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The Characteristics of Schools With and Without Substance Abuse Prevention and Intervention in Schools Programs



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ABOUT THE ERDC

The research presented here uses data from the Education Research and Data Center, located in the Washington Office of Financial Management. ERDC works with partner agencies to conduct powerful analyses of learning that can help inform the decisionmaking of Washington legislators, parents, and education providers. ERDC's data system is a statewide longitudinal data system that includes de-identified data about people's preschool, educational and workforce experiences.

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Introduction

Substance Abuse Prevention and Intervention in Schools Programs (known as SAPISP or SAP) have existed in Washington public schools since the early 1990s. The programs, referred to here as SAP, provide substance abuse prevention and intervention services to enhance the classroom environment and enable students to reach their academic and personal potential. Intervention specialists provide services to students in grades 5 through 12 in schools identified as having high numbers of students at risk for substance abuse. According to the SAP program manual, services are intended to “(a) promote the skills and attitudes necessary to resist pressures to use alcohol, tobacco, and other drugs, (b) help students avoid antisocial behavior that may disrupt learning, (c) encourage students to reduce the substance use for which they were referred, and (d) remove barriers to school success.”¹

Part of research grant from the U.S. Department of Education awarded to Washington state’s Education Research and Data Center (ERDC) in 2015, this study uses school-level administrative data to look at the characteristics of Washington schools with SAP programs and those schools without such programs. This descriptive analysis addresses the following questions:

- What are the characteristics of schools that provide SAP intervention programs and those that do not?
- Is there any change in school-level substance abuse and academic outcome measures among SAP and non-SAP schools, over time?

Schools and SAP Programs Analyzed

A variety of SAP programs exist in Washington schools and they differ based on how they are administered and funded. This, along with data availability, factored into our selection of the type SAP program to study. Most SAP programs are administered by Educational Service Districts (ESDs) and school districts run the remainder.

ESD-operated programs are similar in that staff meet known minimum qualifications, are trained consistently, and follow similar protocols. In addition, OSPI monitors these programs and has data on them through the contracted researcher. District-administered programs vary in how they are staffed, and in what services are offered and models used. OSPI does not monitor or collect data on them. Without good information on them and with the inconsistency in implementation compared to ESD-run programs, findings that include district-run programs would be difficult to interpret. Therefore, we excluded these types of programs from this study.

Among the ESD-run programs, a majority are those in communities identified as high risk

1 <https://www.k12.wa.us/sites/default/files/public/preventionintervention/pubdocs/sapismanu-al2012.pdf>

for substance abuse and funded through the Community Prevention and Wellness Initiative (CPWI), administered by the Division of Behavioral Health and Recovery of the state's Health Care Authority². The rest are funded by many different sources, including grants from OSPI, funds from private sources, Title IV Part A funds and through leveraging district funds. CPWI schools differ from the non-CPWI in that schools are selected based on a determination of a high risk for substance abuse behavior among the students and in the surrounding the community. Unlike other-funded SAP programs, they are all supported by a community coalition, implementation among schools is consistent and OSPI provides monitoring and support. Programs funded by non-CPWI sources may or may not be in high risk schools or communities. Because OSPI has data on CPWI schools and results could help inform policy and practices as well as complement existing annual program evaluation studies, we chose to focus on the SAP schools with CPWI funding.

In addition, since the vast majority of SAP programs are in regular public³ middle and high schools, we limited the study to regular public schools that include grades 7 or above. Other types of schools and those that were entirely on-line were eliminated from the study. Using data from OSPI, we were able to identify and eliminate, from the No SAP group, any school that had any type of SAP or SAP-like program during any of the study years.

Data and Outcomes Measures

School years covered by the analysis are 2014-15 (2015) to 2017-18 (2018), based on years covered by all data sources. Data from OSPI was used to identify schools with SAP programs in place for four school years as well as whether or not the programs had direct services or were CPWI funded. This "SAP-CPWI" group includes schools that had SAP in place for all four years. If they offered direct SAP services and had CPWI funding in a year, they were in the snapshot for that year. A majority of the SAP group met the "treatment" criteria for all four years. Based on the available data, any school that we know had, or may have had, an SAP program in place at any time during the study years was removed from the "No SAP" group.

School-level characteristics analyzed include total enrollment (school size), race/ethnicity, gender, free or reduced-price meal eligibility and program participation data available from the annual *Oct 1 Count of Students by School* files downloaded from the OSPI website.⁴

Outcome measures were chosen based on data availability and the goals of SAP, namely reducing student substance use and improving student success in school. The only measure of substance abuse among school-age children in the available data is discipline

2 For more information about CPWI see: <http://theathenaforum.org/sites/default/files/CPWI%20brochure.pdf>

3 Regular public schools are all those that are not categorized as alternative, reengagement schools, skills centers, institutions, juvenile detention centers, tribal schools or colleges.

4 <https://www.k12.wa.us/data-reporting/data-portal>

incidents reported by schools to districts who then report them in the state's K12 data system (CEDARS). School level measures of substance abuse-related discipline behaviors (alcohol, tobacco, and marijuana) were calculated as the number of discipline incidents for each behavior type divided by total enrollment (defined as any student for any length of time during the school year).

For school-level measures of student success, we chose regular attendance, ELA proficiency and Math proficiency--three of the indicators of school performance developed by OSPI, educators and experts as part of the Washington School Improvement Framework (SIF).⁵ The measures are calculated by OSPI as follows:

- Regular attendance: The percent of students enrolled for 90 calendar days or more throughout the school year, who are present for at least 90% of school days, or missing fewer than an average of 2 days per month.
- ELA Proficiency: The percent of students meeting standard in English Language Arts on the SBA or WA-AIM assessments, for students who attend the school for 150 days during the year and are enrolled on October 1st.
- Math Proficiency: The percent of students meeting standard in Mathematics on the SBA or WA-AIM assessments, for students who attend the school for 150 days during the year and are enrolled on October 1st.

Analytic Approach

Differences in school-level characteristics were examined, for SAP-CPWI and No SAP schools, between 2015 and 2018. We observed trends in the measures, over time, and whether or not the gap between the SAP-CPWI and No SAP schools narrowed or widened. T-tests were used to determine statistical significance of any changes in measures over the four years and between the SAP-CPWI and No SAP groups.

The 'No SAP' schools are assumed to represent the "average" school when it comes to substance abuse risk and behavior, substance abuse discipline incident rates and academic outcomes. In terms of substance abuse discipline incidents, we would expect the SAP-CPWI schools to have higher incident rates, in general, since they have been identified as high risk schools in need of substance abuse prevention services. Incident rates close to No SAP school rates would suggest SAP-CPWI programs may be having an impact. Changes in trends may indicate program impact over time. Since SAP services seek to improve the school experience for students, we would hope to see decreases in absence and improving assessment results for the SAP-CPWI schools. In comparison to the No SAP schools, results that are similar to or better than these "average" schools would suggest that the program may have a school-level impact.

5 Other SIF measures pertain to high schools only and, therefore, would leave out the middle schools, which make up one-third of the SAP schools in the study.

Findings

Part 1. What are the characteristics of schools that provide SAP intervention programs and those that do not?

Table 1. CPWI-Funded SAP Programs vs No SAP program, by School Year

School Year	SAP-CPWI in the study	No SAP
2015	62	623
2016	61	604
2017	61	608
2018	63	573

Table 1 shows the count of all schools with CPWI-funded SAP programs that met the criteria for inclusion in the study and the count of schools with no SAP program, by school year. CPWI program status is not stable between years and schools may be CPWI-funded one year and not the next, as community coalitions shift focus between schools or schools choose not to participate. Among the CPWI schools, whether or not direct services are offered varies from one year to the next, which is why those counts changed over the years. In the analysis below, the sixty or so SAP-CPWI schools are compared to the No SAP schools, which number well over 500.

Figure 1. School Size of SAP-CPWI and No SAP Schools

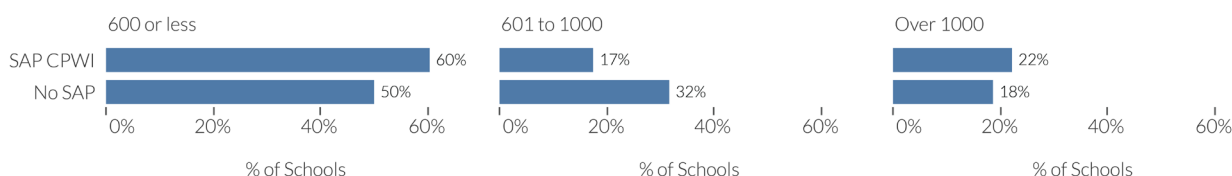


Figure 2. Demographic Composition of SAP-CPWI and No SAP Schools

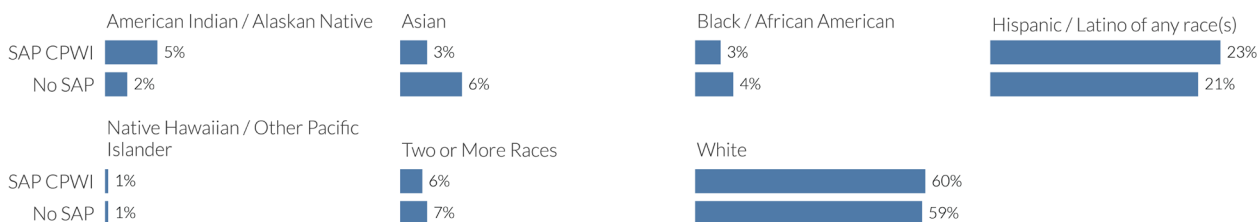


Figure 3. Program Participation of SAP-CPWI and No SAP Schools

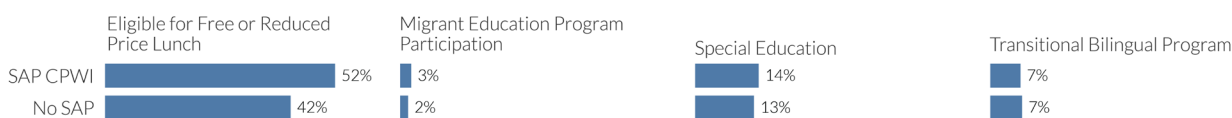


Figure 1 shows that the SAP-CPWI school size pattern differs from that of the No SAP schools in that the SAP-CPWI schools are more likely to be small and less likely to be medium sized.

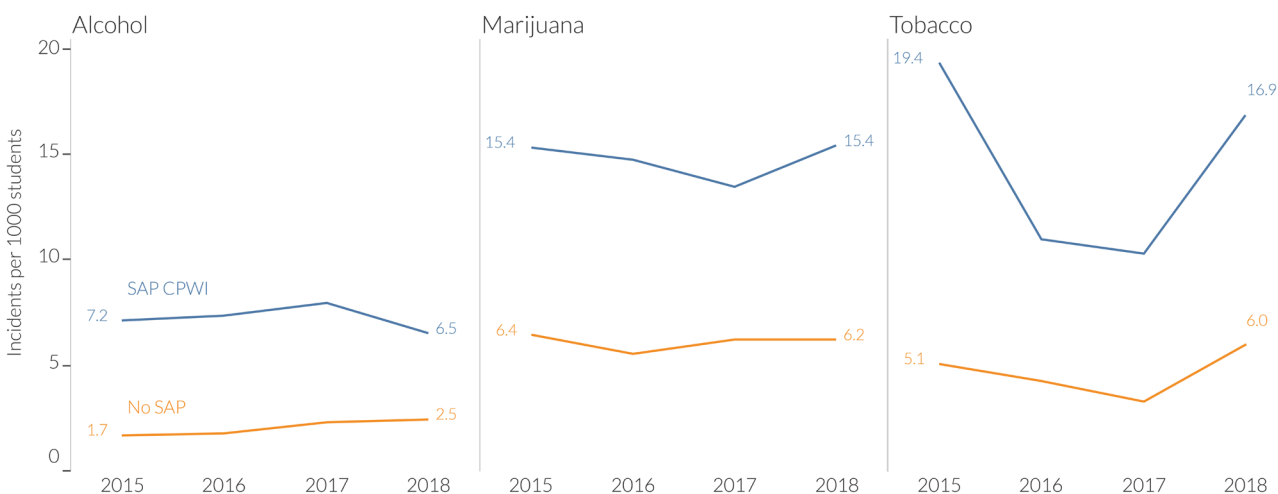
Figure 2 displays selected demographic characteristics from the 2018 school year. In terms of racial/ethnic composition, the SAP-CPWI schools have a lower percentage of Asian and slightly higher percentage of American Indian/Alaska Native students, on average, than do the No SAP schools. Figure 3 displays the program participation from the 2018 school year. The largest difference between the SAP-CPWI and No SAP schools is in regard to proportion of students who are low income, as measured by eligibility for free or reduced price lunch. The average percentage of students who are low income is 10 percent higher in SAP-CPWI schools. SAP-CPWI and No SAP schools are similar in terms of the other program participation rates measured.

Part 2. Are there any significant differences in school-level substance abuse and academic outcome measures among SAP and non-SAP schools, over time?

Discipline Incidents

Figure 4 shows that the SAP-CPWI schools had higher tobacco incident rates than did the No SAP schools for all four years between 2015 and 2018. This is not surprising since SAP-CPWI schools are selected for the program because their students are at higher risk for substance abuse. A possible indicator of SAP program effects, the average rate for the SAP-CPWI schools declined by 9 incidents per thousand students between 2015 and 2017, while the rate for the No SAP schools declined by only 2 incidents. By 2018, however, both groups showed an increase in tobacco-related incidents.

Figure 4. Discipline Incidents Per 1,000 Students at SAP-CPWI and No SAP Schools



Marijuana incident rates were also higher for SAP-CPWI schools than for No SAP schools, and the gap persisted over the four years. The slight decrease in the average marijuana incident rate from 2015 to 2017 for SAP-CPWI schools was not statistically significant, nor was the subsequent increase in 2018.

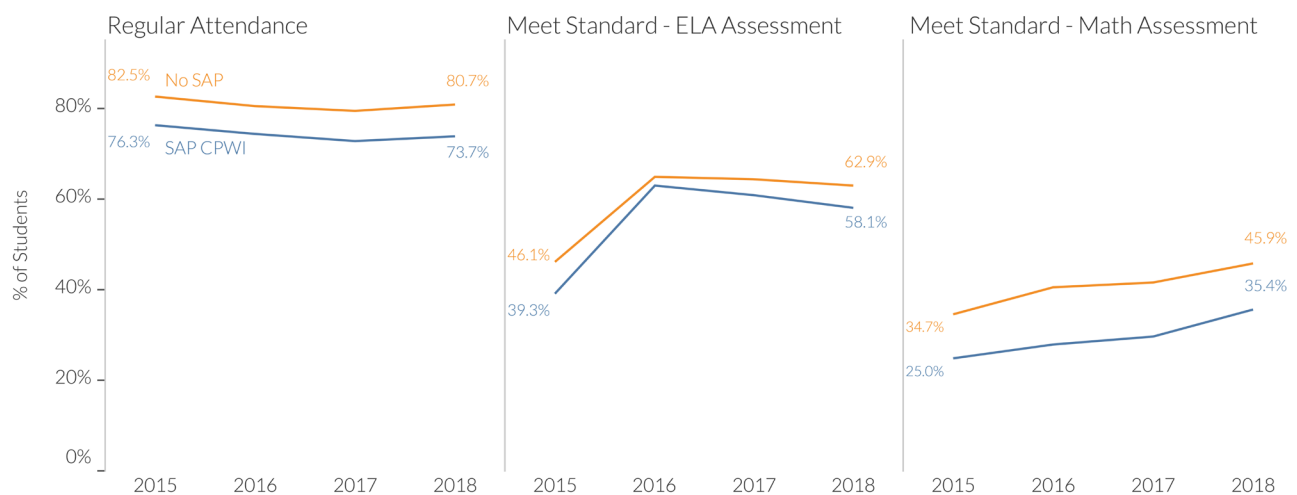
The frequency of alcohol-related discipline incidents, as also shown in Figure 4, was extremely low for both school groups and the changes from one year to the next were minimal. Average incident rates ranged from 1.7 to 8 per 1,000 students per year.⁶ As with tobacco and marijuana, SAP-CPWI schools had the higher average incident rates for alcohol for all four years. It is notable that, for the SAP-CPWI schools, which have a higher risk for substance abuse, the rates remained quite stable between 2015 and 2018, whereas No SAP schools' rates increased.

School Success

Figure 5 shows that SAP-CPWI schools have slightly lower regular attendance (which means higher absences), with small differences each year, ranging from 6 to 7 percent. Over the four years, the difference between the groups did not and the average regular attendance for both groups decreased.

As also shown in Figure 5, SAP-CPWI and No SAP are similar in terms of students meeting standards on ELA assessments. In 2015 and again in 2018, SAP-CPWI schools had a slightly lower average percentage of students who met standards for ELA assessments than the No SAP schools. The low percentage for both groups in 2015 and subsequent jump the following year is likely an artifact of 2015 being the first full implementation year for the new Smarter

Figure 5. Experiences and Outcomes of Students at SAP-CPWI and No SAP Schools



6 The actual rates of alcohol use among youth are much higher. According to the 2018 Healthy Youth Survey results (<http://www.askhys.net/library/2018/StateGr10.pdf>), 18 percent of Washington students surveyed in 10th grade reported using alcohol in the past 30 days. It may be that school is not the place where students are using alcohol or that students are not getting caught or being disciplined for it.

Balance assessment. The gap between the two groups nearly disappeared in 2016, but began to widen again in 2017. By 2018, the gap had returned as the SAP-CPWI group's average percentage dropped slightly and the No SAP school average percentage remained fairly stable. Both groups saw an increase in percentage of students meeting the ELA assessment standards between 2015 and 2018.

In regard to proficiency in Math assessments, Figure 5 also shows that the SAP-CPWI schools had significantly lower scores than the No SAP schools in each of the study years. This gap is larger than what we saw with ELA assessment proficiency. The average percentage of students who met standards in SAP-CPWI schools ran about 11 percent less than in No SAP schools, over the four years. As with ELA assessments, both groups showed an upward trend between 2015 and 2018.

Conclusions

This descriptive study examined the difference in academic and social behavior outcomes between schools with SAP-CPWI programs and those without such programs, as a first step in using K-12 administrative data to evaluate the program. The findings of consistently higher substance abuse discipline incident rates among SAP-CPWI schools compared to the No SAP schools (“average” schools) is as expected, since SAP-CPWI schools were selected for the program based on the determination of high risk for substance abuse among students.

Among the SAP-CPWI schools, the substance abuse discipline incident rate trends measured between 2015 and 2018 did not show any significant increase or decrease. However, for the No SAP schools, there were significant increases in tobacco and alcohol incident rates. Whether such trends indicate the effectiveness of SAP program needs further analysis (as we describe below). In terms of school success measures, results indicate that, overall, SAP-CPWI schools did not perform as well as No SAP schools. This could be related to other factors besides SAP, such as the fact that SAP-CPWI schools tend to have higher percentages of students from low income families.

Limitations and Next Steps

There are limitations to this approach. One is the lack of a comparison group. Ideally, we would create a comparison group of schools by matching SAP schools to non-SAP schools on such variables as substance abuse risk factors⁷, and demographic and socioeconomic characteristics. Most crucial for this is data on substance abuse risk factors and knowledge of how the factors are used to select schools considered “high risk” and eligible to apply for SAP funding. Unfortunately, this information was not available to OSPI or ERDC at the time this study was conducted.

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7 see <https://www.dshs.wa.gov/ffa/research-and-data-analysis/community-risk-profiles>

The major limitation, however, is the lack of individual-level data. Since the SAP program provides direct services to individual students, a study of students served and those not served over time is the best way to determine program effectiveness. OSPI contracts with a research firm to conduct an annual SAP program evaluation that does look at individual students served, using data collected through pre-treatment and post-treatment surveys. Findings have been positive, with students served showing increased perception of risk for alcohol, marijuana, and tobacco use; decreased use of each; and decreases in antisocial behaviors and increased hope as measured by the Children's Hope Scale.⁸ However, the approach used has limitations, including lack of a matched comparison group and a short time span of one school year for looking at pre- and post-treatment outcomes.

A better approach is a longitudinal study with a distinctive comparison group of students with similar individual characteristics and risk levels for substance abuse behavior. By controlling for confounding variables, this approach would provide a more rigorous evaluation of the effectiveness of SAP programs. Such a study could be done by selecting a cohort of students served by SAP from the OSPI contractor data and joining their student records from the state's P-20 data warehouse (P-20 DW hereafter), using identity matching, and following students through time to determine their educational and employment outcomes. By identity matching SAP students in P-20 DW, their non-SAP counterparts could be identified as a legitimate comparison group. We were not able to do this due to the fact that the OSPI contractor's data do not include any student-level identifiers we could use for identity matching. Until OSPI can identify students who are receiving SAP services, a robust evaluation of SAP programs that takes advantage of P-20 DW longitudinal data to track student outcomes is not possible.

Last but not the least, the outcome measures used in this study are limited to data available from P-20 DW, which might not fully align with the purpose of the program. For example, SAP program might affect students' health measures (i.e. weight, self-esteem, depression) and such data is not currently available from our data.

This study applies an ecological approach to portray the difference in substance abuse and academic outcomes between SAP and No SAP schools. It provides insights about relative school climates through exploring compositional measurements over time. However, it does leave room to improve in terms of SAP program effectiveness evaluation.

8 RMC Research Corporation. 2018. [Addressing Adolescent Substance Abuse: An Evaluation of Washington State's Student Assistance Prevention and Intervention Services Program—2017-2018 Annual Report](#).

Appendix: Tables

Table A1. Race/ethnicity and Program Participation of SAP-CPWI and No SAP School, 2018 School Year

	SAP CPWI	No SAP	Diff
Race/ethnicity			
American Indian / Alaskan Native	5.2	2.3	2.9+
Asian	2.7	6.2	-3.5***
Native Hawaiian / Other Pacific Islander	0.7	0.8	-0.1
Black / African American	2.5	3.8	-1.3
Hispanic / Latino of any race(s)	23.1	20.9	2.2
White	59.7	59.0	0.7
Two or More Races	6.0	6.9	-1.0+
Gender			
Female	48.1	48.5	-0.4
Male	51.9	51.5	0.4
Program participation			
Eligible for Free or Reduced Price Lunch	52.4	42.3	10.1**
Migrant Education Program Participation	2.7	2.0	0.7
Transitional Bilingual Program	6.9	7.2	-0.3
Special Education	14.4	13.4	1.0

+p<0.1, *p<0.05, **p<0.001, ***p<.0001

Table A2. Average Tobacco Discipline Incidents Per 1,000 Students

School Year	SAP CPWI	No SAP	Diff
2015	19.363	5.0791	14.3*
2016	10.9515	4.2936	6.7*
2017	10.262	3.2874	7.0**
2018	16.8805	5.9875	10.9*

Table A3. Average Marijuana Discipline Incidents Per 1,000 Students

SchoolYear	SAP CPWI	No SAP	Diff
2015	15.4	6.4	8.9*
2016	14.8	5.5	9.2*
2017	13.5	6.3	7.2**
2018	15.4	6.2	9.2*

Table A4. Average Alcohol Discipline Incidents Per 1,000 Students

SchoolYear	SAP CPWI	No SAP	Diff	P
2015	7.2	1.7	-5.4	0.0367
2016	7.4	1.8	-5.6	0.0967
2017	8.0	2.3	-5.7	0.0601
2018	6.5	2.5	-4.1	0.1352

Table A5. Average Percentage of Students with Regular Attendance

SchoolYear	SAP CPWI	No SAP	Diff	P
2015	76.3	82.5	-6.2	<.0001
2016	74.4	80.5	-6.1	0.0001
2017	72.8	79.5	-6.7	<.0001
2018	73.7	80.7	-6.9	<.0001

Table A6. Average Percentage of Students Meeting Assessment Standards for English Language Arts (ELA)

SchoolYear	SAP CPWI	No SAP	Diff	P
2015	39.3	46.1	-6.8	0.002
2016	62.8	64.8	-2.0	NS
2017	60.9	64.3	-3.4	NS
2018	58.1	62.9	-4.8	0.0185

Table A7. Average Percentage of Students Meeting Assessment Standards for Mathematics

SchoolYear	SAP CPWI	No SAP	Diff	P
2015	25.0	34.7	-9.7	<.0001
2016	28.0	40.4	-12.4	<.0001
2017	29.5	41.7	-12.2	<.0001
2018	35.4	45.9	-10.4	<.0001

Table A8. Statistical Significance of Differences Over Time

	Time 1	Time 2		
	2015	2018	Diff	P
Tobacco Incidents				
SAP CPWI	19.4	16.9	-2.5	0.7871
No SAP	5.1	6	0.9	0.0018
Marijuana Incidents				
SAP CPWI	15.3	15.4	0.1	0.7482
No SAP	6.4	6.2	-0.2	0.1854
Alcohol Incidents				
SAP CPWI	7.2	6.5	-0.6	0.9792
No SAP	1.7	2.5	0.8	<.0001
ELA Proficiency				
SAP CPWI	39.3	58.1	18.8	<.0001
No SAP	46.1	62.9	16.8	<.0001
Math Proficiency				
SAP CPWI	25	35.4	10.4	<.0001
No SAP	34.7	45.9	11.2	<.0001
Regular Attendance				
SAP CPWI	82.5	80.7	-1.8	<.0001
No SAP	74.4	73.7	-0.7	0.0322



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