

2006

NEW JERSEY YOUTH TOBACCO SURVEY

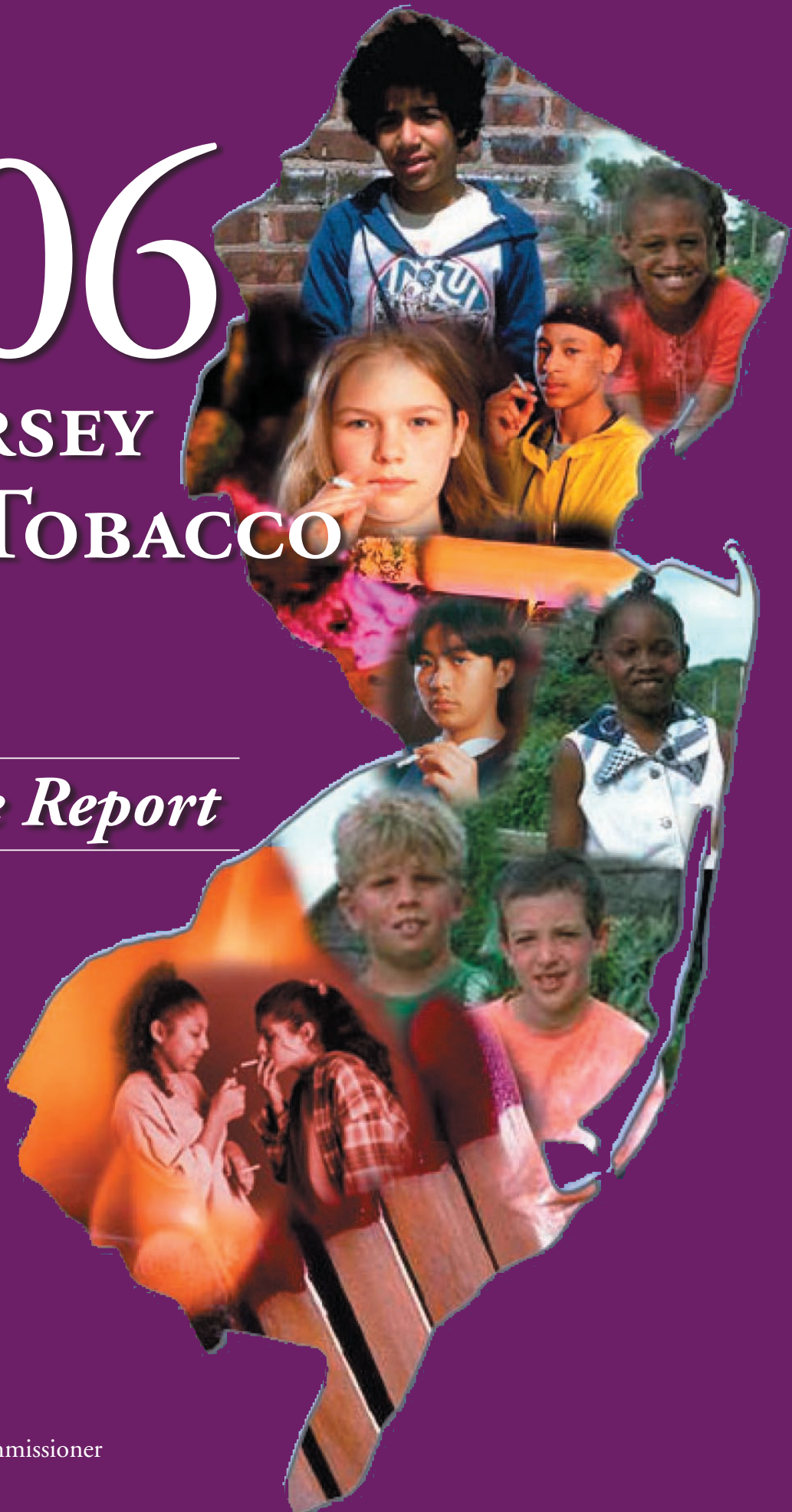
A Statewide Report

May 2007



Jon S. Corzine, Governor

Fred M. Jacobs, M.D., J.D., Commissioner



Acknowledgments

The New Jersey Comprehensive Tobacco Control Program (CTCP) is a unit of the New Jersey Department of Health and Senior Services (NJDHSS). The CTCP is administratively located within the Public Health Services Branch, Office of the State Epidemiologist. This report was prepared for NJDHSS by the University of Medicine and Dentistry of New Jersey - School of Public Health, through funding from New Jersey's cigarette excise tax. The interpretations of data, conclusions, and recommendations expressed in this report are those of the authors and may or may not represent the views of NJDHSS.

The 2006 New Jersey Youth Tobacco Survey was completed by

Cristine Delnevo, PhD, MPH, Project Director
Edgar P. Simard, MPH
Mary Hrywna, MPH
Hila F. Berger, MPH
Jennifer K. Chee-Chait, BA
Dana Momperousse, MPH

NJYTS Trainers, Recruiters, and Field Monitors

Len Albright	Bill Hinshillwood
Lori Carscadden	Anna Hutnick
Brenda Clark	George Konstantakis
Robin Edinger	Rich Marcucci
Stephanie Flaherty	Tyree Oredein
Kate Flint	Avi Sayag

We would like to acknowledge the valuable assistance of the following organizations:

New Jersey Department of Education
Office on Smoking and Health, Centers for Disease Control and Prevention
Macro International, Inc.

We would also like to thank the superintendents, principals, teachers, parents, and students of the schools who agreed to take part in this survey. Their participation made this research possible and has made a real contribution to youth tobacco control efforts in New Jersey.

Suggested Citation

Simard EP, Delnevo CD, Hrywna M, Berger HF, Chee-Chait JK, Momperousse D. The 2006 New Jersey Youth Tobacco Survey: A Statewide Report. New Brunswick, NJ: University of Medicine and Dentistry of New Jersey-School of Public Health; May 2007.

TABLE OF CONTENTS

HIGHLIGHTS	2
INTRODUCTION	3
RESULTS	4
Lifetime Use of Tobacco	4
Current Use of Tobacco	6
Current Use of Any Tobacco	7
Current Cigarette Use	8
Current Cigar Use	9
Current Smokeless Tobacco Use	10
Current Bidi Use	11
Frequent Use of Cigarettes	12
Strategies to Reduce Youth Smoking	13
Access and Purchasing of Cigarettes	13
Secondhand Smoke	15
Youth Empowerment	16
Smoking Cessation	16
CONCLUSIONS	17
Overview of Findings	17
Limitations	19
Recommendations	20
TECHNICAL NOTES	23
GLOSSARY	24
REFERENCES	25

HIGHLIGHTS

The 2006 New Jersey Youth Tobacco Survey found that:

- 24.5% of middle school students and 49.9% of high school students reported having ever tried some form of tobacco.
- 3.2% of middle school students and 15.8% of high school students reported current use of cigarettes.
- 5.2% of middle school students and 14.3% of high school students reported smoking cigars on one or more of the 30 days preceding the survey.
- 3.5% and 9.0% of male middle and high school students, respectively, reported current use of smokeless tobacco.
- 2.5% and 5.3% of middle and high school students, respectively, reported smoking bidis in the past 30 days.
- Frequent cigarette smoking, or smoking on 20 or more of the past 30 days, increased by school grade. Nearly half (45.9%) of 12th grade smokers were frequent smokers.
- Among currently smoking middle and high school students who purchased or attempted to purchase cigarettes, 58.0% reported they were not asked to show proof of age.
- 43.7% of middle school students and 57.7% of high school students reported being exposed to secondhand smoke in either rooms or in cars during the seven days preceding the survey.
- 21.1% of middle school students and 34.1% of high school students had ever heard of the statewide, youth-led anti-tobacco movement, known as REBEL.
- Among current high school smokers, 47.6% reported a desire to stop smoking.
- Among frequent high school smokers, 34.1% had been advised by a health professional to not smoke.

INTRODUCTION

As part of its Comprehensive Tobacco Control Program (CTCP), the New Jersey Department of Health and Senior Services (NJDHSS) developed statewide and local tobacco control programs targeting youth smoking. This unique spectrum of programs includes Reaching Everyone By Exposing Lies (REBEL) for high school age youth, a middle school program called REBEL 2, and a leadership program for college students called REBEL U. REBEL, in all its forms, intends to deliver tobacco use prevention messages through grassroots activities and events as well as peer leadership and education activities. The CTCP also provides funding for school-based youth tobacco cessation programs. Another key component of the CTCP is the funding of Tobacco Age of Sale Enforcement (TASE) programs.¹ The two components of TASE are education of retail merchants on the law prohibiting the sale of tobacco products to minors and enforcement of the law, through random unannounced compliance checks.

Another important initiative has been the establishment of a routine statewide surveillance, monitoring and evaluation system, the New Jersey Youth Tobacco Survey (NJYTS). The Centers for Disease Control and Prevention (CDC) developed the National Youth Tobacco Survey (YTS) to provide states with the data necessary to support the design, implementation, and evaluation of comprehensive tobacco control programs, including state population-based estimates of the prevalence of tobacco use among middle and high school students. The NJYTS was first conducted in 1999 and was repeated in 2001, 2004 and 2006. The 2006 NJYTS was administered to 4,241 middle school students (grades 7-8) in 89 schools and 4,173 high school students (grades 9-12) in 85 schools in fall 2006. The findings of the 2006 NJYTS are representative of all 7th through 12th grade public school students in New Jersey.

This report focuses on current patterns of tobacco use among New Jersey youth using results from the 2006 NJYTS. Comparisons are made with previous NJYTS data (1999, 2001 and 2004) as well as with national trends. The NJYTS allows for the evaluation of CTCP's progress toward the achievement of its goals by monitoring key indicators related to short and long-term outcomes of the program.

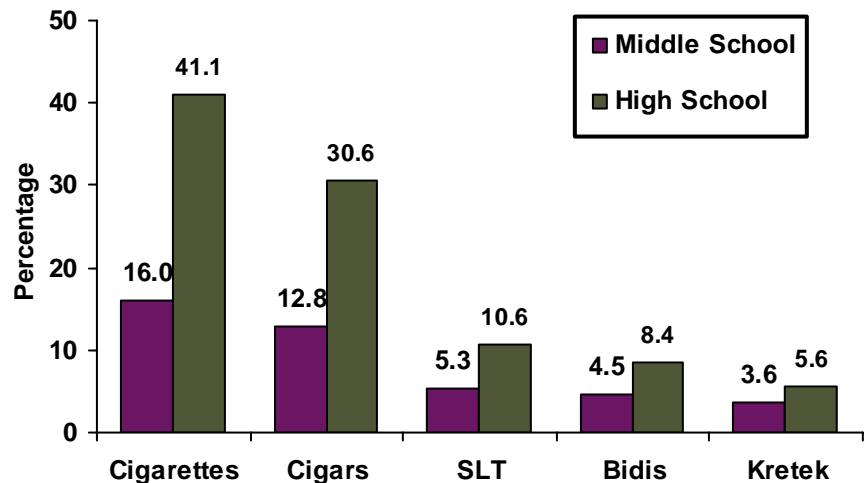
RESULTS

Lifetime Use of Tobacco

New Jersey middle and high school students were asked if they had ever used cigarettes, cigars, smokeless tobacco, bidis or kreteks in their lifetime as part of the NJYTS. Estimates of lifetime or ever use of all tobacco products by school type, gender, race/ethnicity and grade are found in Table 1. In 2006, 24.5% (± 2.4) of middle school students and 49.9% (± 2.8) of high school students reported ever having used any form of tobacco in their lifetime. While the prevalence of lifetime tobacco use among middle school students was similar to that observed during the 2004 NJYTS (25.5 ± 3.5 %), the prevalence of lifetime tobacco use among high school students

decreased from 53.9% (± 3.0) in 2004 to 49.9% (± 2.8) in 2006. Cigarettes and cigars remain the most frequently used tobacco product by both middle and high school students in New Jersey; however, middle and especially high school students continue to experiment with smokeless tobacco, and to a lesser extent bidis and kretek cigarettes (see Figure 1).

Figure 1. Percentage of middle and high school students who ever used tobacco by type of tobacco product – NJYTS, 2006



There were differences in lifetime tobacco use among New Jersey youth by demographic characteristics (see Table 1). Ever use of all tobacco products increased by grade level. Ever cigarette use was significantly higher for black (24.0 ± 4.6 %) and Hispanic (26.2 ± 3.2 %) middle school students compared to white middle school students (11.6 ± 2.5 %). However, among high school students, ever cigarette use was only significantly different when comparing Hispanic students (47.4 ± 3.8 %) to white students (41.3 ± 3.5 %). Ever cigar use was also more prevalent among Hispanic middle and high school students compared to other racial/ethnic groups. Ever cigar use was significantly higher among male high school and middle school students compared to female students. Smokeless tobacco use was highest among middle school males (6.8 ± 1.6 %) and high school males (15.9 ± 2.5 %).

Table 1. Percentage of New Jersey middle school and high school students who ever used any tobacco product*, cigarettes, cigars, smokeless tobacco, bidis or kreteks, by gender, race/ethnicity, and school grade – NJYTS, 2006

	Any % (95% CI)	Cigarette % (95% CI)	Cigar % (95% CI)	SLT [†] % (95% CI)	Bidis % (95% CI)	Kreteks % (95% CI)
Middle School						
<i>Gender</i>						
Male	27.1 ± 2.7	17.3 ± 2.7	15.0 ± 2.2	6.8 ± 1.6	4.8 ± 1.1	4.4 ± 1.0
Female	21.8 ± 2.9	14.7 ± 2.9	10.5 ± 1.7	3.8 ± 1.1	4.3 ± 1.1	2.9 ± 1.0
<i>Race/Ethnicity</i>						
White	20.3 ± 2.6	11.6 ± 2.5	11.1 ± 1.6	4.2 ± 1.1	3.4 ± 1.2	2.9 ± 0.9
Black	31.9 ± 4.6	24.0 ± 4.6	12.9 ± 2.8	7.1 ± 2.0	5.9 ± 1.9	4.2 ± 1.8
Hispanic	34.5 ± 3.2	26.2 ± 3.2	20.8 ± 2.6	6.7 ± 2.1	7.1 ± 2.1	4.9 ± 1.6
<i>Grade</i>						
7	21.9 ± 2.9	12.8 ± 3.2	10.6 ± 1.9	4.9 ± 1.1	4.0 ± 1.0	3.6 ± 1.0
8	27.0 ± 3.0	19.0 ± 3.1	14.9 ± 2.1	5.7 ± 1.3	5.1 ± 1.3	3.6 ± 1.1
Total (middle school)	24.5 ± 2.4	16.0 ± 2.5	12.8 ± 1.6	5.3 ± 0.9	4.5 ± 0.9	3.6 ± 0.6
High School						
<i>Gender</i>						
Male	52.2 ± 3.5	41.9 ± 3.9	36.6 ± 3.7	15.9 ± 2.5	9.7 ± 1.7	6.7 ± 1.2
Female	47.5 ± 3.5	40.3 ± 3.2	24.4 ± 2.5	5.1 ± 1.5	6.9 ± 1.8	4.3 ± 0.9
<i>Race/Ethnicity</i>						
White	49.5 ± 3.3	41.3 ± 3.5	32.8 ± 3.1	11.6 ± 2.3	7.3 ± 1.5	5.5 ± 1.1
Black	53.0 ± 6.1	41.5 ± 5.9	26.7 ± 5.1	10.1 ± 2.9	10.5 ± 2.6	6.0 ± 2.4
Hispanic	55.6 ± 3.7	47.4 ± 3.8	32.5 ± 3.0	9.0 ± 2.7	9.7 ± 2.3	6.3 ± 2.0
<i>Grade</i>						
9	34.7 ± 4.8	26.0 ± 4.1	18.2 ± 4.3	5.6 ± 2.3	7.0 ± 2.8	3.3 ± 1.6
10	48.6 ± 4.1	39.5 ± 4.4	29.1 ± 3.6	11.3 ± 3.4	7.6 ± 2.0	5.6 ± 2.0
11	57.9 ± 5.2	49.3 ± 5.1	36.2 ± 3.7	11.3 ± 3.2	9.1 ± 1.7	7.2 ± 1.7
12	61.0 ± 4.6	51.6 ± 5.5	41.5 ± 3.2	14.2 ± 2.2	9.8 ± 1.8	6.7 ± 1.0
Total (high school)	49.9 ± 2.8	41.1 ± 2.7	30.6 ± 2.4	10.6 ± 1.7	8.4 ± 1.3	5.6 ± 0.7

*Ever use of cigarettes, or cigars, or smokeless tobacco, or bidis or kreteks

[†]Smokeless tobacco

Lifetime use of all tobacco products among middle and high school students continued to decrease since first assessed in 1999. Ever cigarette use among middle school students significantly declined from 34.7% (± 3.5) in 1999 to 16.0% (± 2.5) in 2006. Ever use of cigarettes also significantly declined among high school students from 63.6% (± 2.7) in 1999 to 41.1% (± 2.7) in 2006. Temporal declines in the prevalence of lifetime use of smokeless tobacco and cigars were observed among both middle and high school students. Ever use of smokeless tobacco decreased among middle school students from 8.2% (± 0.9) in 1999 to 5.3% (± 0.9) in 2006 and from 16.1% (± 1.6) to 10.6% (± 1.7) among high school students. Between 1999 and 2006, ever use of cigars decreased from 21.8% (± 1.9) to 12.8% (± 1.6) among middle school students and from 40.5% (± 1.8) to 30.6% (± 2.4) among high school students. However, recent declines were less substantial and only ever use of cigars among high school students declined significantly from 34.5% (± 2.8) to 30.6% (± 2.4) between 2004 and 2006.

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. New Jersey youth were asked about their current use of cigarettes, cigars, smokeless tobacco, and bidis. Current use of all tobacco products by school type, gender, race/ethnicity and school grade is found in Table 2.

Table 2. Percentage of New Jersey middle school and high school students who were current users of any tobacco product*, cigarettes, cigars, smokeless tobacco, or bidis, by gender, race/ethnicity, and school grade – NJYTS, 2006

	Any % (95% CI)	Cigarette % (95% CI)	Cigar % (95% CI)	SLT [†] % (95% CI)	Bidis % (95% CI)
Middle School					
<i>Gender</i>					
Male	10.0 ± 2.0	3.5 ± 1.1	6.5 ± 1.8	3.5 ± 1.2	2.9 ± 1.1
Female	6.0 ± 1.5	2.9 ± 1.1	3.9 ± 1.0	1.6 ± 0.6	2.1 ± 0.7
<i>Race/Ethnicity</i>					
White	7.0 ± 1.7	2.6 ± 1.0	4.2 ± 1.3	1.7 ± 0.8	1.7 ± 0.7
Black	9.8 ± 2.6	3.2 ± 1.6	5.8 ± 1.7	3.7 ± 1.8	4.2 ± 1.5
Hispanic	12.3 ± 2.7	5.8 ± 2.2	9.1 ± 2.5	4.0 ± 1.8	3.7 ± 1.8
<i>Grade</i>					
7	6.2 ± 1.7	1.9 ± 0.9	4.3 ± 1.4	1.6 ± 0.6	2.0 ± 0.6
8	10.3 ± 2.0	4.4 ± 1.2	6.0 ± 1.4	3.4 ± 1.3	3.1 ± 1.3
Total (middle school)	8.4 ± 1.4	3.2 ± 0.9	5.2 ± 1.2	2.6 ± 0.7	2.5 ± 0.7
High School					
<i>Gender</i>					
Male	28.2 ± 3.3	15.9 ± 2.8	19.1 ± 2.8	9.0 ± 1.9	6.7 ± 1.7
Female	20.4 ± 2.2	15.4 ± 2.1	9.3 ± 1.6	2.7 ± 1.0	3.4 ± 1.1
<i>Race/Ethnicity</i>					
White	27.1 ± 2.6	18.4 ± 2.6	15.4 ± 1.9	6.8 ± 1.7	4.4 ± 1.2
Black	22.0 ± 4.5	11.5 ± 3.5	13.9 ± 4.6	4.7 ± 2.1	8.5 ± 2.9
Hispanic	21.5 ± 2.6	13.4 ± 2.3	13.4 ± 2.8	4.9 ± 1.5	5.4 ± 1.9
<i>Grade</i>					
9	14.5 ± 2.9	6.5 ± 2.5	8.7 ± 2.0	4.1 ± 2.0	3.8 ± 1.8
10	22.7 ± 3.9	14.5 ± 3.2	15.0 ± 3.3	5.9 ± 3.1	5.4 ± 2.1
11	30.2 ± 4.9	20.7 ± 4.5	17.3 ± 4.1	6.9 ± 2.4	6.7 ± 2.0
12	32.8 ± 3.3	23.2 ± 3.7	17.3 ± 2.4	7.3 ± 1.9	5.4 ± 1.3
Total (high school)	24.5 ± 2.1	15.8 ± 2.0	14.3 ± 1.4	6.0 ± 1.3	5.3 ± 1.2

*Use of any tobacco (cigarettes, cigars, smokeless tobacco, or bidis during ≥ 1 of the 30 days preceding the survey)

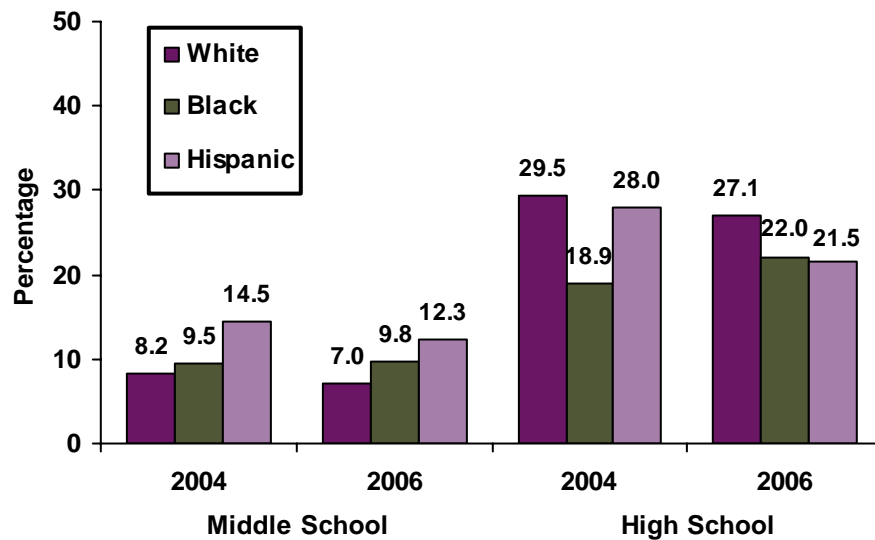
[†]Smokeless tobacco

Current Use of Any Tobacco

Overall, 8.4% (± 1.4) of New Jersey middle school students and 24.5% (± 2.1) of high school students reported using some form of tobacco (i.e., cigarettes, cigars, smokeless, or bidis) in the 30 days preceding the survey. Among high school students, males (28.2 ± 3.3 %) had a significantly higher prevalence of current use of any tobacco product compared to females (20.4 ± 2.2 %). There were no significant gender differences among middle school students.

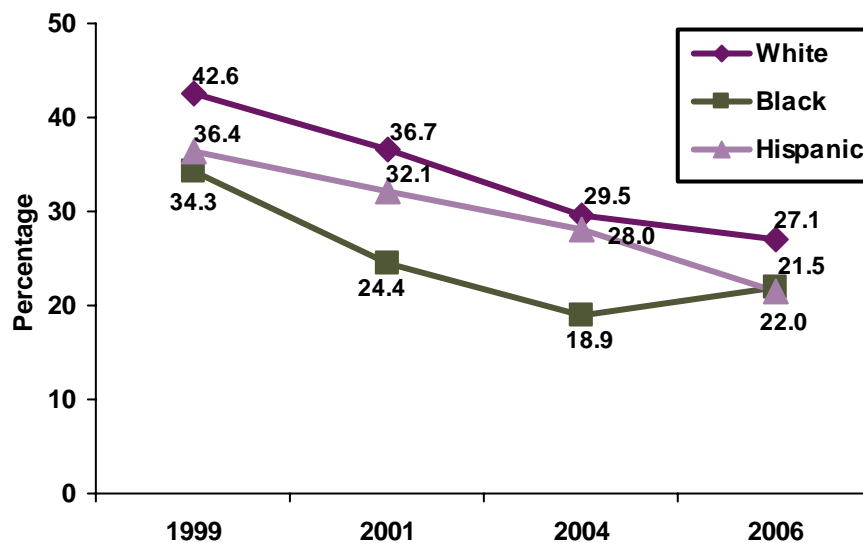
As seen in Figure 2, differences in current use of any tobacco product were noted by race/ethnicity. Among middle school students, Hispanics (12.3 ± 2.7 %) had a significantly higher prevalence of current use of any tobacco product compared to whites (7.0 ± 1.7 %). Among high school students, whites (27.1 ± 2.6 %) reported a significantly higher prevalence of any tobacco use compared to Hispanics (21.5 ± 2.6 %).

Figure 2. Percentage of middle and high school students who were current users of any tobacco, by race/ethnicity – NJYTS, 2004-2006



Current use of any tobacco significantly decreased among middle school students from 1999 (18.9 ±2.1%) to 2006 (8.4 ±1.4%). Males and females had similar declines for current use of any tobacco. All racial/ethnic groups had significant decreases in current use of any tobacco from 1999 to 2006. There was also a significant decline in current use of any tobacco among high school students from 38.9% (±2.4) in 1999 to 24.5% (±2.1) in 2006. Similar decreases in current use of any tobacco were found in both males and females. As shown in Figure 3, white high school students had a larger decline in current use of any tobacco from 1999 to 2006, from 42.6% (±3.1) to 27.1% (±2.6), compared to their black and Hispanic counterparts. From 2004 to 2006, black high school students showed a slight increase in current use of any tobacco from 18.9% (±6.7) to 22.0% (±4.5) (see Figure 3).

Figure 3. Percentage of high school students who were current users of any tobacco, by race/ethnicity – NJYTS, 1999-2006

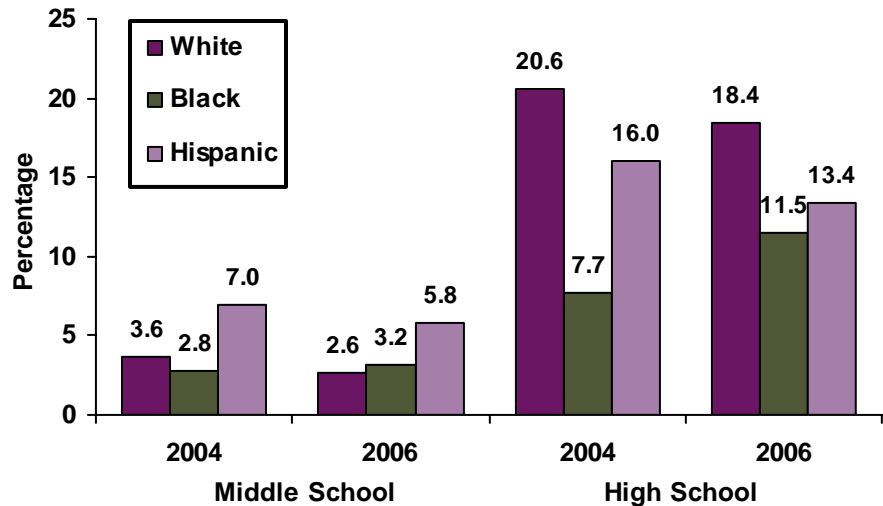


Current Cigarette Use

Overall, 3.2% (±0.9) of middle school students and 15.8% (±2.0) of high school students reported smoking a cigarette on one or more days in the 30 days preceding the survey. There were no significant gender differences in current cigarette use among middle or high school students.

Some variations by race/ethnicity were noted in current cigarette use (see Figure 4). The percent of Hispanic middle school students who reported current cigarette use ($5.8 \pm 2.2\%$) was slightly higher compared to white ($2.6 \pm 1.0\%$) or black ($3.2 \pm 1.6\%$) middle school students; however, these differences were not statistically significant. Among high school students, the percent of white students ($18.4 \pm 2.6\%$) reporting current cigarette use was significantly higher compared to black ($11.5 \pm 3.5\%$) or Hispanic ($13.4 \pm 2.3\%$) students.

Figure 4. Percentage of middle and high school students who were current users of cigarettes, by race/ethnicity – NJYTS, 2004-2006



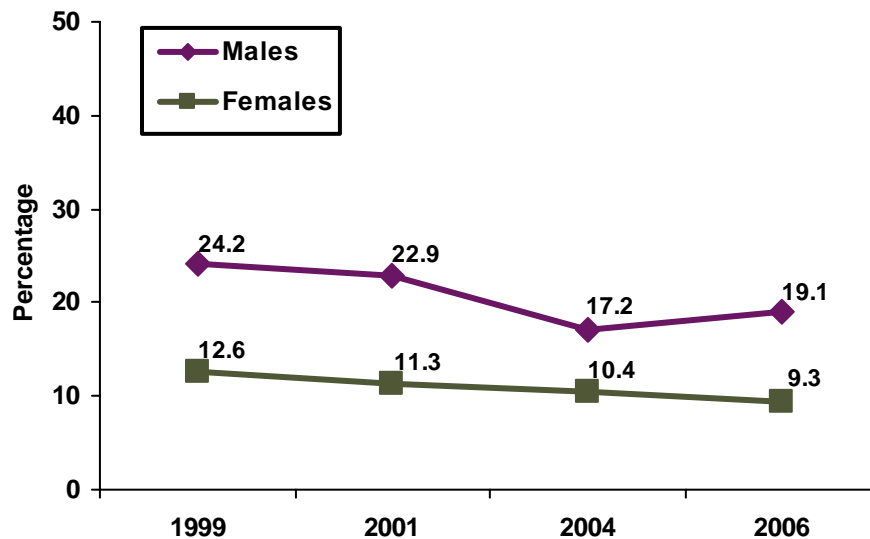
Among middle school students, current cigarette use declined significantly from 10.5% (± 1.8) in 1999 to 3.2% (± 0.9) in 2006; declines were also observed for all demographic groups of middle school students. Among high school students, current cigarette use also declined significantly from 27.6% (± 2.6) in 1999 to 15.8% (± 2.0) in 2006. By race/ethnicity among high school students, significant decreases were noted among white, black and Hispanic students from 1999 to 2006. However, from 2004 to 2006, current cigarette use among black high school students increased from 7.7% (± 4.3) to 11.5% (± 3.5) in 2006, though this change was not significant.

Current Cigar Use

Cigars are the second most frequently used tobacco product among New Jersey youth. Compared to female students, male middle school ($6.5 \pm 1.8\%$) and high school ($19.1 \pm 2.8\%$) students had a significantly higher prevalence of current cigar use. There were some differences in current cigar use by race/ethnicity. Among middle school students, Hispanic students had the highest prevalence of current cigar use ($9.1 \pm 2.5\%$) compared to all other racial/ethnic groups. And, among high school students, white students had the highest prevalence of cigar use ($15.4 \pm 1.9\%$) compared to all other racial/ethnic groups (see Table 2).

Among high school students, the gender disparity in current cigar use narrowed between 1999 and 2004 (see Figure 5). However, in 2006 significantly more high school males reported current use of cigars (19.1 ±2.8%) compared to high school females (9.3 ±1.6%).

Figure 5. Percentage of high school students who were current users of cigars, by gender – NJYTS, 1999-2006



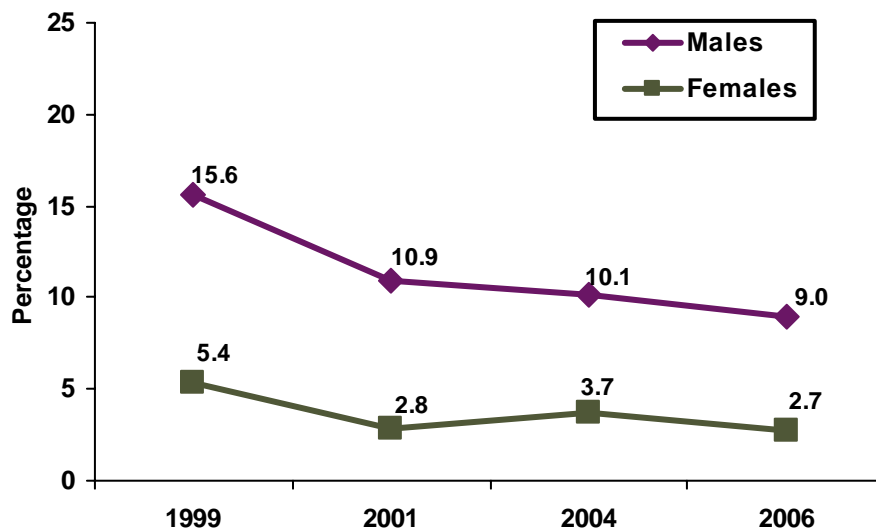
While the prevalence of current cigar use declined significantly from 1999 to 2004, the prevalence in 2006 increased. Current cigar use among middle school students increased from 3.8% (±1.1) in 2004 to 5.2% (±1.2) in 2006 and, among high school students from 13.8% (±2.3) to 14.3% (±1.4). The overall increases in current cigar use between 2004 and 2006 were not statistically significant.

Current Smokeless Tobacco Use

Current smokeless tobacco use among New Jersey middle and high school students continues to decline. Overall, 2.6% (±0.7) of middle school students and 6.0% (±1.3) 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 middle school males (3.5 ±1.2%) compared to females (1.6 ±0.6%) and among high school males (9.0 ±1.9%) compared to females (2.7 ±1.0%). Though current smokeless tobacco use did decline in almost every racial/ethnic group between 2004 and 2006, none of the declines were significant (see Table 2).

Overall, significant declines in current smokeless tobacco use were observed for both middle and high school students between 1999 and 2001. However, the prevalence of current smokeless tobacco use leveled off during 2004. Between 2004 and 2006 declines in current smokeless tobacco use were observed among middle and high school males and females; however, these small declines were not significant (see Figure 6).

Figure 6. Percentage of all high school students who were current users of smokeless tobacco, by gender – NJYTS, 1999-2006



Current Bidi Use

Bidis are small hand-rolled cigarettes primarily made in India and are often flavored. In 2006, 2.5% (± 0.7) of middle school and 5.3% (± 1.2) of high school students reported smoking bidis in the previous 30 days. While there were no gender differences among middle school students, significantly more high school males (6.7 ± 1.7 %) reported current use of bidis, compared to females (3.4 ± 1.1 %) in the 2006 NJYTS.

Black middle (4.2 ± 1.5 %) and high school (8.5 ± 2.9 %) students continue to have the highest prevalence of current bidi use compared to all other racial/ethnic groups.

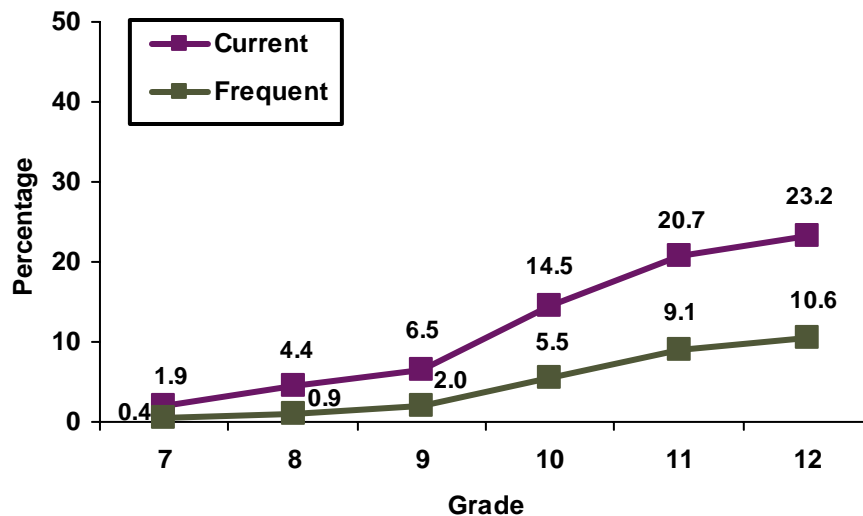
The overall prevalence of current bidi use among middle and high school students has decreased with each administration of the NJYTS and the prevalence significantly declined for every racial/ethnic group from 1999 to 2006. More recently, the largest decline in current bidi use was from 2004 to 2006 among Hispanic middle school students, from 6.7% (± 2.7) to 3.7% (± 1.8).

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.

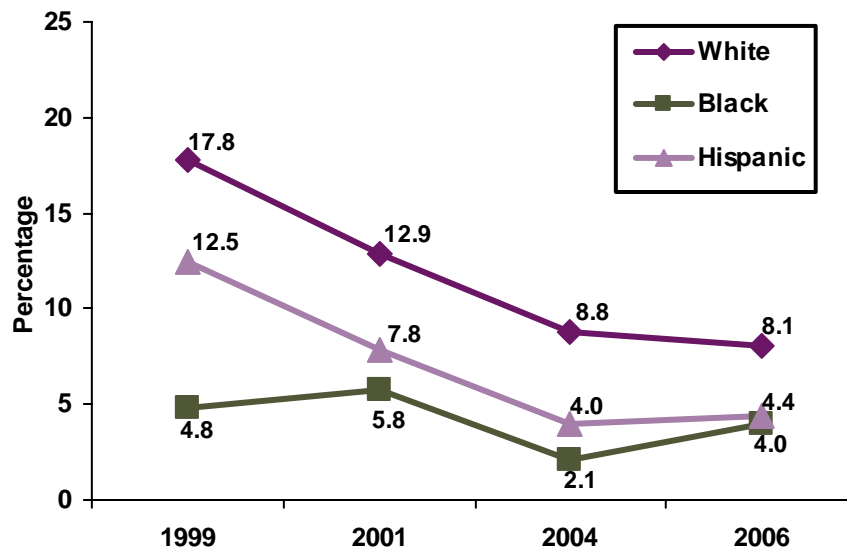
As in previous years, the prevalence of frequent cigarette smoking increased with grade (see Figure 7). In every grade, frequent smokers made up an increasing proportion of current smokers: almost half ($45.9 \pm 6.2\%$) of 12th grade current cigarette smokers reported frequent smoking. There were no significant differences in frequent cigarette use by gender among middle or high school students. The prevalence of frequent cigarette use was also similar among middle school students by race/ethnicity. However, white high school students had a significantly higher prevalence of frequent cigarette smoking ($8.1 \pm 2.0\%$) compared to black ($4.0 \pm 1.8\%$) or Hispanic students ($4.4 \pm 1.5\%$).

Figure 7. Percentage of all students that were current and frequent cigarette smokers, by school grade – NJYTS, 2006



Frequent cigarette smoking has decreased significantly among high school students from 13.8% (± 2.2) in 1999 to 6.6% (± 1.4) in 2006. Similar patterns of decline were seen for both males and females. By race/ethnicity, the prevalence of frequent cigarette smoking declined 54% among white high school students and 65% among Hispanic high school students from 1999 to 2006 (see Figure 8). There was a much smaller decline (17%) for black high school students during the same time period.

Figure 8. Percentage of all high school students who were frequent users of cigarettes, by race/ethnicity – NJYTS, 1999-2006



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 cessation among New Jersey youth.

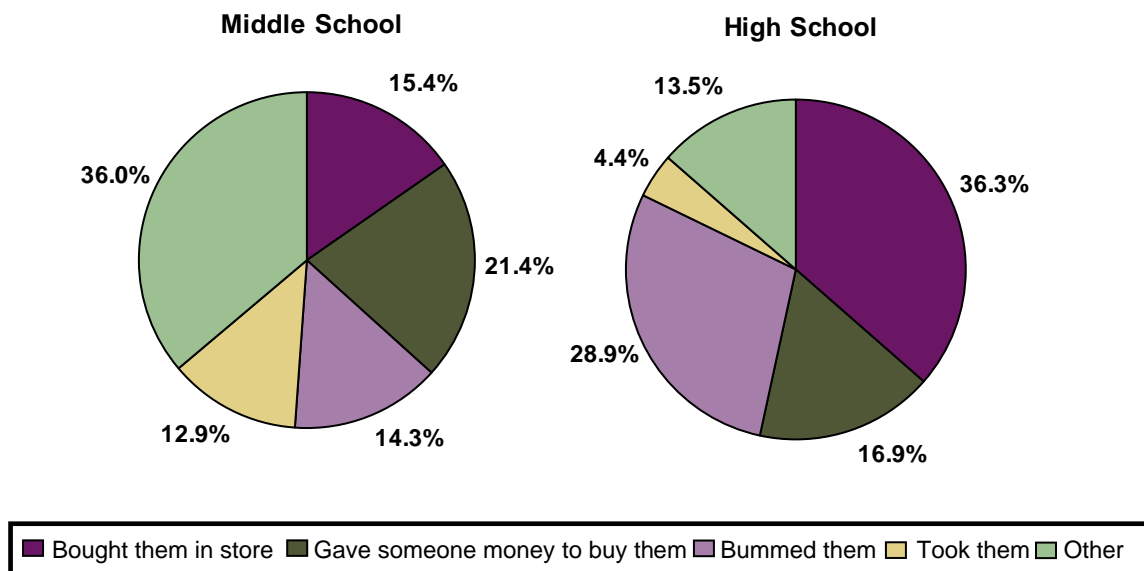
Access and Purchasing of Cigarettes

As shown in Figure 9, giving someone money to purchase cigarettes was the most frequent method of obtaining cigarettes for current smokers in middle school ($21.4 \pm 8.7\%$), followed by buying them in stores ($15.4 \pm 6.1\%$). Among current high school smokers, the most frequent way of obtaining cigarettes was buying them in stores ($36.3 \pm 4.8\%$), followed by borrowing or “bumming” them ($28.9 \pm 4.6\%$). Significantly more high school students ($36.3 \pm 4.8\%$) reported purchasing cigarettes in a store compared to middle school students ($15.4 \pm 6.1\%$). Among current cigarette smokers under 18 years of age, the percent who report usually obtaining their cigarettes by buying them in stores has significantly increased, among middle school students from $7.2\% (\pm 3.7)$ in 2004 to $15.4\% (\pm 6.1)$ in 2006, and among high school students from $28.8\% (\pm 5.5)$ to $36.3\% (\pm 4.8)$. 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 2006 NJYTS did not

allow for the identification of current smokers who were between 18 and 19 years of age. As a result, the estimates reported from the current NJYTS are likely to be lower with regards to underage purchasing.

In 2006, 60.2% (± 5.0) 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. While this is a significant decline from the 1999 estimate of 67.1% (± 4.4), the estimate remains unchanged from 2004 (57.7 ± 5.5 %).

Figure 9. How current cigarette smokers in middle school and high school (<18yrs.) usually obtained cigarettes – NJYTS, 2006

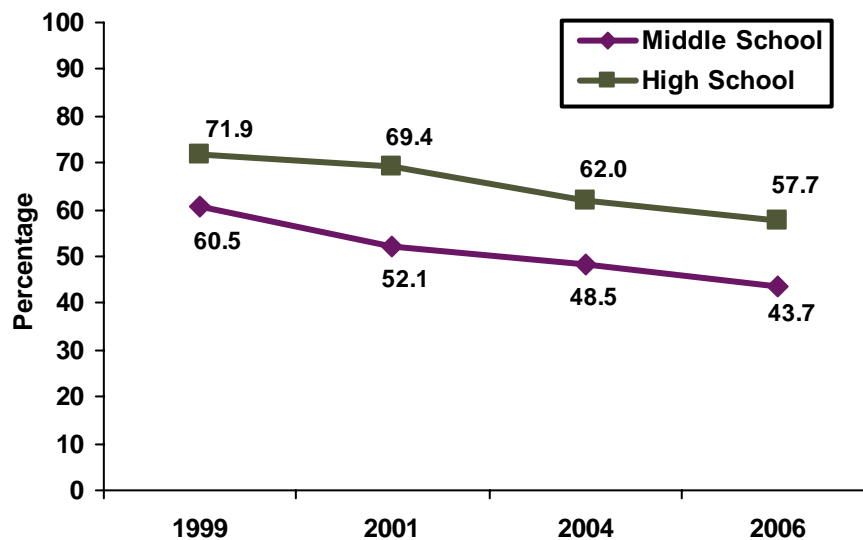


Youth may access cigarettes through the ability to purchase a single cigarette at a time, known as loose cigarettes or “loosies.” Although the sale of loose cigarettes is illegal in New Jersey, many New Jersey youth reported access to them. Among middle school students, 33.4% (± 3.6) reported awareness of places that sold loose cigarettes, and black (58.8 ± 6.8 %) and Hispanic students (47.8 ± 4.8 %) reported significantly higher awareness compared to white students (22.2 ± 2.6 %). Overall, 36.0% (± 4.9) of high school students reported awareness of places that sold loose cigarettes. Similarly, black (64.6 ± 5.4 %) and Hispanic (55.8 ± 7.4 %) high school students reported significantly higher awareness of places that sold loose cigarettes compared to white students (24.3 ± 3.4 %).

Secondhand Smoke

Overall, 43.7% (± 2.6) of middle school students and 57.7% (± 3.0) of high school students reported being exposed to secondhand smoke (SHS), in either rooms or in cars in the seven days preceding the survey. There were no significant disparities in youth secondhand smoke exposure by gender or race/ethnicity. Overall, these findings represent a 28% decline in self-reported secondhand smoke exposure among middle school students since 1999 and a 19% decline among high school students (see Figure 10). This decline in secondhand smoke exposure is most likely attributable to the lower prevalence of current smoking among youth in 2006 relative to previous years.

Figure 10. Percentage of middle and high school students who were exposed to secondhand smoke in the past 7 days, by year – NJYTS, 1999-2006



Among middle and high school students, 74.8% (± 1.3) reported that smoking was never allowed inside their home. More than one-third of middle and high school students (37.2 ± 2.6 %) lived with smokers and among them, 51.6% (± 1.9) reported that smoking was sometimes or always allowed inside their homes.

Increased attention has been focused on youth exposure to secondhand smoke in automobiles. Among New Jersey middle school students, 72.1% (± 2.7) reported that smoking was never allowed in the vehicle they rode or drove in most often. And, among high school students, 64.9% (± 3.3) reported that smoking was never allowed in the vehicle they rode or drove in the most. This is likely influenced by the smoking behavior of the high school students themselves or their peers.

The 2006 NJTYS also asked students about possible exposure to SHS while at work. Among high school students, 20.4% (± 1.7) reported that smoking was never allowed in their workplace. Although a small proportion of high school students reported that their workplaces had smoking bans, very few reported exposure to SHS in the workplace during the previous 7 days (10.8 ± 1.3 %).

Youth Empowerment

The 2006 NJTYS included questions used to collect information on awareness of CTCP youth empowerment activities (i.e., REBEL or REBEL 2). Overall, 21.1% (± 5.1) of middle school and 34.1% (± 6.3) of high school students had heard of the statewide youth-led anti-tobacco movement, REBEL. From 2001 to 2006, there was a significant decrease in REBEL awareness levels among middle school students, from 34.1% (± 6.5) to 21.1% (± 5.1). Among high school students, 6.0% (± 1.4) reported being in a REBEL chapter and 9.5% (± 2.1) reported ever participating in a REBEL event; no differences were observed in awareness, membership or participation in REBEL events since 2004.

Smoking Cessation

Youth smokers routinely report the desire to stop smoking. Among current high school smokers, 47.6% (± 6.4) reported the desire to stop smoking. There were no significant differences in the desire to quit smoking by race/ethnicity or grade level.

It is perhaps most important that frequent youth smokers have access to smoking cessation programs. Among frequent high school smokers, 30.6% (± 5.9) had heard of NJQuitline, a telephone counseling service to help teens and adults quit smoking; and 23.0% (± 5.0) had heard of NJQuitnet, a website to help teens and adults quit smoking.

Also, among frequent high school smokers, 44.2% (± 7.8) reported they had a doctor, dentist, nurse or other health professional ask them if they smoked during the previous 12 months. In addition, 34.1% (± 6.3) reported that a health professional had advised them not to smoke.

CONCLUSIONS

Overview of Findings

The results from the 2006 NJYTS identify areas of significant progress in tobacco control for the state of New Jersey. Since 1999, the prevalence of lifetime use of any tobacco product decreased by 15.6% among middle school students and by 16.8% among high school students. Also, since 1999, current tobacco use decreased by 10.5% and 14.4% among middle school and high school students, respectively. Current cigarette smoking prevalence also decreased dramatically between 1999 and 2006; current smoking decreased by 7.3% among middle school students and 11.8% among high school students. The prevalence of current smoking among high school students is now estimated to be 15.8%, making New Jersey well situated to reach its Healthy NJ 2010 target to reduce high school cigarette smoking prevalence to 15%.²

While there have been significant declines in tobacco use documented by the 2006 NJYTS, there are areas which warrant attention. There are disparities by race/ethnicity with regards to lifetime use of tobacco products, comparing white middle and high school students to non-white students (blacks and Hispanics). There are also gender disparities with regards to almost every tobacco product, where males had a higher prevalence of use for all tobacco products compared to females.

Regarding current use of tobacco products, for every type of tobacco product except bidis, Hispanic middle school students had higher rates of use compared to white or black students. Among high school students, the prevalence of use varied greatly by product. White high school students reported the highest rates of cigarette, cigar and smokeless tobacco use, whereas black high school students reported the highest rate of current bidi use.

It is useful to consider results from the NJYTS in the context of other surveys assessing youth tobacco use, such as the New Jersey Youth Risk Behavior Survey (NJYRBS). Given that the NJYRBS is different methodologically from the NJYTS, direct comparisons are not valid; though it is possible to compare trends over time.

Similar declines were observed in the prevalence of lifetime or ever smoking among high school students from 2001 to 2005 in the NJYRBS; lifetime smoking declined from 63% in 2001 to 49% in 2005. The NJYTS also showed a similar decline in the prevalence of lifetime cigarette smoking among high school students from 60% in 2001 to 41% in 2006. There were also similarities in the prevalence of current cigarette smoking among high school students between the two surveys. The NJYRBS found

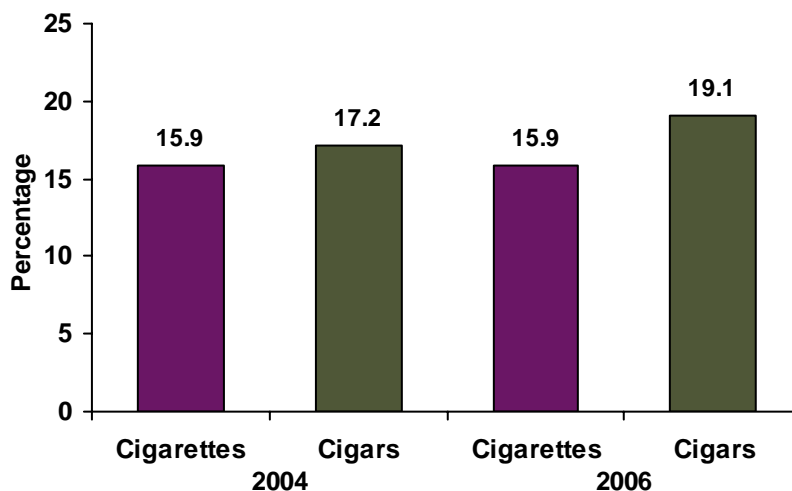
current cigarette smoking to be 29% in 2001 and 20% in 2005; where the NJYTS found the prevalence of current cigarette smoking to be 25% in 2001 and 16% in 2006. Data from NJYRBS suggest that the decline in the prevalence of tobacco use observed among New Jersey middle and high school students are consistent with other estimates, which showed similar trends over the last several years.

Additionally, consistent with findings from the 2004 NJYTS when New Jersey’s cigarette smoking prevalence among high school students was significantly lower than the national estimate, unpublished estimates from the 2006 National YTS suggests that current cigarette smoking among high school students remains significantly lower in New Jersey compared to the national prevalence data.¹

The results from the 2006 NJYTS show progress toward achieving many of the primary goals of the CTCP, including decreasing the number of youth who initiate cigarette smoking and reducing exposure to SHS. Despite these important successes, tobacco control in the state of New Jersey should remain a priority. Chiefly, sustaining these reductions over time and reducing disparities in the declining prevalence of tobacco use among New Jersey youth. Differing rates of decline in the prevalence of tobacco use among New Jersey youth will make disparities more evident over time.

Current cigar use among New Jersey youth continues to be an area of concern. In 2006, Hispanic middle school students had the highest prevalence of use among middle school students (9.1%); this was a small (non-significant) increase in prevalence compared to 2004. While Hispanic middle school students had the highest prevalence of current cigar use, white high school students had the highest prevalence of cigar use in 2006. Current cigar use among male high school students continues to be higher than current cigarette use (see Figure 11).

Figure 11. Current cigarette and cigar use among male high school students – NJYTS, 2004-2006



Data on self-reported youth access and retailer compliance with tobacco age of sale laws suggest that New Jersey youth continue to obtain cigarettes from commercial sources. There were significant increases from 2004 to 2006 in the proportion of current cigarette smokers in both middle and high school that reported obtaining cigarettes by buying them in a store. Approximately 60% of current high school smokers also reported not being asked to provide proof of age. In addition, one-third of middle and high school students indicated awareness of retailers that sold single or loose cigarettes despite a state law which prohibits their sale.

Relatively few New Jersey middle and high school students reported awareness of the CTCP's youth empowerment program, REBEL. Only 21% of middle and 34% of high school students reported having ever heard of the REBEL program. Since 2001, REBEL awareness levels have decreased among middle school students and remained stable among high school students.

Youth self-reported SHS exposure is also an area warranting continued public health attention. Many middle (44%) and high school (58%) students reported SHS exposure in either their rooms or cars during the seven days preceding the survey. In 2006, New Jersey joined several other states by enacting a ban on indoor smoking. Further monitoring of SHS exposure levels among youth should aid in evaluating the impact of this new legislation.

Limitations

The limitations of the 2006 NJYTS deserve discussion. The overall approach for the NJYTS is based on the standard CDC national YTS protocol. However, there were minor differences between the NJYTS administrations, including: differing sample sizes and response rates and other contextual factors. These may limit the comparison of prevalence estimates between surveys. However, all administrations of the NJYTS were designed to yield representative estimates of tobacco use prevalence among 7th to 12th graders in New Jersey. Although NJYTS data is useful to evaluate outcome indicators such as smoking prevalence, it cannot directly assess the degree to which certain factors contribute to outcomes. While we believe the CTCP has demonstrated the ability to make significant contributions to improving the health of New Jersey youth, the NJYTS cannot assess the direct impact of the CTCP on the prevalence of tobacco use among New Jersey youth.

In conjunction with the ban on indoor smoking in New Jersey in 2006, New Jersey was the fourth state in the nation to raise the tobacco product purchasing age from 18 to 19. However, the 2006 NJYTS did not ask survey participants to identify their exact age if

they were older than 18; thus we were not able to examine tobacco purchasing practices among those older than 18 years of age.

Finally, while previous administrations of the NJYTS included both public and private middle and high schools in the sampling frame, the 2006 NJYTS sampled only public middle and high schools. Analyses of prior NJYTS data indicate that the inclusion of private school students resulted in slightly lower estimates of tobacco use. Therefore, when comparing trends over time, overall estimates of tobacco use which include private school students will be more conservative. Subsequently, the observed increases in lifetime and current use of tobacco among black middle and high school students may be an artifact of this change in the sampling frame. Black students have the highest rate of enrollment in private schools in New Jersey (20%) compared to students of other racial/ethnic groups (approximately 10%).

Recommendations

Many states including New Jersey have adopted laws which limit youth access to tobacco products; however, there is little evidence demonstrating the effectiveness of these regulations in reducing the prevalence of youth smoking. A recent study from Massachusetts, found that local youth-access policies had no effect on smoking initiation among youth.³ In New Jersey, estimated statewide violation of the tobacco age of sale law was low when measured by random, unannounced inspections of tobacco outlets, as required by the Synar amendment.⁴ However, the moderate levels of self-reported tobacco access among youth suggests limited progress in reducing illegal sales of tobacco to minors. A large proportion of youth, particularly minority youth, reported knowing of stores that sold single cigarettes and the existence of only one such vendor within a community is enough to sustain youth tobacco use levels.

Approximately six months prior to the administration of the 2006 NJYTS, New Jersey raised the legal age to purchase tobacco to 19 from 18. The overall impact of this law will depend on its implementation and enforcement. The State should continue to evaluate the impact of policies on youth tobacco purchasing patterns and examine changes in youth access to tobacco over time.

A comprehensive approach to youth tobacco prevention and cessation must address other tobacco products as well as cigarettes. There continues to be a large disparity between the cigarette excise tax and excise taxes on other tobacco products. Since 2002, New Jersey raised its cigarette excise tax four times for a total increase of \$1.77 per pack, and now has the highest cigarette excise tax in the nation. Meanwhile, the ad valorem (i.e., percentage of price) excise tax on all other tobacco products was rolled

back in 2002, from 48% to 30%. Also, in 2006 the ad valorem tax for moist smokeless tobacco was changed to a higher weight-based tax. An ad valorem tax translated to the consumer paying a higher share of taxes on premium (higher priced) moist smokeless tobacco products. The new weight-based tax system effectively reduces the price on premium brands, and like cigarettes, most youth who use moist smokeless tobacco purchase premium brands. It will be important to monitor the use and sales of other tobacco products following this recent change in tax policy.

Clean indoor air policies also play an important role in addressing youth tobacco prevention and control. In addition to changing the legal age to purchase tobacco, approximately six months prior to the 2006 NJYTS administration the State banned smoking in all workplaces. However, less than one-quarter of working high school students reported that smoking was never allowed in their workplace. Despite low awareness of workplace smoking bans, only a small proportion of students (10.8%) reported exposure to SHS in the workplace during the previous 7 days. Continued monitoring of the implementation and impact of clean indoor air policies is warranted.

Other CTCP youth tobacco prevention and control initiatives include the REBEL program. Though the REBEL program has been operating for over six years, neither REBEL membership nor awareness levels have grown substantially since the program's inception. Based on NJYTS data, there were no changes in REBEL awareness among high school students since 2001, and among middle school students, REBEL awareness actually declined. In addition, there were no changes in REBEL membership levels or participation in REBEL events since these measures were assessed in the 2004 NJYTS. While youth smoking has decreased significantly since REBEL's inception, it is doubtful any such decreases can be attributed to the program, since awareness levels have remained stagnant among New Jersey students.

Previous studies have shown a strong association between tax and clean indoor air laws on smoking prevalence and these factors likely influenced the observed declines in youth smoking as assessed in the 2006 NJYTS.^{5,6} A youth empowerment program should not be the sole strategy to address youth tobacco use. The Community Guide to Preventive Services Task Force notes that insufficient evidence exists regarding the effectiveness of peer-delivered community education when implemented alone. As noted in CDC's "Key Outcome Indicators for Evaluating Comprehensive Tobacco Control Programs," school-based curricula and program interventions, *combined* with mass media campaigns and community based tobacco control activities can be effective in reducing tobacco use among young people.

Tobacco use among New Jersey youth declined significantly since it was first measured in 1999, with some areas showing fewer demonstrable results. Notably, gender and racial disparities are widening as a result of unequal declines in tobacco use across demographic groups. Special emphasis should be made to include minority populations such as Hispanic and black students in tobacco prevention programs.

Several strategies warrant additional attention and evaluation, including tobacco price and taxation programs, tobacco access programs, awareness of REBEL programs among New Jersey youth, and knowledge of New Jersey's Smoke-Free Air Act. Finally, public health surveillance should continue in order to accurately monitor the prevalence of tobacco use among New Jersey youth and to evaluate tobacco control programs.

TECHNICAL NOTES

Instrument

Students were surveyed using the 2006 NJYTS instrument. The instrument 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.

Sample

The NJYTS surveyed a representative sample of all public middle and high school students in New Jersey. The survey was administered to 4,241 middle school students (grades 7-8) in 89 schools and 4,173 high school students (grades 9-12) in 85 schools throughout New Jersey.

A two-stage cluster design was used to obtain a representative sample. In the first stage the sampling frame was constructed from all public middle and 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 89 middle schools and 85 high schools. The second stage of sampling involved the random selection of approximately 3 classes within sampled schools.

The sampling frame for previous administrations of the NJYTS included both public and private middle and high schools in the state, whereas the sampling frame for the 2006 NJYTS included only public schools. The inclusion of private school students in previous NJYTS samples resulted in slightly lower estimates of tobacco use when compared to results restricted to public schools. This should be considered when comparing trends over time.

An overall participation rate of 83% in high schools and 77% in middle 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 7-12th grade student population.

Analysis

SUDAAN statistical software, which accounts for the complex sample design of the survey, was 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.⁷ Hypothesis testing based on a t-statistic (see formula) was used to determine whether the changes over time were statistically significant. If the absolute value of the computed t-statistic was greater than 1.96, the difference was considered statistically significant with a $p \leq 0.05$.

$$t = \frac{(P_{2004} - P_{2006})}{\sqrt{(SE_{2004})^2 + (SE_{2006})^2}}$$

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.
CTCP	The Comprehensive Tobacco Control Program is a program of the New Jersey Department of Health and Senior Services. Its mission is to decrease deaths, sickness and disability among New Jersey residents who use tobacco or are exposed to SHS.
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.
Kreteks	Cigarettes which combine shredded clove buds and tobacco, primarily manufactured in Indonesia.
Middle School Students	Comprised of students who were in the 7 th or 8 th grade at the time of the survey.
NJYRBS	The New Jersey 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 New Jersey.
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.
TASE	Tobacco Age of Sale Enforcement

REFERENCES

1. Delnevo CD, Hrywna M, Wackowski O, Lewis MJ, Hoffman BR. Independent Evaluation of the New Jersey Comprehensive Tobacco Control Program: Key Outcome Indicators. New Brunswick, NJ: University of Medicine & Dentistry of New Jersey-School of Public Health; October 2005.
2. New Jersey Department of Health and Senior Services (NJDHSS). Healthy New Jersey 2010: A health agenda for the first decade of the new millennium, Volume I. Available at: <http://www.state.nj.us/health/chs/hnj2010vol1.pdf>. Accessed March 13, 2007.
3. Conley Thomson C, Hamilton WL, Siegel MB, Biener L, Rigotti NA. Effect of local youth-access regulations on progression to established smoking among youths in Massachusetts. *Tobacco Control*, 2007; (16):119-126.
4. Delnevo CD, Hrywna M, Chee J, Momperousse D. The 2004 New Jersey Youth Tobacco Survey: A Statewide Report. New Brunswick, NJ: University of Medicine and Dentistry of New Jersey-School of Public Health; April 2005.
5. Chaloupka FJ and Wechsler H. Price, tobacco control policies, and smoking among young adults. *Journal of Health Economics*, 1997;(16):359–373.
6. Farkas AJ, Gilpin EA, White MM, Pierce JP. Association between household and workplace smoking restrictions and adolescent smoking. *Journal of the American Medical Association*, 2000;(6):717-722.
7. Research Triangle Institute. SUDAAN: software for the statistical analysis of correlated data, release 9.0, 2004 [user's manual]. Research Triangle Park, NC: Research Triangle Institute; 2004.

PREPARED BY:



SCHOOL OF
PUBLIC HEALTH

University of Medicine & Dentistry of New Jersey

PREPARED FOR:



<http://www.state.nj.us/health/>

For more information please contact the Evaluation Unit at
609-292-9194

