

## **Vermont New Directions Project**

### **Encouraging Findings Regarding Changes in Student Substance Use: An Outcome Evaluation of New Directions Based on the YRBS**

**Evaluation Research Brief No. 6**

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#### **Summary**

**One important measure of the success of projects such as New Directions is a reduction in the prevalence of youth substance use in participating communities. Data from the statewide Youth Risk Behavior Survey was used to assess this goal. Across the 23 communities served by Vermont's initial New Directions project, greater reductions in student substance use prevalence were achieved, relative to the remainder of the state, for all nine substance use measures examined. The greatest relative reductions were observed for marijuana and cigarette use. In general, greater intensity and coverage of research-based primary prevention activities was associated with greater reductions in student substance use. These findings suggest that collaborative community-based efforts implemented within a supportive framework such as New Directions can have a real impact on the prevalence of substance use behaviors among youth.**

#### **Introduction**

In 1997, Vermont was one of five initial states to receive a State Incentive Grant (SIG) from the Center for Substance Abuse Prevention. This grant supported 23 community coalitions across the state in identifying and implementing a range of youth substance use prevention strategies. Vermont's SIG, titled "New Directions" (ND), represented a major shift in the state's approach to substance abuse prevention through its funding of community coalitions rather than individual programs, its emphasis on the use of research-based prevention programs and strategies, the high level of training, technical assistance, and financial support provided to the coalitions, and the collaborative involvement of multiple state agencies in the oversight of the project.

ND coalitions implemented a variety of programs that include school-based prevention curricula, student assistance programs, mentoring, substance-free alternative activities, and family outreach programs. Coalition activities also included public awareness campaigns and other environmental strategies, and they served to enhance collaboration and networking

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among community organizations. Although the coalitions required an initial planning period, all were fully engaged by fall of 1999.

This brief report summarizes the key findings from an evaluation of ND based on data provided by Vermont's biannual Youth Risk Behavior Survey (YRBS). This survey, which is completed by students in grades 8 through 12, is conducted in over 90% of the middle and high schools in Vermont. Because all students in each participating school and community are asked to complete the survey, it provides a picture of how community-wide rates in substance youth among eighth to twelfth grade students are changing. Although past experience shows that reducing overall prevalence rates is a formidable challenge, this is the ultimate goal of the federal initiative under which the SIG program was developed. Even small effects on rates of substance use behaviors, when observed at the community level, may translate into substantial numbers of students who are successfully prevented from initiating or continuing substance use.

Further information regarding the methods and findings from this study may be found in the full version of this report. Findings from other components of the ND evaluation effort have been reported separately and are available in the state's final report to CSAP.

### **Design and Measures**

The design allows for an overall assessment of the effects of the ND program in Vermont by comparing changes in outcome measures based on student survey data from all schools within Supervisory Unions (SUs) served by ND coalitions with corresponding changes experienced in non-ND schools. The period over which changes were assessed was from 1999 to 2001. Although some coalitions began implementing ND-sponsored prevention activities prior to the 1999 YRBS administration, full scale implementation was not underway in most coalitions until the fall of 1999, thus justifying the use of 1999 as the "baseline" year from which subsequent changes were measured. Changes were measured by comparing prevalence rates for students in a selected range of grade levels (e.g., grades 8 through 12) in 1999 relative to prevalence rates for the same grade levels in 2001. Outcome measures include self-reported past month and/or lifetime use of selected substances, and several risk and protective factor known to be predictive of substance use.

In addition to the overall comparisons, it was also noted that coalitions varied widely in the levels of change they experienced in the outcome measures. Subsequent analyses were then conducted to identify coalition characteristics most highly associated with the degree of change observed for selected substance use prevalence measures. Because the purpose of this report is to provide an aggregate assessment of the effectiveness of the New Directions Project, rather than to evaluate the performance of specific coalitions, no coalitions are individually identified. All coalitions are, however, encouraged to examine their own SU-specific data in helping to assess their needs and monitor their progress.

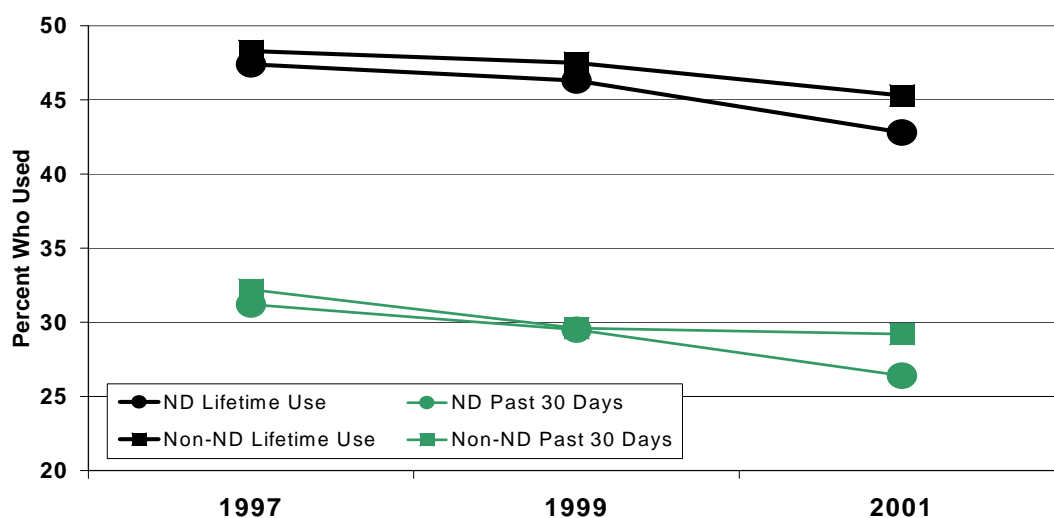
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### Findings

#### Differences Between ND and non-ND Communities

The figure below shows the changes in the prevalence of past month use and lifetime use of marijuana from 1997 to 2001 among Vermont students in grades 8 through 12. Based on the timing of the ND-sponsored activities in most communities, program effects were expected primarily during the 1999 to 2001 period.

**Figure 1. Percent of Students Grades 8-12 in ND and Non-ND Communities Reporting Lifetime and Past 30-day Use of Marijuana, 1999 – 2001.**



In both 1997 and 1999, the prevalence rates of 30-day and lifetime use of marijuana were similar for students from ND and non-ND communities. Consequently, changes in the percent of students who used marijuana between these two years were similar for ND and non-ND areas as evidenced by the approximately parallel lines running between the two years. Between 1999 and 2001, however, declines in these percentages were more pronounced for the ND communities. To make the figures comparable across the years, only schools that participated in all three years of the survey were included in this analysis.

Similar patterns were seen for all the other substance use measures examined, with the strongest effects occurring for marijuana and cigarette use. The changes from 1999 to 2001 in the percent of students using various substances are summarized in Table 1.

The table shows that the New Directions communities, collectively, experienced greater reductions in substance use between 1999 and 2001 than the remainder of the state for all nine substance use measures that were examined. For example, past 30-day marijuana use declined 2.7 percentage points more in the ND communities than the rest of the state.

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**Table 1. Percent of Students Grades 8-12 in ND and Non-ND Communities<sup>1</sup> Reporting Various Types of Substance Use, 1999 and 2001.**

Substance Use Measure	New Directions		Non-New Directions		Net change <sup>2</sup>
	1999 N=13891	2001 N=13965	1999 N=11041	2001 N=10719	1999 to 2001
Marijuana past 30 days	29.5	26.4	29.6	29.2	<b>-2.7</b>
Alcohol past 30 days	44.1	40.8	45.9	43.5	<b>-0.9</b>
Binge drank past 30 day	27.3	24.4	29.2	26.8	<b>-0.5</b>
Cigarettes past 30 days	31.3	22.2	31.4	24.7	<b>-2.4</b>
Ever used marijuana	46.3	42.8	47.5	45.3	<b>-1.3</b>
Ever used alcohol	71.2	68.1	73.3	70.9	<b>-0.7</b>
Ever smoked cigarettes	53.2	43.0	54.8	46.1	<b>-1.5</b>
Ever used inhalants	17.6	15.0	16.6	15.1	<b>-1.1</b>
Ever used other drugs	23.2	20.0	22.9	20.5	<b>-0.8</b>

<sup>1</sup>Includes only schools that participated in the '97, '99, and '01 YRBS.

<sup>2</sup>This quantity is the net percentage point change in the ND areas after adjusting for the amount of change in the non-ND areas.

Although the net percentage point declines are not large, ranging from 0.5 to 2.7, they are more impressive when expressed as the added percent reduction from the baseline rate observed in ND communities. For example, the additional 2.7 percentage point drop in marijuana use represents a 9.2 percent decline (relative the baseline value of 29%) in the prevalence of this behavior, above and beyond whatever decline was observed in the non-ND communities. Furthermore, when applied to the total number of students, grades 8 through 12, in the ND communities, these declines represent hundreds of students who may have been averted from using substances in the ND communities. The greater declines observed in these communities were statistically significant for past 30-day use of marijuana and cigarettes ( $p < .05$ ), and lifetime use of these same substances ( $p < .10$ ).

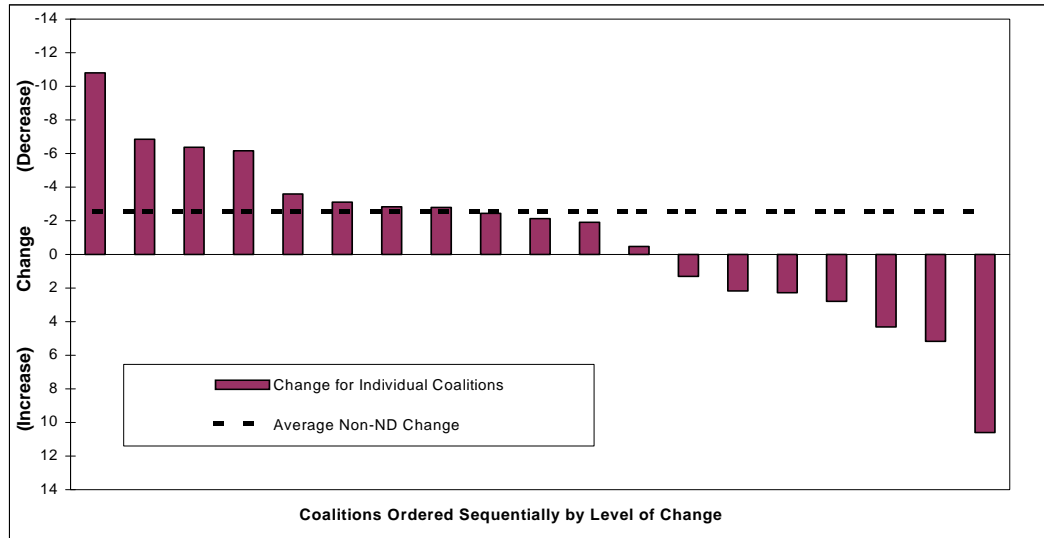
Further analyses found a similar pattern of encouraging findings for measures regarding unfavorable attitudes towards substance use and perceived risk of using substances. Apparent program effects were also fairly uniform across grade levels, with relative declines in the upper grades being as strong or stronger than the declines observed for 8<sup>th</sup> and 9<sup>th</sup> grade students. This finding is noteworthy because it suggests that the observed effects are not due primarily to the middle school curricula implemented by the coalitions, because by 2001 they would have affected only 8<sup>th</sup> and 9<sup>th</sup> grade students. Rather, the reductions in substance use observed across the grade levels likely reflect pervasive effects across ages as a result of the multi-faceted and community-wide approach adopted by the coalitions.

Coalitions varied widely in the changes they experienced in student substance use rates, as reflected in the following coalition-specific findings for past 30-day marijuana use. These figures show the absolute change in the percent of students reporting use of marijuana in the past 30 days for each coalition. Figure 2 shows the changes experienced between 1997 and 1999, while Figure 3 shows the changes from 1999 to 2001. The dashed lines represent the average percentage point change experienced in all non-ND communities. The figure visually indicates the strong performance of the majority of coalitions relative to the rest of the state during the 1999 to 2001 period, when coalition activities were fully underway, and

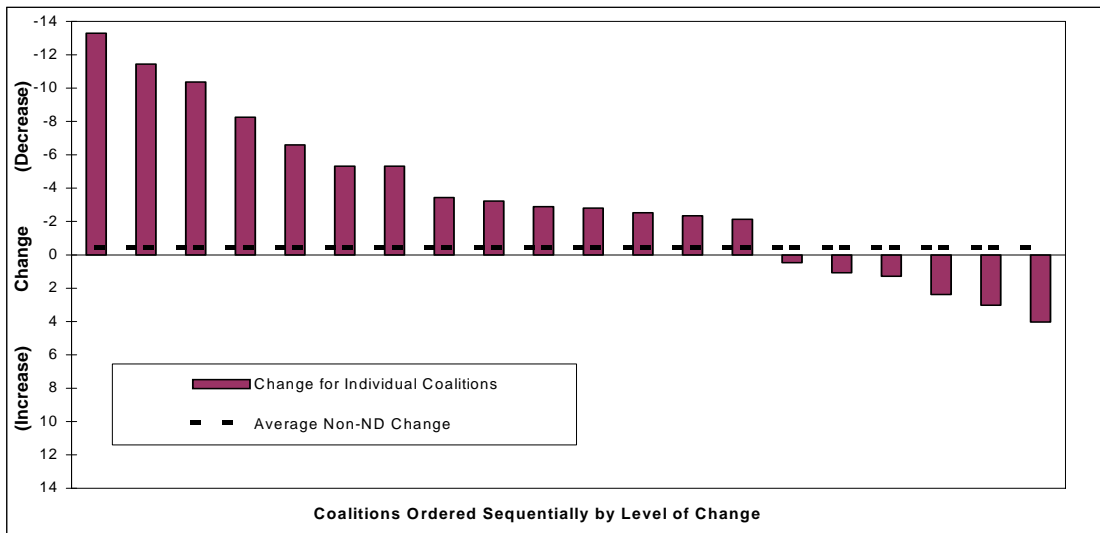
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the relatively average overall performance of the coalitions in the two-year period from 1997 to 1999, which immediately preceded most of the SIG-funded activities. Similar patterns were obtained for past 30-day use measures for cigarettes and alcohol.

**Figure 2. Change in Prevalence of 30-Day Marijuana Use Among Students in Grades 8-12, from 1997 to 1999, by Coalition<sup>1</sup>**



**Figure 3. Change in Prevalence of 30-Day Marijuana Use Among Students in Grades 8-12, from 1999 to 2001, by Coalition<sup>1</sup>**



<sup>1</sup> Based on YRBS data from schools that participated all three years: 1997, 1999, 2001.

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### Differences among Subgroups of ND Communities

Given the large variations across the coalitions in their levels of substance use change, additional analyses were conducted to determine if certain types of coalitions achieved greater reductions in use than others. These analyses focus specifically on changes experienced between 1999 and 2001. A set of coalition characteristics potentially related to the degree of change experienced within each coalition was identified. Measures of each characteristic were used to form subgroups of coalitions that were relatively high or low on each characteristic. These subgroups were then compared using the subgroup averages in the level of change from 1999 to 2001 observed for each outcome measure. Subgroup averages were based on the equally weighted levels of change experienced by each coalition within the subgroup.

The first coalition characteristic examined was the choice of middle school prevention curricula implemented most widely by coalition-supported schools. Most coalitions implemented a middle school substance use prevention program as a core component of their overall strategy. Based on information provided by the coalitions, it was determined that 10 coalitions implemented Life Skills Training (LST) as their primary school-based strategy, 6 implemented Project Northland, 2 choose Project Alert, and 5 did not implement a research-based substance use prevention curriculum in their middle schools.

Table 2 presents the subgroup means for the percentage point changes in substance use measures between 1999 and 2001. For this characteristic only, the means are based on data from 8<sup>th</sup> grade students only, rather than all grade levels 8 through 12, because only 8th grade students had been widely exposed to the full middle school curricula programs that were implemented in the 1999/2000 and 2000/2001 school years.

**Table 2. Mean Percentage Point Change in Selected Prevalence Measures from 1999 to 2001 among Students in Grade 8 Only, By Primary School-Based Prevention Program Subgroups**

Program Subgroup	N	Mean Percentage Point Change					
		Marijuana (30 day)	Alcohol (30 day)	Binge Drink (30 day)	Cigarettes (30 day)	Inhalants (lifetime)	Other drugs (lifetime)
LST	10	-3.4	-3.6	-2.9	-9.8	-5.8	-5.7
Northland	6	-4.5	-11.8	-7.3	-9.1	-7.2	-1.9
Alert	2	-1.2	-9.0	-1.8	-3.4	-3.0	-2.5
None	5	-1.7	-6.0	-2.3	-3.7	-3.0	-0.2
(Non-ND)		-4.6	-6.0	-3.9	-6.0	-4.6	-3.2

Across the four subgroups, the subgroup comprised of coalitions that implemented Project Northland achieved the greatest reductions in substance use for four of the six measures shown in the table. The LST subgroup achieved the largest reduction in 30-day cigarette use prevalence (9.8 percentage points vs. 9.1 for the Northland group) and lifetime use of other illicit drugs. The larger decline in 30-day marijuana use among eighth grade students from non-ND areas, relative to ND subgroups, is somewhat of an anomaly, and is not representative of the patterns observed for lifetime use of marijuana among eighth graders nor for 30-day marijuana use among students in other grade levels.

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When changes in lifetime measures of marijuana, alcohol, and cigarettes were examined (see Table 3), the Project Northland group was found to have achieved the greatest reductions in lifetime marijuana and cigarettes, and was essentially tied with the Project Alert subgroup for the greatest reductions in lifetime alcohol use. Table 3 also depicts the considerably greater success in preventing initiation of use by eight grade students that was achieved by coalitions that implemented research-based curricula versus those that did not.

**Table 3. Mean Percentage Point Changes in Additional Prevalence Measures from 1999 to 2001 among Students in Grade 8 Only, By Primary School-Based Prevention Program Subgroups**

Program Subgroup	N	Mean Percentage Point Change		
		Marijuana (lifetime)	Alcohol (lifetime)	Cigarettes (lifetime)
LST	10	-7.3	-11.9	-16.4
Northland	6	-9.6	-15.2	-17.0
Alert	2	-6.3	-15.3	-13.1
None	5	-0.9	-6.8	-7.7
(Non-ND)		-5.5	-6.3	-10.4

Other characteristics were examined in a similar fashion, except that the change measures were based on survey data from students in all grades 8 through 12 rather than 8<sup>th</sup> grade only. Table 4 summarizes the findings from these subgroup analyses.

**Table 4. Summary of findings from additional subgroup analyses to identify characteristics associated with coalition outcomes.**

Characteristic	Finding
Implementation levels of various <u>universal</u> prevention strategies (as measured by the percentage of eligible students served and the number of years offered)	Greater declines in most substance use prevalence measures were associated with higher implementation levels for student assistance programs, environmental strategies, and alternate activity programs.
Implementation levels of <u>selected</u> and <u>indicated</u> prevention strategies	Levels of program implementation for indicated and selective programs such as mentoring and family-based programs, which typically involved very small numbers of participants, were largely unrelated to changes in substance use prevalence.
Size of the population served by the coalition	Declines in substance use prevalence were greatest among coalitions that served relatively small populations (and which, therefore, had greater resources per capita).
How long the coalition has been in existence	How long the coalition had been in existence did not appear to influence the level of substance use change from 1999 to 2001.
Coalition coordinator characteristics, such as experience, education, and turnover	Slightly greater declines in use were experienced by coalitions whose coordinators did not change and who had relatively more years of experience in substance use prevention. Coordinator education did not appear to make much of a difference.
Funding allocation from Tobacco Free Schools prevention grants (in 2000/2001 school year)	Higher levels of TFS prevention grant funding received by communities within the coalitions were generally associated with <u>smaller</u> declines in substance use prevalence.

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The finding regarding the inverse association between funding levels from state Tobacco Free Schools grants and the size of the declines in substance use prevalence was somewhat unexpected, but may be explained by the fact that communities determined to be at higher need were allocated greater amounts. More importantly for this study, this finding suggests that tobacco grant funding is not a likely alternative explanation for the overall greater declines in substance use experienced in the New Directions coalitions.

### **Conclusions**

In summary, the community-level changes in levels of student substance use observed collectively across the ND coalitions, relative to the remainder of the state, are very encouraging, especially as they were observed against a backdrop of generally declining rates in student substance use. These findings suggest that collaborative community-based efforts implemented within a supportive framework such as New Directions can have an impact on the prevalence of these behaviors.

One important limitation of this study was the absence of a randomized design. Because ND communities were not randomly selected, it is possible that other characteristics of these communities were at least partly responsible for the differences in outcomes observed between these communities and the rest of the state, rather than their ND-sponsored activities per se. The same limitation applies to the findings from the subgroup comparisons. This and other methodological constraints of the study are discussed in more detail in the full report.

The findings from the subgroup analyses suggest that most of the kinds of activities engaged in by the coalitions did, in fact, contribute to the overall reductions in student substance use achieved by ND coalitions, and that the greater the penetration and/or intensity of these activities, the stronger the reductions in student substance use. This conclusion serves to support the evidence for the overall impact of the New Directions Project, as it helps to establish a “dose-response” relationship between the types of activities supported by ND and the desired outcomes. It also supports the comprehensive approach adopted by most ND coalitions, as it suggests that each of a number of different strategies, implemented within supportive and collaborative community context, contributed to the reductions in substance use that were achieved. Data from the 2003 YRBS will be useful for determining whether these effects can be sustained.

### **Acknowledgements**

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