

Changes in Youth Cigarette Use and Intentions Following Implementation of a Tobacco Control Program

Findings From the Florida Youth Tobacco Survey, 1998-2000

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THE HEALTHY PEOPLE 2000 objective to reduce the prevalence of cigarette smoking among adults to no more than 15% is unlikely to be achieved in Florida¹ or in the United States^{2,3} by the end of this year. In the 1990s, well-funded, coordinated programs to prevent and reduce youth and/or adult tobacco use have been implemented in California,⁴ Massachusetts,⁵ Oregon,⁶ and Florida.⁷ Since the completion of the Master Settlement Agreement between state attorneys general and the tobacco industry, many more states are currently developing tobacco use prevention and reduction programs.⁸ To achieve a reduction in youth and adult tobacco use, initiation of tobacco use by children, adolescents, and young adults must decline, and cessation efforts among current smokers must be successful.^{9,10} Because tobacco use often begins in adolescence and cessation is difficult once regular use is established,¹¹ interventions to prevent and reduce youth tobacco use should be a focus of public health efforts to reduce overall tobacco use. As states develop tobacco use prevention programs, current data on tobacco use behaviors among youth and how such data change over time in response to

Context Many states are developing tobacco use prevention and reduction programs, and current data on tobacco use behaviors and how these change over time in response to program activities are needed for program design, implementation, and evaluation.

Objectives To assess changes in youth cigarette use and intentions following implementation of the Florida Pilot Program on Tobacco Control.

Design, Setting, and Participants Self-administered survey conducted prior to program implementation (1998), and 1 and 2 years (1999, 2000) later among a sample of Florida public middle school and high school students who were classified as never users, experimenters, current users, and former users of cigarettes based on survey responses.

Main Outcome Measures Changes in cigarette use status, intentions, and behaviors among students over a 2-year period.

Results Surveys were completed by 22540, 20978, and 23745 students attending 255, 242, and 243 Florida public middle and high schools in 1998, 1999 and 2000, respectively. Response rates for the 3 survey years ranged from 80% to 82% and 72% to 82% for the middle school and high school surveys, respectively. After 2 years, current cigarette use dropped from 18.5% to 11.1% ($P < .001$) among middle school students and from 27.4% to 22.6% ($P = .01$) among high school students. Prevalence of never use increased from 56.4% to 69.3% ($P < .001$) and from 31.9% to 43.1% ($P = .001$) among middle school and high school students, respectively. Prevalence of experimenting decreased among middle school and high school students from 21.4% to 16.2% ($P < .001$) and from 32.8% to 28.2% ($P < .001$), respectively. Among never users, the percentage of committed nonsmokers increased from 67.4% to 76.9% ($P < .001$) and from 73.7% to 79.3% ($P < .001$) among middle school and high school students, respectively. Among experimenters, the percentage of students who said they will not smoke again increased from 30.4% to 42.0% ($P < .001$) in middle school and from 44.4% to 51.0% ($P < .001$) in high school.

Conclusions Progress toward reduction of youth tobacco use was observed in each of the 2 years of Florida's Pilot Program on Tobacco Control. Our results suggest that a comprehensive statewide program can be effective in preventing and reducing youth tobacco use.

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program activities must guide program design, implementation, and evaluation. Findings from the evaluation of the youth-focused Florida Pilot Program on Tobacco Control (FPPTC), reported elsewhere¹² and presented here, suggest that a comprehensive, youth-led program, incorporat-

ing multiple approaches to youth tobacco use prevention and reduction, can be successful.

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The FPPTC was created as part of the August 1997 \$11.3 billion legal settlement between the State of Florida and the tobacco industry. The program was funded in February 1998 and spent \$21.5 million, including \$1.9 million for enforcement activities, in the first 5 months. From July 1, 1998, through June 30, 1999, approximately \$61 million was spent on program activities, including \$6.4 million for enforcement. From July 1, 1999, through June 30, 2000, \$44.1 million was appropriated for program activities, including \$5 million for enforcement.

Health promotion literature,^{13,14} site visits to other state tobacco prevention programs, and federal guidelines¹¹ suggested that a comprehensive, multi-pronged approach to tobacco use prevention incorporating a variety of program activities would be most effective in achieving the program vision that Florida youth live tobacco-free.⁷ Thus, the mission of the FPPTC has been “to prevent and reduce youth tobacco use by implementing an innovative and effective education, marketing, prevention, and enforcement campaign that empowers youth to live tobacco-free.”⁷ A unique aspect of Florida’s program is its youth leadership. The program goals focus on the following short- and long-term outcomes relevant to youth: changing attitudes about tobacco, empowering youth to lead community action against tobacco, reducing availability and accessibility of tobacco products to youth, and reducing youth exposure to second-hand smoke. Program activity areas are media and communications implementing an innovative, youth-directed media campaign marketing the “truth” brand and slogan (“Our brand is truth, their brand is lies”); youth and community activities featuring Students Working Against Tobacco (SWAT) teams and youth-led activities to change community and social norms about tobacco use; school-based education and training activities supporting implementation of tobacco use prevention education curricula in schools; and enforcement focusing on retailer education about and enforcement of laws restricting tobacco

sales to minors, and education about and enforcement of Florida’s youth tobacco use possession laws. Evaluation and research involves surveillance activities for youth, young adult, and adult tobacco use; process evaluation of program activities; and special studies on the outcomes of specific program activities.

Reports filed with the Florida Department of Health¹⁵ and summarized by the University of Miami’s Independent Evaluation of the FPPTC¹² show that program activities have been implemented and are reaching the targeted audiences. For example, the “truth” campaign resulted in more than 590 million “impressions” (the number of times a person is reached by 1 or more messages) in the first year. Confirmed awareness of the media campaign (ability to describe a media message) among youth aged 12 to 17 years reached 92% in May 1999.¹⁶ More than 10 000 students are SWAT team members and tens of thousands more participated in antitobacco community activities. More than 500 000 middle and high school students and 226 000 fourth- and fifth-grade students received some tobacco use prevention education during the 1998-1999 academic year,¹⁷ much of it from curricula sponsored by the FPPTC and approved by the Centers for Disease Control and Prevention (CDC).¹⁸ During the first 18 months of the program, more than 2000 retailers received educational materials about Florida’s tobacco sales laws, 1500 retailers were cited for sale of tobacco products to minors,¹² 12 000 citations were issued for youth possession of tobacco, and 4000 drivers licenses or privileges were suspended.

METHODS

In February 1998, the Department of Health conducted the Florida Youth Tobacco Survey (FYTS), a self-administered school-based survey of public middle school (grades 6-8) and high school (grades 9-12) students. Follow-up surveys were conducted in February 1999 and December 1999 through January 2000 in the same schools surveyed in 1998. The survey was conducted in cooperation with the Depart-

ment of Education and local school districts, with assistance from the Office on Smoking and Health at the CDC. Survey monitors within classrooms included personnel from the Coordinated School Health program, county health department staff, school nurses, university students, classroom teachers, and other local school district personnel trained by the survey field coordinator. The FYTS established baseline parameters for use in the evaluation of the FPPTC and tracks progress in achieving the program mission and goals.

The 1998 FYTS used a 2-stage cluster sample design (selecting schools within regions and classrooms within schools) for middle and high schools separately to obtain a representative sample of 11 865 public middle and 10 675 public high school students in grades 6 through 12 from 255 of 266 selected schools. The 1999 survey was conducted in 242 of the 266 schools selected in 1998, and included 11 724 middle school and 9254 high school students¹⁹; the 2000 survey included 243 of the original 266 schools, and 14 316 middle and 9429 high school students. Although the same schools were surveyed in each of the 3 years and some of the same students may have participated in each survey year, this study did not follow individual students over time. The 266 selected schools had an approximate enrollment of 110 000 (of 1.1 million students enrolled in Florida public school grades 6-12), with an average of 85 students surveyed per school (range 0-190). Students within selected schools had an approximately 20% chance of being selected to participate in the survey each year, and a 0.04 and 0.008 probability of being included in any 2 or all 3 surveys, respectively. Identical internal consistency checks were applied to each of the 3 data sets.²⁰ Data were weighted to provide estimates generalizable to all public school students in grades 6 through 12. Survey data were analyzed and point estimates were calculated using the Statistical Analysis System.²¹ Variance estimates and 95% confidence intervals (CIs) were

calculated using the Software for Statistical Analysis of Correlated Data.²²

The self-administered questionnaire included questions about tobacco use (cigarette, cigar, and smokeless tobacco), attitudes, intentions, and knowledge; school curriculum; media and advertising; access to tobacco products; enforcement; and exposure to environmental tobacco smoke. Information on cigarette use and intentions are reported here; data on selected other variables for 1998, 1999, and 2000 are available from the Florida Department of Health.¹⁵ Survey respondents were categorized into 5 cigarette use groups: *never users*, who never tried a cigarette; *experimenters*, who tried cigarettes, never smoked daily, and had not smoked in the 30 days preceding the survey; *current users*, who smoked cigarettes on one or more of the past 30 days; *frequent smokers*, who smoked on 20 or more of the previous 30 days; and *former users*, who smoked cigarettes daily at some time, but not at all in the past 30 days. Data were analyzed to identify shifts across these categories over the 3 years. Never users and experimenters were further categorized as *committed nonsmokers* if they indicated their intention to “definitely not” smoke a cigarette soon, in the future, or if a best friend offers one. Among current and frequent smokers, the number of cigarettes smoked was examined. Data were analyzed to identify shifts in behaviors and intentions within each of these cigarette use categories. Former users were not included in this analysis.

RESULTS

The overall middle school response rates for 1998, 1999, and 2000 were 79%, 82%, and 82%, respectively. The overall high school response rates were 72%, 70%, and 82%, respectively. A total of 10850, 10162, and 13939 middle school students and 9583, 8644, and 8824 high school students, in 1998, 1999, and 2000, respectively, were available for analysis.

Changes in Cigarette Use Status

Over the 2-year period between the first and third surveys, current cigarette use

declined by 40% (from 18.5% to 11.1%; $P < .001$) among middle school students and by 18% (from 27.4% to 22.6%; $P = .01$) among high school students.^{23,24} The prevalence of frequent cigarette use decreased from 5.4% to 2.9% ($P < .001$) from 1998 to 2000 among middle school students and from 13.5% to 10.4% ($P < .001$) among high school students. The percentage of students who were never users of cigarettes increased from 56.4% to 69.3% ($P < .001$) among middle school students, and from 31.9% to 43.1% ($P = .001$) among high school students. The percentage of students who experimented with cigarettes decreased from 21.4% to 16.2% ($P < .001$) among middle school students and from 32.8% to 28.2% ($P < .001$) among high school students from 1998 to 2000 (TABLE 1).

Across the 2 years from 1998 to 2000, among middle and high school students, statistically significant decreases in current cigarette use were observed among all subgroups except non-Hispanic blacks in high school. Statistically significant declines in frequent cigarette use were observed among all groups except middle and high school non-Hispanic blacks and high school Hispanics. Non-Hispanic black students had the lowest prevalence of current cigarette use in middle and high school in all 3 survey years. Statistically significant increases in never smoking and decreases in experimenting were observed for all groups of middle and high school students.

Data from the 3 survey years were examined as cohorts to identify changes in cigarette use as students were promoted from one grade level to the next, from 1998 to 1999 to 2000 (although the same students were not followed). Across the 3 survey years, current cigarette use increased by 58% from year 1 to year 2 and by 34% from year 2 to year 3 among each sixth-to-seventh-grade cohort (comparing the value for seventh-grade students in 1999 to that for sixth-grade students in 1998 and comparing the value for seventh-grade students in 2000 to that for sixth-grade students in 1999). Following the first sixth-to-

seventh-grade cohort on to 2000, no increase in cigarette use was observed as these students transitioned to eighth grade in year 3. There were no statistically significant increases across the 1-year or 2-year time intervals for any other grade cohort (FIGURE).

Changes in Cigarette Use Intentions and Behaviors

Among students who have never tried cigarettes, the percentage defined as committed nonsmokers increased significantly in middle and high school from 1998 to 2000 (TABLE 2): from 67.4% to 76.9% ($P < .001$), and from 73.7% to 79.3% ($P < .001$), respectively. Increases were observed among all groups of middle and high school students except non-Hispanic white high school students.

Among experimenters, the percentage of students who stated that they will not smoke cigarettes again increased from 30.4% to 42.0% ($P < .001$) among middle school students, and from 44.4% to 51.0% ($P < .001$) among high school students, from 1998 to 2000 (Table 2). At the middle school level, statistically significant increases were observed for boys and girls, and for non-Hispanic white and non-Hispanic black, but not for Hispanic students. At the high school level, statistically significant increases were observed for boys and girls, and for students in each race/ethnicity group.

Among middle school students who are current cigarette users, no differences were observed across the 3 survey years in the calculated average number of cigarettes smoked in the past 30 days (based on reported number of days on which smoking occurred and number of cigarettes smoked per day). Current smokers in middle school smoked an average of 85 (95% confidence interval [CI], 77.1-92.5), 84 (95% CI, 72.8-95.0), and 79.5 (95% CI, 69.6-89.4) cigarettes during the 30-day period prior to the 1998, 1999, and 2000 surveys, respectively. Among high school student current smokers, the average number of cigarettes smoked remained static from 1998 to 1999 at 143 (95% CI, 133.9-151.5) and 149 (95% CI, 135.6-162.2)

cigarettes per 30 days, respectively, and declined markedly to 125.1 (95% CI, 114.5-135.7) in 2000 ($P=.02$).

COMMENT

Substantive and statistically significant changes in cigarette use and intention to use, as measured by a variety of outcome indicators, occurred among Florida youth following implementation of FPPTC. In 1999 and 2000, fewer Florida public middle school and high school students smoked cigarettes currently than did in 1998. Among those who never tried cigarettes and those who experimented with cigarettes, a greater percentage of students indicated they will “definitely not” try or use cigarettes in the future. Progress toward re-

ducing youth tobacco use and progress toward a key program goal—changing attitudes about tobacco—have been achieved. In 1999 and 2000, Florida middle and high school students were less likely to buy into the allure of tobacco; they have voiced a strong commitment to resist tobacco (as measured by the “committed nonsmoker” outcome indicator). Program activities like the “truth” messages, designed to deglamorize tobacco use and portray the tobacco industry as manipulating youth for profit, may have shifted youth norms about tobacco use.

Among middle school students, the prevalence of current cigarette use and experimentation each declined, and never use increased across the 3 sur-

vey years. For this group, the 40% decline in current cigarette use is the result of the absence of initiation into cigarette use among new students moving into the middle school grades (and by older students with higher use rates moving up to high school). In 1998, 10.5% of sixth graders were current cigarette users, and this increased by 58% as these sixth-grade students moved to seventh grade in 1999. In 1999, 8.0% of sixth-grade students were current cigarette users, and this increased to only 10.7% 1 year later among the seventh-grade students these sixth graders had become. In 2000, only 5.6% of sixth-grade students were current smokers, which is just slightly more than the 3.8% of fifth-grade stu-

Table 1. Cigarette Use Categories, Florida Public Middle School and High School Students, 1998-2000*

Student Category	Cigarette Use Category, % (95% CI)											
	Never Smoked			Experimenter			Current Smoker			Frequent Smoker		
	1998	1999†	2000‡	1998	1999†	2000‡	1998	1999†	2000‡	1998	1999†	2000‡
Middle School Students												
All	56.4 (±1.8)	59.0 (±2.1)	69.3 (±1.7)	21.4 (±1.0)	23.4 (±1.2)	16.2 (±1.0)	18.5 (±1.4)	15.0 (±1.3)	11.1 (±1.0)	5.4 (±0.9)	3.6 (±0.6)	2.9 (±0.5)
Girls	58.2 (±2.0)	61.1 (±2.7)	70.6 (±2.0)	21.8 (±1.2)	21.8 (±1.5)	15.7 (±1.2)	18.1 (±1.4)	14.9 (±1.8)	10.9 (±1.1)	4.7 (±0.8)	3.0 (±0.7)	2.6 (±0.5)
Boys	54.7 (±2.2)	57.1 (±2.1)	68.2 (±2.0)	22.2 (±1.3)	24.8 (±1.7)	16.7 (±1.3)	18.9 (±1.7)	15.0 (±1.4)	11.2 (±1.2)	6.1 (±1.2)	4.2 (±0.7)	3.2 (±0.7)
Non-Hispanic whites	52.7 (±2.2)	58.2 (±2.9)	66.8 (±2.3)	21.6 (±1.1)	23.2 (±1.5)	16.9 (±1.3)	22.1 (±1.8)	16.1 (±1.7)	13.4 (±1.4)	6.9 (±1.3)	4.2 (±0.7)	3.9 (±0.8)
Non-Hispanic blacks	62.0 (±2.4)	63.6 (±2.8)	75.1 (±2.3)	23.6 (±1.8)	24.1 (±2.6)	14.9 (±1.8)	9.5 (±1.4)	8.5 (±1.6)	6.4 (±1.1)	1.4 (±0.5)	1.3 (±0.6)	1.4 (±0.8)
Hispanics	60.0 (±3.2)	57.7 (±4.3)	71.6 (±2.7)	20.1 (±2.1)	23.9 (±3.1)	15.1 (±1.8)	16.9 (±2.1)	16.1 (±2.7)	9.8 (±1.6)	4.3 (±1.1)	2.6 (±0.9)	2.2 (±0.7)
High School Students												
All	31.9 (±1.5)	39.3 (±2.1)	43.1 (±2.4)	32.8 (±1.3)	30.7 (±1.4)	28.2 (±1.1)	27.4 (±1.6)	25.2 (±1.8)	22.6 (±1.8)	13.5 (±1.2)	12.0 (±1.4)	10.4 (±1.2)
Girls	33.4 (±1.7)	39.0 (±2.5)	45.2 (±2.9)	31.0 (±1.5)	30.8 (±1.5)	27.2 (±1.4)	28.3 (±1.9)	25.9 (±2.0)	22.1 (±2.4)	13.3 (±1.5)	11.6 (±1.4)	9.8 (±1.3)
Boys	30.5 (±1.8)	39.6 (±2.3)	41.1 (±2.3)	34.5 (±1.6)	30.6 (±1.8)	29.2 (±1.8)	26.6 (±1.9)	24.6 (±2.4)	23.2 (±1.8)	13.7 (±1.3)	12.5 (±1.8)	11.1 (±1.4)
Non-Hispanic whites	28.1 (±1.8)	33.4 (±1.8)	36.0 (±2.6)	29.5 (±1.3)	29.8 (±1.8)	27.5 (±1.4)	34.8 (±1.8)	31.3 (±2.0)	29.7 (±2.3)	18.9 (±1.4)	16.2 (±2.1)	14.6 (±1.7)
Non-Hispanic blacks	42.9 (±3.3)	53.6 (±3.9)	57.5 (±3.4)	40.7 (±3.0)	33.3 (±3.4)	29.8 (±2.8)	9.9 (±1.5)	9.4 (±1.9)	8.9 (±1.3)	2.8 (±0.8)	3.2 (±1.0)	3.1 (±0.9)
Hispanics	32.8 (±2.8)	39.5 (±3.1)	44.9 (±3.6)	34.4 (±2.4)	32.4 (±2.8)	29.9 (±2.7)	24.9 (±2.7)	24.2 (±2.8)	19.9 (±2.3)	8.3 (±1.7)	9.0 (±1.9)	7.8 (±1.4)

*CI indicates confidence interval. Percentages are based on sample data and weighted to reflect all Florida public school students, grades 6 through 12.

†All 1999 point estimates are statistically significantly different ($P<.05$) except for “never smoked” (middle school girls, boys, non-Hispanic blacks, and Hispanics); “experimenter” (middle school girls, non-Hispanic blacks, and Hispanics); and high school girls, non-Hispanic white, and Hispanics); “current smoker” (middle school non-Hispanic blacks, and Hispanics); high school non-Hispanic blacks and Hispanics); and “frequent smoker” (middle school non-Hispanic blacks; and high school all, girls, boys, non-Hispanic blacks, and Hispanics).

‡All 2000 point estimates are statistically significantly different ($P<.05$) from 1999 except for “never smoked” (high school non-Hispanic whites); “experimented with cigarettes” (high school boys, non-Hispanic whites, and Hispanics); “current cigarette smokers” (high school non-Hispanic whites and non-Hispanic blacks); and “frequent cigarette smokers” (middle school girls, non-Hispanic whites, and Hispanics); and high school girls, non-Hispanic white, and Hispanics); “current smoker” (middle school non-Hispanic blacks, and Hispanics). All 2000 point estimates are statistically significantly different ($P<.05$) from 1998 except for “current smoker” (high school non-Hispanic blacks); and frequent smoker (middle school non-Hispanic blacks and high school non-Hispanic blacks and Hispanics).

dents who were current smokers in the previous year.²⁵ Among high school students, the same general pattern is evident as new students with lower rates of cigarette use enter high school and older established smokers leave the cohort, suggesting that lack of initiation into cigarette use was responsible for the decline in cigarette use.

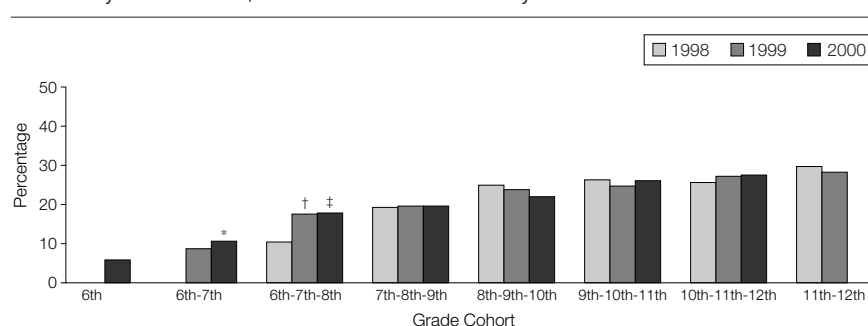
The states of Mississippi and Texas conducted youth tobacco surveys in 1998, 1999, and 2000, using the method developed by the CDC and first implemented in Florida. Declines in current cigarette use were not observed among middle and high school youth in Mississippi²⁶ or among high school youth in Texas, from 1998 to 1999.²⁷ However, a statistically significant decline in current cigarette use among Texas middle school students did occur over the 1-year period, during which time statewide legislation strengthening enforcement of youth tobacco possession and access was implemented, and an antitobacco media campaign in 1 of Texas's 11 public health regions was initiated. Only regional declines in this and a contiguous region were statistically significant.²⁷ National and Florida data collected and

analyzed by Sly and Heald²⁸ show increases in current cigarette use nationally and decreases in Florida from 1998 to 1999. Results from the 1998 and 1999 Monitoring the Future²⁹ study of a nationally representative sample of school-enrolled youth show a statistically significant decline in current cigarette use among students in eighth grade (from 19.1% to 17.5%) and non-statistically significant declines among students in the tenth and twelfth grades. This study suggests that, nationally,

cigarette use peaked among eighth and tenth-grade students in 1996 and among twelfth-grade students in 1997, and since then has declined very gradually. The peaks and initial declines for eighth and tenth grade students occurred prior to a cigarette price increase in November 1998.

The \$0.50 per pack increase in the price of cigarettes that occurred in November 1998 may have contributed to the declines in cigarette use observed in 1999 and 2000 in Florida. However, this

Figure. Percentage of Florida Public Middle and High School Students Who Are Current Smokers by Grade Cohort, Florida Youth Tobacco Survey*



A grade cohort consists of respondents at one grade level from the 1998 Florida Youth Tobacco Survey and respondents from the next grade level from the 1999 Florida Youth Tobacco Survey. Asterisk indicates *P* value is for pairwise comparison, 1999 vs 2000. Dagger indicates *P* value is for pairwise comparison, 1998 vs 1999. Double dagger indicates *P* value is for pairwise comparison, 1998 vs 2000. *P* < .001 for all 3 comparisons.

Table 2. Percentage of Florida Public School Students Who Are Committed Nonsmokers and Smoking Experimenters Who Will Not Smoke Again, Florida Youth Tobacco Survey, 1998, 1999, and 2000*

Student Category	Middle School					High School				
	1998, % (95% CI)	1999, % (95% CI)	<i>P</i> Value†	2000, % (95% CI)	<i>P</i> Value‡	1998, % (95% CI)	1999, % (95% CI)	<i>P</i> Value†	2000, % (95% CI)	<i>P</i> Value‡
Committed Nonsmokers										
All	67.4 (±1.4)	75.3 (±1.7)	<.001	76.9 (±1.3)	<.001	73.7 (±1.8)	76.7 (±1.9)	.01	79.3 (±1.7)	<.001
Girls	68.1 (±2.0)	75.2 (±2.2)	<.001	77.7 (±1.6)	<.001	74.7 (±2.1)	76.7 (±2.4)	.23	78.4 (±2.1)	.001
Boys	66.8 (±1.8)	75.5 (±2.7)	<.001	76.2 (±1.7)	<.001	72.6 (±2.8)	76.7 (±2.6)	.03	80.2 (±2.6)	<.001
Non-Hispanic whites	68.5 (±1.8)	73.6 (±2.4)	<.001	75.4 (±1.5)	<.001	74.5 (±2.5)	77.8 (±3.0)	.11	77.8 (±2.6)	.08
Non-Hispanic blacks	64.7 (±2.6)	79.6 (±2.5)	<.001	81.3 (±2.4)	<.001	74.5 (±3.7)	78.7 (±3.3)	.10	82.1 (±2.6)	<.001
Hispanics	67.4 (±3.1)	75.8 (±2.8)	<.001	76.4 (±2.5)	<.001	68.9 (±3.6)	71.9 (±3.7)	.27	78.9 (±2.3)	<.001
Smoking Experimenters										
All	30.4 (±1.7)	39.6 (±2.8)	<.001	42.0 (±2.5)	<.001	44.4 (±2.5)	49.9 (±2.3)	<.001	51.0 (±2.0)	<.001
Girls	29.3 (±2.5)	37.9 (±3.5)	<.001	41.1 (±2.9)	<.001	46.2 (±3.0)	48.7 (±3.1)	.20	50.9 (±2.8)	.03
Boys	31.4 (±2.4)	41.1 (±3.9)	<.001	42.8 (±3.6)	<.001	42.8 (±3.1)	51.2 (±3.5)	<.001	51.0 (±3.0)	<.001
Non-Hispanic whites	28.2 (±2.1)	34.9 (±3.4)	.001	41.2 (±3.0)	<.001	40.5 (±2.6)	48.0 (±3.1)	<.001	45.0 (±2.5)	.02
Non-Hispanic blacks	37.8 (±4.1)	54.5 (±5.9)	<.001	52.9 (±6.3)	<.001	53.7 (±4.3)	59.8 (±4.2)	.03	65.0 (±3.7)	<.001
Hispanics	28.5 (±4.9)	35.2 (±6.0)	.06	34.8 (±5.0)	.06	40.7 (±4.9)	43.4 (±4.6)	.44	50.4 (±3.9)	.005

*CI indicates confidence interval. Percentages are based on sample data weighted to reflect all Florida public school students, grades 6 through 12.

†*P* value is for pairwise comparison, 1998 vs 1999.

‡*P* value is for pairwise comparison, 1998 vs 2000. The following pairwise comparisons for 1999 vs 2000 were statistically significant: For "Committed Nonsmokers," middle school girls, *P* = .04; and high school all, *P* = .03; boys, *P* = .05; and Hispanics, *P* = .004; and for "Smoking Experimenters," middle school non-Hispanic whites, *P* = .004; and high school Hispanics, *P* = .03.

is an unlikely explanation for the magnitude of the change. Price increases might be expected to reduce cigarette use among youth in a somewhat even manner across geographic areas. However, national declines in cigarette use were of a much smaller magnitude than those observed in Florida, and even within Florida, declines in cigarette use were not evenly distributed across geographic areas.²⁴ Program implementation, in contrast to price increases, might be expected to be highly variable at the local level in a state of 15 million people and therefore to have differential impact across geographic areas over time. Correlating levels and quality of program implementation at the local level with changes in cigarette use over time may provide important insights into the impact of the FPPTC.

While shifts in cigarette use and use intention clearly have occurred 2 years after Florida's program was implemented, attributing those changes to the program is subject to several limitations, including declining trends in cigarette use nationally, the potential im-

pact of the 1998 price increase, and the self-reported nature of these FYTS data. The reports from Mississippi²⁶ and Texas²⁷ and data from Sly and Heald²⁸ suggest that FYTS findings are not part of a secular trend of declining cigarette use among youth or the result of cigarette price increases that occurred in November 1998 but represent the impact of FPPTC. While the Monitoring the Future study suggests the epidemic of youth cigarette use peaked in the mid-1990s, the 2-year decline in Florida is far steeper than that detected among middle school or high school students by the Monitoring the Future project. The greater decline in Florida may be the result of Florida's innovative youth-led tobacco use prevention program. Finally, while students may be more likely to misreport their cigarette use status in the follow-up surveys than on the baseline survey because of perceived changes in the social desirability of cigarette use, those changes in perception can be viewed as an impact of the program's effort to deglamorize tobacco use. Such

changes in perception may be associated with changes in behavior over time and may be predictive of reduced cigarette use in the future.

The findings presented here suggest that a statewide comprehensive youth tobacco use prevention program can reduce cigarette use and increase intentions to never use cigarettes (ever or again) among youth. If these gains can be maintained as youths age, then, over time, such a program will result in striking reductions in the prevalence of adult cigarette use and lifetime reductions in morbidity and mortality attributable to cigarette use. A challenge for the FPPTC will be to ensure that the gains achieved among middle school and high school youth are maintained as these youth become young adults.

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