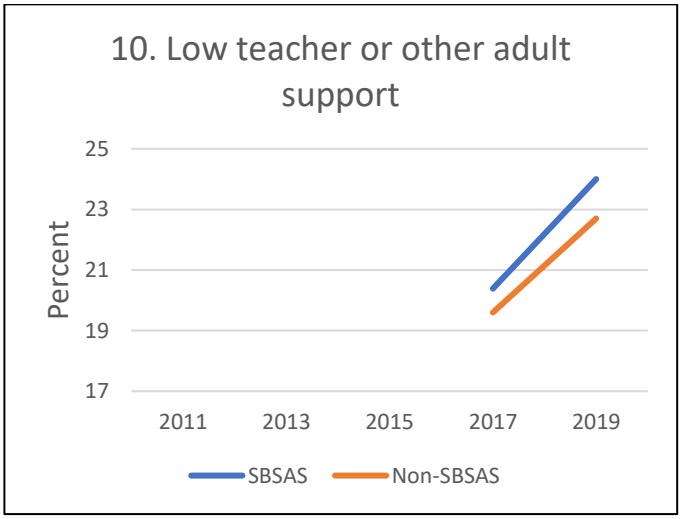


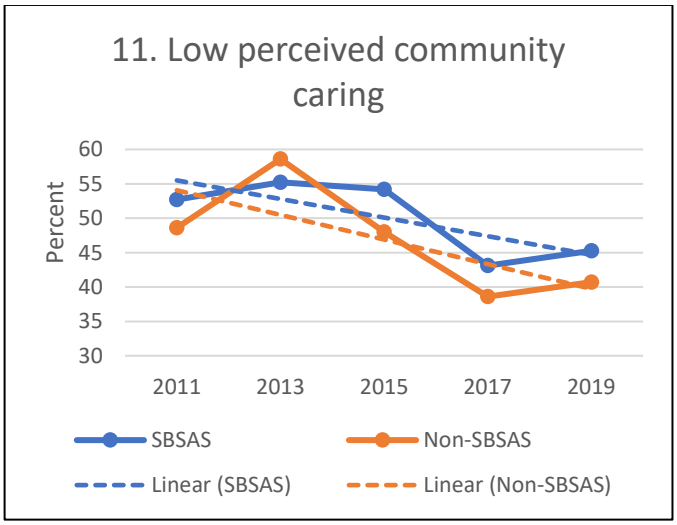
Figures 7-11. Trends for perceptual behavioral outcome measures, SBSAS vs. non-SBSAS SUs.











Relationships between attributes of funded SUs and outcomes

Funded SUs varied considerably with respect to the change over time they experienced in the outcome measures examined in this report. To determine whether certain quantifiable attributes of funded SUs (see Table C2) may have contributed to greater success in achieving favorable trends in these outcome measures, we examined the correlations between these attributes and the degree of change over time for each of the outcome measures, as measured by their slopes. The correlations between SU attributes and outcome measure slopes are provided in Tables 5 and 6.[11] Negative correlations indicate that the attribute is associated with favorable changes (i.e., either greater decreases or smaller increases) in the outcome measure, relative to SUs that do not have the attribute. Cells containing negative correlations are shaded in green. Statistically significant correlations at the p<.10 level or better, whether negative or positive, appear in boldface.[12]

As shown in Table 5, most of the attributes examined were correlated with more desirable changes in most of the behavioral outcome measures (and all the substance use measures), as indicated by the many negative values of the correlation coefficients. The notable exceptions to this general pattern were:

- SUs with a high percent of parents receiving parent info and SUs with high enrollments: correlations with substance use outcomes were such that larger SUs had generally less favorable trends, although the correlations were relatively small and none was statistically significant.
- The attempted suicide outcome followed a very different pattern of correlations than the substance use outcomes.

Other than the exceptions just noted, the consistency in the direction of the relationships between the attributes tested and more favorable substance use outcomes is remarkable. As shown in the table, a number of these correlations were statistically significant, with several more being close to significance at the p<.10 level (i.e., close to an absolute value of .426). Correlations between a high percentage of students screened for ATOD use with more favorable substance use outcomes were especially strong for several of these outcomes. The same was true for being within the service area of a PFS cohort 1 grantee. Other attributes that were more selectively strongly associated with more favorable substance use trends were having a high percent of students exposed to evidence-based curricula programs (EBCs) (highly correlated with stronger decreases in cigarette use and R_x drug misuse), having implemented the Michigan Model curriculum (highly correlated with stronger decreases in cigarette use), and implementation of parent EBCs (highly correlated with stronger decreases in R_x drug misuse).

[11] The correlations were weighted by the number of students in grades 9 through 12 in each SU that provided YRBS data.

[12] Although not indicated in the tables, higher levels of statistical significance can be identified by the size of the correlation reported in each cell. Correlations with an absolute value greater than .482 (i.e., greater than .482 or less than -.482) are significant at the p<.05 level and correlations with an absolute value greater than .606 are significant at the p<.01 level.

Table 5. Correlations between SU attributes and behavioral outcome measure slopes

	Behavioral Outcome Measures					
Attribute	Alcohol use	Binge drinking	Marijuana use	Cigarette use	R_x drug misuse	Attempted suicide
High % students screened	**-0.568**	**-0.499**	-0.145	**-0.639**	**-0.444**	0.340
High % HS students exposed to EBC	-0.345	-0.418	-0.244	**-0.566**	**-0.761**	-0.134
Implemented LST	-0.194	-0.225	-0.112	-0.089	-0.220	0.372
Implemented Michigan Model	-0.177	-0.125	-0.199	**-0.450**	-0.378	0.073
Implemented other EBC	-0.061	0.059	-0.281	-0.098	-0.012	0.196
Implemented parent EBP	-0.238	-0.261	-0.142	-0.126	**-0.679**	-0.261
High % parents receiving parent info	0.008	0.137	0.329	-0.128	0.324	0.014
Implemented ATOD training	-0.272	**-0.468**	-0.331	-0.146	-0.407	**-0.592**
High enrollment	0.285	0.021	-0.171	0.210	0.142	-0.359
PFS cohort 1	**-0.734**	**-0.601**	-0.204	-0.150	**-0.441**	-0.045

Table 6. Correlations between SU attributes and perception outcome measure slopes

	Perceptual Outcome Measures				
Attribute	Low perceived risk – binge drinking	Low perceived risk – marijuana use	Low perceived teacher caring (2011-15)	Low perceived teacher or adult support (2017-19)	Low perceived community caring
High % students screened	**-0.718**	-0.414	-0.389	0.090	-0.025
High % HS students exposed to EBC	-0.209	-0.400	-0.089	-0.008	-0.205
Implemented LST	-0.261	-0.039	-0.281	0.158	-0.079
Implemented Michigan Model	-0.021	-0.296	-0.072	-0.030	-0.126
Implemented other EBC	0.048	-0.072	-0.191	-0.148	0.048
Implemented parent EBP	0.129	-0.356	0.235	0.220	-0.043
High % parents receiving parent info	-0.029	0.205	0.378	**-0.465**	0.162
Implemented ATOD training	-0.287	-0.415	0.173	0.375	-0.421
High enrollment	0.141	-0.059	0.132	**0.619**	-0.245
PFS cohort 1	**-0.688**	**-0.457**	-0.049	0.087	**-0.451**

SUs that provided teacher and staff ATOD training for at least 3 years also experienced consistently more favorable trends in the behavioral outcome measures, two for which the associations were statistically significant (binge drinking ant attempted suicides).

Correlations between attributes and perceptual outcomes (reported in Table 6) generally followed the same pattern as for the substance use measures, especially for the perceived risk of use measures, although the correlations were not quite as strong or consistent. A high percent of students screened and the SU being served by a PFS cohort I grantee were both strongly associated with greater reductions in the percentages of students with low perceived risk of binge drinking and marijuana use. Correlations between attributes and perceptions regarding school caring and support were more mixed and generally low, except for the positive significant relationship between high enrollment and relatively greater increases in low perceived teacher or adult support at school (2017 to 2019).[13] Correlations with decreases in low perceived community caring (i.e., "you matter") were more consistently in the favorable direction for the attributes tested, including a statistically significant association with being within the service area of PFS cycle one grantee.

[13] This was the only statistically significant positive (i.e., unfavorable) association found for any of the correlations reported in Tables 5 and 6.

Discussion

Overview

School-based substance misuse prevention curricula, along with other school-based interventions, have traditionally been viewed as a primary component of state and local efforts to reduce and prevent substance misuse. Vermont's SBSAS program reflects this view, as it seeks to enhance the implementation and effectiveness of school-based substance misuse prevention efforts in selected SUs across the state. The range of activities funded by SBSAS, particularly the use of the WSCC model and implementation of screening and referral protocols, speaks to the perceived importance of a wholistic and multi-pronged approach to school-based substance misuse prevention.

This evaluation does not provide, nor was it expected to produce, conclusive evidence regarding the efficacy of the SBSAS program with respect to its stated objectives of reducing student substance misuse use behaviors and related predictors such as perceived harm. Methodological limitations, discussed below, preclude definitive conclusions regarding effectiveness. But it does provide useful descriptive information and insights regarding the implementation of SBSAS by the funded SUs, including both successes and challenges encountered, along with an assessment of changes in relevant behavioral and perceptual outcome measures over the timeframe of the program. Equally important, it identifies certain characteristics of SUs with respect to implementation that are associated with desirable outcomes. Although tentative, this information provides a starting point for considering which aspects of implementation may be especially important in pursuing and enhancing in future cycles of SBSAS and similar programs, and school-based substance abuse prevention efforts in general.

Summary of Key Findings

Key findings regarding implementation include:

- School Health Profiles data confirm greater levels of school participation in SU-wide WSCC team meetings, screening and referral, and staff training on ATOD issues, among SBSAS-funded SUs compared to non-funded SUs.
- The overall percent of students screened for ATOD use across SBSAS-funded SUs has remained fairly constant at 6 to 7 percent of students across the past three years, but this percent varies widely across SUs.
- During the first two years of cycle two grantees reached the target of 90% of students who screened positive for possible substance use issues being referred for additional services, but in the third year of the grant this declined to 83%. About 60% of students who were referred for further services actually received services. Ensuring access to, and reception of, community-based services following referral continues to be a challenge in many SUs.
- Many grantees implemented most or all of the optional activities with the exception of evidence-based curricular programs for parents.

- Interviews with coordinators from SUs with the most favorable outcomes pointed to the contributions of student assistance professionals (SAPs), access to a school-based clinician, and their connections with community partners as especially important components of their programs.

Key findings regarding outcomes include:

- Funded SUs collectively experienced decreases over the time period from 2011 to 2019 in substance use measures except for marijuana use. They also experienced decreases in low perceived risk of binge drinking, low perceived community caring, and (for 2011-2015) low perceived teacher caring.
- Trends in the outcome measures from 2011 to 2019 were fairly similar for funded and non-funded SUs. The majority of these measures, however, exhibited trends that were slightly, but not significantly, more favorable to the non-funded SUs.
- Funded SUs that had a relatively high percentages of students screened for ATOD experienced more favorable trends in all the substance use measures than SUs with low percentages of students screened. Three of the five correlations were statistically significant.
- Most of the other grantee attributes examined also had a generally positive pattern of associations with favorable outcomes. These include high percentages of students exposed to EBC, implementation of specific EBCs (particularly the Michigan Model), implementation of EBCs for parents, and being in the service area of a PFS cohort 1 grantee.
- Among funded SUs, larger SUs generally experienced somewhat less favorable trends in outcome measures compared to smaller SUs, although these differences were not large or statistically significant except for the significantly greater increase in low perceived teacher or other adult caring (2017 to 2019 only).

Several of the key findings listed above warrant further interpretation and commentary, especially in light of the absence of more favorable outcome trend comparisons between SBSAS-funded and non-funded SUs. The process evaluation findings indicate that SBSAS funding likely served to increase certain activities and services such as WSCC participation, provision of assessment for ATOD use and abuse, and staff ATOD training in schools, within funded SUs. Even so, significant percentages of non-funded SUs also implemented these activities. More generally, based on the SHP data summarized here and additional SHP data provided in previous reports, it appears that many prevention-oriented capabilities and activities that are supported or encouraged by SBSAS were present to a significant degree in both funded and non-funded SUs. This could be one reason for why trends in the outcome measures were similar for the two groups. The non-funded SUs apparently were able to support many prevention oriented activities, including those promoted by SBSAS, using their own operating budgets, other funding sources, or in-kind contributions. Whether the SBSAS-funded SU would have been able to do likewise without the SBSAS funding is uncertain, considering that SBSAS funds are awarded in part based on need.

The preceding point characterizes one the limitations of evaluation studies that do not involve a randomized controlled trial (RCT) design. There is no control over what is implemented in the comparison group. Additionally, because SUs were not randomly assigned to the SBSAS-funded group, there may be, and probably are, differences between funded and non-funded SUs that influenced their outcome measure trends aside from whether they received SBSAS funding or not. Furthermore, control over what activities are implemented, or how well or intensely they were implemented, was limited even among the funded SUs. This is reflected in the large variability across SUs in many of the implementation measures (e.g., percent of students screened) analyzed for this study.

The issues discussed in the preceding two paragraphs justify the additional approaches employed in this evaluation to help discern possible effects of the SBSAS funding and identify implementation features associated with more favorable outcomes. The outcome data show that prevalence rates among SBSAS-funded SUs for four of the five substance use outcome measures decreased over the 2011-2019 timeframe. In this sense, the primary goal for the SBSAS program, for the most part (marijuana use being the exception), has been met. Whether this is due specifically to the SBSAS funding remains an open question. As stated in the executive summary of the cycle one final report, however, it is reasonable to speculate that the combined contributions of the numerous substance misuse prevention efforts implemented in schools and communities across the state, including those funded through SBSAS, have collectively contributed to the decreases observed in most substance use measures among Vermont's high school students.

Given the absence of definitive differences in outcomes achieved between the funded and non-funded SUs, the correlational analysis between SU-specific implementation measures and outcomes probably provide the more useful findings from the outcome evaluation. These findings identify implementation features associated with more favorable outcomes. Although it is unwarranted to assume these associations are causal[14], they do at least offer some suggestions for what implementation features might be helpful in achieving better outcomes. These suggestions are incorporated into the implications provided below.

[14] The observational (versus experimental) nature of this study, combined with the relatively small number of observations (16 SUs) and the degree of inter-relationship amount the attributes analyzed, all caution against making definitive conclusions about whether any of these attributes were directly responsible for helping SUs achieve favorable outcomes. On the other hand, the findings are at least consistent with that expectation, which is also supported by published research and recommendations for school-based substance use prevention interventions.

Implications

In light of the findings from this evaluation, several suggestions are offered to ADAP for its consideration of potential enhancements to the SBSAS grants program or similar efforts in the future:

- Allocate more funds to SUs with larger numbers of students.
- Encourage funded SUs to increase the percent of students screened, ultimately working toward universal screening in at least one grade in high schools.
- In the absence of universal screening, encourage the use of a more standardized and consistent screening protocol across SUs in order to increase the percent of students screened and reduce the variability across SUs on this measure.
- Encourage through SBSAS and other ADAP grants the collaboration between schools and community service providers to facilitate referrals for assessment and intervention services.
- Encourage SUs to collaborate with regional or community-based prevention efforts such as those facilitated through PFS and RPP.
- Create opportunities for convening grant coordinators and/or SAPs in funded SUs to share and learn from each other.
- Emphasize a stronger focus on evidence-based curricula, particularly Michigan Model.
- If logistically feasible, track expenditures by activity, and explore the option of limiting expenditures on certain optional activities that have less evidence of effectiveness, especially if implementation of required activities (or EBCs) falls below acceptable levels.

Appendix A

School-based Substance Abuse Services Logic Model

(see next page)

School-based Substance Abuse Services Logic Model

Long-Term Outcomes

- Reduce the proportion of adolescents engaging in binge drinking. (YRBS).
- Reduce past month use of alcohol and illicit substances among adolescents (YRBS). Particular focus on:
  1. Underage drinking
  2. Marijuana use
  3. Prescription drug misuse

Selected Intermediate Outcomes

- Increase the percent of students reporting that teachers really care about them and give them a lot of encouragement. (YRBS)
- Increase the percent of students reporting that they matter in their community. (YRBS)
- Increase the percent of students reporting that there is an adult in their school that they can talk to if they have a problem. (YRBS)
- Increase the percent of schools that have integrated substance abuse prevention into their WSCC initiatives. (School Health Profiles)
- Increase the percent of students perceiving risk of having five or more drinks. (YRBS)
- Increase the percent of students perceiving risk of using marijuana. (YRBS)
- Observations of positive impacts by school personnel, students, and /or parents. (grantee reports)

Process/Performance Measures

<u>For all schools</u>

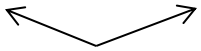
Number and percent of students screened for substance use disorders and/or mental disorders using CRAFFT and/or GAIN Short Screener.
Of those students at funded schools who screen positive for substance use disorders and/or mental disorders, the number and percent who are referred to substance abuse (SA) and/or mental health (MH) services.
Of those students referred to SA and/or MH services, number and percent of students who connect with recommended services.
Number and percent of funded SU/SDs that have a school health team that offers guidance on the development of policies or coordinates activities on health topics.
Number and percent of funded schools that have a required course for students that addresses Vermont's Health Education Grade Expectations for the prevention of alcohol, tobacco and other drugs at either the middle or high school level.
Number and percent of funded schools that provided parents and families with health information designed to increase their knowledge of alcohol or drug use prevention.

<u>For schools implementing the optional activities</u>

Number and percent of students reached by evidence-based substance abuse prevention curricula.
Number and percent of students participating in youth leadership groups.
Number of parents reached by information dissemination and evidence-based parent education programs.
Number and topics of teacher and staff trainings.
Number and percent of students participating in educational support groups.

Activities

- Screening and referral to substance abuse and mental health services
- Support of integration of SA prevention into coordinated school health initiatives
- Support of evidence-based classroom health curricula
- Support youth leadership groups
- Deliver parent information and/or education programs
- Deliver teacher and support staff training
- Deliver educational support groups (e.g. coping with family members' addictions)



<u>Required</u>

<u>OPTIONAL</u>

Appendix B

Funding Status of Supervisory Unions

Table B1. Supervisory Unions funded by SBSAS for both cycles one and two.

SU Name	SU Code[1]	Comments
Addison Northwest	2	
Addison Rutland	4	
Barre	61	
Burlington	15	
Essex Caledonia	18	No data after 2015 (and very small enrollment), so not included in the analysis.
Franklin Northeast	20	
Franklin West	22	
Lamoille South	26	
Maple Run (Franklin Central)	23	
Southwest Vermont	5	
Springfield	56	
Two Rivers	63	Merged from two separate SUs in 2011 and 2013: Rutland Windsor (#39) and Windsor Southwest (#53) - both of which were SBSAS-funded SUs.
Washington South	43	Although this SU merged with Orange North (#29) in 2018 to form SU #63, its component schools for all five years were based its pre-2018 composition (i.e., Northfield HS only).
White River Valley	30	Merged from two separate SUs in 2011 to 2015: Orange Windsor (#30) and Windsor Northwest (#50) - both of which were SBSAS-funded SUs.
Windham Northeast	47	
Windham Southeast	48	
Windham Southwest	49	

[1]Code used in the 2019 YRBS data file, unless noted otherwise in the comments.

Table B2. Supervisory Unions funded by SBSAS for only one cycle.

SU Name	SU Code[1]	Comments
Chittenden East	12	Cycle two only.
Champlain Valley (Chittenden South)	14	Cycle two only.
Grand Isle	24	Cycle one only. Identified by town code rather than SU code.
North Country	31	Cycle two only.
Windham Central	46	Cycle one only.

[1]Code used in the 2019 YRBS data file, unless noted otherwise in the comments.

Table B3. Supervisory Unions not funded by SBSAS in either cycle.

SU Name	SU Code[1]	Comments
Addison Northeast SU	1	
Addison Central SU	3	
Bennington-Rutland SU	6	
Colchester School District	7	
Caledonia North SU	--	Provided data for only one year (SU #8 in2015), so not included in the analysis.
Caledonia Central SU	9	
Milton Town School District	10	
St Johnsbury SD	11	
Chittenden East SU	12	
Chittenden Central SU	65	Coded as #13 in 2011-2015.
Chittenden South SU	14	
S. Burlington School District	16	
Winooski School District	17	
Essex North SU	19	
Greater Rutland County SU	66	Includes data from merged SUs: Rutland South, Rutland Central, and Rutland Southwest (#33, 37, and 38 in 2011-2017).
Franklin Northwest SU	21	
Lamoille North SU	25	
Orange East SU	27	Includes data from Blue Mt (coded as #57 in 2011-2017).
Orange Southwest SU	28	
Orange North SU	29	Although this SU merged with Washington South (#43) in 2018 to form SU #63, its component schools for all years were based on its pre-2018 composition (i.e., Williamston MS/HS only).
North Country SU	31	
Washington Central SU	32	
Orleans Central SU	34	
Orleans Southwest SU	35	
Rutland Northeast SU	36	
Rutland City School District	40	
Washington Northeast SU	41	
Washington West SU	42	
Montpelier School District	69	Coded as #45 in 2011-2017.
Windsor Central SU	51	
Windsor Southeast SU	52	
Hartford School District	54	
Hanover-Norwich SAU #70	55	
Battenkill Valley SU	60	
Rivendell Interstate SD	64	Coded as #62 in 2011-2015.
Burr and Burton Academy	102	Coded as #6 in 2011-2015 and #9902 in 2017.
Saint Johnsbury Academy	104	Coded as #11 in 2011-2015 and #9904 in 2017.
Thetford Academy	105	Coded as #27 in 2011-2015 and #9905 in 2017.

[1]Code used in the 2019 YRBS data file, unless noted otherwise in the comments.

Appendix C

Outcome Measures and SU Attributes Analyzed

Table C1. Outcome measures from YRBS high school files, 2011-2019

Subject of survey item	Variable name	Response codes used for analysis[1]	
		1	0
Behavioral measures:			
30-day alcohol use	Alcohol use	Yes	No
30-day binge drinking	Binge drinking	Yes	No
30-day marijuana use	Marijuana use	Yes	No
30-day cigarette use	Cigarette use	Yes	No
Lifetime R_x stimulant or pain-reliver misuse	R_x drug misuse	Yes	No
Attempted suicide in past 12 months	Attempted suicide	Yes	No
Perception measures:			
Perceived level of risk for harm from binge drinking	Low perceived risk – binge drinking	No or slight	Moderate or great
Perceived level of risk for harm using marijuana regularly	Low perceived risk – marijuana use	No or slight	Moderate or great
Perception that teachers care and provide encouragement (2011 to 2015 surveys)	Low perceived teacher caring	Not sure, disagree, strongly disagree	Agree, strongly agree
Perception that there is a teacher or other adult at school respondent can talk with (2017 and 2019 surveys)	Low perceived teacher or adult support	No	Yes
Perception that respondent matters in their community	Low perceived community caring	Not sure, disagree, strongly disagree	Agree, strongly agree

[1]Prevalence rates calculated as the percent of cases with value of 1.

Table C2. SU attributes analyzed: Variable names and definitions

Attribute Name	Definition	Values[1]	N[2]
High % students screened	Percent of students (grades 6-12) screened for ATOD issues	0 = Low (<7.3%)	8
		1 = High (>7.3%)	8
High % HS students exposed to EBC	Percent of HS students exposed to at least one evidence-based curriculum (EBC)	0 = Low (<10%)	8
		1 = High (>10%)	8
Implemented LST	Implemented Life Skills Training (LST) curriculum in 3 or more years	0 = No	10
		1 = Yes	6
Implemented Michigan Model	Implemented Michigan Model curriculum in 3 or more years	0 = No	5
		1 = Yes	11
Implemented other EBC	Implemented any EBC other than LST and Michigan Model in 3 or more years	0 = No	6
		1 = Yes	10
Implemented parent EBP	Implemented any evidence-based education programs for parents in 3 or more years	0 = No	12
		1 = Yes	4
High % parents receiving parent info	Number of parents per 100 students who received information from school	0 = Low (<34%)	8
		1 = High (>34%)	8
Implemented ATOD training	Provided ATOD training to teachers and staff in 3 or more years	0 = No	8
		1 = Yes	8
High enrollment	Mean SU enrollment size (grades 6-12) across five years	0 = Low (<700)	8
		1 = High (>700)	8
PFS cohort 1	SU was in the service area of an PFS cohort 1 grantee	0 = No	5
		1 = Yes	11

[1]Prevalence rate for each attribute was calculated as the percent of cases with value of 1.

[2]The number of SUs in each level of the attribute.

Appendix D

Outcome Measure Prevalence Rates and Slopes

Table D1. Outcome measure prevalence rates and slopes, for funded and non-funded SUs

Outcome measure	Group	Year					Slope[1]	Fav. Comp[2]
		2011	2013	2015	2017	2019		
30-day alcohol	SBSAS	35.1	32.3	29.7	34.2	31.6	-0.51	
	Non-SBSAS	34.4	33.4	28.8	32.1	29.8	-1.05	
30-day binge	SBSAS	20.4	18.6	15.5	17.6	15.8	-1.01	
	Non-SBSAS	20.7	19.8	15.4	16	14.5	-1.62	
30-day marijuana	SBSAS	25.4	23.7	23.5	25.1	27.7	0.62	
	Non-SBSAS	24	23.3	21.1	22.5	25.4	0.20	
30-day cigarette	SBSAS	17.5	12.9	11.3	10.1	6.8	-2.43	✓
	Non-SBSAS	15	13.6	9.8	8.8	6.6	-2.16	
Lifetime Rx stimulant or pain reliever	SBSAS	14.4	13.4	11.3	11.0	11.3	-0.85	✓
	Non-SBSAS	13.6	13.2	11	9.2	11.9	-0.74	
Attempted suicide in past year	SBSAS	4.7	5.6	6.5	6.0	6.7	0.45	
	Non-SBSAS	4.2	4.7	5.6	4.9	6.3	0.44	
Low perceived risk of harm from binge drinking	SBSAS	29.3	25.0	24.2	25.9	23.5	-1.08	
	Non-SBSAS	27.6	25.6	24.5	25.1	21.8	-1.21	
Low perceived risk of harm from regular marijuana use	SBSAS	40.3	44.2	49.0	51.4	50.8	2.84	
	Non-SBSAS	38.5	43.4	45.9	49.7	46.5	2.23	
Teacher or adult you can talk with (2017-2019)	SBSAS	--	--	--	20.4	24.0	3.61	
	Non-SBSAS	--	--	--	19.6	22.7	3.10	
Teacher cares and gives encouragement (2011-2015)	SBSAS	43.6	43.0	40.3	--	--	-1.65	
	Non-SBSAS	40.8	40.1	37.2	--	--	-1.80	
You matter in community	SBSAS	52.7	55.2	54.2	43.1	45.2	-2.70	
	Non-SBSAS	48.6	58.6	48	38.6	40.7	-3.58	

[1]Favorable (i.e. negative) slopes are shaded in green (for both the funded and the non-funded groups).

[2]Measures for which the trend was more favorable to the SBSAS-funded group are checked.