

Student Tobacco Use and TUPE Competitive Grant Funding, 1998-2006¹

Since 1994 the California Department of Education has allocated school-based tobacco use prevention education (TUPE) funds to school districts using two different mechanisms. The first is entitlement funding to all school districts for programs in grades 4 through 8. The second is a competitive grants program for high schools, and later middle schools. Both entitlement and competitive program funds have to be used for tobacco-specific student instruction, reinforcement activities, special events, and cessation programs for students. In addition, Federal Title IV legislation requires that schools provide tobacco use prevention services to all students.

State surveys since the mid-1990s show that tobacco use among California students declined dramatically concomitant with the implementation of these tobacco use prevention activities in schools.² CDE funded WestEd to perform a series of data analyses to examine the extent to which participation in the high school TUPE grant program was associated with declines in tobacco use and changes in factors known to be associated with reductions in use (precursors). The analysis was performed on data from the California Healthy Kids Survey (CHKS) collected between spring 1998 and spring 2006. The results, summarized in Table 1 and in the attached figures, indicate general improvements in tobacco-related outcomes, especially in TUPE schools.

Results

The analysis shows that *tobacco use* among 11th graders declined markedly in both TUPE and non-TUPE schools over this period. Even more telling, 3 of the 6 smoking measures showed significantly more declination in cigarette smoking in TUPE-funded schools than in schools without these extra funds. In addition, TUPE grantees showed significantly greater improvements in 1 of 5 *tobacco use precursors*.

- *Lifetime smoking, daily smoking, and current smoking at school* all declined at a significantly faster rate in schools with TUPE grants compared to other schools. (Figures 1-3).
- Students' *refusal skills* showed significantly more increases in schools with TUPE compared to other schools (Figure 4). This factor is a strong predictor of future smoking.

Overall, the results suggest that high schools that received TUPE competitive grants have been more successful than other schools in reducing tobacco use and its precursors. Additionally, the marked decline in tobacco use in *all* CHKS high schools may be at least partially attributable to Title IV funded activities and to TUPE activities in earlier grades, where TUPE entitlement funds are distributed to every district.

How the Analyses were Performed

The analyses relied on eleven tobacco-related measures drawn from the aggregated database of all CHKS surveys for eleventh graders completed in traditional public schools from spring 1998 through spring of 2006. The CHKS is a voluntary, confidential, modular health risk and resilience data collection system supported by the California Department of Education and available to all California schools. Data for 5 of the 11 tobacco-related measures were available from the required Core Module from 520,168 11th graders in 1002 schools in 413 districts. Data for the other 6 tobacco-related measures were available from the optional Tobacco Module³ from approximately 314,282 11th graders in 868 schools in 371 districts. The analysis focused on 11th graders because this age group was most likely to have been exposed to school-

1 Suggested citation: Hanson, T.L. and Zheng, H. (2006). *Student tobacco use and TUPE competitive grant funding, 1998-2006*. (California Healthy Kids Factsheet 2, revised). Los Alamitos, CA: WestEd. For more details about the analyses, please contact Thomas Hanson, Health and Human Development Program, WestEd, 4665 Lampson Avenue, Los Alamitos, CA 90720. Phone: (562) 799-5170. E-mail: thanson@wested.org. This document can be downloaded at www.wested.org/hks.

2 Data on student tobacco use is available since 1985 from the California Student Survey, sponsored by the Office of the Attorney General.

3 All school districts with competitive TUPE grants are minimally required to administer the Core and Tobacco Modules every two years.

based prevention activities prior to survey completion. To identify high schools with TUPE grants, we used information provided by the Safe and Healthy Kids Program Office at CDE.

Because so many schools have administered the CHKS on multiple occasions, the aggregated database represents a longitudinal, school-level database. The aggregated data is thus ideal for investigating school-level change. We used multilevel modeling techniques to examine TUPE/non-TUPE differences in school-level changes in tobacco use and tobacco use precursors. These techniques are described in detail in the box on page 3.

Table 1. Overall Summary of Results

	<i>School-level Change in Tobacco Outcome</i>	
	TUPE vs. Non-TUPE	<i>p</i> -value
Tobacco Use and Cessation		
Lifetime Use	–	.015
Lifetime Regular Use ^a	0	.211
30-day Use	0	.148
Daily Use	–	.043
30-day Use at School	–	.005
Cessation ^b	0	.087
Tobacco Use Precursors		
Chances of Smoking ^c	0	.499
Perceived Harm ^d	0	.239
Overestimation of Peer Smoking Prevalence ^e	0	.376
Refusal Skills ^f	+	.036
Antismoking Attitudes ^g	0	.217

Source: California Department of Education, California Healthy Kids Survey.

Notes: “–” indicator *declined* more rapidly in TUPE schools than in non-TUPE schools.

“+” indicator increased more in TUPE schools than in non-TUPE schools.

“0” no statistically significant ($p < .05$) difference in change between TUPE and non-TUPE schools.

Measures: ^aEver smoked at least one cigarette every day for 30 days or more. ^bLifetime regular smoker who did not smoke in 30 days prior to survey. ^cReported 50% or higher chance of smoking in the next year. ^dReported that frequent tobacco use was extremely harmful. ^eReported that 30% or more of age peers smoke once a month or more. ^fReported that it would be very easy to refuse a cigarette offer from a friend. ^gAverage of 7 items assessing antismoking attitudes.

Several data limitations should be noted in interpreting the results.

- Very few school districts with competitive TUPE grants administered the CHKS *prior* to receiving their grant. Because tobacco use was not assessed before TUPE services were delivered, declines in student tobacco use in TUPE schools may have been underestimated.
- Schools were not randomly assigned to TUPE and non-TUPE conditions. It is therefore impossible to rule out that other factors, besides TUPE program activities, may be responsible for the greater declines in tobacco use and tobacco use precursors in TUPE schools. These other factors may include high motivation of district/school personnel to reduce the tobacco use of their students and the presence of an effective infrastructure for delivering prevention and intervention services.
- Our analyses cannot tell us *why* high schools that received competitive TUPE grants exhibited greater declines in student tobacco use than other schools. Local program data are needed to make the link between the delivery of specific program services and reductions in use.

Conclusion

Despite the data limitations, the results are robust and consistent across different measures of tobacco use. High schools with competitive TUPE awards made better progress in reducing student tobacco use than schools that did not have such grants. The results suggest that the competitive TUPE program is effective in reducing youth tobacco use and the precursors of future use.

Statistical Models

For each outcome, we estimated a 3-level hierarchical model as illustrated in the equations below. The following within-school model was estimated for each time-point:

$$\text{Tobacco}_{ijk} = \pi_{0jk} + \pi_{1jk} * \text{Race/Ethnic}_{ijk} + \text{Female}_{ijk}, \quad [1]$$

where *Tobacco* represents the tobacco-related outcome measure, *Race/Ethnic* is a vector of dichotomous variables indicating student racial/ethnic group membership, *Female* is a dichotomous variable for female, and subscripts *i*, *j*, and *k* denote student, time of survey administration, and school, respectively. The independent variables in [1] and subsequent models are centered around their grand means. The intercept π_{0jk} represents the school-level mean of the tobacco outcome at time *j* after adjusting for the racial/ethnic and gender composition of the school. These intercepts are modeled as a function of time (months since first survey administration), calendar year, and school socioeconomic characteristics (percent of students receiving subsidized meals, average parental education, and percent of English Language Learner students) for each school, as illustrated in [2].

$$\pi_{0jk} = \beta_{00k} + \beta_{01k} * \text{Time}_{0jk} + \beta_{02k} * \text{CalYear}_{0jk} + \beta_{03k} * \text{Meals}_{0jk} + \beta_{04k} * \text{Avg_Ed}_{0jk} + \beta_{05k} * \text{ELL}_{0jk} + r_{0jk}. \quad [2]$$

The coefficient β_{01k} in [2] represents the average monthly school-level change in the tobacco-related outcome after accounting for calendar time and the socioeconomic characteristics of schools. To investigate TUPE/non-TUPE differences in school-level changes in the tobacco-related outcome, we estimate

$$\beta_{01k} = \gamma_{100} + \gamma_{101} * \text{TUPE}_{01k} + \mu_{01k}, \quad [3]$$

where TUPE represents a dichotomous variable indicating whether the school had a competitive TUPE grant. The coefficient γ_{101} captures TUPE/non-TUPE differences in changes in the tobacco-related outcome. The results of these models form the basis of the graphs presented in Figures 1-6. In plotting the values for the graphs, we take into account both months since first survey administration (Time) and calendar time so that the trend lines accurately reflect changes in tobacco-related outcomes in CHKS schools between 1998 and 2005.

Figure 1.

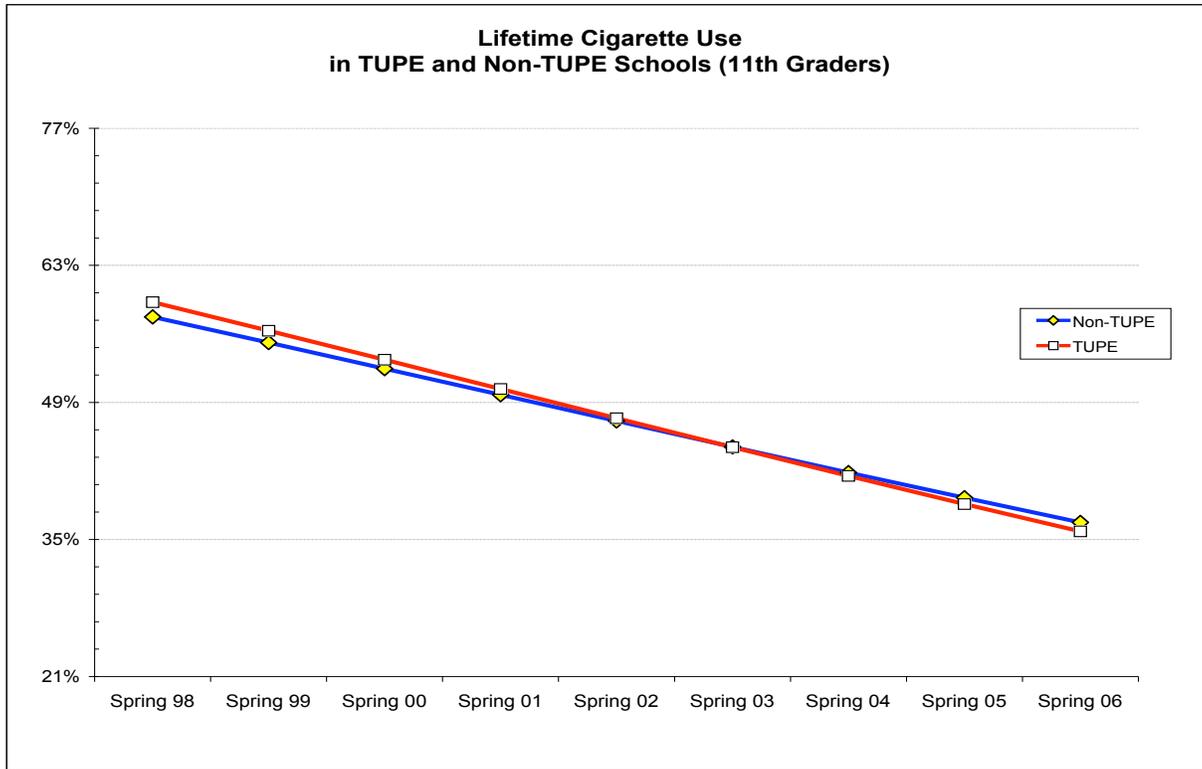


Figure 2.

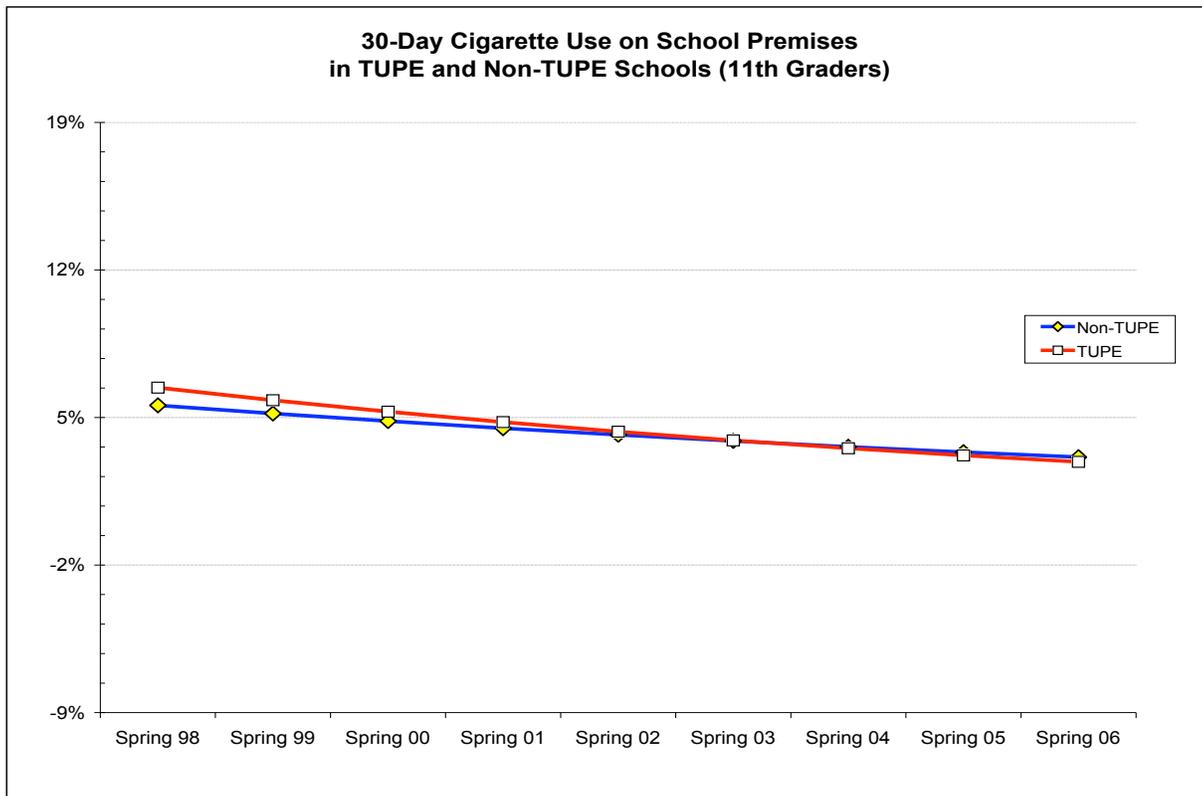


Figure 3.

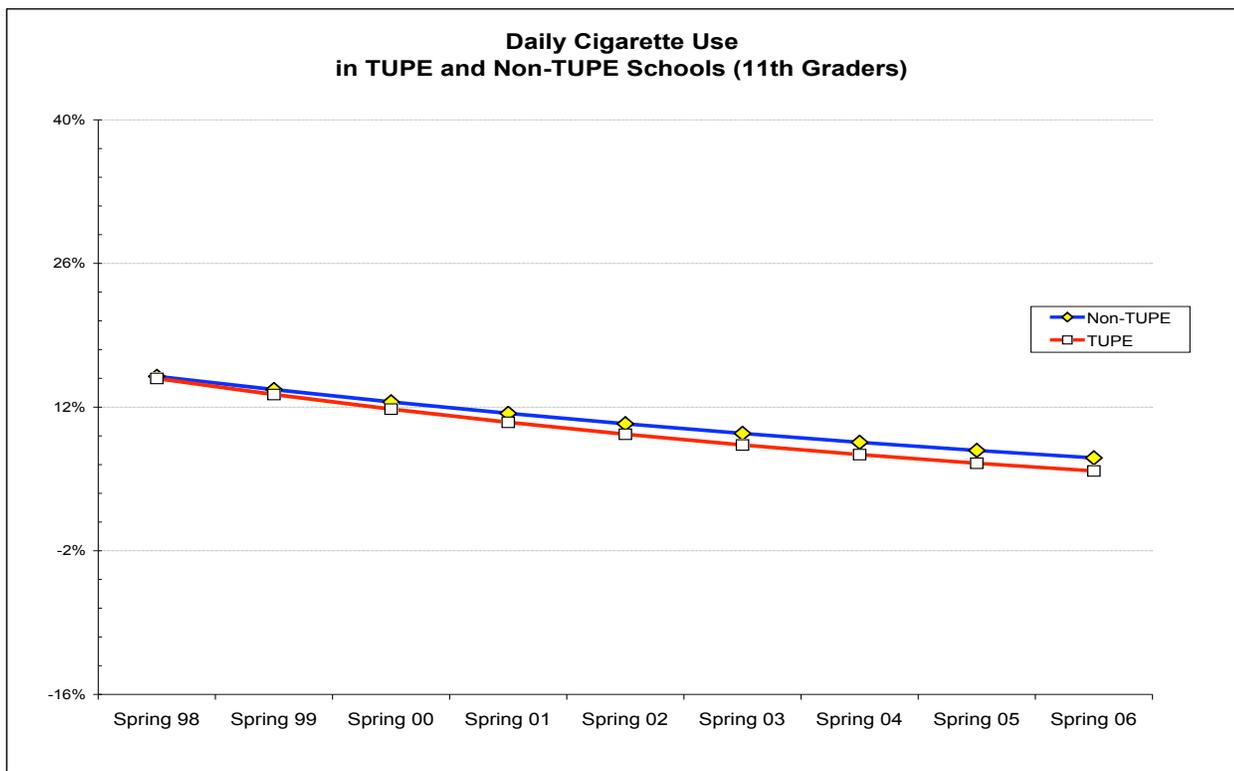


Figure 4.

