2019
INDEPENDENT EVALUATION REPORT

New York Tobacco Control Program

RTI INTERNATIONAL

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2019 Independent Evaluation Report of the New York Tobacco Control Program

Final Report

Prepared for

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Executive Summary

Tobacco use remains the leading cause of preventable death in New York State. Estimates for 2017, the most recently available data, show that approximately 21,000 New Yorkers died prematurely from smoking-related illnesses and 1,000 more died due to secondhand smoke in 2017 alone. Smoking-attributable personal health care expenditures were $9.7 billion in New York State in 2017. These estimates represent improvements from earlier years and yet highlight the ongoing need to address tobacco use in the state. New York has long been a leader in tobacco control and has facilitated significant improvements in tobacco-related outcomes. The New York Tobacco Control Program's (NY TCP's) evidence-based approach to tobacco control combines health communication; health systems interventions; and statewide and community action targeting policy, systems, and environmental changes to decrease tobacco use in the state.

New York has implemented effective tobacco control interventions including funding the NY TCP, instituting a statewide comprehensive smoke-free air policy, and raising taxes for tobacco products. New York has ushered in successful reductions in adult and youth smoking, and has achieved many key outcomes in the New York State Department of Health (NYSDOH) 2013-2018 Prevention Agenda.

Although smoking prevalence has decreased, tobacco use continues to disproportionately affect New Yorkers with low income, those with frequent mental distress, and those living in rural areas. Youth smoking has declined, while youth use of vaping products has increased dramatically. To respond to the evolving tobacco control landscape in New York, the NY TCP implements a multi-component approach to achieve public health objectives outlined in the New York State Department of Health (NYSDOH) 2013-2018 Prevention Agenda. However, continued limits on NY TCP funding restrict the Program's ability to achieve its goals.

This independent evaluation report describes NY TCP's activities and shifts in the state's tobacco control landscape. The report shares highlights regarding the Program's approach and identifies progress made toward tobacco control outcomes.

Key Evaluation Findings

- In 2018, 12.8% of New York adults smoked cigarettes. NY TCP set a new target for adult smoking prevalence (12.3% by the end of 2018) after the original target of 15% was reached in 2014. The program was very close to achieving this objective.
- In 2018, cigarette smoking prevalence was higher among New York adults with frequent mental distress (defined as having at least 14 days in the past month with poor mental health, including stress, depression, and problems with emotions) (27.7%) than those without (11.0%). Although smoking prevalence among those with frequent mental distress decreased from 32.5% in 2011, this measure did not stabilize below the NYSDOH 2013-2018 Prevention Agenda target of 26.5%.
- Rates of adult cigarette smoking also varied by household income level. In 2018, 20.4% of New York adults with a household income of less than $25,000 smoked cigarettes, a rate higher than for those with higher household income. Although the prevalence of smoking among adults with low income came close to the NYSDOH 2013-2018 Prevention Agenda objective of 20%, it came very close and it decreased from 27.8% in 2011.
- In 2018, the prevalence of New York adult smokers making a quit attempt in the past 12 months was 62.8%. Even though smoking prevalence has decreased over time, the majority of New York adult smokers who tried to quit has remained relatively high.
- In 2018, 6.1% of New York adults reported current use of vaping products, and half of New York vaping product users also smoked cigarettes. Adult use of vaping products was higher in the rest of the country than in New York.
- Youth cigarette smoking prevalence continued to decline and was 4.8% among New York high school students in 2018. However, youth vaping increased dramatically, with 27.4% of New York high school students reporting past 30-day use of vaping products in 2018. Nearly 45% of high school students reported ever use of vaping products.
- During 2017, more than 21,000 deaths were attributable to smoking and secondhand smoke exposure, with most

of these deaths due to cancer and cardiovascular disease.

Measures of NY TCP Reach and Impact

- Health systems grantees collaborated with 110 medical organizations and 119 mental health organizations to promote tobacco cessation-focused health systems change. More than 60% of the organizations they partnered with reported updates to their tobacco-related policies and systems between 2014 and 2018.
- The New York State Smokers' Quitline enrolled more than 41,000 tobacco users and distributed more than 33,000 nicotine replacement therapy kits during 2018.
- By the end of 2018, grantees reported that 17 local communities had adopted policies related to tobacco products at the point of sale, including tobacco-free pharmacy policies and restrictions on the use of coupons or discounts for tobacco products. More than half of the state's population have been affected by these policies.
- In 2018, 28.7% of New York adult smokers reported awareness of NY TCP-sponsored antitobacco television ads, although periods with greater ad activity reached 37% awareness. Media campaign reach, as measured by gross rating points, was associated with New York smoker awareness of ads, particularly when NY TCP included CDC Tips from Former Smokers ads.
- Among New York adult smokers who visited a health care provider in the past 12 months, 86.2% reported that their providers asked them about their smoking status in 2018; 73.0% reported that their provider gave them brief advice to quit and 53.3% reported that their provider assisted them with smoking cessation.

Overall Programmatic Recommendations

- Restore NY TCP funding to the amount allocated by the state legislature. In addition, increase funding to a minimum of one-half of CDC's recommended funding level for the state ($203 million) to $101.5 million.
  - Significantly increased Program funding would be consistent with CDC recommendations, and could be used to expand community grantee efforts, health system interventions, and health communication campaigns to reach target populations with increased integration of digital and social media campaigns.

  - The dramatic increase in youth use of vaping products requires NY TCP resources, and the Program could respond more effectively with a greater level of funding to develop and disseminate messaging, pursue policies to reduce youth exposure and access, implement compliance monitoring protocols, and study the effectiveness of interventions in this emerging area.
  - Increased funding would allow for additional infrastructure and administration improvements such as expanded professional development, enhanced administrative capacity through staff funding and training, and innovation in surveillance and evaluation activities to assess the Program's impact.
- Continue to refine the Program's approach to reach smokers with disproportionately high rates of smoking, especially adults with low income and those with frequent mental distress.
  - Addressing these persistent disparities will require ongoing collaboration with stakeholders working with these populations, through enhanced community mobilization work and expanded leverage of health systems change efforts.
  - The inclusion of NYSDOH 2013-2018 Prevention Agenda objectives regarding smoking prevalence among adults who are living with any disability or who self-identify as LGBT may require adjustments to intervention approaches and organizational partnerships.

Introduction

In 2017, more than 20,000 New Yorkers died prematurely from smoking-related illnesses and more than 1,000 additional New Yorkers died due to secondhand smoke. Direct smoking-attributable personal health care expenditures in New York State were $9.7 billion in 2017, lower than earlier years due to reductions in smoking prevalence, but still a substantial financial burden on public and private payers. The New York Tobacco Control Program (NY TCP) works to decrease the health, social, and economic burdens caused by tobacco use. The Program uses a multi-component approach to reduce tobacco use initiation, increase cessation, eliminate secondhand smoke exposure, and reduce smoking-related disparities. Aligned with the Centers for Disease Control and Prevention's (CDC's) *Best Practices for Comprehensive Tobacco Control Programs* (CDC, 2014), NY TCP's main program components are health communication; health systems interventions; and statewide and community action targeting policy, systems, and environmental changes.

New York has a history of implementing a range of state and local tobacco control interventions, and has successfully reduced tobacco use among adults and youth. Although tobacco-related outcomes have improved overall, smoking rates remain high among New Yorkers with low income and education, those with frequent mental distress, and those living in rural areas. In addition, youth vaping product use increases raise concerns, especially given evidence that use of vaping products among youth is associated with subsequent cigarette use (Berry et al., 2019).

This independent evaluation report addresses the following core tobacco control evaluation questions:

- How have key outcome indicators changed over time?
- How do these indicators compare between New York and the United States?

We also share highlights from specific studies and analyses that address topics of interest to NY TCP:

- What are the health consequences and economic costs of smoking and secondhand smoke in New York?

- What cigarette price-reducing strategies do New York adult smokers use?
- To what extent is media campaign reach associated with campaign awareness?

This report describes the NY TCP's context, the programmatic approach, key tobacco-related outcomes, and findings from several evaluation studies conducted as part of the independent evaluation of the Program. This 2019 Independent Evaluation Report primarily reflects on activities and outcomes from the 2018 calendar year. Originally prepared for NY TCP in early 2019, this report describes the Program's context as of early 2019, including funding estimates for Fiscal Year (FY) 2019-2020.

The New York Tobacco Control Program — Context and Programmatic Approach

The state's tobacco control environment provides important context for program activities and outcomes. We describe policy and funding factors relevant to program efforts, followed by a description of the programmatic approach within several key areas in tobacco control.

Tobacco Control Policy Environment

Core tobacco control policies have been shown to help reduce smoking rates, including increasing the price of tobacco products, implementing smoke-free air laws, and funding comprehensive tobacco control programs. New York State has been a leader for many years in implementing these and other promising tobacco control policies. The state's cigarette excise tax is $4.35, more than twice the average of U.S. states (Table 1), and New York City adds a local excise tax for cigarettes and minimum prices for cigarettes and cigars. Increases in the cost of vaping products through price and tax policies has been associated with reduced vaping product sales (Huang, et al., 2014), and New York passed a 20% supplemental sales tax on vaping products in 2019. In addition, New York implemented a policy requiring that all retailers that sell vaping products register as vapor product dealers. All New Yorkers are covered by a statewide comprehensive smoke-free air law (including workplaces, restaurants, and bars), compared with 59.0% of the U.S. population. New York State added

vaping products to the state's Clean Indoor Air Act, which means that vaping products may not be used where smoking is prohibited and also prohibited the use of vaping products on all public and private school grounds in the state.

Table 1. Tobacco-related Environmental Influences in New York and the United States

Indicator	New York	U.S. Average
State cigarette excise tax (January 1, 2019)	$4.35	$1.79
Percentage of the state population covered by comprehensive[a] smoke-free air laws (January 2, 2019)	100%	59.0%
Annual per capita funding for tobacco control (FY 2018)	$1.94	$2.43 (excluding NY)

[a] "Comprehensive" refers to laws that prohibit smoking in certain indoor areas, including workplaces, restaurants, and bars.

Per capita funding for tobacco control in FY 2018 was lower in New York ($1.94) than the average of all other states ($2.43) for the first time. Although California's recent tobacco control funding increase partially explains this (with a per capita funding estimate of $8.38 in FY 2018), New York's decreased funding is also a factor. At its peak in 2007, the state's per capita funding was $5.21, compared with $2.40 in all other states.

Program Funding

For FY 2019–2020, the state appropriated $39.3 million for NY TCP, similar to amounts allocated for several prior years. In contrast to the state appropriation, the NYS Division of Budget communicated to the Department a limit of $34.7 million, nearly $5 million less than the appropriated budget amount. This lower amount is a result of an administrative function set by the Division of Budget; the value can be changed by the Division of Budget in the course of a State Fiscal Year, although it was not adjusted in FY 2019-2020. Even the appropriated dollar amount is significantly less than federal recommendations for tobacco control funding. This reduction limits the Program's capacity, reach, and effectiveness. CDC calculates recommended funding levels—and recommended minimum levels—for each state tobacco control program as a benchmark for tobacco prevention and control expenditures. New York's tobacco control funding represents 17% of CDC's

recommended funding level for New York ($203 million), compared with a national average of 22% across all states for FY 2020. New York's tobacco control funding is 24% of CDC's recommended minimum level ($142.8 million).

NY TCP's FY 2019-2020 funding represents only 2% of the combined revenue that the state receives annually from cigarette excise taxes and Master Settlement Agreement (MSA) payments. New York State received $1.1 billion in cigarette excise taxes in FY 2019 and $616 million in MSA payments (Table 2).

Table 2. Annual New York State Tobacco Tax Revenue, Master Settlement Agreement Payments, and Spending on Tobacco Promotions and Tobacco Control

Revenue/Expenditure Category	Annual Revenue/Expenditure
Revenue from state cigarette excise taxes (FY 2019)	$1,113,000,000
Revenue from MSA payments (FY 2019)	$616,000,000
Estimated cigarette advertising and promotions in New York State by five major cigarette manufacturers (FY 2017)	$183,730,000
New York Tobacco Control Program funding (FY 2019-2020)	$34,694,600

Note: CY = calendar year; FY = fiscal year; MSA = Master Settlement Agreement.

Nationally, tobacco companies spent $8.6 billion on cigarette advertising and promotions in 2017. Assuming these expenditures are spent in proportion to cigarette sales, this translates to $183.7 million on cigarette advertising and promotions in New York State in one year. Of this, an estimated $157 million was spent on price reductions and retail-value-added bonus cigarettes (e.g., buy two packs, get one free) in the retail environment. In addition, vaping product advertising was estimated to be $96.3 million in the United States in 2018. More than two-thirds of U.S. middle and high school students reported seeing vaping product ads in retail settings in 2016 (Marynak et al., 2018), which likely contributed to the high current rates of youth use; exposure to vaping product advertising is associated with increased intentions to use and reported use of vaping products among youth and young adults (Farrelly et al., 2015; Villanti et al., 2016; Mantey et al., 2016).

Dollars spent on promoting tobacco products (more than $183 million) far outpace NY TCP's funding of $34.7 million, which is low compared with CDC recommendations and earlier years of

Program funding (Figure 1). The Program expends its resources on evidence-based approaches to tobacco control, and NY TCP funding levels provide context for interpreting trends in key outcome measures.

Figure 1. NY TCP Funding FY 2000–2001 to FY 2019–2020

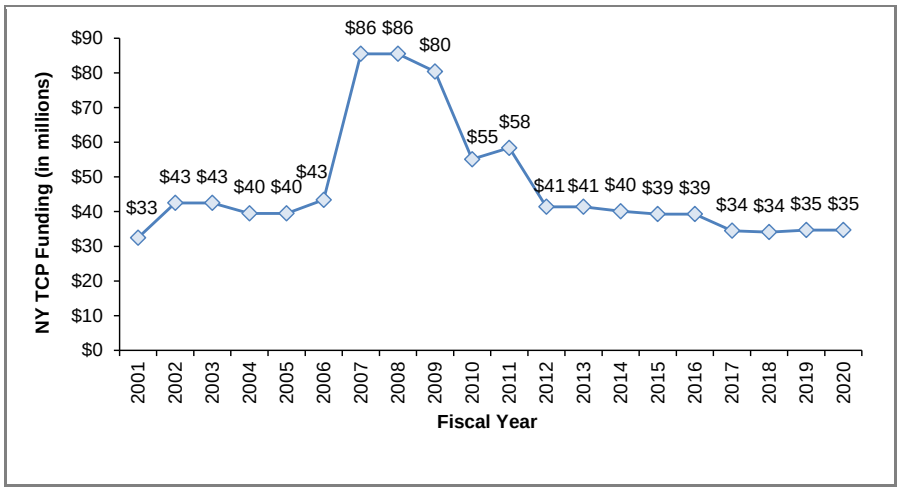


Table 3 shows funding by program component for FY 2018–2019 and FY 2019–2020. Some funds for enforcement of tobacco policies are directly allocated to the NYSDOH Center for Environmental Health, and the NYSDOH Bureau of Tobacco Control uses its discretion to provide additional funds for tobacco policy enforcement.

Table 3. NY TCP Funding for FY 2018–2019 and FY 2019–2020, by Program Component

Program Component	2018–2019 Funding	2019–2020 Funding
State and Community Interventions	**$10,409,250**	**$10,333,291**
Advancing Tobacco-Free Communities (ATFC)	$9,394,000	$9,304,750
Center for Public Health and Tobacco Policy	$515,250	$528,541
Training/Professional development	$500,000	$500,000
Enforcement	**$4,649,950**	**$4,649,950**
BTC tobacco enforcement support	$2,475,350	$2,475,350
CEH appropriation for enforcement	$2,174,600	$2,174,600
Health Systems Interventions	**$8,096,976**	**$7,658,909**
Health Systems for a Tobacco-Free New York	$3,274,770	$3,274,943
Quitline	$4,072,206	$4,133,966
Nicotine replacement therapy	$750,000	$250,000
Health Communication Interventions		
Media placement	**$5,341,284**	**$5,854,521**
Surveillance and Evaluation		
Independent evaluation	**$2,921,140**	**$2,921,929**
Administration		
Tobacco control and cancer services	**$3,276,000**	**$3,276,000**
Total NY TCP funding	**$34,694,600**	**$34,694,600**

BTC=Bureau of Tobacco Control. CEH=Center for Environmental Health.

CDC recommends funding for comprehensive tobacco control programs, overall and by program component (CDC, 2014). NY TCP set aside 9% of its funding ($3.3 million) for administration, which is close to one-third of CDC's recommended amount; CDC encourages programs to fund their administration, management, and infrastructure activities at the recommended dollar amount, even if the Program's overall funding is below the CDC-recommended level (CDC, 2014). CDC suggests that cessation interventions and state and community interventions receive the highest allocations. NY TCP put 43% of its funding toward state and community interventions compared with CDC's recommendation of 30%. NY TCP assigned 22% of its funding to cessation interventions, compared with CDC's suggested 34%. NY TCP applied 8% of its funding to surveillance and evaluation, matching CDC's recommendation. The Program put 17% of its FY 2019-2020 funding to health communications interventions, compared with CDC's recommended 23%.

Programmatic Approach

NY TCP uses an evidence-based approach to achieve its core goals: preventing the initiation of tobacco use by youth and young adults, promoting cessation, eliminating exposure to secondhand smoke, and reducing disparities in smoking prevalence. The Program employs a social norm change model with the intention of creating an environment in which tobacco use becomes less acceptable, less desirable, and less accessible (CDC, 2014; Frieden, 2010; NCI, 1991; USDHHS, 2000). The Program has identified objectives that are integrated into the New York State Department of Health's (NYSDOH's) Prevention Agenda, which provides a blueprint for action at the state and local level to improve the health and well-being among all New Yorkers (NYSDOH, 2019). The NYSDOH 2013-2018 Prevention Agenda includes measurable objectives focused on decreasing youth and adult tobacco use statewide with targeted reductions among populations disproportionately affected by tobacco use.

NY TCP's comprehensive approach involves managing an integrated infrastructure, conducting mass-reach health communication interventions, effecting health systems change to support cessation, and implementing state and community interventions that engage a range of grantees and partners. In the following sections, we describe these central programmatic activities in more detail.

Exhibit 1. NY TCP Programmatic Approach Highlight: Administration and Management

Administration and Management

NY TCP administration and management comprises staffing and infrastructure that supports its programmatic activities, in alignment with CDC Best Practices recommendations (Exhibit

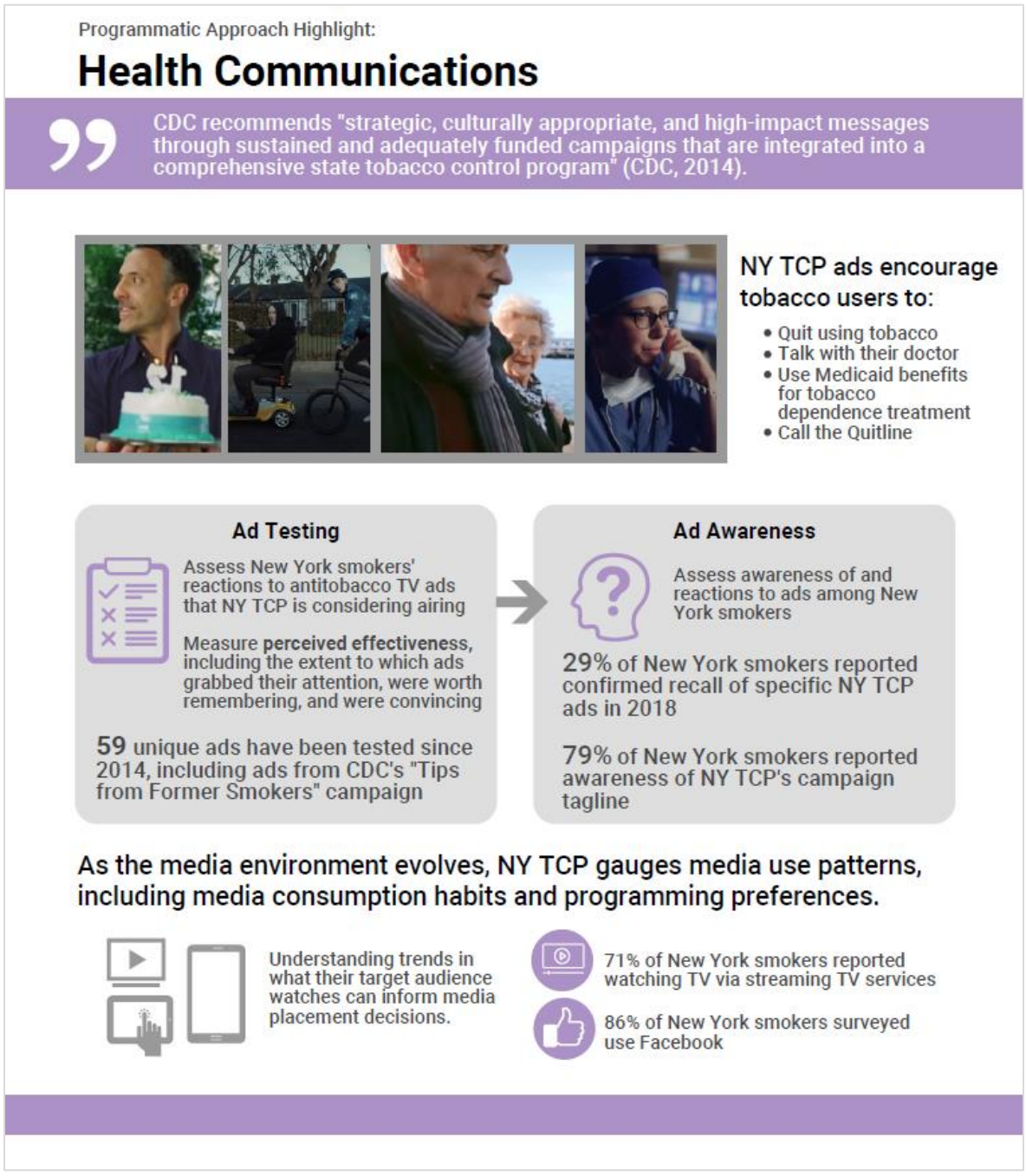
1). NY TCP guides the overall programmatic strategy and coordinates communication across program staff, grantees, partners, and the broader NYSDOH. NY TCP's multilevel leadership approach emphasizes strategic implementation of programmatic initiatives through planning, communication, and coordinated management. The Program offers professional development and maintains clear channels of communication, empowering individuals at each level to contribute to core tobacco control objectives. New York's tobacco control infrastructure integrates technical assistance and guidance to manage the effective and efficient investment of state tobacco control funding. NY TCP maintains strong accountability and reporting procedures, including dynamic grantee reporting tools. The Program connects with tobacco control stakeholders throughout the state and region and maintains a range of contracts including those for the Quitline and regional grantees. State and community-level activities and program initiatives are supported by development and dissemination of key messages that are communicated by community grantees and via earned and paid media. To assess the effect of program efforts, NY TCP collaborates with an independent surveillance and evaluation contractor, and shares key tobacco control data and reports with stakeholders and the public.

Health Communication

NY TCP uses health communication strategies to motivate tobacco users to stop using tobacco, de-glamorize tobacco use, and educate community members and decision makers about tobacco control issues (Exhibit 2). Antismoking campaigns have been shown to be effective at reducing cigarette smoking among adults (Davis et al., 2015; Farrelly et al., 2012; NCI, 2008; Wakefield et al., 2010, 2011) and youth (USDHHS, 2012). NY TCP's antismoking media efforts in 2018 included ads focusing on the social norms of tobacco use (e.g., with the ad series *How You're Seen*), providing encouragement and motivation to quit (e.g., *Wendell* and *Survive* ads); and depicting the negative health consequences of smoking through emotionally-evocative (e.g., the *Gerry Collins* ad series) or graphic content (e.g., *Cigarettes Are Eating You Alive*). Nearly all messages include the tagline "Smoking is an addiction. Medicaid and your health care provider can help." along with the New York State Smokers' Quitline telephone number—

messaging that complements health systems efforts and offers smokers encouragement and a specific call to action.

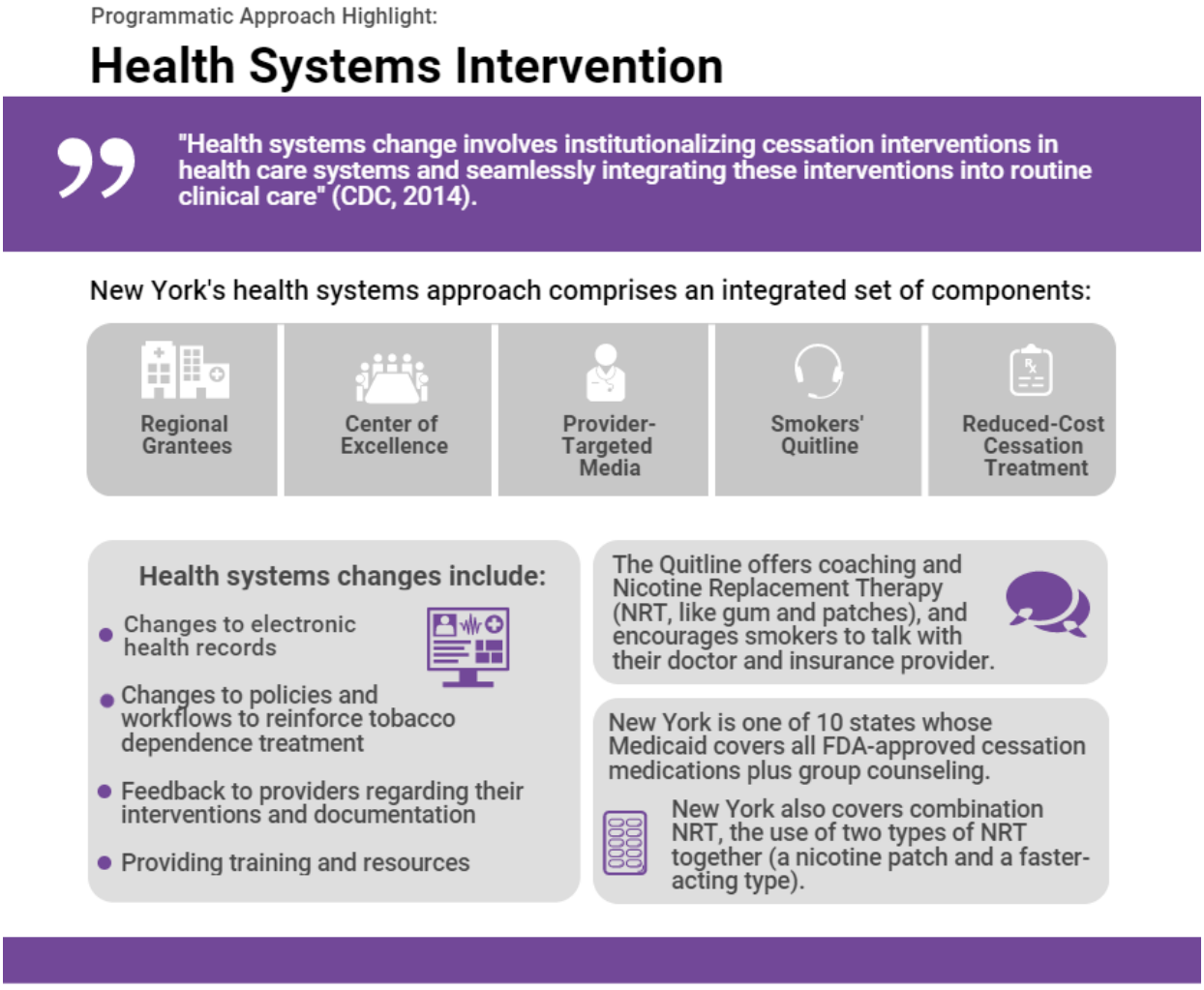
Exhibit 2. NY TCP Programmatic Approach Highlight: Health Communications



To complement smoker-targeted ads and the Program's health systems interventions, NY TCP also implements ads targeting health care providers, encouraging them to assist patients with evidence-based cessation. During 2018, NY TCP used print and digital media placements to encourage health care providers to

use combination nicotine replacement therapy (NRT) and counseling to address patients' nicotine addiction.

Exhibit 3. NY TCP Programmatic Approach Highlight: Health Systems Intervention



Health Systems Interventions

To help tobacco users quit, NY TCP's health systems interventions focus on increasing the provision of evidence-based treatments for tobacco dependence (Exhibit 3). These include brief counseling by health care providers and use of U.S. Food and Drug Administration (FDA)-approved tobacco dependence treatments including the nicotine patch, nicotine gum, and prescription medications bupropion (Zyban or Wellbutrin) and varenicline (Chantix). NY TCP's cessation-focused health systems approach comprises activities targeting systems-, provider-, and patient-level outcomes, with the

overarching goal of increasing provision of evidence-based tobacco dependence treatment. These activities include:

- grantee facilitation of medical and behavioral health care systems changes, including improvements in policies, electronic health records (EHRs), and protocols and standards of care;
- media campaigns targeting health care providers to promote assistance with evidence-based treatments;
- coordination with existing initiatives and partnerships to link statewide health care reform changes with NY TCP supports for tobacco-related systems change;
- provision of telephone- and web-based smoking cessation support; and
- reductions in the cost of tobacco dependence treatments for patients.

NY TCP's multi-faceted approach aims to maximize opportunities to reach organizations, providers, and tobacco users to promote tobacco use cessation. The following sections describe NY TCP health systems interventions in more detail, summarizing health systems grantees' interventions, the New York State Smokers' Quitline, and reduced patient costs for treatment.

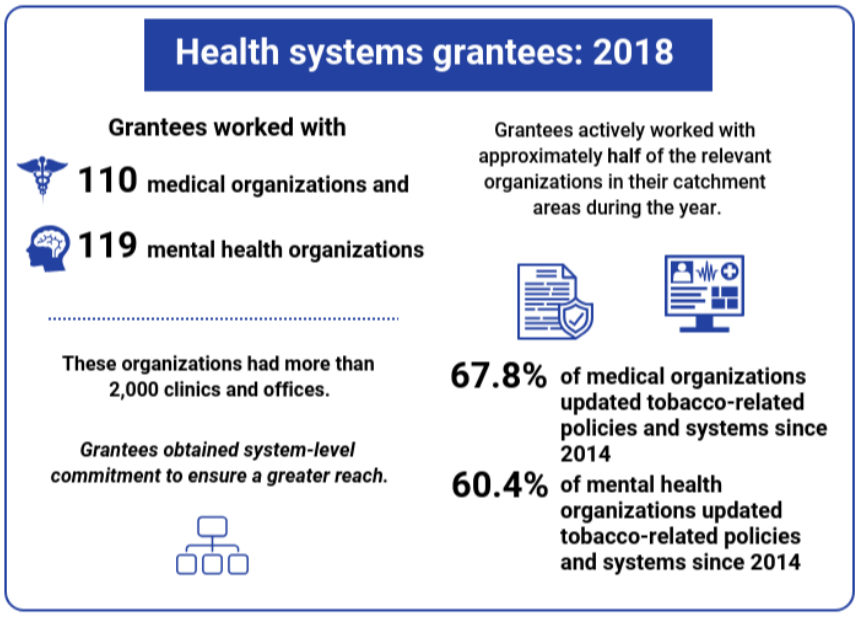
Health Systems Grantee Interventions

NY TCP has funded grantees across New York State to implement health systems change intervention activities. These grantees are charged with increasing the number of medical and mental health care organizations that have institutionalized systems supporting the provision of evidence-based tobacco dependence treatment. These systems reinforce the screening of all patients for tobacco use, provision of brief advice to quit at all visits, and provision of assistance to help patients quit successfully. Grantees work with administrators of medical and behavioral health care organizations throughout the state.

Brief advice to quit smoking by a health care provider significantly increases the odds that a smoker will quit (Fiore et al., 2008; Nonnemaker et al., 2011). NY TCP's approach is aligned with CDC Best Practices and the U.S. Public Health Service guideline, *Treating Tobacco Use and Dependence* (Fiore et al., 2008). NY TCP funds 10 regional health systems grantees and one statewide Center of Excellence. The statewide

Center of Excellence works to help foster a climate that encourages health care organizations to institutionalize guideline-concordant policies and systems, connect stakeholders, and support regional grantees. The 10 regional grantees assist individual health care organizations throughout New York State in making changes to improve provider tobacco cessation intervention, establish regular provider training, facilitate system improvement, and integrate provider feedback based on clinical data audits (Exhibit 4). These grantees worked with approximately half of the relevant medical and mental health organizations in the state during 2018.

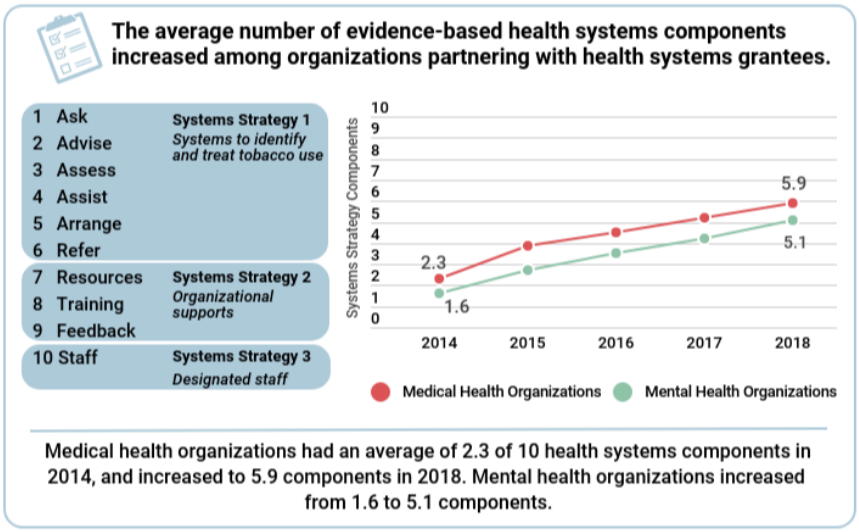
Exhibit 4. Health Systems Grantees' Partnering and Changes



NY TCP's health systems grantee efforts have evolved alongside shifts in the health care landscape and public health priorities in the state. When they began their efforts in 2004, regional health systems grantees targeted hospitals and then later shifted their emphasis to medical practices, where the majority of smokers report receiving regular care. Consistent with RTI recommendations (RTI International, 2009), NY TCP refined the focus of the health systems initiative to target organizations that serve groups with higher rates of smoking including populations with low income and populations that experience serious mental illness. Specifically, NY TCP instructed grantees to target Community Health Centers, which serve underserved populations including those with low income, and programs that serve individuals who experience serious mental illness.

Regional health systems grantees provide these organizations with guidance and strategic assistance on systems-level changes that support consistent screening for and treatment of tobacco dependence. Grantees have facilitated systems changes with organizations across the state (Exhibit 5).

Exhibit 5. Health Systems Grantees' Reports of Systems Changes



Health systems grantees also facilitate news coverage about health systems change in New York to acknowledge organizations that have made systems-level improvements and to ensure ongoing conversations that promote health systems change in the field. Health systems grantees reported 534 instances of earned media during 2018, including stories in newsletters and on websites, newspaper stories, letters to the editor, radio interviews, TV stories, and editorials or op-eds.

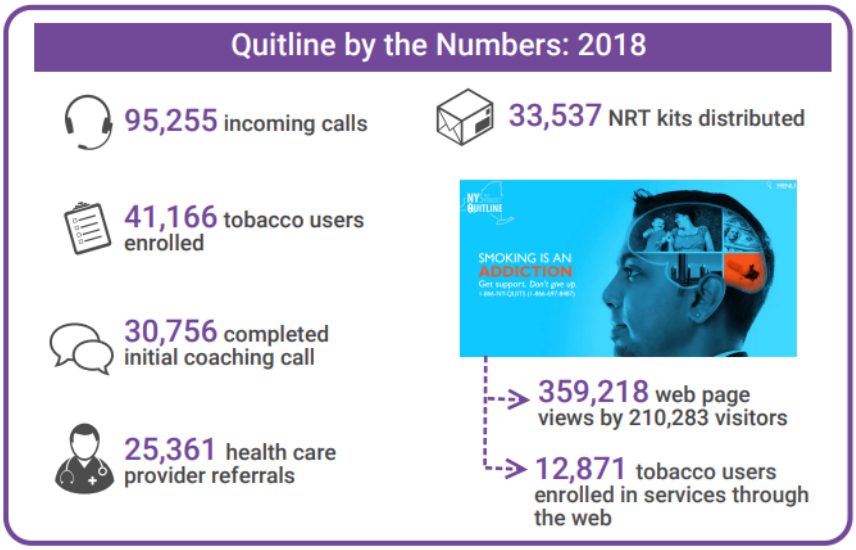
New York State Smokers' Quitline

NY TCP funds the New York State Smokers' Quitline, which has been in operation since 2000 and is managed by Roswell Park Comprehensive Cancer Center. The Quitline provides an effective, evidence-based service designed to help smokers quit smoking and serves as a clearinghouse of information on smoking cessation for smokers, health care providers, and the general public. The Quitline also offers free 2-week NRT starter kits to eligible clients by phone or Internet and an interactive Quitsite Web site. NY TCP is strategically working to integrate the state's Quitline into larger programmatic health systems

efforts to promote cessation. This includes having Quitline coaches suggest to callers that they talk with their health care providers to receive additional services, as well as having coaches inform callers of the cessation-related benefits available to them through their insurance.

In 2018, the Quitline received 95,255 incoming calls (Exhibit 6), a decrease of 8% from 2017. Visits to the Quitline website and the number of smokers who registered online to receive telephone services or free NRT from the Quitline also decreased from 2017 to 2018. Calls to quitlines have decreased nationally in recent years as well (CDC, 2020).

Exhibit 6. New York State Smokers' Quitline Statistics for 2018



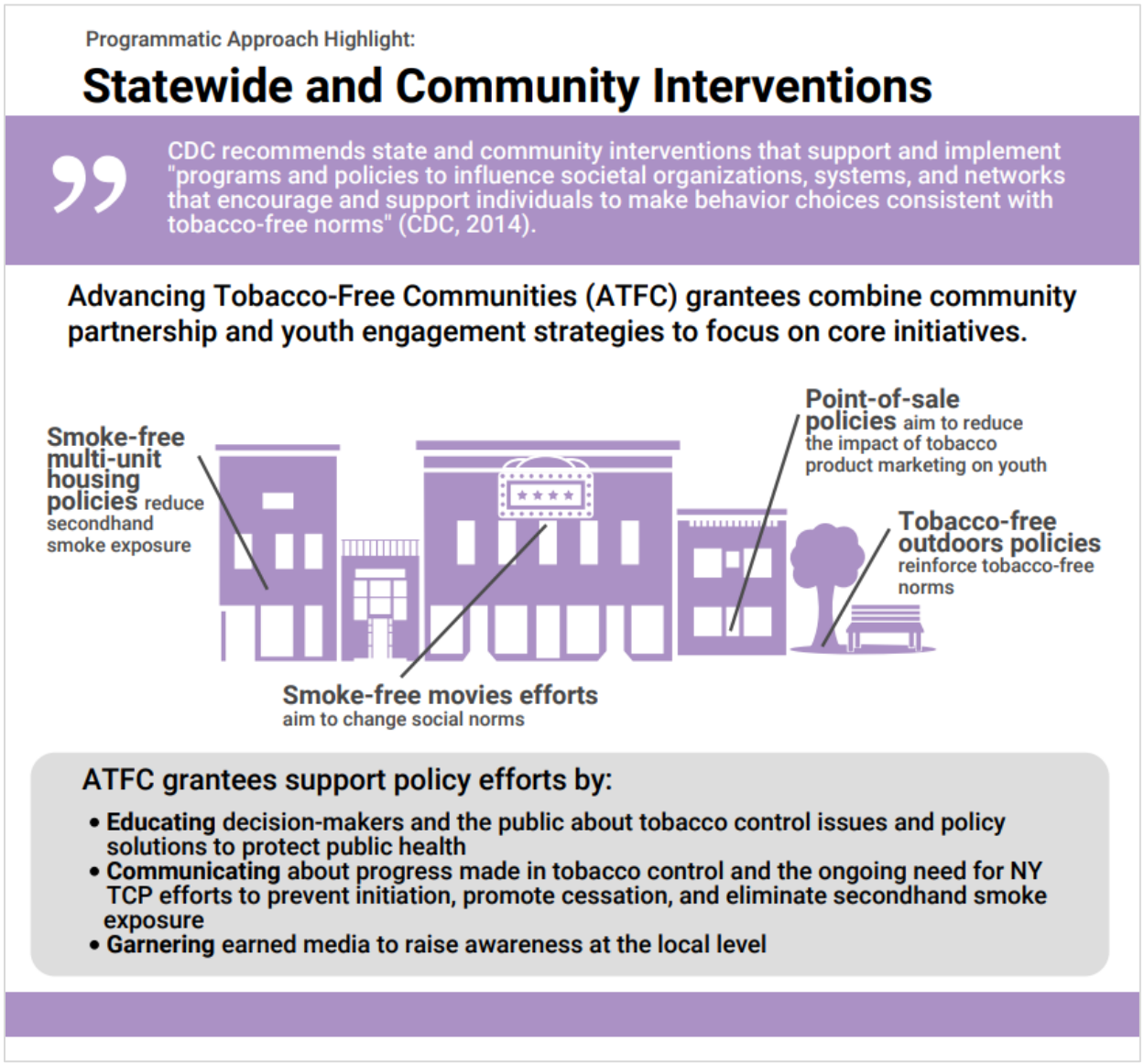
Reduced Patient Costs for Treatment

NY TCP has worked to make evidence-based cessation treatment available to those with low income and frequent mental distress, who smoke at disproportionately higher rates than the general population. The New York State Medicaid program has expanded coverage for smoking cessation counseling and pharmacotherapy. Although the Affordable Care Act requires all Medicaid programs to cover FDA-approved tobacco cessation medications, not all states have fully implemented this requirement (DiGiulio et al., 2018). New York is one of 32 states that covers all 7 FDA-approved medications and one of 10 states that covers the 7 medications and covers individual plus group counseling (DiGiulio et al., 2018).

New York State Medicaid covers unlimited trials of all FDA-approved medications and smoking cessation counseling to all Medicaid enrollees, via fee-for-service and Medicaid Managed Care (MMC) plans. Coverage includes combination NRT (e.g., long-acting patch and short-acting gum). In addition to traditional health care provider counseling, New York Medicaid reimburses dentists and dental hygienists for smoking cessation counseling.

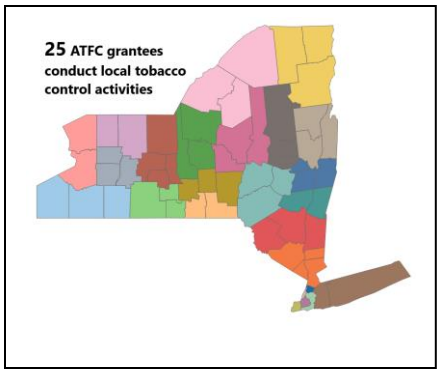
NY TCP and its grantees encourage health insurers to expand coverage and promote cessation services to their members. NY TCP and its health systems Center of Excellence grantee are supporting MMC plans and groups of providers in systems change efforts focused on increased smoking cessation treatment, including use of the Medicaid benefits for cessation medication and counseling. NY TCP health systems grantees leverage existing initiatives and performance improvement projects, positioning themselves as resources to help with tobacco dependence-related projects.

Exhibit 7. NY TCP Programmatic Highlight: Statewide and Community Interventions



Statewide and Community Action

NY TCP implements a coordinated community-based intervention strategy focused on local-level policies with the potential to prevent youth tobacco use initiation and promote cessation (Exhibit 7). NY TCP funds 25 Advancing Tobacco-Free Communities (ATFC) grantees to conduct local tobacco control activities. The Program directs the grantees to concentrate on specific evidence-based policy initiatives and strategies that are recommended by CDC (2014) and considered essential to the continued declines in tobacco use (Institute of Medicine, 2007).



The Program funds two full-time staff positions for each ATFC grantee, a Community Engagement Coordinator and a Reality Check Youth Action Coordinator. NY TCP collaborates with the Public Health and Tobacco Policy Center at Northeastern University's School of Law to support key tobacco control policy initiatives.

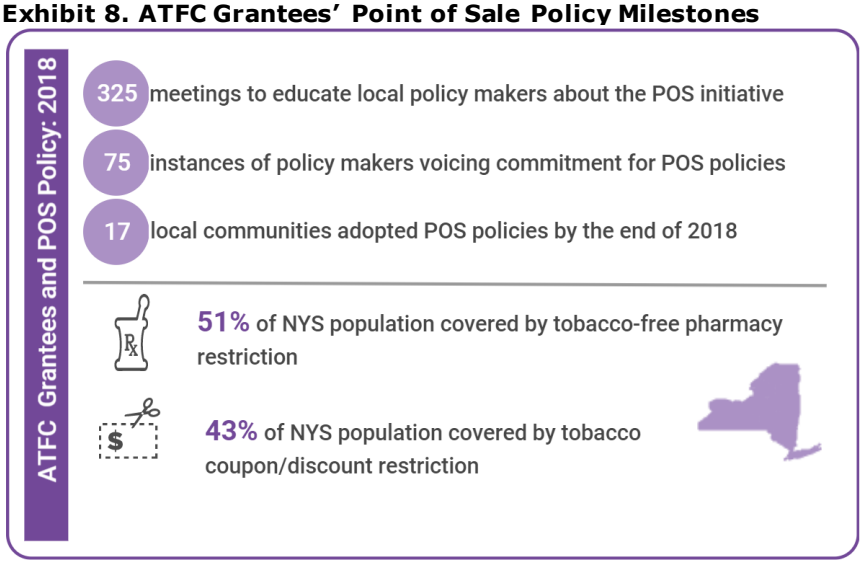
With the goal of promoting a tobacco-free norm throughout the state, ATFC grantees focus their efforts on four initiatives: point of sale (POS), tobacco-free outdoors, smoke-free multi-unit housing, and smoke-free media. Grantees promote these initiatives by building public, organizational, and political support through a coordinated set of strategies: community education, community mobilization, government policy maker education, and advocacy with organizational decision makers.

POS Initiative: The goal of the POS initiative is to reduce the impact of retail tobacco product marketing on youth. The POS initiative includes education about policies that:

- limit the number of retailers that can sell tobacco products in a community,
- prohibit the sale of tobacco products in stores near schools,
- prohibit the sale of tobacco products in pharmacies, and
- prohibit retailers from redeeming coupons or offering special promotions, such as offers of buy one tobacco product, get one free.

ATFC grantees educated local policy makers about the POS initiative, including elected leaders of villages, townships, and New York City boroughs, as well as county officials, local boards of health, and state legislators (Exhibit 8).

Exhibit 8. ATFC Grantees' Point of Sale Policy Milestones

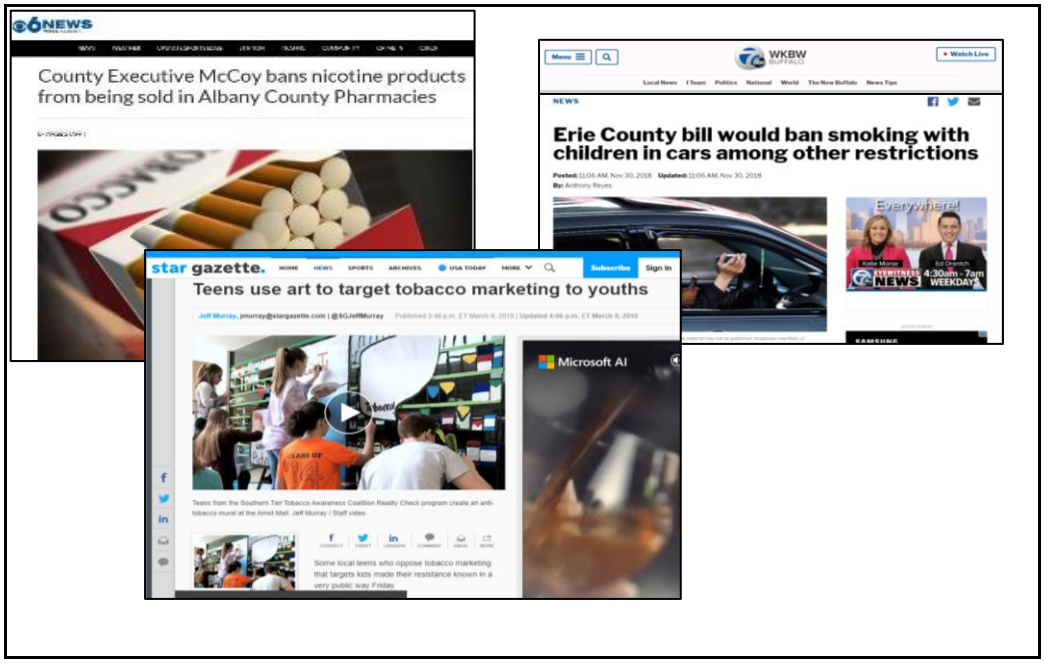


The NYSDOH 2013-2018 Prevention Agenda established a target of 10 POS policies by the end of 2018. As of April 2017, the target number had already been achieved, in advance of the target timeline. By the end of 2018, grantees reported that 17 distinct local communities had adopted POS policies. Additional New York jurisdictions have taken steps towards policies that require local tobacco retailer licensing or registration and policies that prohibit tobacco sales near schools or in pharmacies. Some examples of POS-related policies in New York include the following:

- New York City has addressed a range of POS policy areas through local laws that set a minimum price for cigarettes and little cigars; increased the minimum price for cigarettes, cigars, and other tobacco products; prohibited price promotions; prohibited tobacco sales in New York City pharmacies; capped the number of tobacco retailers; and required that e-cigarette retailers obtain a license.
- Sullivan and Ulster Counties prohibited the sale of tobacco in new retailers within 1,000 feet of schools.
- In 2018, Erie and Albany Counties adopted policies that prohibit the sale of tobacco products in pharmacies.
- Across New York State, additional counties adopted policies that increase the minimum age to purchase tobacco to 21.

Grantees also worked to gain media coverage of the POS issue and reported 587 instances of earned media coverage during 2018. This earned media (examples in Figure 2) promotes continued awareness, prioritization, and discussion of tobacco issues, and grantees reported contributing to newspaper stories, TV stories, newsletters, radio interviews, letters to the editor, and editorials.

Figure 2. Examples of Media Coverage Related to the Point of Sale Initiative

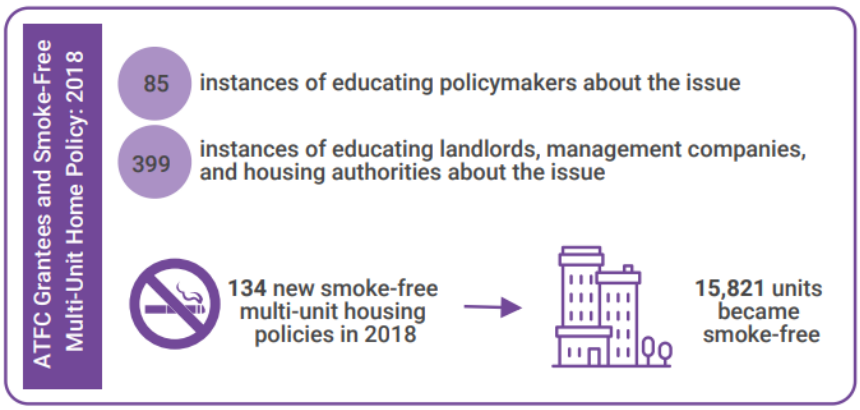


Tobacco-Free Outdoors Initiative: The goal of the tobacco-free outdoors initiative is to reduce the social acceptability of tobacco use by decreasing the number of public places where it is allowed. The policy goals for this initiative include restrictions on smoking in outdoor public places such as beaches, parks, and playgrounds, and policies prohibiting smoking on grounds or near entrances of community colleges, museums, and other businesses. ATFC grantees reported 278 instances of educating policy makers about the issue and its policy solutions during 2018, including elected representatives of villages, towns, cities, and counties. They also reported 442 instances of advocating with organizational decision makers about the need for organizational policies addressing settings such as colleges/universities, businesses, religious organizations, health care provider offices, and libraries.

Grantees reported that new tobacco-free outdoors policies were adopted during 2018 by 41 municipalities and 4 counties, affecting more than 1.6 million New Yorkers. Grantees also reported that 138 organizations adopted tobacco-free outdoors policies, with settings including colleges/universities, recreational facilities, businesses, religious organizations, health care provider offices, libraries, and service organizations. The majority of the legislative policies adopted in 2018 prohibit smoking in beaches, parks, and playgrounds; some policies prohibit smoking in outdoor areas such as campus grounds or near building entryways. The majority of the organizational policies adopted in 2018 prohibit smoking in outdoor areas such as campus grounds or near building entryways. Grantees relied on tobacco-free signage and media coverage to make community members aware of the tobacco-free outdoors policies, and they reported 318 instances of earned media coverage regarding tobacco-free outdoors.

Smoke-Free Multi-Unit Housing Initiative: The goal of the smoke-free multi-unit housing initiative is to eliminate exposure to secondhand smoke by increasing the number of housing units where smoking is prohibited. Grantees advocate with building owners and managers for smoke-free policies in large housing complexes (Exhibit 9). Smoke-free homes not only protect nonsmokers and children from secondhand smoke, they also have the potential to increase quit attempts among smokers (USDHHS, 2006).

Exhibit 9. ATFC Grantees' Smoke-Free Multi-Unit Housing Initiative Milestones



Smoke-free multi-unit housing efforts gained additional momentum in recent years due to the U.S. Department of Housing and Urban Development's (HUD's) smoke-free rule for

federal public housing. This rule required that public housing apartment buildings (including individual units) and offices and a minimum outdoor 25-foot buffer zone be entirely smoke-free by July 31, 2018 (Smoke-Free Public Housing, 24 CFR Parts 965 and 966).

Smoke-Free Media Initiative. The goal of the smoke-free media initiative is to reduce youth exposure to tobacco use imagery in movies and on the Internet. New York youth involved in ATFC's Reality Check youth initiative engaged the support of influential community members, including media stakeholders, to advocate with the Motion Picture Association of America and Internet companies (e.g., YouTube) to remove tobacco imagery from media targeted at youth. Youth also reached out to individual media outlets (e.g., radio stations) and movie theaters, and regional and national media providers (e.g., Comcast, Viacom, Disney Sony). Grantees reported 78 instances of educating policy makers and 124 instances of advocating with organizational decision makers about the smoke-free media initiative during 2018.

Infrastructure Development and Sustainability. In addition to their policy-focused activities, ATFC grantees engage in continuous education and networking activities to maximize the effectiveness of their policy work. They also conduct sustainability efforts to raise awareness of the Program among key stakeholders at the state and local levels to ensure that legislators understand the need for continued progress in tobacco control in New York.

Surveys of local opinion leaders in New York State, including elected officials, health officials, and county administrators, found that most believed that tobacco use is a serious problem in their community. The proportion of local opinion leaders reporting that tobacco product advertising makes a child more likely to become a smoker increased from 71.5% in 2016 to 84.4% in 2018. Respondents expressed highest levels of support for tobacco control policies that prohibit smoking in entranceways, parks, and beaches; increase the minimum sales age of tobacco products; prohibit candy- and fruit-flavored tobacco products; and prohibit sales of tobacco products near schools.

Key Evaluation Questions

This section addresses NY TCP progress from 2003 to 2018 for key outcome indicators for New York State. We compare New York estimates with data for the rest of the United States, when available, and we document progress toward NYDSOH 2013-2018 Prevention Agenda objectives. The key evaluation questions for this year include core tobacco control measures and special studies:

- How has NY TCP influenced trends in tobacco use from 2003 to 2018? Specifically, we examine trends in the following indicators:
  - Percentage of adults in New York and the United States who currently
    - smoke cigarettes,
    - smoke cigars,
    - use vaping products, and
    - use smokeless tobacco.
  - Prevalence of smoking among New York adults who report annual income less than $25,000 or frequent mental distress
  - Average daily cigarette consumption among current adult smokers in New York and the rest of the United States
  - Percentage of adult smokers who made a quit attempt in the past 12 months in New York and the rest of the United States
  - Percentage of youth in New York and nationally who currently use tobacco
  - Percentage of New York adult smokers who report provider cessation interventions
- We also summarize studies that address questions related to cessation behaviors across demographic groups, e-cigarette beliefs and patterns among adolescents, and awareness of Medicaid benefits for smoking cessation:
  - What are the health consequences and economic costs of smoking and secondhand smoke in New York?
  - What cigarette price-reducing strategies do New York adult smokers use?

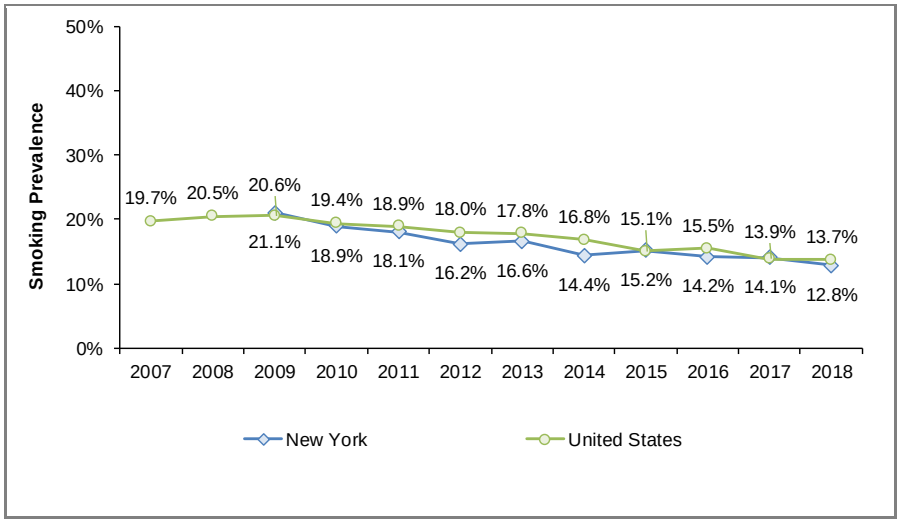
– To what extent is media campaign reach associated with campaign awareness?

Adult Tobacco Use Measures

We present trends in New York adult smoking prevalence from 2009 to 2018 using the Behavioral Risk Factor Surveillance System (BRFSS). BRFSS estimates of smoking prevalence prior to 2009 are not directly comparable to estimates in 2009 and more recent years due to changes in data collection and weighting methodologies. We report national smoking prevalence estimates for comparison from the National Health Interview Survey from 2007 to 2018. For other tobacco control measures, we used the New York Adult Tobacco Survey (through 2018) and New York's National Adult Tobacco Survey (through 2017).

From 2009 to 2018, adult smoking prevalence declined by 39% in New York. From 2007 to 2018, adult smoking prevalence declined by 30% nationally (Figure 3). NY TCP reached the original NYSDOH 2013-2018 Prevention Agenda objective of decreasing adult smoking prevalence to 15.0% in 2014 and set a new target of decreasing prevalence to 12.3% by the end of 2018. In 2018, 12.8% of New York adults reported current smoking, bringing the Program within one percentage point of achieving this objective.

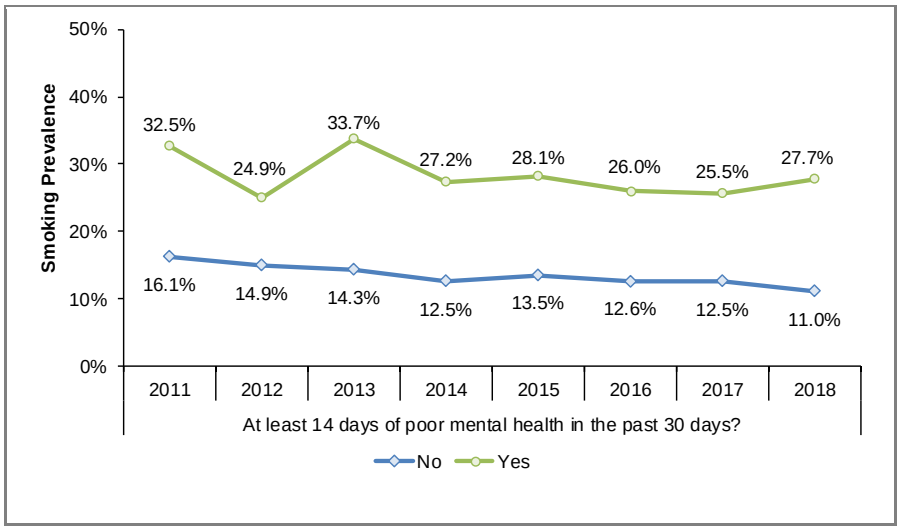
Figure 3. Percentage of Adults Who Currently Smoke in New York (Behavioral Risk Factor Surveillance System) 2009–2018 and Nationally (National Health Interview Survey) 2007–2018



Note: There is a statistically significant downward trend in smoking prevalence among adults in New York State from 2009 to 2018 and in the United States from 2007 to 2018.

Smoking prevalence is higher among New York adults who report frequent mental distress than those who do not, and the NYSDOH 2013-2018 Prevention Agenda set a target of decreasing smoking among New York adults with frequent mental distress to 26.5% by the end of 2018. Although prevalence estimates among New York adults with frequent mental distress reached the target in 2016 and 2017, the 2018 estimate was 27.7% (Figure 4), indicating that this measure has not yet stabilized below the target threshold.

Figure 4. Percentage of New York Adults Who Currently Smoke, by Mental Health Status, New York Behavioral Risk Factor Surveillance System, 2011–2018



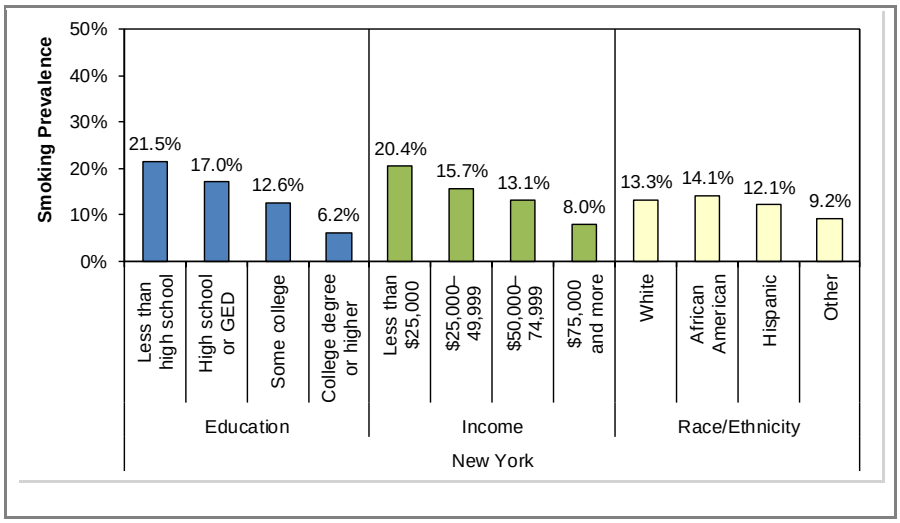
Note: There is a statistically significant downward trend in smoking prevalence among New York adults reporting 14 or more days in response to the question, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?" from 2011 to 2018.

Smoking prevalence varied by income level, and the NYSDOH 2013-2018 Prevention Agenda included an objective of decreasing smoking prevalence among adults with household income of less than $25,000 to 20% by the end of 2018. In 2018, 20.4% of New York adults with a household income of less than $25,000 reported current smoking. Although this estimate was not at the targeted level by 2018, it was within one percentage point and was down from 27.8% in 2011 (a decrease of 27%) (Figure 5). However, smoking rates were still higher among New York adults with household income of less than $25,000 than those with higher household incomes in 2018.

Educational attainment is associated with smoking prevalence in New York. Those with a college degree or higher have a lower smoking prevalence (6.2%) than those with less than a high school degree (21.5%), a high school degree or equivalent

(17.0%), or some college (12.6%) (see Figure 5). Smoking prevalence varies by race/ethnicity as well. Smoking rates in 2018 were higher among White adults (13.3%), African American adults (14.1%), and Hispanic adults (12.1%) than those who reported a race/ethnicity of "other" (9.2%) (see Figure 5).

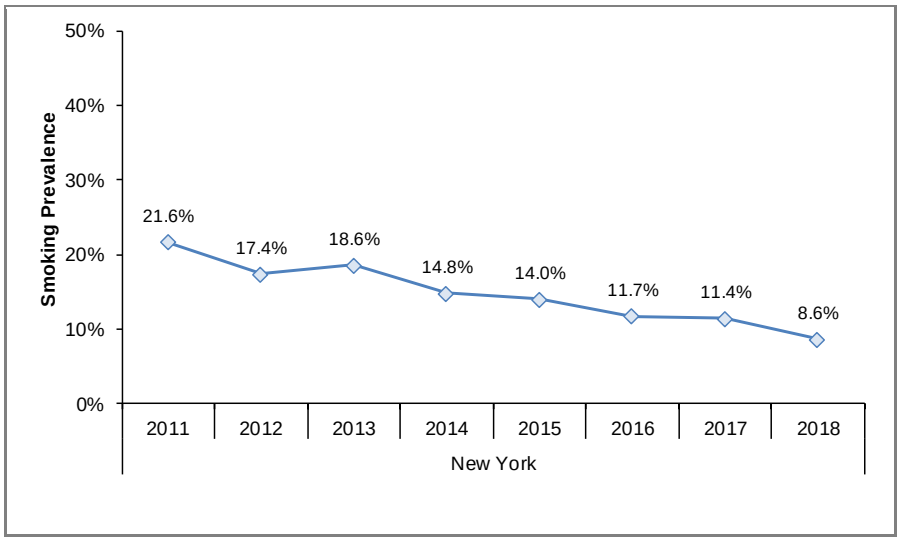
Figure 5. Percentage of New York Adults Who Currently Smoke, by Income, Education, and Race/Ethnicity, Behavioral Risk Factor Surveillance System 2018



Note: Prevalence of smoking differs significantly by education, income, and race/ethnicity. Those with a college degree or higher have lower smoking prevalence than those with less than a high school education, those with a high school diploma or GED, and those with some college experience. Those with some college experience also have a lower smoking prevalence than those with less than a high school education or those with a high school diploma or GED. Those with a high school diploma or GED also have a lower smoking prevalence than those with less than a high school education. Those earning less than $25,000 have a higher smoking prevalence than those earning $25,000 or more. Those earning $25,000 to less than $50,000 have a higher smoking prevalence than those earning $50,000 or more. Those earning $50,000 to less than $75,000 have higher smoking prevalence than those earning $75,000 or more. There is a statistically significant higher prevalence of smoking between White adults, African American adults, or Hispanic adults and adults with a race/ethnicity of "other."

The NYSDOH 2013-2018 Prevention Agenda also includes a goal of decreasing cigarette smoking among young adults to 18% by 2018. New York has already achieved this goal; in 2018, 8.6% of New York young adults ages 18 to 24 reported smoking (Figure 6).

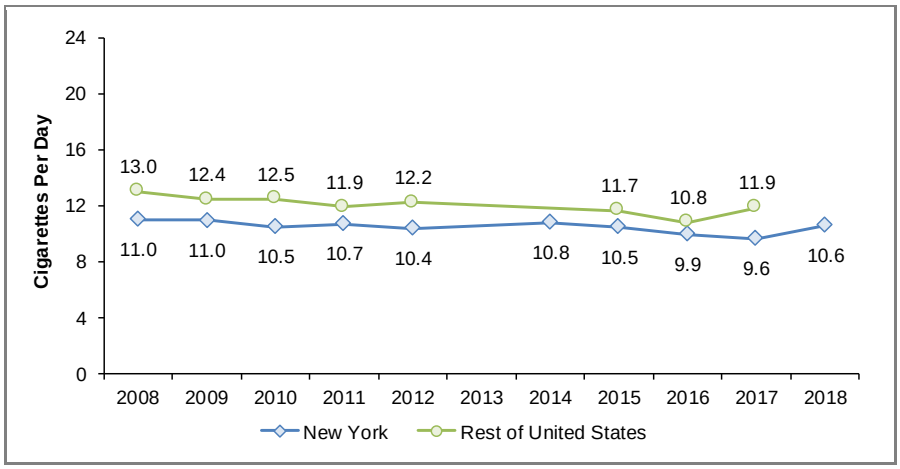
Figure 6. Percentage of New York Young Adults Aged 18 to 24 Who Currently Smoke, Behavioral Risk Factor Surveillance System 2011–2018



Note: There is a statistically significant downward trend in smoking prevalence among young adults in New York State from 2011 to 2018.

Among all New York adult smokers, daily cigarette consumption was 10.6 cigarettes per day in 2018, or just more than half a pack a day (Figure 7). Among adults in the rest of the United States, daily cigarette consumption decreased from 13.0 cigarettes per day in 2008 to 11.9 cigarettes per day in 2017.

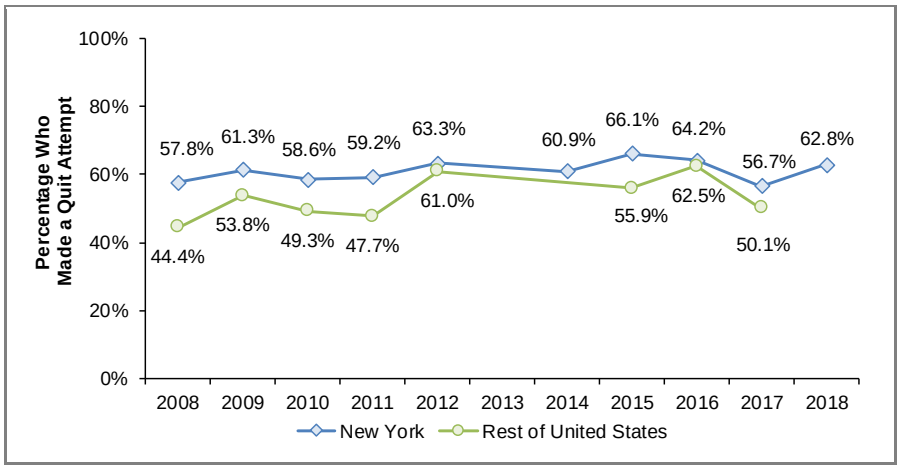
Figure 7. Average Daily Cigarette Consumption by Current Smokers, New York Adult Tobacco Survey 2008–2018 and National Adult Tobacco Survey 2008–2017



Note: There is a statistically significant downward trend among smokers in the rest of the United States.

In New York, 62.8% of adult smokers reported having made a past-year quit attempt in 2018, compared with 57.8% in 2008 (Figure 8). The prevalence of past-year quit attempts in the rest of the United States increased from 44.4% in 2008 to 50.1% in 2017.

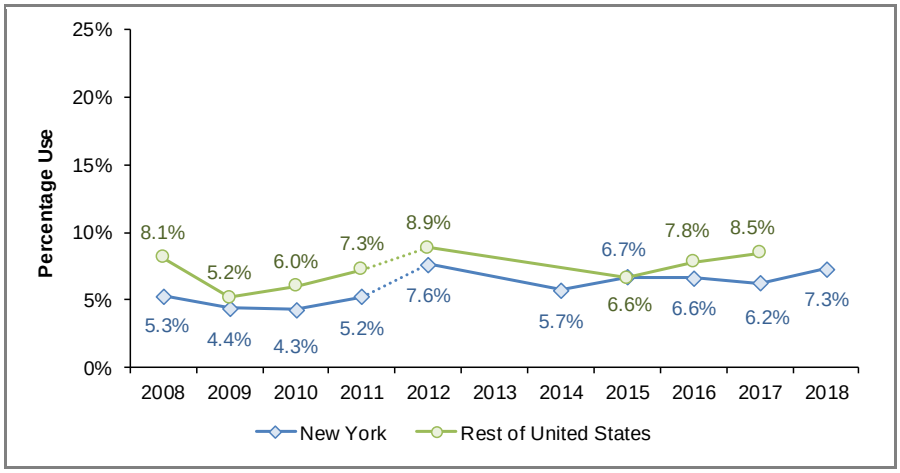
Figure 8. Percentage of Adult Smokers Who Made a Quit Attempt in the Past 12 Months, New York Adult Tobacco Survey 2008–2018 and National Adult Tobacco Survey 2008–2017



Note: There is a statistically significant upward trend among smokers in the rest of the United States.

In 2018, 7.3% of New York adults reported current use of cigars, an increase from 2008 (5.3%) (Figure 9). National cigar use prevalence in 2017 was 8.5%, compared with 8.1% in 2008. Most New York adults who use cigars report using them rarely.

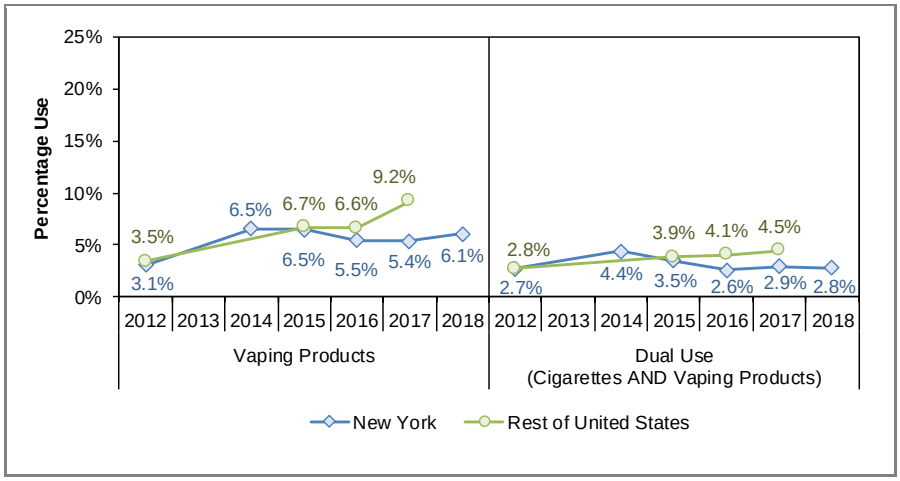
Figure 9. Percentage of Adults Who Currently Smoke Cigars, New York Adult Tobacco Survey 2008–2018 and National Adult Tobacco Survey 2008–2017



Note: There is a statistically significant upward trend in current cigar use among adults in New York State. Since Quarter 4, 2011, data include "rarely" as an additional response option for current cigar use in addition to "Every day," "Some days," and "Not at all."

NY TCP began tracking use of vaping products via the New York Adult Tobacco Survey in 2012. Vaping product use among adults increased in New York between 2012 and 2018 from 3.1% to 6.1% (Figure 10). Adult use of vaping products in the rest of the United States was 9.2% in 2017. Dual use of cigarettes and vaping products was 2.8% in New York in 2018 and 4.5% in the rest of the United States in 2017 (see Figure 10). About half of adult vaping product users in New York and the rest of the United States also used cigarettes.

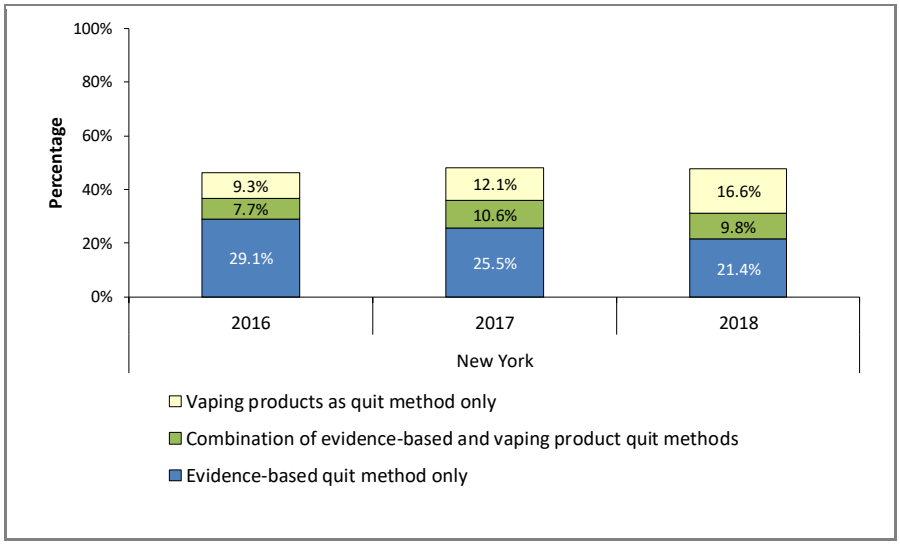
Figure 10. Percentage of Adults Who Currently Use Vaping Products and Percentage of Adults Who Report Both Cigarette and Vaping Product Use, New York Adult Tobacco Survey 2012–2018 and National Adult Tobacco Survey 2012–2017



Note: There is a statistically significant upward trend in current vaping product use among adults in New York State and the rest of the United States. There is a statistically significant upward trend in current dual use (cigarette and vaping product use) among adults in the rest of the United States. Current vaping product use includes reports of use every day, some days, and rarely.

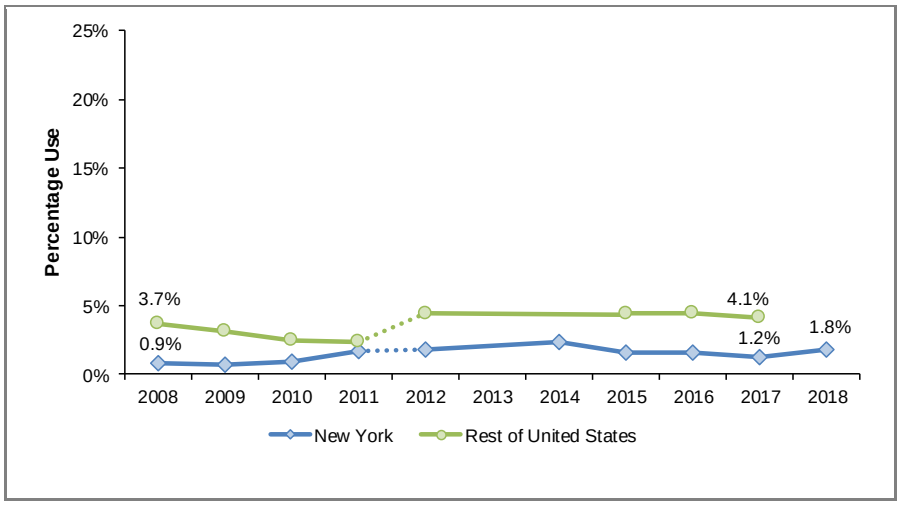
Some vaping product manufacturers and advocates suggest that smokers use vaping products to quit smoking cigarettes. In 2018, 21.4% of New York smokers who made a past-year quit attempt reported using evidence-based quit methods only, 16.6% reported using vaping products as their only quit method, and 9.8% used a combination of evidence-based quit methods and vaping products (Figure 11). The proportion of adult smokers or recent quitters who used only vaping products as a quit method increased from 2016 to 2018, while those who used only evidence-based quit methods decreased from 2016 to 2018. Approximately half of smokers therefore try quitting unassisted, and use of evidence-based methods is reported more frequently than vaping products as a quit method.

Figure 11. Percentage of Adult Smokers or Recent Quitters Who Made a Quit Attempt in the Past Year Who Used Evidence-based Quit Methods, Vaping Products as Quit Method, or Both, New York Adult Tobacco Survey 2016–2018 and National Adult Tobacco Survey 2012–2017



Adult smokeless tobacco use prevalence was 1.8% in New York in 2018 compared with 4.1% in the rest of the country in 2017 (Figure 12). Although New York adult use of smokeless tobacco has increased slightly between 2008 and 2018, it remains very low.

Figure 12. Percentage of Adults Who Currently Use Smokeless Tobacco, New York Adult Tobacco Survey 2008–2018 and National Adult Tobacco Survey 2008–2017

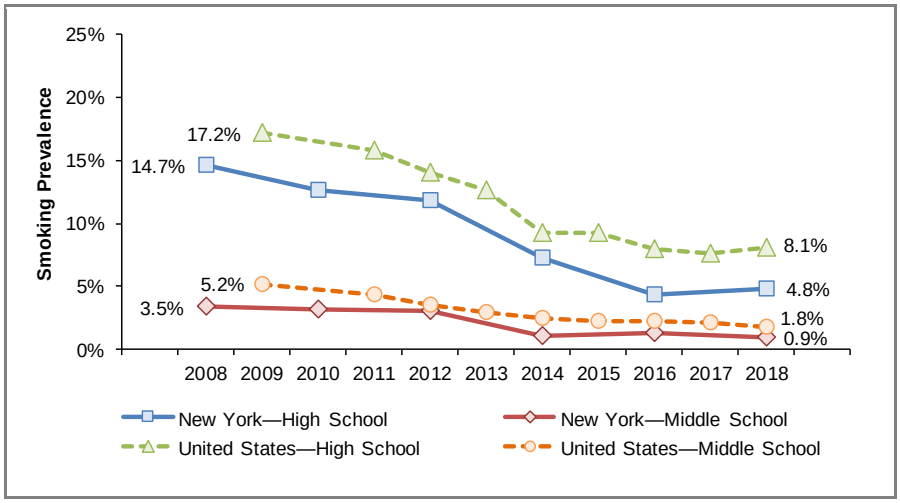


Note: There is a statistically significant upward trend in current smokeless use among New York adults. From 2007 to Quarter 2, 2010, smokeless tobacco included chewing tobacco, snuff, and dip. Since Quarter 3, 2010, smokeless tobacco includes chewing tobacco, snuff, dip, and snus. Since Quarter 4, 2011, data include "rarely" as an additional response option for current smokeless tobacco use in addition to "Every day," "Some days," and "Not at all."

Youth Tobacco Use Measures

In this section, we present trends in tobacco product use among middle and high school students in New York and nationally. Cigarette smoking rates among middle and high school students have declined since 2008, leading to historically low rates of smoking in 2018. Specifically, the prevalence of current smoking in New York declined by 67% among high school students over the past 10 years and by 74% among middle school students (Figure 13). High school student smoking prevalence in 2018 was 4.8% in New York, compared with 8.1% in the rest of the United States. In 2018, 0.9% of middle school students in New York and 1.8% of middle school students nationally reported current cigarette smoking.

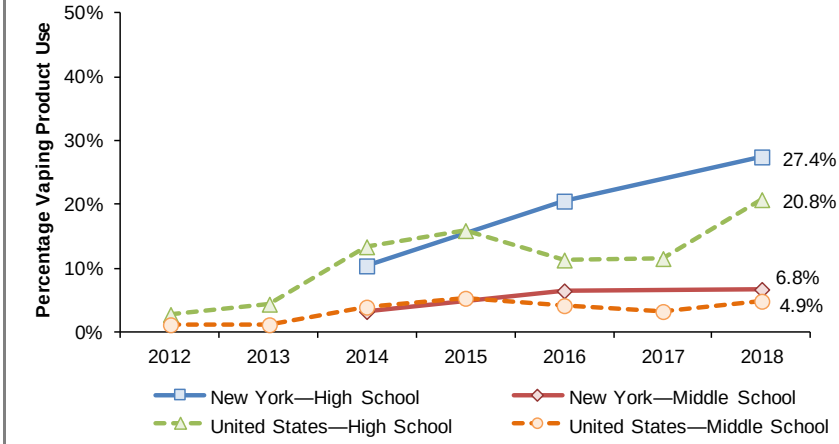
Figure 13. Percentage of Middle and High School Students Who Currently Smoke Cigarettes in New York and Nationally, New York Youth Tobacco Survey 2008–2018 and National Youth Tobacco Survey 2009–2018



Note: There is a statistically significant downward trend among middle and high school students in New York and in the United States.

Contrary to the decline in youth smoking prevalence, youth use of vaping products increased substantially. Among New York high school students, current use of vaping products (defined as use within the past 30 days) increased from 10.5% in 2014 to 27.4% in 2018 (Figure 14). Reports of current vaping among New York middle school students increased from 3.2% in 2014 to 6.8% in 2018. Nationally, youth use of vaping products has increased as well, with high school student use at 20.8% in 2018.

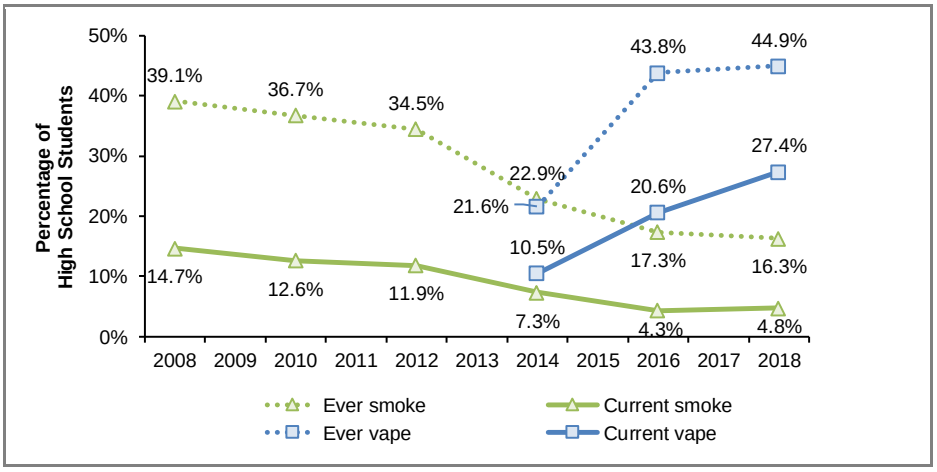
Figure 14. Percentage of Middle Students and High School Students Who Currently Vape in New York and Nationally, New York Youth Tobacco Survey 2014–2018 and National Youth Tobacco Survey 2012–2018



Note: There is a statistically significant upward trend among middle and high school students in New York and in the United States.

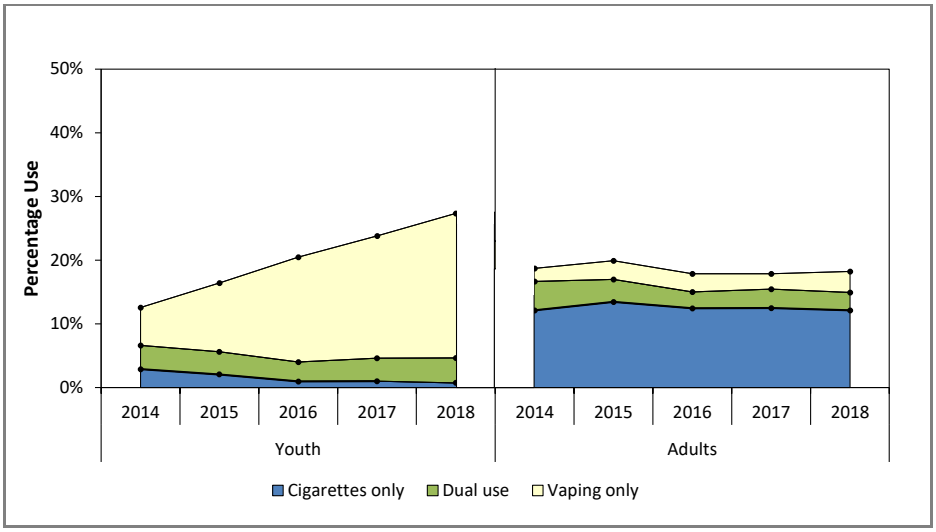
Ever use of cigarettes among New York high school students declined over the past 10 years, with the greatest drop occurring around the time that vaping products were gaining in popularity (Figure 15). In 2018, 44.9% of New York high school students reported ever trying vaping products, while only 16.3% had ever tried smoking cigarettes. More than half of those who reported trying vaping reported current use; a smaller proportion of those who tried smoking reported current smoking.

Figure 15. Prevalence of Cigarette and Vaping Product Ever Use and Current Use Among High School Students, New York Youth Tobacco Survey, 2008–2018



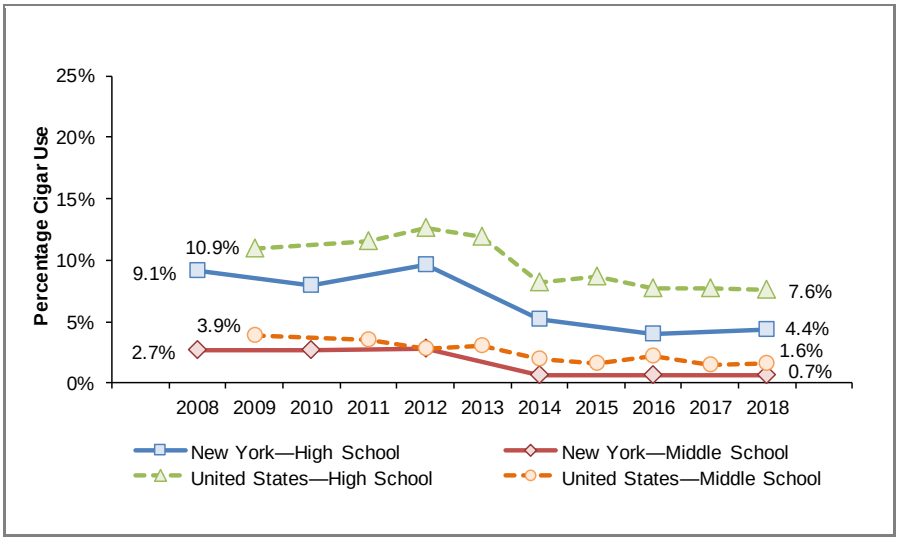
Exclusive vaping was dramatically more prevalent than exclusive cigarette smoking or dual use of cigarettes and vaping products among youth, in contrast to trends in adult use of cigarettes and vaping products (Figure 16).

Figure 16. Prevalence of Exclusive Cigarette Use, Exclusive Vaping Product Use, and Dual Use Among High School Students and Adults, New York Youth Tobacco Survey and New York Adult Tobacco Survey, 2014–2018



Rates of cigar use among middle and high school students declined in recent years in New York and nationally. Fewer than 1% of middle school students in New York reported current cigar use, a 74% decrease since 2008. In 2018, 4.4% of New York high school students reported current cigar use, a 52% decrease since 2008 (Figure 17). National trends in youth cigar use also decreased over time, although 7.6% of high school students nationally reported smoking cigars in 2018, compared with 4.4% of students in New York.

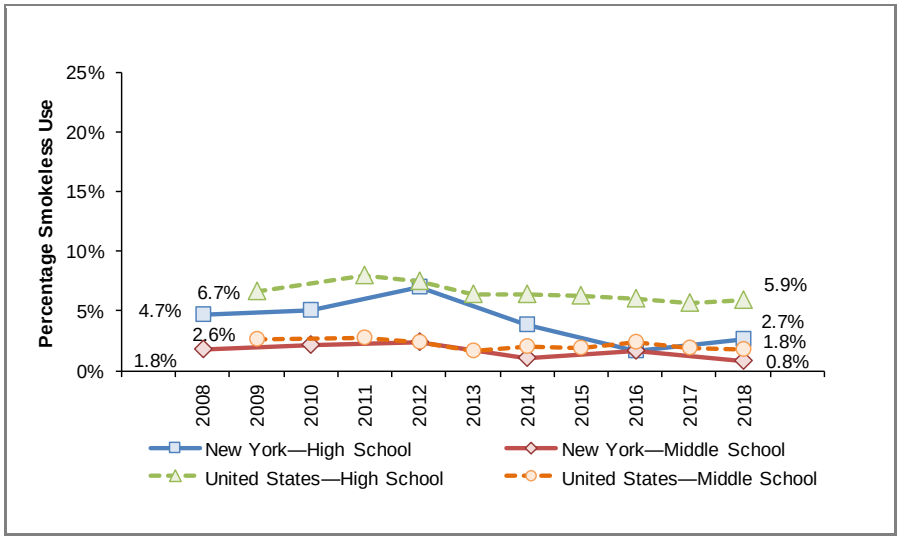
Figure 17. Percentage of Middle and High School Students Who Currently Smoke Cigars in New York and Nationally, New York Youth Tobacco Survey 2008–2018 and National Youth Tobacco Survey 2009–2018



Note: There is a statistically significant downward trend among middle and high school students in New York and in the United States. Starting in 2014 for New York and 2011 for the United States, questions about other tobacco product use were combined into one current use question with separate response options for each product type.

Youth use of smokeless tobacco was low, both in New York and in the United States as a whole. In 2018, 2.7% of New York high school students reported current use of smokeless tobacco, compared with 5.9% of high school students nationally (Figure 18). New York middle school student smokeless tobacco use prevalence was 0.8% in 2018, while the national middle school student rate was 1.8%.

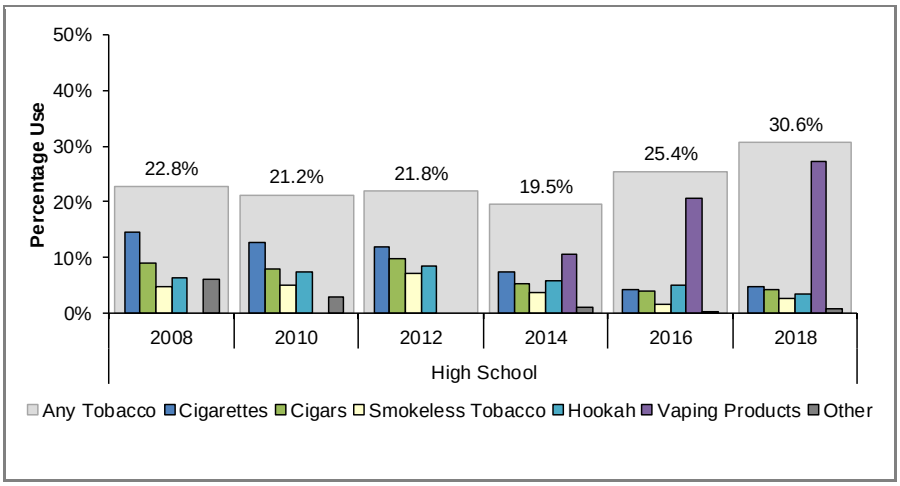
Figure 18. Percentage of Middle and High School Students Who Currently Use Smokeless Tobacco in New York and Nationally, New York Youth Tobacco Survey 2008–2018 and National Youth Tobacco Survey 2009–2018



Note: There is a statistically significant downward trend among middle school and high school students in New York. Starting in 2014 for New York and 2011 for the United States, questions about other tobacco product use were combined into one current use question with separate response options for each product type. Smokeless tobacco includes chew, snuff, dip, snus, or dissolvable. Survey questions regarding snus use were first available for New York in 2012 and for the United States in 2011. Survey questions regarding dissolvable use were first available for New York in 2014 and for the United States in 2011.

The NYSDOH 2013-2018 Prevention Agenda set an objective of decreasing high school student prevalence of any tobacco product use to 15.0% by the end of 2018. Youth use of tobacco products in 2018 was 30.6%, with use of vaping products overwhelmingly more common than other types of tobacco products (Figure 19).

Figure 19. Percentage of New York High School Students Reporting Current Use of Any Tobacco Product, New York Youth Tobacco Survey 2008–2018



Note: There is a statistically significant upward trend in current use of any tobacco product among New York high school students. Current tobacco use is defined by indicating use of cigarettes, cigars (large cigars, cigarillos, or little cigars), smokeless tobacco (chew, snuff, dip, snus, or dissolvable), hookah (or waterpipe), vaping products, or other tobacco products (pipe, bidi, or kretek) on 1 or more days in the past 30 days. Survey questions addressing various tobacco products have varied over time; specifically, data regarding vaping product use were first available in 2014, hookah use data were first available in 2008, bidi and kretek use data were available from 2000 to 2010, pipe use data were available for all years except 2010 and 2012, snus use data were available in 2012, and dissolvable use data were first available in 2014.

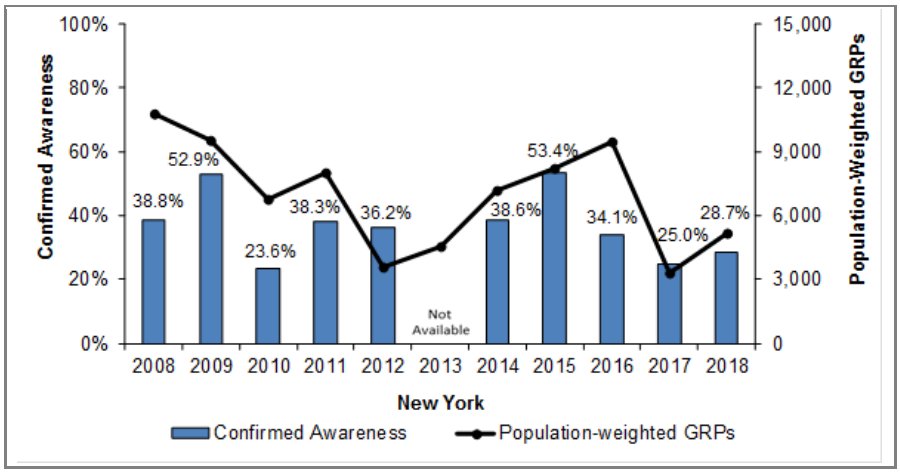
Trends in Other Key Outcome Indicators

This section describes other key tobacco control outcomes including awareness of antitobacco advertising, awareness and use of the Quitline, reports of provider cessation interventions, and exposure to secondhand smoke. We present data related to NYSDOH 2013-2018 Prevention Agenda objectives and other relevant measures.

In 2018, 28.7% of New York adult smokers recalled seeing at least one NY TCP-sponsored television advertisement (Figure 20). Awareness of advertisements generally corresponded with the level of gross ratings points or GRPs (a measure of potential ad exposure). Recent decreases in media funding resulted in lower GRPs, which appeared to be reflected in lower awareness of advertisements among smokers.

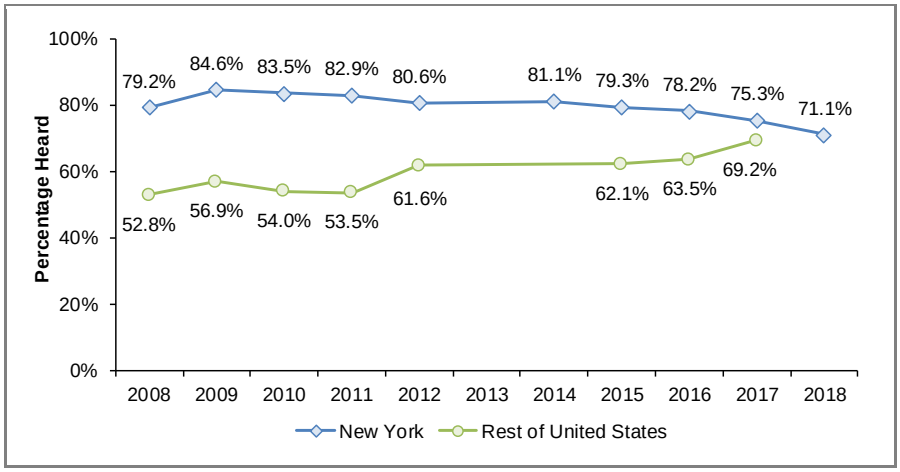
However, this was an average across the year; levels of ad awareness varied, with higher awareness rates during periods when the ads were airing. Awareness reached 37% in the first quarter of 2018.

Figure 20. Confirmed Awareness of Paid Advertisements among Smokers and Population-Weighted Statewide Average Gross Rating Points (GRPs) 2008–2018, New York Adult Tobacco Survey 2008–2018



Awareness of the New York State Smokers' Quitline among New York smokers was 71.1% in 2018. Awareness of quitlines among adult smokers in the rest of the country increased, and at 69.2% in 2017, is approaching the level of New York's Quitline (Figure 21). Awareness of New York's Quitline has decreased 10 percentage points in the past 4 years, likely as a result of reduced media funding and a shift to promote conversations with health care providers more prominently than Quitline counseling.

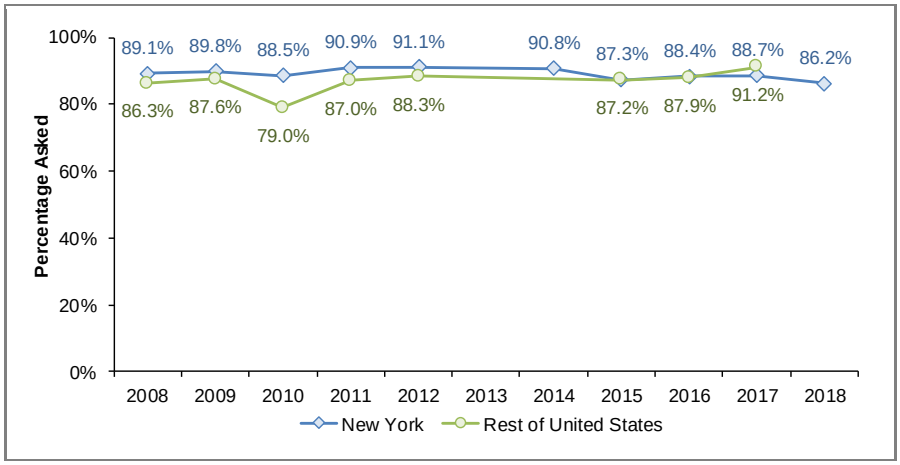
Figure 21. Percentage of Adult Smokers Who Have Heard of Quitline, New York Adult Tobacco Survey 2008–2018 and National Adult Tobacco Survey 2008–2017



Note: There is a statistically significant upward trend among smokers in the rest of the United States. There is a statistically significant downward trend among smokers in New York. New York smokers were asked if they had heard of the New York State Smokers' Quitline. Smokers in the rest of the United States were asked if they had heard of any telephone quitlines, such as 1-800-QUIT-NOW.

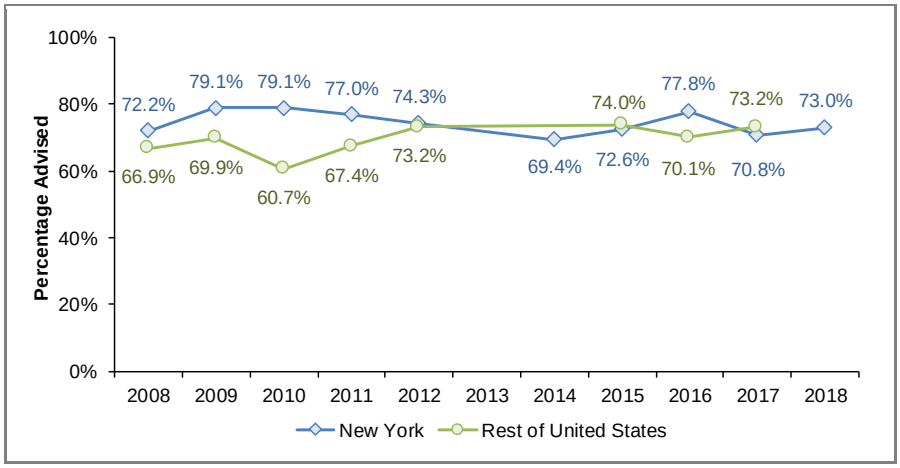
Health care provider interventions with patients who use tobacco are associated with increased patient quit success. Health systems interventions in New York facilitate organizational changes that make the delivery of cessation interventions a routine part of care for each patient who uses tobacco. In 2018, 86.2% of smokers in New York who visited a health care provider in the past 12 months reported that they were asked about their smoking status, similar to the 91.2% of smokers who were asked nationally in 2017 (Figure 22).

Figure 22. Percentage of Adult Smokers Who Were Asked About Their Tobacco Use by Their Health Care Provider in the Past 12 Months, New York Adult Tobacco Survey 2008–2018 and National Adult Tobacco Survey 2008–2017



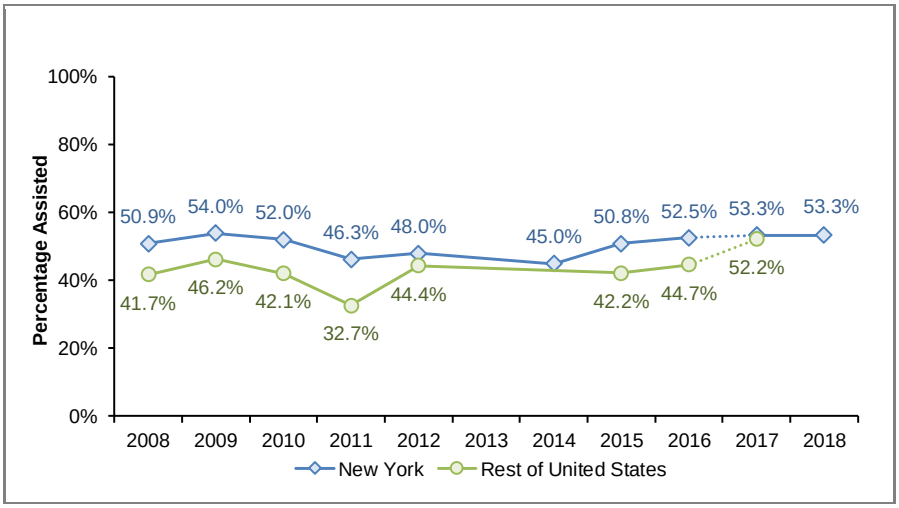
Once patients are identified as tobacco users, guidelines recommend advising that they quit and providing assistance with a quit attempt. In 2018, 73.0% of New York smokers who saw a health care provider in the past year reported that their provider gave them brief advice to quit (Figure 23). Among smokers in the rest of the United States, 73.2% reported brief provider advice to quit in 2017. Rates of provider advice to quit did not change significantly over the past 10 years in New York or the rest of the United States.

Figure 23. Percentage of Adult Smokers Who Were Advised by Their Health Care Provider to Quit Smoking in the Past 12 Months, New York Adult Tobacco Survey 2008–2018 and National Adult Tobacco Survey 2008–2017



Rates of provider assistance with quitting are generally lower than provider advice to quit. Provider assistance was measured by smoker reports of provider suggestions of setting a quit date; provision of quit-smoking materials; and/or discussion of cessation medications, quitlines, or classes. The NYSDOH 2013-2018 Prevention Agenda set an objective of increasing provider assistance with quitting from 46.3% in 2011 to 55.0% by the end of 2018. Assistance with a quit attempt was stable over the past 10 years in New York. Over half (53.3%) of New York adult smokers reported that they saw a provider in the past 12 months, were asked about tobacco use, and received provider assistance (Figure 24). In the rest of the United States, 52.2% of smokers reported provider cessation assistance in 2017.

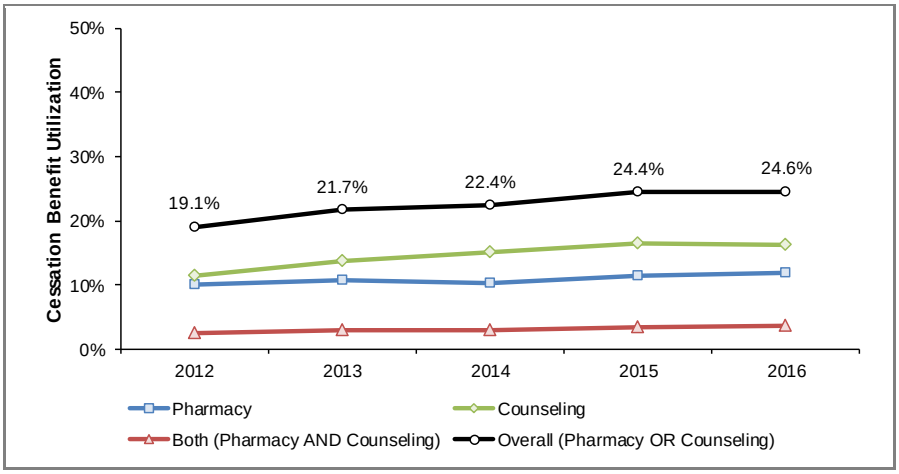
Figure 24. Percentage of Adult Smokers Who Report That Their Health Care Provider Assisted Them with Smoking Cessation in the Past 12 Months, New York Adult Tobacco Survey 2008–2018 and National Adult Tobacco Survey 2008–2017



Note: Beginning in 2017, annual estimates for percentage assisted include respondents who reported assistance whether or not they reported being advised by a health professional to quit smoking.

The NYSDOH 2013-2018 Prevention Agenda included an objective focused on increasing use of cessation supports for Medicaid-enrolled smokers. The objective set a target of increasing the utilization rate of smoking cessation benefits among smokers enrolled in MMC plans to 41.0% by the end of 2018. The New York Medicaid Office shared a preliminary estimate indicating that 24.6% of MMC-enrolled smokers used cessation benefits in 2016 (Figure 25). This estimate represents a 29% increase since 2012. The way that NYSDOH calculates smoking prevalence for Medicaid utilization estimates has changed over time (Malloy et al., 2017), and improvements in methodology may reflect an opportunity to reassess the target.

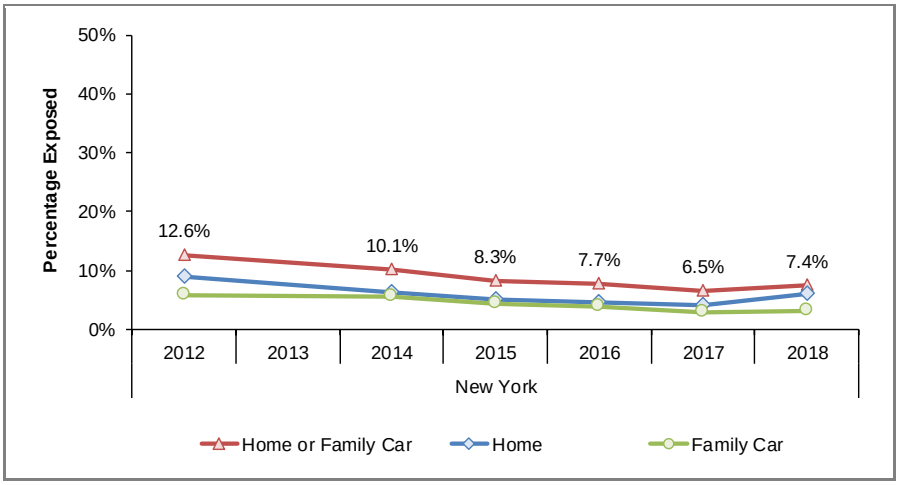
Figure 25. Percent of Estimated Smokers Enrolled in Medicaid Managed Care Plans That Used Smoking Cessation Benefits, 2012-2016, NY Medicaid



Note: Estimated number of smokers was calculated by multiplying plan enrollment (based on Medicaid member profile data) by plan-specific smoking prevalence (based on Medicaid adult CAHPS® surveys administered in 2011, 2013, and 2015). CAHPS prevalence was held constant over two years to account for off cycle years (years in which the adult surveys were not administered).

New York adults' secondhand smoke exposure has decreased dramatically. The NYSDOH 2013-2018 Prevention Agenda defined a goal of decreasing secondhand smoke exposure from 27.8% in 2009 to 20% by 2018. Since 2015, New York exceeded this goal. Specifically, 14.7% of all New York adults in 2018 reported being exposed to secondhand smoke. Estimates of exposure to secondhand smoke specifically among nonsmokers were even lower. In 2018, only 7.4% of nonsmoking New York adults reported secondhand smoke exposure in their homes or family cars (Figure 26). This was similar to the proportion of nonsmoking adults in the rest of the United States who were exposed to secondhand smoke in their home or family car in 2017, the most recent year for which data were available (7.8%) (data not shown).

Figure 26. Percentage of New York Nonsmokers Who Report Being Exposed to Secondhand Smoke, New York Adult Tobacco Survey 2012–2018



Note: There is a statistically significant downward trend in secondhand smoke exposure among New York nonsmokers. The percentage of nonsmokers exposed to secondhand smoke is defined by responding 1 or more days to "During the past 7 days, on how many days did anyone smoke cigarettes, cigars, or pipes anywhere inside your home?" or "During the past 7 days, on how many days did anyone smoke cigarettes, cigars, pipes, or hookah anywhere inside your family car?"

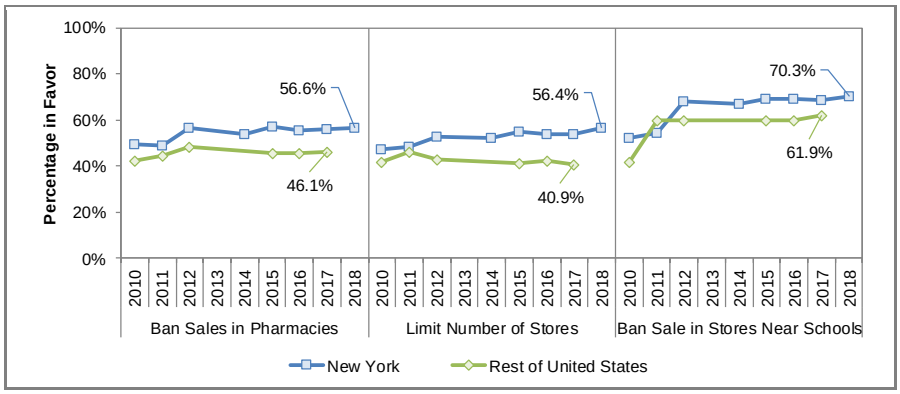
Support for Tobacco Control Policy Change

NY TCP's ATFC grantees routinely educate the public, policy makers, and organizational decision makers about tobacco control issues. For example, grantees educate policy makers on the evidence documenting the relationship between tobacco product marketing at the point of sale (POS) and tobacco use initiation (e.g., Henriksen et al., 2004, 2008, 2010; Wakefield et al., 2006). Past analyses of New York data consistently demonstrate that policy makers who believe that POS

marketing influences youth tobacco initiation are more likely to support POS policies (Schmitt et al., 2012, 2015). Policy change in the POS arena has been slow, which increases the importance of monitoring more proximal outcomes of grantee activities, such as changes in knowledge and beliefs consistent with the Program's messaging.

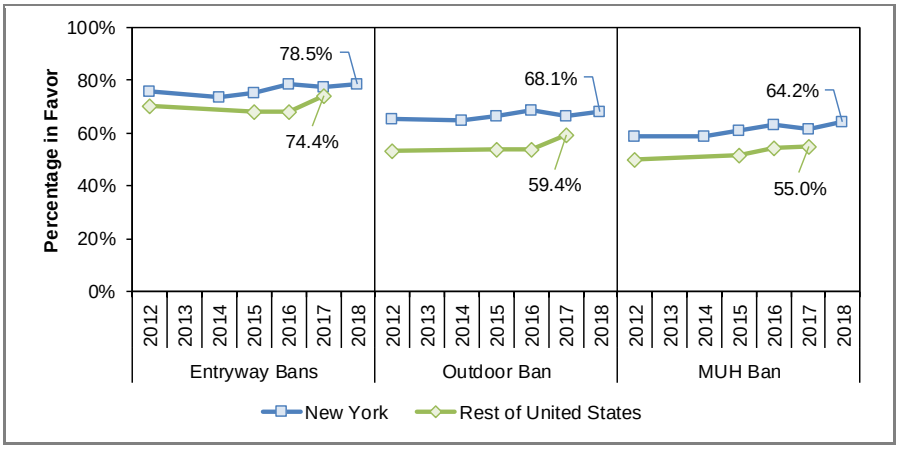
New York adults' support for prohibiting pharmacy sales of tobacco, limiting the number of stores that can sell tobacco, and prohibiting tobacco sales in stores near schools all increased between 2010 and 2018 (Figure 27). New York adults also expressed support for policies to reduce secondhand smoke exposure, including prohibiting smoking in building entryways, in outdoor areas like parks and playgrounds, and in multi-unit housing (Figure 28). In addition, 57.3% of New York adults supported policies that ban the sale of flavored tobacco products in 2018 (data not shown).

Figure 27. Support among Adults for Point of Sale Tobacco Control Policies, New York Adult Tobacco Survey 2010–2018 and National Adult Tobacco Survey 2010–2017



Note: There is a statistically significant upward trend in support for point of sale policies among adults in New York State. There is a statistically significant upward trend in support for prohibiting sales of tobacco products in stores near schools among adults in the rest of the United States.

Figure 28. Support among Adults for Policies to Reduce Secondhand Smoke Exposure, New York Adult Tobacco Survey 2012–2018 and National Adult Tobacco Survey 2012–2017



Note: There are statistically significant upward trends in support for entryway, outdoor, and MUH bans among adults in New York State. There is a statistically significant upward trend in support of outdoor and MUH bans in the rest of the United States. MUH = Multi-unit housing.

The next sections explore three important tobacco control issues in greater detail. First, we present the health and economic impact of smoking and secondhand smoke in New York State. Second, we analyze New York smokers' reports of cigarette price-reducing strategies. Third, we examine the extent to which media campaign reach is associated with campaign awareness.

What are the health consequences and economic costs of smoking and secondhand smoke in New York?

Cigarette smoke causes significant preventable illness, premature deaths, and economic costs. Around 480,000 deaths in the United States each year are attributable to smoking (USDHHS, 2014). Treating and managing diseases caused by smoking can also produce substantial expenses for individuals as well as both public and private insurance payers. The CDC estimated that 7.6% of all U.S. healthcare expenditures in 2004 could be attributed to smoking. Current, state-specific estimates of morbidity, mortality, and health expenditures associated with smoking are crucial for informing tobacco control programs and advocacy efforts. The main source for these types of estimates in the U.S. has been CDC's Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) model, featured in the 2014 U.S. Surgeon General's Report (USDHHS, 2014) and CDC's 2014 Best Practices for

Comprehensive Tobacco Control Programs. However, its estimates only encompass the years 2005 through 2009, and the model does not report outcomes related to secondhand smoke exposure. For this analysis, we followed a similar approach to the SAMMEC model to present more recent estimates of the health and economic costs of smoking and secondhand smoke in the state of New York. We also report morbidity and mortality by disease, and a breakdown of healthcare expenditures by payer and expenditure type.

Data and Methods

Estimates of mortality, years of life lost due to premature mortality, years lived with disability, and disability-adjusted life years lost were obtained from the 2017 Global Burden of Disease (GBD) study and broken down by disease categories (GBD, 2017). These mortality and morbidity measures were reported for both all-cause and tobacco-related causes.

Total New York healthcare expenditures for 1991-2014 were obtained from the Centers for Medicare & Medicaid Services, with projections for the years 2015-2017. Expenditures were adjusted for inflation using the Consumer Price Index for medical care.

Following the CDC SAMMEC study, a smoking-attributable fraction (SAF) approach was used to estimate the proportion of total healthcare expenditures that are associated with, or attributed to, smoking. A SAF estimate for New York from the SAMMEC model, based on estimates published in Miller et al. (1999), was adjusted over time based on annual adult smoking prevalence. Smoking prevalence estimates for New York for 1998 through 2017 were obtained from CDC's BRFSS.

Smoking-attributable healthcare expenditures in New York were then calculated by multiplying inflation-adjusted total personal healthcare expenditures in New York (expressed in real 2017 dollars) from 1998 through 2017 by the adjusted annual SAF of healthcare expenditures.

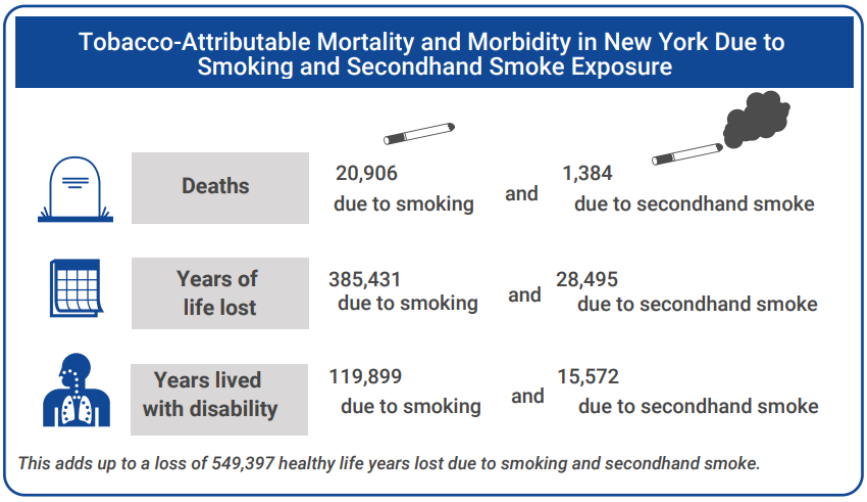
Results

There were an estimated 159,362 total deaths in New York from all causes in 2017. We estimate that 20,906 deaths among people age 30 or older during 2017 were attributable to

smoking (Exhibit 10). Another 1,384 deaths in 2017 among New Yorkers of all ages were attributable to secondhand smoke exposure. Previous estimates for 2005–2009 from the CDC SAMMEC model placed average annual smoking-attributable mortality for New York at approximately 28,000 deaths. This suggests that deaths caused by smoking have declined as a result of the reduction in smoking prevalence in New York.

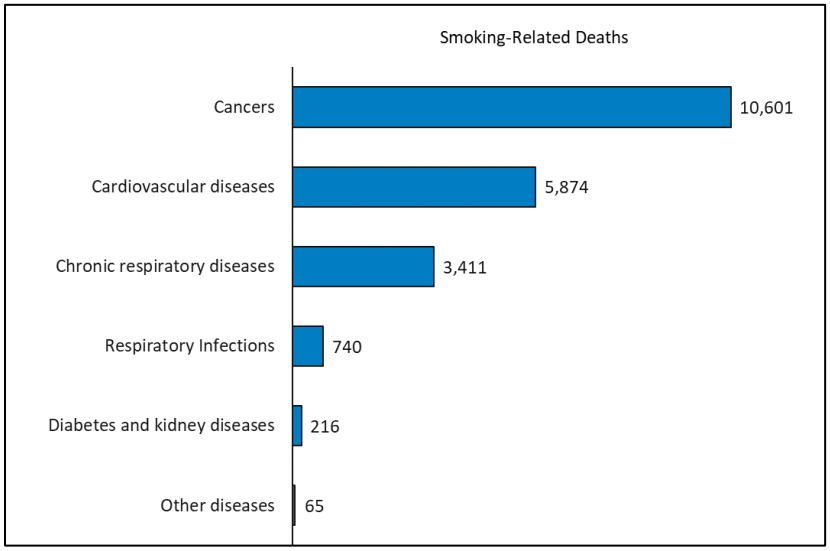
Due to premature mortality from smoking and secondhand smoke exposure in 2017, New Yorkers lost an estimated 413,926 years of life. Additionally, the burden of tobacco-attributable health conditions and disabilities is estimated to account for 135,471 years lived with disability.

Exhibit 10. Tobacco-Attributable Mortality and Morbidity in New York Due to Smoking and Secondhand Smoke Exposure



The majority of deaths in New York associated with smoking and secondhand smoke were from cancers, cardiovascular diseases, and chronic respiratory diseases (Figure 29). Just over half of all smoking-attributable deaths were from some type of cancer (10,601 deaths), with lung cancer accounting for the largest number of deaths (6,752). In contrast to smoking-related deaths, secondhand smoke–related deaths are most often from cardiovascular diseases (669 deaths).

Figure 29. Annual Smoking-Related Deaths by Disease Group in New York, Global Burden of Disease, 2017



The proportion of healthcare expenditures attributable to smoking decreased from 5.9% in 2011 to 4.6% in 2017. Based on this, we estimate that smoking-attributable healthcare expenditures declined from $12.3 billion in 2011 to $9.7 billion in 2017.

We also examined healthcare expenditures by payer to understand on whom the cost burdens are falling. Healthcare expenditures in New York were highest for private health insurance (32.8%). However, Medicaid (27.7%) and Medicare (20.8%) combined comprised nearly half of the expenditures overall. Based on this, we estimate that 2017 smoking-attributable healthcare expenditures for Medicaid and Medicare combined were approximately $4.7 billion. Most smoking-related healthcare expenditures in New York are hospital costs ($3.57 billion, or 36.7%; Table 4). Each year, additional billions of dollars are spent on medications, dental care, clinical expenses, nursing home care, and other expenditures due to smoking-related illnesses.

Table 4. New York Smoking-Attributable Healthcare Expenditures by Type of Care and Payer, 2017

Healthcare Expenditure Type	Total	Medicare	Medicaid	Other (PHI + OOP)
Hospital Care	$3.57 B	$910.8 M	$947.5 M	$1.71 B
Physician & Clinical Services	$1.87 B	$496.8 M	$224.3 M	$1.15 B
Prescription Drugs and Other Non-durable Medical Products	$1.36 B	$303.6 M	$168.6 M	$892.3 M
Other Health, Residential, and Personal Care	$992.1 M	$14.2 M	$605.1 M	$372.9 M
Nursing Home Care	$658.1 M	$129.6 M	$350.7 M	$177.9 M
Home Health Care	$455.3 M	$70.6 M	$309.4 M	$75.2 M
Dental Services	$373.9 M	$1.9 M	$37.0 M	$334.9 M
Other Professional Services	$300.7 M	$74.3 M	$27.2 M	$199.2 M
Durable Medical Products	$143.4 M	$22.2 M	$25.0 M	$96.2 M
Total Smoking-Attributable Health Expenditures	**$9.73 B**	**$2.02 B**	**$2.69 B**	**$5.01 B**

PHI=Private health insurance; OOP=out-of-pocket.

Summary

New York's smoking rate has continued to decrease in recent years, resulting in reduced smoking-related mortality, morbidity, and healthcare expenditures. These improvements in health outcomes and healthcare expenditures demonstrate the contributions of NY TCP's efforts.

Despite these reductions in smoking-related mortality, morbidity, and healthcare expenditures in New York, the health and economic burden of smoking remains substantial. Nearly 21,000 New Yorkers died in 2017 from diseases associated with smoking. This represents a decline from the 2005-2009 estimate of approximately 28,000 deaths annually (CDC SAMMEC). Almost another 1,400 New Yorkers died from the effects of secondhand smoke exposure.

Health conditions associated with cigarette smoke lead to substantial healthcare expenditures, nearly half of which are paid for through public funds (e.g., Medicare and Medicaid). Medicaid alone paid an estimated $2.7 billion in smoking-attributable healthcare expenditures in New York in 2017. However, the total amount of smoking-attributable healthcare expenditures has declined since 2011.

Reductions in smoking and exposure to secondhand smoke have the potential to generate benefits in terms of deaths

averted, life years gained, quality of life improved, and healthcare expenditure savings. The remaining health and economic burden associated with smoking in New York highlights the need for continued tobacco control efforts.

What cigarette price-reducing strategies do New York adult smokers use?

Raising the cost of cigarettes is one of the most effective interventions to prevent smoking initiation, increase rates of smoking cessation, and reduce overall cigarette consumption (Chaloupka et al., 2011; IOM, 2007; USDHHS 2000, 2012; Ross et al., 2011; Choi and Boyle, 2013). Rather than reducing the number of cigarettes they smoke or quit altogether, some smokers, particularly low-income smokers, use one or more price-reducing strategies that allow them to save money on cigarettes and continue smoking (Choi and Boyle 2018; Kruger et al., 2017; Guillaumier et al., 2014). Strategies that smokers use to reduce the cost of cigarettes include purchasing cigarettes in states or areas with lower cigarette taxes, purchasing low-cost cigarettes from the Internet or Indian reservations, purchasing in bulk (e.g., by the carton), purchasing single cigarettes (i.e., loosies), purchasing generic brands, and using coupons or point-of-sale price promotions (Pesko et al., 2014; Xu et al., 2013; Choi and Boyle, 2018).

Smokers use many strategies to lower the cost of cigarettes, such as purchasing from Indian reservations and taking advantage of coupons or point-of-sale price promotions.

Smokers in states with the highest cigarette excise taxes have the potential for the largest cigarette price reductions through the use of price reducing strategies. New York's cigarette prices are significantly higher than the national average. In addition, New York City (NYC) has local laws that prohibit tobacco retailers from redeeming coupons for tobacco products or offering price-reducing promotions for tobacco products. NYC also has a minimum price law that requires that a pack of cigarettes be sold for no less than $13.00. This minimum price increased in June 2018 from $10.50 per pack.

New York's cigarette excise tax revenue loss is higher than any other state, with 21.5% of New York's annual cigarette consumption reported from purchases made on Indian reservations in the years 2010 and 2011, leading to a loss of $292.3 million in annual excise tax revenue (Wang et al., 2017). A 2004 study found that in New York's Erie and Niagara Counties, two-thirds of smokers usually purchased their

cigarettes from Indian reservations, as these counties have several such reservations in their jurisdictions (Hyland et al., 2004). In New York, evasion of cigarette taxes by purchasing cigarettes on Indian reservations and other means is a significant issue. A report by the National Research Council estimates that almost 45% of cigarettes consumed in New York are subject to tax avoidance and evasion, resulting in over $1.3 billion in tax revenue losses to the state in 2010-2011 (NRC, 2015). Meanwhile, a 2003–2010 longitudinal study conducted in New York City found that after the 2008 tax increase, 21% of smokers reported buying more cigarettes from another person or on the street (Coady et al., 2013). A 2006 study by researchers at RTI International found that if smokers paid the full price for cigarettes, including the excise tax, the prevalence of smoking would be 2 to 3 percentage points lower (Davis et al., 2006). If smokers paid the full price for cigarettes, including the excise tax, the prevalence of smoking would be 2 to 3 percentage points lower (Davis et al., 2006).

Use of price-reducing strategies can reduce the likelihood that smokers will quit smoking and can increase cigarette purchases (Choi and Boyle, 2013; Davis et al., 2006; Hyland et al., 2006). This analysis uses the New York Adult Tobacco Survey (NY-ATS) from 2015–2017 to explore the prevalence of price-reducing strategies among adult cigarette smokers in New York State and estimate the amount saved per pack of cigarettes obtained from utilizing these strategies.

Data and Methods

We used self-reports by adult smokers who participated in the NY-ATS from January 2015 through December 2018 on questions related to cigarette consumption, purchasing, and price paid. A price-reducing strategy for cigarettes included any of the following: purchasing cigarettes by the carton or singly; purchasing roll-your-own tobacco; purchasing cigarettes at low- or no-tax locations; receiving and using coupons received via mail or email; and taking advantage of in-store price-reducing promotions such as multipack discounts.

We expect that the existence of NYC minimum pricing laws will affect the mix of price-reducing strategies used and self-reported prices paid for smokers in NYC. Therefore, based on

county of residence, we classified each respondent as living in NYC or living in New York State outside of NYC.

For this analysis, we calculated the proportion of New York smokers who use various price reducing strategies and the average price paid per pack.

Results

Nearly three-quarters of New York smokers use at least one price reducing strategy, and those who do saved almost $3 per pack.

Among all smokers in New York, 71.1% used at least one price-reduction strategy in the past 12 months (Table 5). Half of all smokers (50.0%) used one or two price-reducing strategies, while 21.1% used 3 or more strategies. In general, use of price-reducing strategies was more prevalent outside of NYC than within NYC. The most common price-reducing strategies in NYS outside of NYC were purchasing from an Indian reservation (42.8%), purchasing by the carton (30.5%), purchasing generic brands (24.2%), and purchasing from other states (22.1%). Although nearly one-quarter of smokers living in NYS outside of NYC receive coupons in the mail or by email (24.8%), only 9.0% of smokers who receive coupons use them; 15.6% take advantage of in-store price-reducing promotions. Among smokers living in NYC, the most common strategies were purchasing from other states (23.5%), purchasing from people selling cigarettes independently (16.4%), and purchasing single cigarettes (15.2%). Even though use of coupons and price-reducing promotions are illegal in NYC, 2.7% of NYC smokers reported using coupons, and 7.1% reported using in-store promotions.

More than 40% of smokers who live outside of New York City purchased cigarettes from an Indian Reservation.

Smokers who did not use any price reducing strategy paid on average $10.73 per pack, while those who used at least one strategy paid $7.57, a savings of 29.4%. Savings were greater for smokers living outside of NYC than for those living in NYC. In NYC, smokers not using any price reducing strategy paid $11.36 on average, while those who used at least one price reducing strategy paid $9.96, saving 12.3%. In the rest of the state, smokers using at least one price reducing strategy saved an average of 33.7%.

Table 5. Use of Price-reducing Strategies among Current Smokers and Average Reported Price Paid, New York ATS, 2015-2017

	All NYS		NYC		NYS outside NYC	
Price-Reducing Strategy	**%**	**Price Paid**	**%**	**Price Paid**	**%**	**Price Paid**
Used at least 1 strategy	71.1	$7.57	60.1	$9.96	78.5	$6.65
Number of strategies used						
0	29.0	$10.73	39.9	$11.36	21.6	$10.04
1	28.3	$9.98	30.1	$10.32	27.4	$9.69
2	21.7	$7.63	20.1	$10.02	22.3	$6.82
3 or more	21.1	$4.69	9.8	$8.39	28.7	$4.16
Form of cigarettes purchased						
Carton	23.3	$3.59	11.5	$5.06	30.5	$3.34
Roll your own	7.7	N/A	5.4	N/A	9.3	N/A
Loose	8.4	$12.09	15.2	$11.64	4.0	$12.09
Source of cigarettes						
Indian reservation	28.1	$5.16	7.0	$8.87	42.8	$4.86
Duty-free shop	5.5	$8.90	9.5	$9.19	3.0	$8.46
Other states	22.3	$8.65	23.5	$9.93	22.1	$7.94
Website on Internet	2.0	$8.16	3.3	$9.74	1.2	$6.05
People selling independently	10.4	$9.30	16.4	$10.42	6.7	$8.06
Generic Brand	15.5	$3.78	1.5	$7.06	24.2	$3.70
Coupons or Promotions						
Received coupons	19.9	$7.90	12.2	$10.50	24.8	$7.27
Used coupons[a]	6.7	$8.54	2.7	$9.97	9.0	$8.45
Used in-store Promotions	12.3	$8.53	7.1	$10.40	15.6	$8.19

Notes: NYC=New York City. NYS=New York State. [a]Among those who received mail or email coupons.

The lowest prices were paid by smokers who purchased cartons of cigarettes, paying on average $3.59 per pack, saving 66.5% compared to those not using price-reducing strategies. Other common strategies yielded smaller but still significant savings: purchasing cigarettes by the pack on Indian reservations, 51.9%; purchasing in other states, 19.4%; purchasing from independent sellers, 13.2%; using in-store promotions, 20.5%; and using coupons, 20.4% savings. Smokers who used 3 or more strategies paid $4.69 per pack (56.3% savings).

Summary

Nearly three-quarters of New York smokers use at least one price-reducing strategy, with the three most common being purchasing cigarettes from Indian reservations, purchasing by the carton, and purchasing from other states. Only 6.7% of smokers use coupons, and 12.3% use in-store price promotions. Use of price-reducing strategies was less common

among NYC smokers than smokers living outside NYC. Smokers in NYC more frequently reported purchasing cigarettes from people selling them independently (door-to-door or on the street) than smokers living outside NYC, but fewer NYC smokers purchased by the carton or from Indian reservations. Nearly half of smokers living outside of NYC reported buying cigarettes from Indian reservations, making it the leading price reducing behavior.

Smokers who use price-reducing strategies can save substantial amounts of money. On average, smokers who use at least one strategy report spending $3.16 less per pack than smokers who do not use any price-reducing strategy. This mitigates the effectiveness of price interventions to decrease tobacco use.

Recent point-of-sale policy discussions in New York and elsewhere have focused on the feasibility and usefulness of policies that prohibit tobacco retailers from redeeming coupons or offering price reducing promotions. This analysis suggests that such policies would affect approximately one in ten New York smokers, if enacted statewide. Such policies would represent important progress in reducing tobacco marketing and promotions in communities, but smokers would still have access to low-cost cigarettes through other means, such as Indian reservations and lower-tax states.

To what extent is media campaign reach associated with campaign awareness?

NY TCP promotes smoking cessation through broad-reaching media campaigns that depict the negative health consequences of smoking and provide information about resources for cessation support. Consistent with a wide body of research establishing the effectiveness of antitobacco media campaigns, previous evaluation findings have demonstrated a direct association between NY TCP campaign exposure and key outcomes targeted by the campaigns, including intentions to quit smoking, quit attempts, and calls to the Quitline. The effectiveness of antitobacco media campaigns on influencing these key outcomes depends largely on the extent to which they are recalled and attended to by smokers.

We conducted an analysis to assess the association between media campaign reach, as measured by gross rating points

(GRPs), and self-reported confirmed awareness of media campaigns. We also examined the extent to which the strength of association between campaign reach and awareness varied across time periods, source of ads included in campaign flights, and sociodemographic characteristics and smoking behaviors of New York smokers.

Data and Methods

To estimate campaign reach, we compiled GRPs by quarter from Q3 2003 through Q4 2018. GRPs are a measure of potential campaign reach that is a function of the frequency of an advertisement's airing and the percentage of the target audience reached during those airings. Using NY ATS data from Q3 2003 through Q4 2018, we assigned each respondent a GRP value according to their Designated Market Area (DMA) and the quarter and year in which they completed the survey.

To implement the analysis, we first conducted a logistic regression to assess confirmed awareness of any NY TCP-sponsored ad as a function of GRPs. To account for other characteristics that may influence the association between GRPs and awareness, we included in the model variables for quarter of year, DMA, whether any CDC Tips From Former Smokers (Tips) ads were included in the NY TCP-sponsored ad flight, and time period (2003-2007; 2008-2012; 2014-2018). We also included in the model variables for educational attainment, income, desire to quit, and cigarettes per day to examine variation in awareness by key sociodemographic and smoking behavior characteristics.

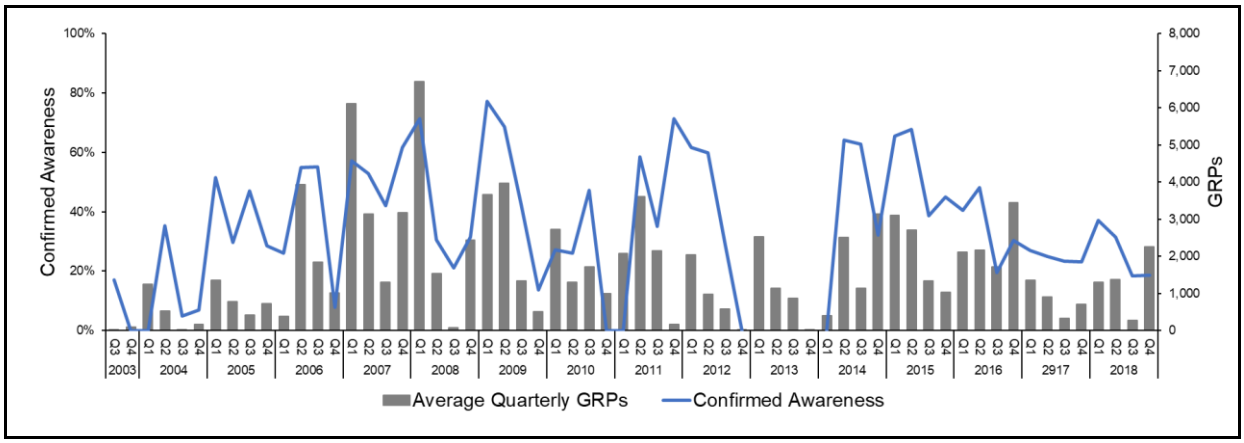
Additionally, we examined the extent to which the strength of association between campaign reach and awareness varied across individual- and campaign-level factors. To do this, we used model results to predict awareness across population groups and under different campaign scenarios, assuming a counterfactual scenario in which GRPs are held constant at their quarterly mean (1,694).

Results

Figure 30 illustrates trends in quarterly GRPs and confirmed awareness over time. Results demonstrate a robust association between GRPs and confirmed awareness. We found that for

every 100-unit increase in GRPs, we would expect an approximate 3% increase in the probability of confirmed awareness (p=0.000). However, the strength of association between GRPs and awareness decreased over time, with GRPs having a weaker effect on awareness in the later time period (2014-2018) as compared to the early time period (2003-2007) (p=0.013). We also found that GRPs had a greater impact in generating awareness in quarters in which at least one Tips ad was included in the NY TCP-sponsored ad flight; assuming a constant level of GRPs, we estimate that awareness would be 41.5% vs. 34.6% in quarters with and without Tips ads included, respectively.

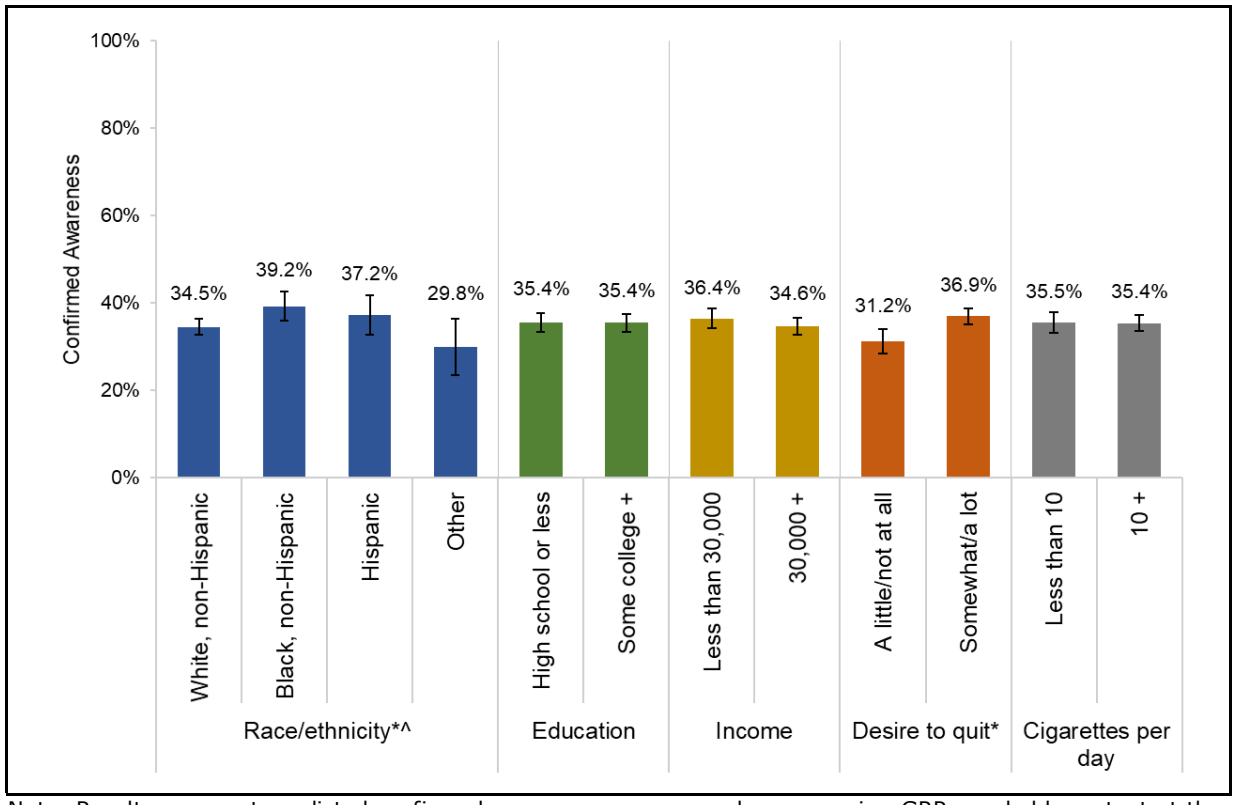
Figure 30. Average Quarterly GRPs and Confirmed Awareness Among Smokers, 2003-2018



Comparisons of the GRP-awareness association by race/ethnicity, education, and income suggest there are no significant disparities in the overall reach of NY TCP paid advertisements except for African American smokers. Results suggest that if GRPs were delivered consistently across racial groups, we would expect significantly higher ad awareness among black, non-Hispanic smokers (39.2%) as compared with white, non-Hispanic smokers (34.5%). This difference is likely explained by comparable differences in weekly television watching, which suggests that African American adults watch more hours of television than other racial/ethnic groups (Bureau of Labor Statistics, 2018). Consistent with previous research suggesting that smokers who are motivated to quit smoking are more receptive to antismoking ads (Davis et al., 2011), we also predicted higher awareness among smokers with a strong vs. weak desire to quit smoking (36.9% vs.

31.2%, respectively), assuming an equivalent GRP dose between groups.

Figure 31 Predicted Confirmed Awareness of Any NY TCP Advertisement Among New York Smokers, by Sociodemographic Characteristics and Smoking Behaviors, 2003-2018



Note: Results represent predicted confirmed awareness among smokers assuming GRPs are held constant at the overall quarterly mean (1,694) across groups. * Significant differences in average estimated probability of awareness across groups ($p < 0.05$). ^ Significant pairwise differences by race ethnicity: Black > White, Other.

Summary

We found evidence of a robust association between campaign reach and awareness, but with diminishing strength over time, which may be related to a more fractured media environment and the growing importance of digital media. The effect of GRPs on awareness was stronger during quarters in which Tips ads were included in the NY TCP-sponsored ad flight. Ad awareness did not vary substantially by sociodemographic characteristics, with the exception of race/ethnicity.

Discussion

Progress in Changing Tobacco Use

In 2018, NY TCP continued implementing multi-component intervention activities to prevent youth tobacco use initiation, promote cessation of tobacco use, eliminate exposure to secondhand smoke, and reduce disparities in smoking prevalence. The Program achieved many of the NYSDOH 2013-2018 Prevention Agenda tobacco-related objectives prior to the end of 2018, including reductions in adult cigarette smoking prevalence, decreased exposure to secondhand smoke, and the implementation of policies that restrict the retail tobacco environment. However, the Program's state-appropriated funding is far lower than CDC recommendations, and even lower still due to a limit communicated by the NYS Division of Budget that is $5 million less than the appropriated amount. This hinders the Program's capacity to maintain and expand its infrastructure and intervention efforts. Fully funding the Program to implement evidence-based strategies would cost far less than the societal costs attributable to smoking-related disease and death.

Although the prevalence of adult cigarette smoking is trending downwards in New York and in the rest of the country, tobacco use disparities persist. We see higher cigarette smoking prevalence among New York adults with frequent mental distress, lower income, and lower education. NY TCP uses broad-based interventions to maximize its reach and reinforce tobacco-free norms through health communications, health systems change, and state and community interventions that include public health policy. The Program also offers Medicaid benefits for tobacco cessation counseling and pharmacotherapy. The NYSDOH 2019-2024 Prevention Agenda sets new targets to continue to decrease tobacco use farther among all adults and specifically groups with higher prevalence rates.

The prevalence of smokers making a past-year quit attempt has remained relatively steady between 56% and 66% for the past decade, indicating that majority of smokers are motivated and prompted to quit and that they continue making quit attempts. Among adult smokers who make a quit attempt, approximately half did so unaided. Among smokers who report

using some aid to help them quit smoking, a greater proportion reported using evidence-based quit methods compared to those using vaping products to quit smoking. The prevalence of adult cigarette smoking is higher than adult use of other tobacco products; for instance, estimates of adult current cigar use and vaping product use are below 8%. The prevalence of adult vaping product use appears to be rising more slowly than in United States overall.

Youth cigarette smoking prevalence has decreased dramatically in New York and is now less than 5% among high school students and less than 1% among middle school students. Low youth smoking rates have appeared to translate into low smoking rates during young adult years as well, as smoking prevalence among young adults is below 9%. Although youth cigarette smoking prevalence has declined, youth vaping has increased at a rapid pace. In 2018, 27.4% of high school students reported vaping in the past 30 days and 44.9% of high school students reported having ever tried vaping. The increase in youth vaping use is a challenge nationally, and has been labeled an epidemic by the public health community. Estimates of current use of any tobacco product among New York high school students is 30.6% and is clearly driven by vaping product use. The prevalence of youth cigar use has been relatively stable over the past few years, and is now similar to youth cigarette smoking prevalence. The Program continues to monitor patterns of youth cigar, cigarette, and vaping product use.

The Program focuses its resources on evidence-based approaches to maintain and support tobacco control activities centered around health communication, health systems change, and state and community interventions. NY TCP continues to promote tobacco control policies aligned with CDC recommendations, and New York adults report notable support for tobacco control policies. Although New York has implemented multiple interventions to reduce tobacco use including raising the cost of tobacco products, we found that the majority of New Yorkers reported using at least one price-reduction strategy in the past 12 months including purchasing from an Indian reservation, purchasing by the carton, purchasing generic brands, and purchasing from other states.

New analyses regarding the health and economic burden of tobacco use offer mixed findings. Reductions in cigarette smoking over time have translated to a lower health and financial burden, but the cost impact of tobacco use is still overwhelming. In our calculations of tobacco-attributable mortality and morbidity in New York, we estimate that smoking and secondhand smoke exposure led to the deaths of more than 21,000 New Yorkers in 2017. These deaths were primarily related to cancers and cardiovascular diseases. New York smoking-attributable healthcare expenditures were $9.7 billion in 2017. However, this cost is notably lower than the 2011 estimate of $12.3 billion, which means that the state's tobacco-related economic burden has shrunk over time. Reductions in smoking and exposure to secondhand smoke can continue to lead to improvements measured by deaths averted, life years gained, quality of life improved, and healthcare expenditure savings.

Health Communications

NY TCP has continued to focus paid media efforts on promoting smoking cessation, with an emphasis on television and digital advertisements that depict the health consequences of smoking and the emotional impact of those health effects on individuals and their families. In 2018, NY TCP combined message strategies and specific advertisements that have performed well in formative testing in the past several years with new advertisements, including those that offer encouragement and support for smokers who are interested in quitting and trying to quit. As a complement to its health systems change efforts, the Program also continues to promote Medicaid coverage of tobacco dependence treatment via broadcast advertising, along with developing provider-targeted media.

Coincident with a more than 50% increase in GRPs between 2017 and 2018, awareness of anti-tobacco ads increased slightly between 2017 and 2018, with just over one-quarter of NY smokers being aware of any ad in 2018. While the increase in ad awareness is promising, awareness remains below historical levels despite a substantial increase in GRPs between 2017 and 2018, likely due to a transition away from broadcast TV to digital media. This finding may be due to ad allocation, with NY TCP emphasizing ads featuring primarily motivational,

informational, or social-norms-related content in 2018. Historical patterns suggest that increasing GRPs, with an emphasis on ads with graphic imagery or emotionally-evocative content, may help improve ad awareness.

To increase the reach and effectiveness of its health communications efforts, the evidence nationally and in New York suggests that if NY TCP used a greater proportion of hard-hitting graphic or emotionally resonant ads that awareness and impact would increase. NY TCP may also consider optimizing ad allocation strategies to best align with the media use preferences of their target audience. Findings from our examination of reactions to ads and media use patterns of NY smokers could help inform these efforts. Additionally, the Program could reassess the media vendor's negotiated bonus airtime to maximize the value of the Program's ad buys.

With the evolution of the tobacco product landscape, such as increases in vaping product use, campaign strategies will need to evolve. However, little evidence exists regarding effective campaigns to curb vaping product use or reduce adult use of other tobacco products. With additional resources, the Program could take steps to identify effective messages.

Health Systems Change

NY TCP conducts evidence-based health systems interventions to promote cessation from tobacco use by supporting the provision of evidence-based, clinical tobacco dependence treatment in health care settings. This multi-component intervention integrates the work of regional health systems grantees to facilitate changes in health care and mental health organizations, Quitline efforts to support quit attempts, media campaigns targeting health care providers and behavioral health care providers, and strategies to reduce the cost of evidence-based cessation assistance.

NY TCP-funded health systems grantees focus on systems change in organizations where populations with the highest rates of smoking are concentrated, in community health centers and mental health treatment facilities. This targeted approach has evolved from a broader approach that originally focused on hospitals and medical practices. This targeting of organizations that support underserved populations with higher smoking

prevalence is combined with an emphasis on high-level organizational change rather than proceeding one clinic at a time. Although there is no playbook for implementing health systems change interventions statewide in a shifting healthcare landscape with a limited budget, NY TCP's approach focuses on maximizing intervention reach and sustainability. Although there are a multitude of confounding influences on organizational systems, NY TCP emphasizes the alignments between a range of existing improvement efforts with cessation guideline-concordant systems and processes.

New York adult smokers report that health care providers ask about tobacco use and advise them to quit at high rates, but New York has not yet achieved its target for provider assistance with quit attempts. However, some of the highest rates of provider assistance were reported among the groups that NY TCP interventions are targeting: those with frequent mental distress, those on public insurance, and those with low income (Hayes, et al., 2018).

Although the state's Quitline reach is low, it is higher than in other states and provides efficient services as recommended by CDC's *Best Practices* (2014) (Mann et al., 2018). In addition, over the last several years the NY TCP has directed the Quitline to integrate programmatic components that support the overall health systems initiative, such as having Quit Coaches reinforce the Program's messaging about the importance of talking with a health care provider about quitting and about available health insurance benefits for tobacco dependence treatments. The state's Medicaid benefits facilitate increased access to affordable quit supports, and NY TCP has promoted awareness of these benefits through ads as well. However, there is a lag in availability of data on use of the Medicaid cessation benefits, which makes it more challenging for NY TCP to track this key outcome.

The Program has a strong framework for implementing health systems interventions. The integration of synergistic health systems efforts with a focus on reaching groups with disproportionately high rates of smoking support continued progress on tobacco users receiving evidence-based support with quitting. The Program can continue to advance these efforts and clarify for grantees and partners the ways in which

vaping product use should be addressed within the health systems change framework.

Statewide and Community Action

Grantees continue to focus their policy efforts on local policy makers and key organizational decision makers. As a result, they have continued to make progress toward local policies focused on POS, tobacco-free outdoors, and smoke-free multi-unit housing. Although POS efforts have resulted in a relatively small number of local policies through 2018, grantees exceeded the NYSDOH 2013-2018 Prevention Agenda target of 10 municipalities with POS policies, reporting a total of 17 local communities with policies by the end of 2018. Local successes in adopting policies that prohibit the sale of tobacco products in pharmacies demonstrate the support for and feasibility of this type of policy, suggesting that it may hold promise for broader implementation in other communities.

POS policy change remains challenging in tobacco control generally and has required years of educating the public and policy makers about the effects of POS marketing and the need for policies. However, the retail environment is an important venue for change that can impact key tobacco use outcomes. The youth vaping epidemic emphasizes the importance of limiting the appeal and accessibility of these products. Grantees have engaged local and regional opinion leaders and policy makers in their efforts to promote tobacco control policies. The Program and its grantees can continue to leverage the support of groups and individuals with similar goals of improving the health of youth and population groups disproportionately affected by tobacco use.

Grantees facilitated smoke-free multi-unit housing policies, including supporting public housing authorities with implementation of HUD's smoke-free rule for federal public housing, which went into effect on July 31, 2018. The Program can continue to build upon progress made in this area to increase the availability of housing that protects families from secondhand smoke. These policies also continue to help promote a tobacco-free norm, which can contribute to continued improvements in health outcomes.

Public support for tobacco control policies remains strong among New Yorkers. Local opinion leader support of tobacco control policies has increased and remains high. To ensure continued increases in support for local policy change among opinion leaders and the public, the Program continues to invest in grantee training, legal advice (through their contract with the Public Health and Tobacco Policy Center), and development of tobacco control policy messaging and materials.

Programmatic Recommendations

Overall Recommendations

- Restore NY TCP funding to the amount allocated by the state legislature. In addition, increase funding to a minimum of one-half of CDC's recommended funding level for the state ($203 million) to $101.5 million.
  - Significantly increasing Program funding would be consistent with CDC recommendations, and could be used to expand ATFC grantee efforts, health system interventions, and health communication campaigns to reach target populations with increased integration of digital and social media campaigns.
  - The dramatic increase in youth use of vaping products requires NY TCP resources, and the Program could respond more effectively with a greater level of funding to develop and disseminate messaging, pursue policies to reduce youth exposure and access, implement compliance monitoring protocols, and study the effectiveness of interventions in this emerging area.
  - Increased funding would allow for additional infrastructure and administration improvements such as expanded professional development, enhanced administrative capacity through staff funding and training, and innovation in surveillance and evaluation activities to assess the Program's impact.
- Continue to refine the Program's approach to reach smokers with disproportionately high rates of smoking, especially adults with low income and frequent mental distress.
  - Addressing these persistent disparities will require ongoing collaboration with stakeholders working with these populations, through enhanced community mobilization work and expanded leverage of health systems change efforts.

  - The inclusion of NYSDOH 2013-2018 Prevention Agenda objectives regarding smoking prevalence among adults who are living with any disability or who self-identify as LGBT may require adjustments to intervention approaches and organizational partnerships.

Health Communication Recommendations

- Focus the Program's limited funds available for paid media campaign efforts on high-impact television advertisements, those that graphically depict the health consequences of smoking or elicit strong negative emotions.
- Consider evaluation strategies to identify the optimal allocation of campaign advertising across medium (e.g., television vs. digital) and specific channels and programs.
- Review ad placement strategies to maximize the reach and potential effectiveness of campaigns among populations disproportionately impacted by tobacco use.
- Explore opportunities to adapt campaigns in response to changes in the tobacco product landscape, including vaping product use and multi-product use. Assessing the effectiveness of these efforts will help fill the existing gap in literature and practice on this issue.

Health Systems Change Recommendations

- Continue to focus health systems change efforts on organizations that serve high proportions of tobacco users, such as community health centers and mental health organizations.
- Collaborate with New York State Medicaid to conduct additional educational efforts targeting enrollees and providers to promote awareness and use of Medicaid smoking cessation benefits, and to actively review available data to track progress.
- Continue to leverage existing partnerships and engage in new collaborations across the health care sector to promote health systems change.
- Encourage the NY TCP-funded Center of Excellence to leverage opportunities to help create changes in the state-level context for health systems change that support the institutionalization of tobacco dependence treatment.

- Continue to complement smoker-targeted media campaigns with provider-targeted media campaigns, and aim to improve provider response to these campaigns and increase changes in awareness and behaviors.
- Clarify the Program's plan for how vaping product use should be addressed in the health care setting and integrate this into health systems interventions.

Statewide and Community Action Recommendations

- Develop and implement a statewide strategy for grantees to address vaping among youth and educate policy makers about potential policy solutions. Through these efforts, capitalize on opportunities to reinvigorate interest in the issue of tobacco use among the public and policy makers.
- Continue to explore messaging approaches that resonate with populations that have disproportionately high tobacco use (and opinion leaders within those populations).
- Expand grantee community mobilization to include more organizations outside of the traditional health and public health sectors and explore the feasibility of empowering grantees to incorporate related non-tobacco causes into their own work. Engaging with allied organizations could be expanded to efforts that serve a mutual benefit, including sectors such as business, education, and housing.
  - For example, community grantees might engage with other organizations in efforts to promote affordable quality housing in their communities, whereas community housing organizations could integrate smoke-free housing policies and potentially promote assisted cessation in their organizational activities.
- Continue to integrate a health equity approach in the grantees' community-based work to address health disparities, including tobacco use and its health consequences. Provide training and technical assistance for grantees to meaningfully engage their communities in this work.
- Consider reach and potential impact when prioritizing POS policies for grantees to pursue. In particular, restrictions on sales of flavored tobacco products (including menthol and vaping products) would likely have a notable impact on youth tobacco use initiation and this policy area already has high levels of support

among New York opinion leaders and the general population.

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