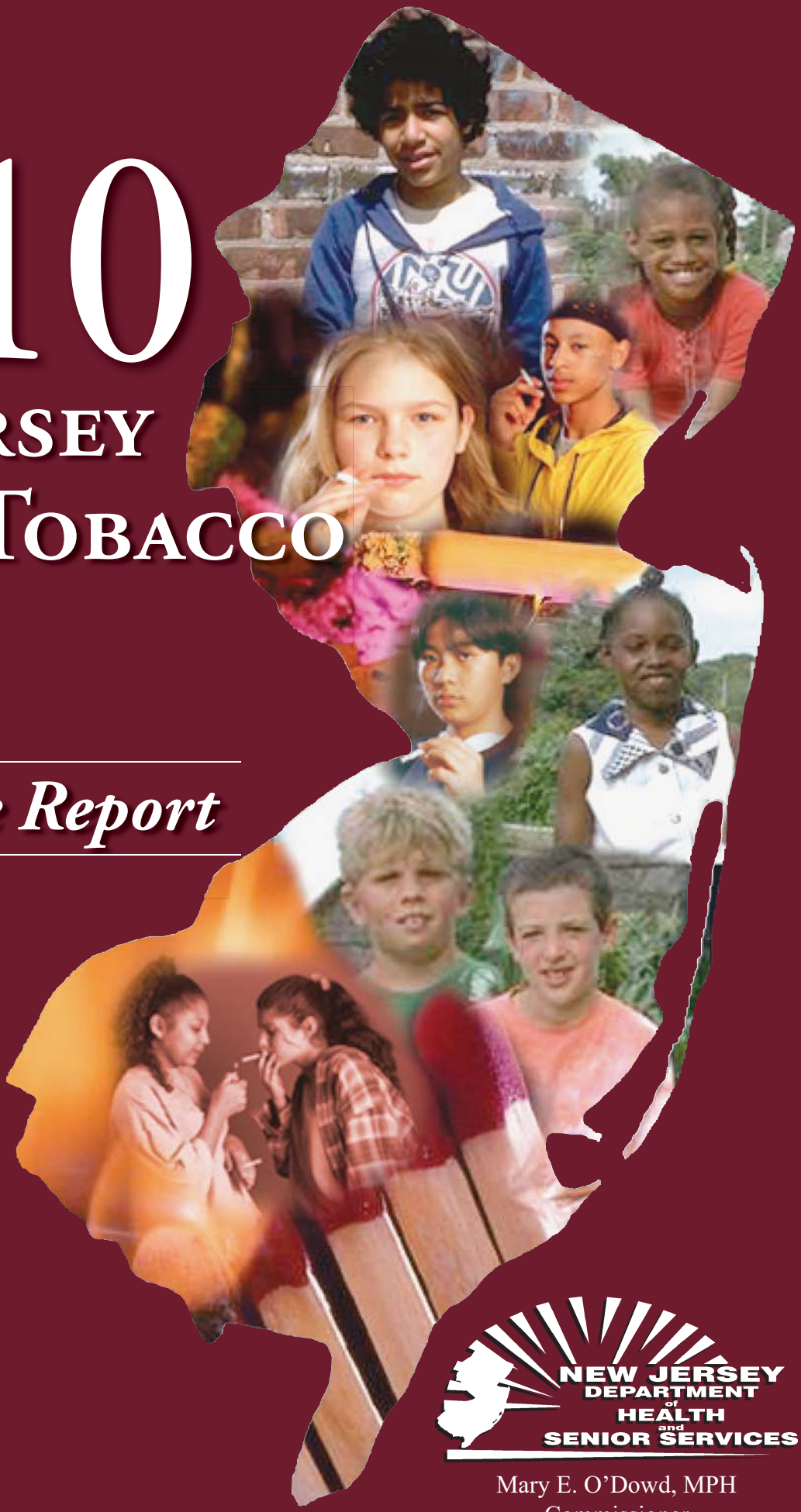
2010 New Jersey Youth Tobacco Survey



A Statewide Report

May 2011

NEW JERSEY DEPARTMENT of HEALTH and SENIOR SERVICES

Chris Christie, Governor
Kim Guadagno, Lt. Governor

Mary E. O'Dowd, MPH
Commissioner

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HIGHLIGHTS

The 2010 New Jersey Youth Tobacco Survey found that:

- 44.5% of high school students reported having ever tried some form of tobacco.
- 14.3% of high school students reported current use of cigarettes.
- 11.4% of high school students reported current use of a hookah.
- 7.9% of high school students reported current use of bidis.
- 7.7% of high school students reported current use of cigars.
- 5.4% of high school students reported current use of smokeless tobacco.
- Among current smokers under the age of 18 who reported usually obtaining their cigarettes by purchasing them in a store, 66.9% of high school students reported they were not asked to provide proof of age at the time of the purchase.
- 37.7% of high school students reported awareness of places in New Jersey that sell loose or single cigarettes.
- 48.1% of high school students reported being exposed to secondhand smoke in either rooms or in cars during the seven days preceding the survey.
- 29.3% of high school students had ever heard of the statewide, youth-led anti-tobacco movement known as REBEL.
- Among current high school smokers, 53.0% reported a desire to stop smoking.
- Among frequent high school smokers, 46.8% had been advised by a health professional not to smoke.

INTRODUCTION

The New Jersey Comprehensive Tobacco Control Program (CTCP), in existence from 2000 to 2010, sought to decrease deaths, sickness and disability among residents who use tobacco or are exposed to secondhand smoke. State budget cuts in Fiscal Year 2010-11 resulted in the elimination of tobacco control program funding and the former CTCP was modified and renamed to the Office of Tobacco Control (OTC) at the NJ Department of Health and Senior Services. Efforts that remain include efforts to increase tobacco-free policies in schools, the Tobacco Age of Sale Enforcement (TASE) program, which aims to stop the sale of tobacco to minors, NJQuitline, a telephone counseling service to help youth and adults quit smoking, and coalition building for the sustainability of the program. OTC continues to move toward activities that are focused on population based strategies such as broad policy efforts that help the public at large as well as those with chronic diseases. These efforts include reducing exposure to secondhand smoke and access to tobacco.

New Jersey began statewide youth tobacco surveillance in 1999 using the Youth Tobacco Survey. The Centers for Disease Control and Prevention (CDC) developed the National Youth Tobacco Survey (NYTS) to provide states with data, such as population-based estimates of the prevalence of tobacco use among middle and high school students, to support the design, implementation, and evaluation of comprehensive tobacco control programs. The New Jersey Youth Tobacco Survey (NJYTS) is an adaptation of the NYTS and includes state-added questions specific to programming and youth tobacco use trends in New Jersey. The first NJYTS was intended to provide a baseline for monitoring progress toward the CTCP's goal to reduce tobacco use among youth. After the baseline survey, the NJYTS was repeated in 2001, 2004, 2006, 2008 and 2010. While previous survey administrations included both middle and high school students, the 2011 (July 1, 2010 – June 30, 2011) budget allowed for inclusion of high school students only.

The 2010 NJYTS was administered to 3,123 high school students (grades 9-12) in 38 schools during the fall of 2010, of which 2,641 completed usable questionnaires. The findings of the 2010 NJYTS are representative of all 9th through 12th grade public school students. The *2010 New Jersey Youth Tobacco Survey: A Statewide Report* summarizes current tobacco use patterns among New Jersey youth using results from the most recent NJYTS. These results are compared with data collected from previous NJYTS administrations as well as national trends.

RESULTS

Lifetime or Ever Use of Tobacco

New Jersey high school students were asked if they had ever used cigarettes, cigars, smokeless tobacco (SLT), bidis, or hookahs in their lifetime. Lifetime or ever use is defined as trying a tobacco product even one time. Hookah use was excluded from the lifetime or ever use of any tobacco product definition to allow for comparison from year to year. Estimates of lifetime or ever use of any and each tobacco product(s) by gender, race/ethnicity, and grade are found in Table 1.

Table 1. Percentage of New Jersey high school students who ever used any tobacco product* (cigarettes, cigars, smokeless tobacco, and/or bidis) by gender, race/ethnicity, and school grade—New Jersey Youth Tobacco Survey, 2010

	Any*		Cigarette		Cigar		SLT†		Bidis		Hookah	
	%	± CI	%	± CI	%	± CI	%	± CI	%	± CI	%	± CI
Gender												
Male	46.4	±3.9	32.9	±3.5	29.7	±2.9	20.7	±3.6	10.0	±1.3	21.3	±2.1
Female	42.6	±4.7	35.9	±4.9	19.7	±2.8	7.5	±1.9	8.3	±1.6	20.5	±3.3
Race/Ethnicity												
White	43.4	±5.6	32.9	±5.4	25.4	±4.0	15.4	±2.9	7.7	±1.8	19.3	±3.1
Black	45.8	±6.3	39.1	±6.1	20.4	±5.3	12.7	±4.8	11.1	±5.4	20.1	±4.8
Hispanic	51.1	±2.2	40.8	±3.3	28.6	±3.5	12.7	±2.5	13.7	±3.4	27.2	±7.6
Grade												
9	32.3	±6.3	23.5	±6.5	17.4	±4.4	9.5	±2.8	8.3	±2.8	14.0	±4.0
10	43.0	±5.7	33.8	±3.7	22.4	±3.8	14.8	±4.1	7.9	±2.0	17.9	±5.6
11	47.5	±5.6	36.6	±6.4	27.1	±4.3	15.5	±3.9	9.7	±2.6	20.3	±3.0
12	57.0	±4.8	45.0	±5.5	33.0	±4.1	17.2	±3.7	11.1	±2.0	32.2	±4.9
Overall	**44.5**	**±3.6**	**34.4**	**±3.6**	**24.7**	**±2.2**	**14.1**	**±1.9**	**9.2**	**±1.2**	**20.9**	**±2.6**

*Ever use of cigarettes and/or cigars and/or smokeless tobacco and/or bidis (excludes hookah)
†Smokeless tobacco
CI, 95% Confidence Interval

In 2010, 44.5% (±3.6) of high school students reported ever having used any form of tobacco in their lifetime. In 2010, there were some differences in overall lifetime tobacco use among New Jersey youth by demographic characteristics (see Table 1). Prevalence of lifetime tobacco use increased with grade level and was significantly higher among 11th (47.5 ±5.6%) and 12th (57.0 ±4.8%) graders compared to 9th graders (32.3 ±6.3%). Additionally, lifetime tobacco use was higher for Hispanic (51.1 ±2.2%) high school students compared to white high school students (43.4 ±5.6%), however this difference was not statistically significant. There were no significant differences in lifetime tobacco use by gender.

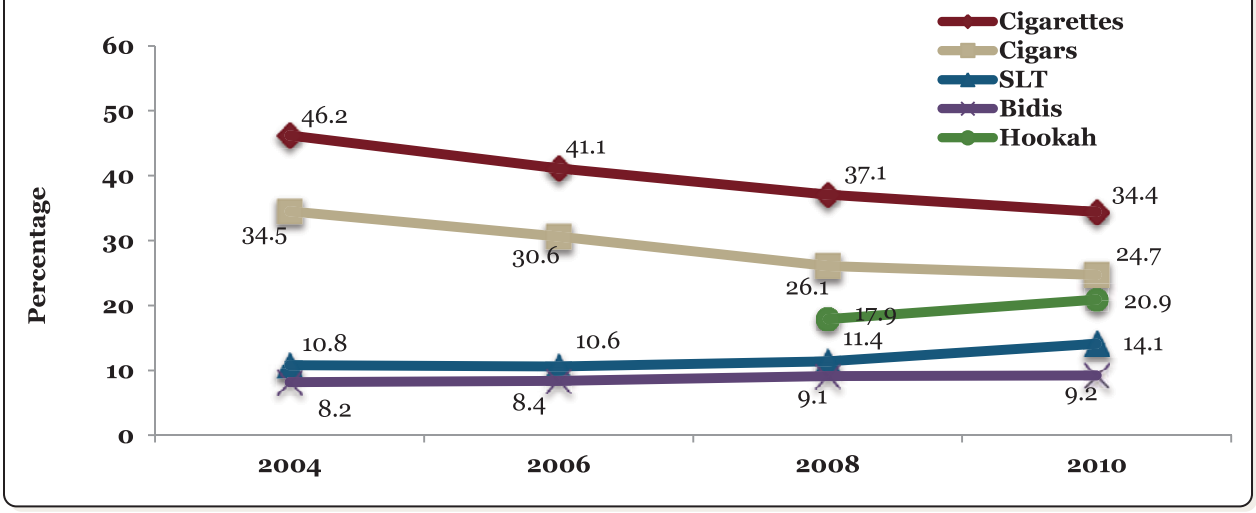
The overall prevalence of lifetime tobacco use among high school students has decreased steadily over time, and this difference is significant when comparing 2010 (44.5 ±3.6%) to 2004 (53.9 ±3.0%) and earlier. Cigarettes and cigars remained the most frequently used tobacco products by high school students in New Jersey. However, while lifetime prevalence of cigarettes and cigars has decreased over

time, a gradual increase in prevalence of SLT, bidis and hookah use indicate continued experimentation with other tobacco products (OTP) (Figure 1).

Lifetime use of specific tobacco products also differed by demographic characteristics in 2010. Generally, ever use of each tobacco product increased as grade level increased. Males were significantly more likely than females to report lifetime use of cigars (29.7 ±2.9% vs. 19.7 ±2.8%) and SLT (20.7 ±3.6% vs. 7.5 ±1.0%), but there were no significant differences in reported lifetime use of cigarettes, bidis, and hookah by gender.

Among high school students in 2010, the prevalence of lifetime use of bidis was higher for Hispanics than whites (13.7 ±3.4% vs. 7.7 ±1.8%). However, unlike in 2008, there were no significant differences in prevalence of ever cigar use and ever hookah use by race group. The overall prevalence of ever use of cigarettes, cigars, SLT, and bidis among high school students remained unchanged from 2008.

Figure 1: Prevalence of lifetime tobacco use among all high school students, by type of tobacco product — NJYTS 2004 - 2010



Current Use of Tobacco

Current tobacco use is defined as the use of any tobacco product on one or more days in the 30 days preceding the survey. This measure includes experimenters (those who may have just tried their first cigarette), occasional users (those who smoke occasionally) and regular smokers. New Jersey youth were asked about their current use of cigarettes, cigars, smokeless tobacco, bidis, and hookah (although hookah was excluded from the definition of current use of any tobacco product). Current use of all tobacco products by gender, race/ethnicity, and school grade is found in Table 2.

Current Use of Any Tobacco

Overall, 22.2% (±2.2) of high school students reported using some form of tobacco (i.e., cigarettes, cigars, smokeless tobacco, or bidis) in the 30 days preceding the survey. There were demographic differences in current overall tobacco use among New Jersey youth in 2010 (see Table 2). As in previous years, 10th (24.3 ±3.6%) and 12th graders (29.7 ±3.2%) were significantly more likely than 9th graders (13.1 ±2.9%) to report current tobacco use. However, unlike 2006 and 2008, there were no significant differences in prevalence of current tobacco use by gender. There were no significant differences in current tobacco use rates between 2008 and 2010.

Table 2. Percentage of New Jersey high school students who were current users of any tobacco product* (cigarettes, cigars, smokeless tobacco, and/or bidis) by gender, race/ethnicity, and school grade—New Jersey Youth Tobacco Survey, 2010

	Any*		Cigarette		Cigar		SLT†		Bidis		Hookah	
	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
Gender												
Male	23.5	±2.7	13.8	±2.0	10.4	±1.8	8.7	±1.8	8.3	±2.1	12.2	±2.1
Female	20.8	±3.0	14.7	±2.5	4.7	±0.8	2.1	±0.9	7.4	±1.3	10.5	±1.9
Race/Ethnicity												
White	22.9	±3.3	15.4	±2.5	7.5	±2.0	5.8	±1.6	6.4	±1.6	9.1	±2.6
Black	20.6	±7.0	11.1	±4.5	8.2	±3.8	5.7	±3.6	12.8	±6.0	16.3	±7.1
Hispanic	23.1	±4.3	14.6	±3.9	8.0	±2.0	4.4	±1.6	9.5	±2.6	15.2	±3.2
Grade												
9	13.1	±2.9	6.8	±2.4	4.0	±1.3	2.3	±1.0	5.9	±2.3	9.7	±3.6
10	24.3	±3.6	14.7	±3.4	8.2	±2.7	6.6	±1.9	9.6	±3.2	12.2	±4.4
11	22.4	±4.6	15.0	±4.1	8.1	±2.3	6.9	±3.3	7.8	±2.5	10.6	±2.5
12	29.7	±3.2	21.5	±3.5	10.5	±2.8	5.7	±1.0	8.0	±1.7	13.0	±3.1
Overall	**22.2**	**±2.2**	**14.3**	**±1.9**	**7.7**	**±1.0**	**5.4**	**±0.9**	**7.9**	**±1.6**	**11.4**	**±1.6**

*Use of any tobacco (cigarettes, cigars, smokeless tobacco, or bidis) during ≥ 1 of the 30 days preceding the survey (excludes hookah)
†Smokeless tobacco
CI, 95% Confidence Interval

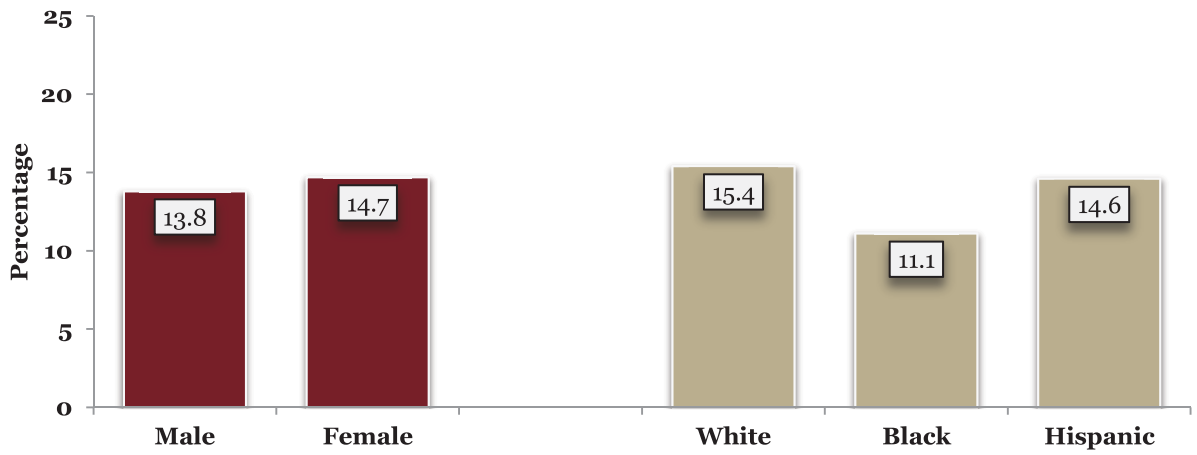
Current Cigarette Use

Overall, 14.3% (±1.9) of high school students reported smoking a cigarette on one or more days in the 30 days preceding the survey with some demographic differences noted in 2010. Among high school students, current cigarette use was higher, though not significantly higher, for whites (15.4 ±2.5%) compared to blacks (11.1 ±4.5%). However, despite a decrease from 2006 (11.5 ±3.5%) to 2008 (7.7 ±3.2%), an increase in smoking prevalence was observed in 2010 (11.1 ±4.5%) among black high school students, though this difference was not statistically significant.

Females were slightly more likely to report current cigarette use than males (14.7 ±2.5% vs. 13.8 ±2.0%), and smoking rates among females increased slightly in 2010 (14.7 ±2.5% vs. 14.3 ±2.4%). Although this increase was not statistically significant, it represents the first increase in smoking prevalence among females in NJYTS history after more than a decade of decline.

Cigarette use among 10th (14.7 ±3.4%), 11th (15.0 ±4.1%) and 12th (21.5 ±3.5%) graders was significantly higher than 9th graders (6.8 ±2.4%). There were no significant differences reported between 2008 and 2010.

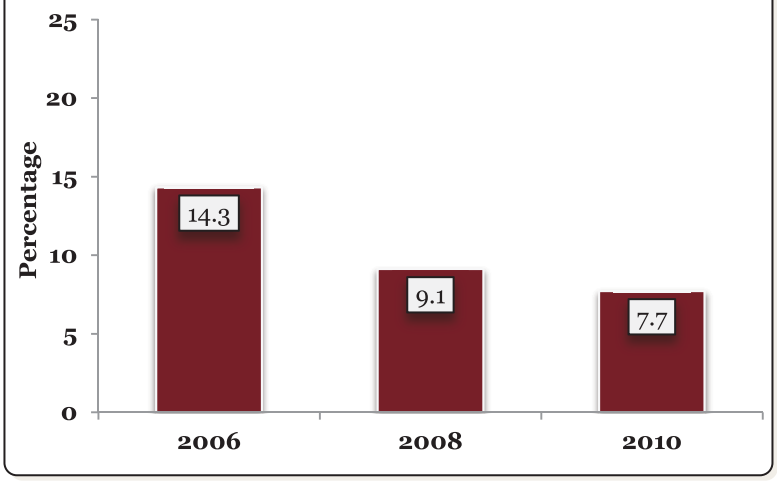
Figure 2: Prevalence of current cigarette use among all high school students, by gender and race/ethnicity group — NJYTS 2010



Current Cigar Use

In 2010, 7.7% (±1.0) of high school students reported smoking a cigar in the past 30 days preceding the survey. While 2010 prevalence rates were statistically similar to those in 2008 (9.1 ±1.4%), the current rates represent a significant decrease from 14.3% (±1.4) in 2006 (Figure 3). Similar decreases were observed among most demographic subgroups when comparing 2010 to 2006.

Figure 3. Prevalence of current cigar use among all high school students, by race/ethnicity group — NJYTS 2006 - 2010

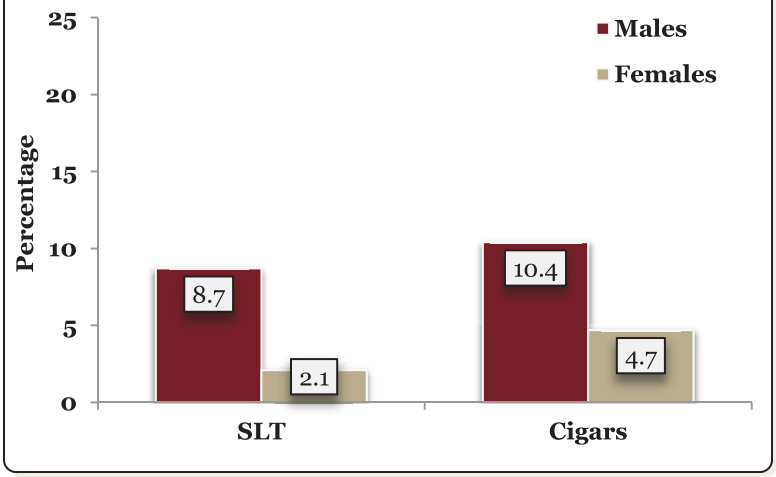


There were demographic differences in current cigar use among New Jersey youth in 2010. Among high school students, males (10.4 ±1.8%) demonstrated a significantly higher prevalence of current cigar use compared to females (4.7 ±0.8%) (Figure 3). Additionally, 10th (8.2 ±2.7%), 11th (8.1 ±2.3%) and 12th (10.5 ±2.8%) graders were more than twice as likely as 9th graders (4.0 ±1.3%) to report current cigar use.

Current Smokeless Tobacco Use

Overall, 5.4% (±0.9) of high school students reported using smokeless tobacco in the 30 days preceding the survey. The prevalence of smokeless tobacco use was significantly higher among high school males (8.7 ±1.8%) compared to females (2.1 ±0.9%) in 2010 (Figure 4). Smokeless tobacco prevalence was also more than twice as high among 10th (6.6 ±1.9%), 11th (6.9 ±3.3%) and 12th (5.7 ±1.0%) graders than among 9th graders (2.3 ±1.0%). After several years of gradual decrease, current smokeless tobacco use increased overall as well as among males, females, whites, Hispanics, 10th graders and 11th graders between 2008 and 2010. However, none of these increases were statistically significant.

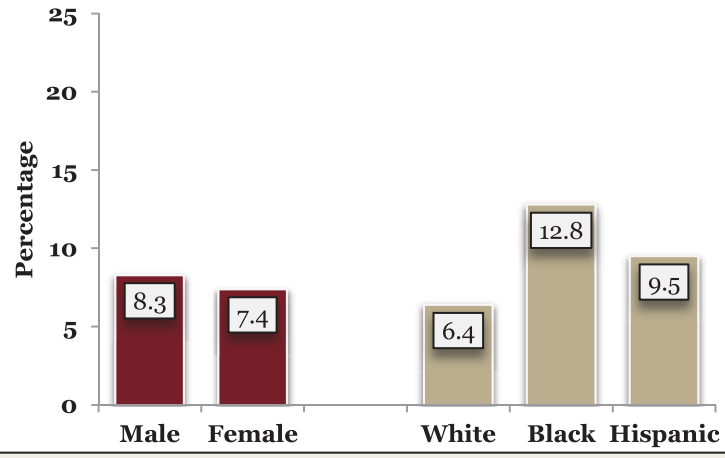
Figure 4. Prevalence of current cigar and smokeless tobacco use among all high school students, by gender — NJYTS 2010



Current Bidi Use

Bidis are small hand-rolled cigarettes that are often flavored and primarily made in India. In 2010, 7.9% (±1.6) of high school students reported smoking bidis in the previous 30 days. There were no statistical differences in bidi use by demographic subgroup (Figure 5).

Figure 5: Prevalence of current use of bidis among all high school students, by gender and race/ethnicity group — NJYTS 2010

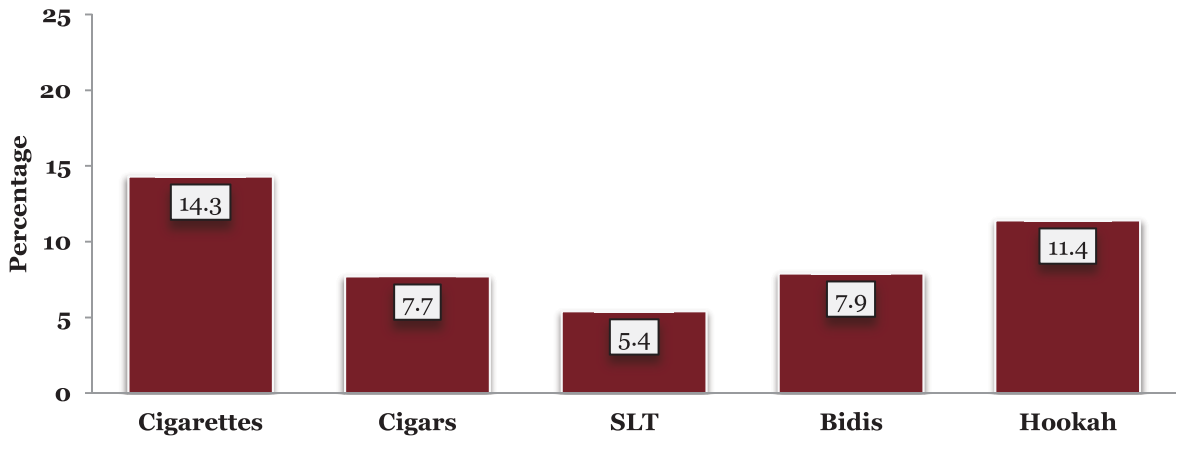


There were some differences in current bidi use when comparing 2010 to prior years. Bidi use among females increased more than two-fold from 2.7% (±1.0) in 2006 to 7.4% (±1.3) in 2010, and rates among blacks and Hispanics about doubled between 2006 and 2010 (4.7 ±2.1% vs. 12.8 ±6.0% and 4.9 ±1.5% vs. 9.5 ±2.6%, respectively).

Current Hookah Use

Among high school students, 11.4% (±1.6) reported current use of a hookah to smoke tobacco or flavored tobacco, a non-significant increase from 9.1% (±1.6) in 2008. Hookah was the second most popular form of tobacco use, as high school students were significantly more likely to report current use of hookah than smokeless tobacco use (5.4 ±0.9%) , bidis (7.9 ±1.6%), and cigars (7.7 ±1.0%) (Figure 6). This difference was observed across most demographic groups as well.

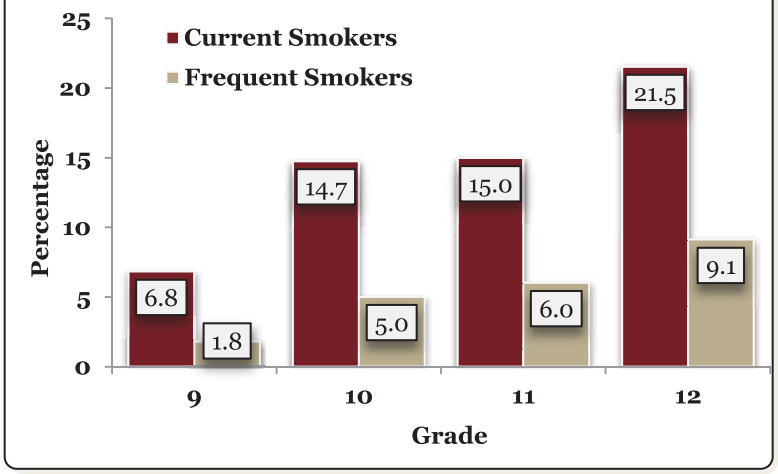
Figure 6: Prevalence of current tobacco use among all high school students, by type of tobacco product — NJYTS 2010



Frequent Use of Cigarettes

The NJYTS also examined the prevalence of frequent cigarette smoking, defined as smoking cigarettes on 20 or more days of the 30 days preceding the survey. Overall, 5.4% (±1.1) of high school students were frequent smokers in 2010, representing a significant decrease over the past decade from 13.8% (±2.2) in 1999.

Figure 7: Prevalence of current and frequent smoking among all high school students, by grade level — NJYTS 2010

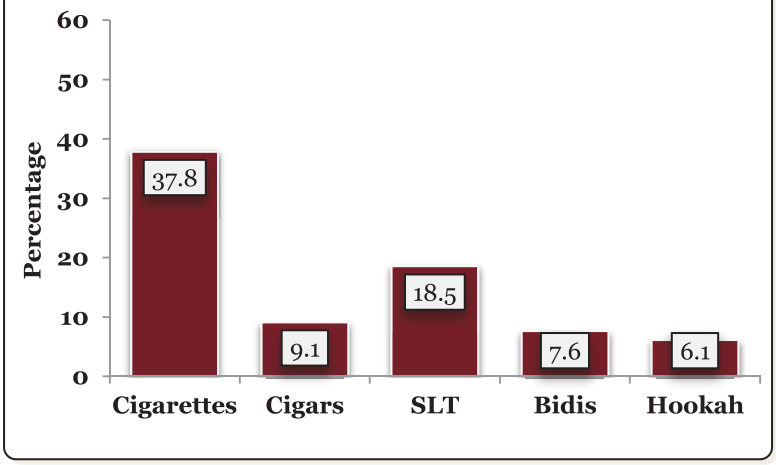


As in previous years, the prevalence of frequent cigarette smoking trended upward with grade level. As grade level increased, frequent smokers made up an increasing proportion of current smokers (Figure 7). For example among 9th graders, 26.5% of current smokers were frequent smokers, among 10th graders, 33.9% of current smokers were frequent smokers, and among 12th graders, 42.3% of current smokers were frequent smokers. Frequent smoking was more prevalent among white high school students (6.2 ±1.5%) compared to black (4.4 ±2.6%) and Hispanic (4.1 ±2.2%) high school students in 2010, however these differences were not statistically significant.

Frequent Use of Other Tobacco Products

Despite being the second most popular tobacco product among high school students overall (see Table 1), frequent (20 or more days per month) use of hookah was not common. Less than one percent (0.7 ±0.5%) of high school students reported smoking hookah on 20 or more days in the past 30 days. Similarly, 0.6% (±0.3) of students reported frequent use of bidis and 0.7% (±0.2) reported frequent use of cigars. However, frequent use of smokeless tobacco was more common, as 1.0% (±0.5) of all high school students and 18.5% (±9.3) of current SLT users reported frequent smokeless use (Figure 8). These results suggest that while use of cigars, bidis and hookah remains largely occasional and experimental, users of smokeless tobacco are using on a more regular basis.

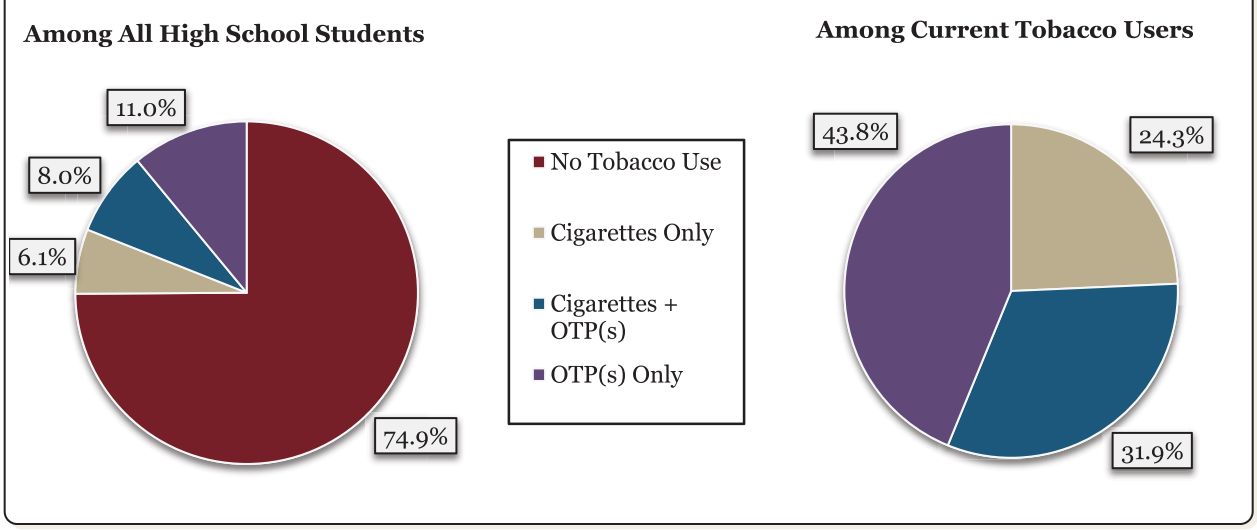
Figure 8: Prevalence of frequent use among current users, by type of tobacco product — NJYTS 2010



Dual or Concurrent Tobacco Use

Among all high school students, 8.0% (±1.6) reported dual use of cigarettes and at least one other tobacco product (OTP). More than half (56.7 ±6.4%) of current cigarette smokers and 73.5% (±8.8) of frequent cigarette smokers reported concurrent use of at least one other tobacco product. Further, use of OTP alone (i.e., tobacco users who do not use cigarettes but use at least one OTP) was more commonly reported than use of cigarettes alone. Among all high school students, 11.0 % (±1.4) reported use of OTP only, while 6.1% (±1.1) reported use of cigarettes only and 8.0% (±1.6) reported concurrent use of cigarettes and at least one OTP (Figure 9).

Figure 9: Prevalence and concurrent use of cigarettes and other tobacco products — NJYTS 2010



Dual use was significantly more prevalent among male smokers (67.7 ±9.6%) than female smokers (46.5 ±8.0%), although this behavior was not uncommon among female smokers. Black (69.4 ±15.5%) and white (57.0 ±8.2%) high school smokers were more likely to report dual use of another tobacco product than Hispanic smokers (46.1 ±9.3%), but these differences were not statistically significant. There were no significant differences in prevalence of dual use by grade level.

Strategies to Reduce Youth Smoking

Strategies to reduce youth smoking include policies and programs that attempt to change social norms, availability, and/or regulation of tobacco. This section addresses youth access to tobacco, exposure to secondhand smoke, awareness of empowerment program activities, and interest in smoking cessation services among New Jersey youth.

Access and Purchasing of Cigarettes

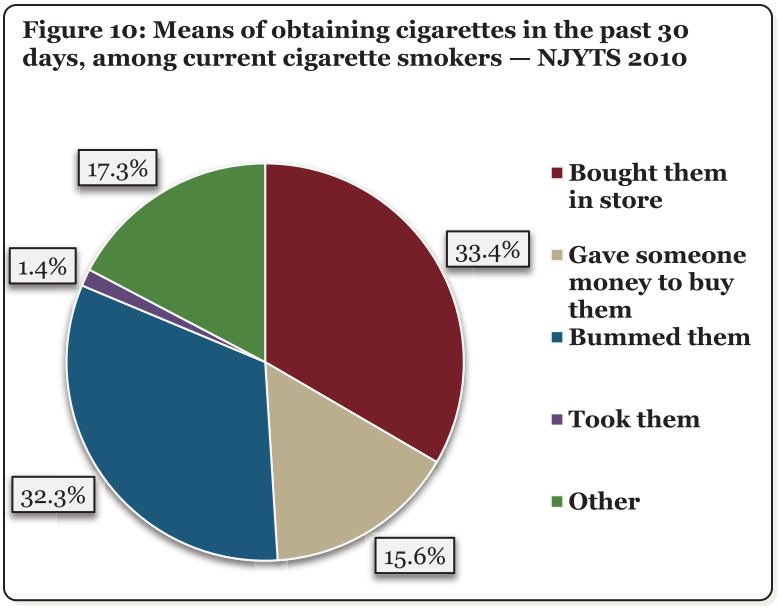
As shown in Figure 10, the most common way of obtaining cigarettes for current high school smokers was buying the product in stores themselves (33.4 ±6.2%), followed by borrowing or "bumming" them (32.3 ±7.1%).

Among current smokers under the age of 18, the percentage of those who reported usually obtaining their cigarettes by buying them in stores increased over time among high school students from 28.8% (±5.5) in 2004 to 33.4% (±6.2) in 2010. It should be noted that as of April 2006 in New Jersey, the legal age to purchase cigarettes increased from 18 years to 19 years. The 2010 NJYTS did not allow for the identification of current smokers who were between 18 and 19 years of age, therefore estimates are likely to be lower with regards to underage purchasing.

In 2010, 66.9% (±8.4) of current smokers in high school under the age of 18 who reported buying or trying to buy cigarettes in the 30 days preceding the survey reported they were ***not*** asked to provide proof of age compared to 64.1% (±7.1) in 2008 and 60.2% (±5.0) in 2006. Although not statistically significant, the increase in availability of retail cigarettes over the past several years suggests a need for increased enforcement of tobacco age of sale regulations in New Jersey.

Youth may obtain cigarettes through the ability to purchase a single cigarette at a time. These single cigarettes are known as loose cigarettes or "loosies." The sale of loose cigarettes is illegal in New Jersey, although many New Jersey youth reported access to them. Similar to 2006 and 2008, 37.7% (±5.4) of high school students reported awareness of places that sold loose cigarettes. Black (53.6 ±11.2%) and Hispanic (52.5 ±5.6%) high school students were more likely than white students (28.7 ±2.3%) to report awareness of places that sold loose cigarettes.

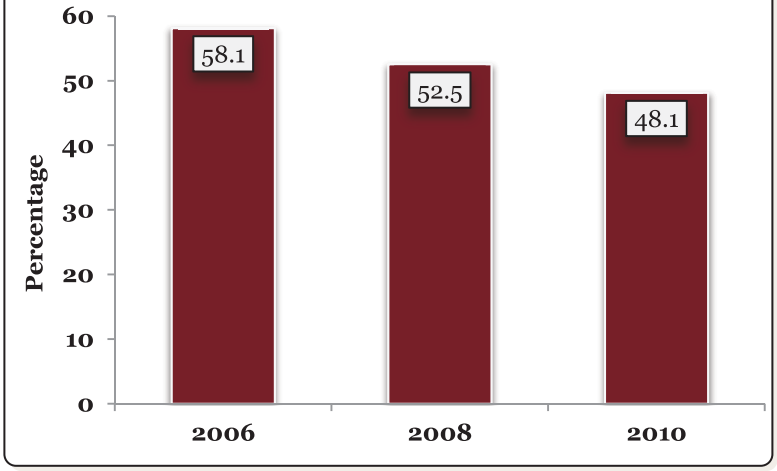
Figure 10: Means of obtaining cigarettes in the past 30 days, among current cigarette smokers — NJYTS 2010



Secondhand Smoke

In 2010, 48.1% (±4.1) of high school students reported being exposed to secondhand smoke (SHS) in either rooms or in cars in the seven days preceding the survey. Overall, these findings represent a significant decline from 58.1% (±3.0) in 2006 (Figure 11). On January 15, 2006, The New Jersey Smoke-Free Air Act (NJSFAA) was signed into law and was enacted on April 15, 2006. The Act prohibits smoking in most indoor public places and workplaces. The 2010 NJYTS asked students about possible exposure to SHS while at work. Among high school students, 8.7% (±1.7) reported breathing the smoke from someone that was smoking in the place where they worked, a non-significant decrease from 9.9% (±1.3) in 2008 and (10.8 ±1.3%) in 2006. The declines in reported exposure to secondhand smoke in rooms and cars or at work suggest that the NJSFAA has had some success in reducing youth exposure to secondhand smoke.

Figure 11: Prevalence of exposure to secondhand smoke in rooms or cars during the past 7 days, among all high school students — NJYTS 2006 - 2010



In 2010, 80.8% (±2.4) of high school students reported that smoking was never allowed inside their home. Among high school students, 34.3% (±2.9) reported living with a smoker and among current smokers, 54.6% (±7.0) reported living with someone who currently smokes cigarettes. Current smokers were significantly more likely to report living with a smoker than non-smokers (54.6 ±7.0% vs. 30.8 ±3.2%).

Among high school students, 70.0% (±3.7) reported that smoking was never allowed in the vehicle they rode or drove in the most. Although rates among high school students trended upward, the increases were not statistically significant when comparing 2006 or 2008 to 2010.

Youth Empowerment

The 2010 NJYTS included questions on awareness of youth tobacco advocacy activities. Despite elimination of state funding for youth advocacy activities known as Reaching Everyone by Exposing Lies (REBEL), some high schools may have continued these efforts with other sources of funding. Overall awareness of REBEL among high school students significantly decreased from 48.8% (±8.2) in 2008 to 29.3% (±11.4) in 2010. In 2010, 4.0% (±1.3) of high school students reported being members of REBEL and 8.8% (±2.9) reported having ever participating in a REBEL event or meeting. In addition, 9.5% (±2.5) reported having participated in any school sponsored event to discourage people their age from using

cigarettes or other tobacco products (OTP) in the past 12 months, while 5.4% (±1.2) reported being involved in any tobacco prevention extracurricular activities. There were no differences in REBEL membership or participation by gender, or grade level, however REBEL membership was more common among black students (8.3 ±4.7%) than white students (2.4 ±1.1%).

Smoking Cessation

In 2010, 53.0% (±7.2) of current high school smokers reported the desire to stop smoking. There were no significant differences in the desire to quit smoking by gender, race/ethnicity or grade level. In addition, there were no statistically significant differences in the proportion of current smokers who wanted to stop smoking between 2008 and 2010.

Despite a high proportion of high school smokers reporting a desire to quit, a notably small proportion of smokers reported awareness of available cessation aids. Among frequent high school smokers, 24.9% (±8.4) had heard of NJQuitline, a telephone counseling service to help teens and adults quit smoking and 17.7% (±7.7) had heard of NJQuitnet, a website to help teens and adults quit smoking. High school males (23.6 ±12.0%) were more likely to report having heard of NJQuitnet compared to high school females (11.8 ±8.1%), although this difference was not statistically significant. Awareness of NJ Quit services in 2010 remained statistically unchanged from 2008.

Of frequent high school smokers, 54.5% (±8.6) reported they had a doctor, dentist, nurse or other health professional ask them if they smoked during the previous 12 months, and 46.8% (±8.9) reported that a health professional had advised them not to smoke. The proportions of students being asked about smoking and being advised not to smoke in 2010 did not differ by gender, race or school grade and remained statistically unchanged from 2008.

CONCLUSIONS

Overview of Findings

The *2010 New Jersey Youth Tobacco Survey: A Statewide Report* provides an opportunity for assessing short and long-term impact of tobacco control programming in New Jersey. When comparing 2010 to 1999, some successes in youth tobacco use are notable. Since 1999, the overall prevalence of ever or lifetime tobacco use decreased 22.2% among high school students and current use of any tobacco decreased from 38.9% (±2.4) to a historic low of 22.2%. Current cigarette smoking prevalence decreased dramatically from 27.6% (±2.6) in 1999 to 14.3% (±1.9) in 2008, however, the cigarette smoking rate among high school students did not change in 2010. In addition, despite improvements over the past decade in reducing ever and current tobacco use among New Jersey youth, decreasing prevalence trends have stalled, and in some cases reversed, in 2010. Ever or lifetime and current use of cigarettes and cigars, although significantly lower than in 1999, have leveled off, and current smoking rates among females and blacks are beginning to trend upward.

The unprecedented increases in use of SLT, bidis, and hookah observed in 2010 are alarming. Although not statistically significant, these are the first prevalence increases reported in NJYTS history. The increase in smokeless tobacco use mirrors documented trends in smokeless sales, which are rising regularly throughout the United States[2].

Hookah use was the second most popular form of tobacco in 2010, being reported at a significantly higher rate than cigars, smokeless tobacco and bidis. A hookah, also referred to as a water pipe, hubble-bubble or narghile, is used to smoke tobacco, often flavored, usually in a group setting.[3] Relative to 2008, increases in prevalence of current hookah use were observed overall as well as among males, females, and blacks, and a significant increase was observed among Hispanics. Also of concern, a larger proportion of students reported frequent use of smokeless tobacco than cigars, bidis or hookah, suggesting that youth who use smokeless are doing so on a more regular basis while use of cigars, bidis and hookah appears to be largely occasional and experimental. In addition, rates of bidi use increased significantly among several subgroups, including female, black and Hispanic high school students since 2006. These results highlight a need to focus youth tobacco control efforts on all forms of tobacco.

Although the current smoking prevalence among New Jersey high school students remains low and rates of any tobacco use among demographic groups were statistically similar, gender and racial/ethnic disparities in use of other tobacco types persist. High school males reported greater use of cigars and smokeless tobacco compared to high school females and, compared to whites, current use of hookah and lifetime use of bidis was higher among Hispanic high school students. In addition, rates of bidi use among females, blacks and Hispanics rose significantly in 2010. These findings underscore the importance of monitoring the differing patterns of tobacco product use across sex and racial/ethnic groups.

An increasing number New Jersey youth continue to obtain their cigarettes from retail outlets. In 2010, 33% of high school smokers under the age of 18 purchased their cigarettes from a retail store, representing an increase from 29% in 2004. Further, 67% of smokers who bought or tried to buy cigarettes in a retail store were not asked to show proof of age, compared to 60% in 2006 and 37% of students indicated awareness of retailers that (illegally) sold single or loose cigarettes (aka "loosies"). Black and Hispanic high school students were more likely than white students to know where to buy single cigarettes. These findings suggest that it has become easier for youth to obtain cigarettes through illegal retail sale.

Secondhand smoke (SHS) exposure continues to be a New Jersey tobacco control priority area monitored by the NJYTS, particularly given the enactment of The New Jersey Smoke-Free Air Act (NJSFAA) on April 15, 2006. There was a slight decline between 2006 and 2010 in the percent of high school students reporting SHS exposure at work, suggesting the NJSFAA may have helped reduce exposure to secondhand smoke among New Jersey youth. Further, there was a significant 10% decrease in reported SHS exposure in either rooms or cars during the seven days preceding the survey from 2006 to 2010.

While direct comparisons are not valid, it is useful to consider time trend results from the NJYTS in the context of other surveys assessing youth tobacco use (e.g., National Youth Risk Behavior Survey (NYRBS). According to the NYRBS, the percentage of all U.S. high school students who reported ever smoking cigarettes decreased significantly from 64% in 2001 to 46% in 2009.[4] This downward trend is similarly noted for New Jersey students in the NJYTS data, which demonstrated that the lifetime smoking prevalence among New Jersey high school students decreased from 60% in 2001 to 34% in 2010. Further, similar trends are noted for current cigarette smoking for high school students. The NYRBS found current cigarette smoking among all U.S. high school students to be 29% in 2001 and 19.5% in 2009,[4] while the NJYTS found current smoking among New Jersey high school students to be 25% in 2001 and 14% in 2010. However, consistent with the NJYTS findings, data from the YRBS also demonstrate a leveling off of current cigarette use among all U.S. high school students between 2003 and 2009.

Limitations

Several limitations of the 2010 NJYTS warrant notation. First, in 2006 New Jersey passed a law to raise the legal age to purchase tobacco from 18 to 19 years. The NJYTS does not ask survey participants to identify their exact age if they were older than 18. Thus, we are not able to examine tobacco purchasing practices among those respondents older than 18 years of age but younger than 19; 6.1% of high school students indicated they were over the age of 18. Second, private schools were in the sampling frame in the 1999, 2001, and 2004 NJYTS administrations, but not in the 2006, 2008 and 2010 protocols. Analyses of NJYTS data indicates that the inclusion of private school students resulted in slightly lower estimates of tobacco use[5] and as such, should be considered when comparing trends over time. Third, the question about use of bidis, while consistent with questions about other tobacco products, was changed in 2008[6]. This change in question wording may affect reported prevalence. Fourth, the questions about hookah

were added in 2008, so comparisons over time are limited to the latest two NJYTS administrations. Lastly, while NJYTS data is useful to monitor outcome indicators such as smoking prevalence, it cannot be used to determine causality and as such, the NJYTS cannot assess the direct impact of state tobacco control programming on the prevalence of tobacco use among New Jersey youth.

Recommendations

After a decade of tobacco control programming in New Jersey, stalled progress and increases in tobacco use were observed for the first time in NJYTS history. Overall, the decrease in current cigarette smoking has stalled and the smoking rates among females and blacks have increased since 2008. The increasing popularity of other forms of tobacco also warrants concern, as hookah is now second only to cigarettes in popularity among youth and a considerable proportion of smokeless tobacco users are identified as frequent users. In light of these findings, strategies to prevent and reduce youth cigarette use – price, access, education, and counter marketing – should focus on *all* tobacco products and should actively engage more minority youth in tobacco control programming activities.

In addition to increased consumption, an upward trend in availability of tobacco to youth has been observed. In 2009, the Tobacco Age of Sale (TASE) program, whose efforts successfully increased the proportion of merchants in compliance with the age-of-sale law to approximately 92% from 1996 to 2010, was restructured, and the number of random retail inspections decreased. At the same time, the proportion of youth who reported obtaining their cigarettes from retail outlets and/or reported not being asked for proof of age when buying cigarettes has risen. In addition, youth awareness of retailers that sold single or loose cigarettes has persisted. To reduce illegal sales of tobacco products to youth, tobacco sales regulations and enforcement in New Jersey should be strengthened.

After New Jersey passed the NJSFAA in 2006 banning smoking in public places, including worksites, a slight decrease in the proportion of students reporting exposure to SHS at work was observed while the proportion of youth reporting SHS exposure in rooms or cars decreased significantly. While this suggests a positive impact of the NJSFAA, some worksite SHS exposure still persists, and nearly half of youth continue to report exposure to smoke in either rooms or cars in 2010. To further reduce SHS exposure among youth, New Jersey tobacco control programs should increase NJSFAA enforcement and promote the adoption of private non-smoking household rules.[7]

While increasing trends in consumption and availability of tobacco products are relatively new to New Jersey, such changes are not unheard of in other states.[8] Based on current trends in New Jersey and tobacco control econometric research, we suspect that increases in tobacco use among New Jersey youth are likely in the near future.

TECHNICAL NOTES

Instrument

Students were surveyed using the 2010 NJYTS instrument which was designed to meet specific needs of the CTCP. The NJYTS addresses eight content areas: tobacco prevalence, access to tobacco, smoking cessation, smoking intention, perceived consequences of tobacco use, mass media, awareness of tobacco industry strategies, and environmental tobacco smoke. In 2010, race/ethnicity data was collected in a manner consistent with the 2009 NYTS and NYRBS, which differs from pre-2008 administrations of the NJYTS. To draw comparisons to state and national trends from previous YTS administrations, the data collected from these two variables were combined to create an overall race variable according to the algorithm currently used for the NYRBS.[3] In 2008, questions about hookah use were introduced to the YTS questionnaire. For consistency when comparing trends over time, hookah use was excluded when calculating lifetime and current rates of *any* tobacco use.

Sample

A two-stage cluster design was used to obtain a representative sample. In the first stage, the sampling frame was constructed from all public high schools in New Jersey and was then stratified by percent minority enrollment. Schools were selected with a probability proportional to size (PPS), within each stratum, without replacement, for a total of 38 high schools. The second stage of sampling involved the random selection of approximately 4 classes within sampled schools.

The NJYTS surveyed a representative sample of all public middle and high school students in New Jersey. The survey was administered to 3,123 high school students (grades 9-12) in 38 schools throughout New Jersey, of which 2,641 completed usable questionnaires. An overall participation rate of 71% in high schools was achieved. Overall participation rates were calculated by multiplying the school participation rate by the student participation rate. The data were weighted to adjust for non-response and the varying probabilities of selection providing results representative of New Jersey's 9^{th}-12^{th} grade student population.

Analysis

SUDAAN 10 and SAS 9.2 survey procedures, which account for the complex sample design of the survey, were used to generate 95% confidence intervals for prevalence estimates. Differences between estimates were considered statistically significant at the $p = 0.05$ level if the 95% confidence intervals did not overlap.[9]

GLOSSARY

Bidis	Small, brown, hand-rolled cigarettes primarily made in India and other Southeast Asian countries; often flavored.
CDC	Centers for Disease Control and Prevention; an agency of the US Department of Health and Human Services.
Current Use	Defined as the use of tobacco on one or more of the 30 days preceding the survey.
Ever Use	Defined as the use of a tobacco product over the course of one's lifetime.
Frequent Use	Defined as the use of a tobacco product on 20 or more days of the past 30 days.
High School Students	Comprised of students who were in 9th, 10th, 11th, or 12th grade at the time of the survey.
Hookah	A water pipe that is used to smoke tobacco and flavored tobacco usually in a group setting; also called hubble-bubble, water-pipe or narghile.
NJYTS	The New Jersey Youth Tobacco Survey is a population-based survey to monitor tobacco use among New Jersey youth.
NYRBS	The National Youth Risk Behavior Survey is a population-based survey designed to monitor priority health risk behaviors that contribute markedly to the leading causes of death, disability, and social problems among youth in the United States.
OTC	The Office of Tobacco Control (formerly the Comprehensive Tobacco Control Program) is the current tobacco control program at NJDHSS. Its mission is to decrease deaths, sickness and disability among New Jersey residents who use tobacco or are exposed to SHS.
OTP	Other tobacco products (tobacco products other than cigarettes)
SHS	Secondhand smoke is a mixture of the smoke given off by the burning end of a cigarette, pipe, or cigar and the smoke exhaled from the lungs of smokers.
SLT	Smokeless tobacco (such as chew, snuff or dip)
TASE	Tobacco Age of Sale Enforcement

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