



**TESTIMONY  
OF THE  
NEW YORK PUBLIC INTEREST RESEARCH GROUP  
BEFORE THE  
JOINT HEARING OF THE SENATE FINANCE AND ASSEMBLY WAYS & MEANS  
COMMITTEES REGARDING THE  
FISCAL YEAR 2019-2020 EXECUTIVE HEALTH BUDGET PROPOSAL  
February 5, 2019  
Albany, N.Y.**

Good afternoon, my name is Blair Horner and I am executive director of the New York Public Interest Research Group (NYPIRG). NYPIRG is a non-partisan, not-for-profit, research and advocacy organization. Consumer protection, environmental preservation, health care, higher education, and governmental reforms are our principal areas of concern. We appreciate the opportunity to testify on the governor's executive budget on health.

As you will see, we have reactions to a number of areas of the executive budget. However, the focus of our testimony is on the executive's funding of important public health programs. First, the efforts to fight cancer.

Virtually all New Yorkers have had an experience with cancer. According to the U.S. Centers for Disease Control and Prevention (CDC), cancer is the second leading cause of death in America.<sup>1</sup> *As seen below, the top five cancer killers account for more than half of all the estimated cancer deaths.*

**Estimated Number of New Cancer Cases and Cancer Deaths Exceeding 1,000, 2019<sup>2</sup>**

<b>Type of Cancer</b>	<b>New Cases</b>	<b>Deaths</b>
<i>Total, all sites</i>	<i>111,870</i>	<i>35,010</i>
Lung & Bronchus	13,380	7,790
Colon & Rectum	9,150	2,890
Pancreas	3,720	2,830
Female Breast	17,490	2,460
Liver & IBD	2,630	1,740
Prostate	9,700	1,730
Leukemia	4,540	1,370
Non-Hodgkin Lymphoma	5,030	1,210
Urinary Bladder	5,410	1,080

Breast cancer is the leading form of cancer affecting women and the second biggest cancer killer of women. Yet, it is not the leading cause of cancer deaths for women. Prostate cancer is a leading cause of cancer in men, but it is not the leading cause of cancer deaths in men. *That terrible distinction belongs to lung cancer.*

<sup>1</sup> U.S. Centers for Disease Control and Prevention, "Leading Causes of Death," <http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>.

<sup>2</sup> American Cancer Society, Cancer Facts & Figures, Supplemental Data, see: <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2019/estimated-new-cases-and-deaths-by-state-for-21-cancer-sites-2019.pdf>.

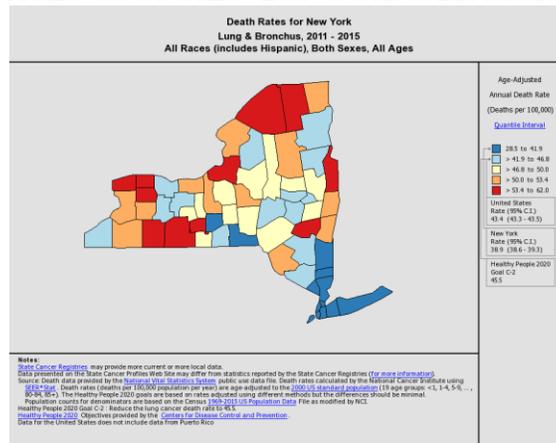
## NYPIRG Health Testimony, Page 2

As you see in the above chart, lung cancer is what drives cancer deaths in New York State: *One-quarter of all cancer deaths result from lung cancer.* It is a cancer that is deadly, and that afflicts men and women alike. It is also a cancer for which we know how to dramatically reduce its impact: by reducing the use of tobacco products.

**The leading cause of lung cancer is tobacco use.** Today nearly 9 out of 10 lung cancers are caused by smoking cigarettes.<sup>3</sup> Not only are smokers at risk, but even non-smokers can be afflicted by exposure to tobacco smoke. In the U.S., more than 7,300 nonsmoking lung cancer patients die each year from exposure to secondhand smoke alone.<sup>4</sup>

Before we go into more detail about the governor's failure to do anything to improve – much less meet – the scientifically-identified goals for how much money the state of New York should spend on fighting lung cancer, we reviewed the impact of lung cancer throughout New York State. As you can see below, lung cancer mortality rates tend to be higher in upstate counties.<sup>5</sup>

### NEW YORK STATES COUNTIES' LUNG CANCER MORTALITY RATES<sup>6</sup>



As seen below, given the causal relationship between lung cancer and smoking, it is not surprising that the smoking rates tend to be higher in upstate New York than downstate.

<sup>3</sup> Smoking also causes cancers of the esophagus, larynx, mouth, throat, kidney, bladder, liver, pancreas, stomach, cervix, colon, and rectum, as well as [acute myeloid leukemia](#) (1-3). Source: National Cancer Institute, available at <https://www.cancer.gov/about-cancer/causes-prevention/risk/tobacco/cessation-fact-sheet#q2>.

<sup>4</sup> U.S. Centers for Disease Control and Prevention, "Secondhand Smoke Facts, 2015":

[https://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/secondhand\\_smoke/general\\_facts/index.htm](https://www.cdc.gov/tobacco/data_statistics/fact_sheets/secondhand_smoke/general_facts/index.htm).

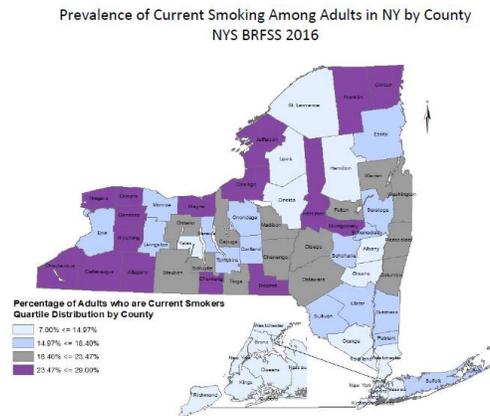
<sup>5</sup> Cancer is not the only disease that can result from tobacco use, see:

[https://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/health\\_effects/effects\\_cig\\_smoking/index.htm](https://www.cdc.gov/tobacco/data_statistics/fact_sheets/health_effects/effects_cig_smoking/index.htm).

<sup>6</sup> National Cancer Institute:

<https://statecancerprofiles.cancer.gov/map/map.withimage.php?36&001&047&00&0&02&0&1&5&0#results>.

### NEW YORK COUNTIES' ADULT SMOKING RATES<sup>7</sup>



Unfortunately, the governor's executive budget does nothing new to combat the leading cause of cancer deaths in women and men.<sup>8</sup> The executive budget adds no new revenues to the state's program designed to combat tobacco use. Indeed, the state's tobacco control program now has less than 50 percent of the funding it received a few years ago, and less than 20 percent of the amount recommended by the CDC.<sup>9</sup> New York State has slashed its investment in the best way to reduce lung cancer incidence and mortality. *New York State, once ranked 5<sup>th</sup> in the nation in funding its anti-smoking efforts, has slipped to 23<sup>rd</sup>.*<sup>10</sup> Indeed, when adjusted for inflation, New York State spends less now on its tobacco control program than at any other time.<sup>11</sup>

**It is simply indefensible that the state's response to the leading cause of cancer deaths among men and women has suffered drastic cuts. These funding reductions are even more inexcusable when examining the amount of money that tobacco use generates for the state's coffers.**

The money is available. In addition to the estimated \$1.1 billion raised in tobacco taxes, the state is now expecting new revenues from the state's master settlement agreement (MSA). The MSA is an agreement to settle litigation between the nation's largest cigarette companies and 46 states. The MSA requires those cigarette companies to, among other things, annually pay billions of dollars to the states as compensation for the health costs to their Medicaid programs resulting from tobacco use. Bonds issued in 2003 that were secured by annual payments under the MSA with tobacco manufacturers will be fully retired. Starting in

<sup>7</sup> Source: New York State Department of Health, [https://www.health.ny.gov/prevention/tobacco\\_control/reports/statshots/volume11/n4\\_current\\_adult\\_smoking\\_by\\_county.pdf](https://www.health.ny.gov/prevention/tobacco_control/reports/statshots/volume11/n4_current_adult_smoking_by_county.pdf).

<sup>8</sup> U.S. Centers for Disease Control and Prevention, for women see: <https://www.cdc.gov/cancer/dcpc/data/women.htm>; for men, see: <https://www.cdc.gov/cancer/dcpc/data/men.htm>.

<sup>9</sup> U.S. Centers for Disease Control and Prevention, "Best Practices for Tobacco Control Programs, 2014," see: [https://www.cdc.gov/tobacco/stateandcommunity/best\\_practices/pdfs/2014/comprehensive.pdf](https://www.cdc.gov/tobacco/stateandcommunity/best_practices/pdfs/2014/comprehensive.pdf), p. 110.

<sup>10</sup> Report issued jointly by the American Cancer Society, American Heart Association, American Lung Association and the Campaign for Tobacco Free Kids, et al, "Broken Promises to Our Children: A State-by-State Look at the 1998 State Tobacco Settlement Agreement, 20 Years Later," 2018, see: <https://www.tobaccofreekids.org/what-we-do/us/statereport/new-york>.

<sup>11</sup> For a more detailed examination of the state's tobacco control program, see the report "Dissipated" at [www.nypirg.org](http://www.nypirg.org).

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2017, the executive stated that it expected that MSA payments of approximately \$400 million annually would be available for State purposes.<sup>12</sup> These revenues can be used to enhance tobacco control as well.

**NYPIRG urges you to use that money to fully fund tobacco control and other cancer-prevention programs. The MSA revenues were promised to help curtail the carnage caused by tobacco use. Sadly, too little has been done. This budget provides you an opportunity to reverse New York's years of neglect.**

**However, we urge you to oppose raising the minimum age to purchase tobacco products to 21 years.**

NYPIRG has long been an advocate for strong pro-health, science-based restrictions on tobacco use. However, we have long had the position that discrimination against adults should be opposed.

You will hear of the lives that can be saved by raising the smoking age. It's probably true that if the age was raised – indeed if prohibition of tobacco sales altogether was approved – lives could be saved. But does raising the minimum purchase age to 21 achieve anything for the public health?

*It does not.*

18, 19, and 20 year-olds are adults. They can vote, they can marry, they can sign contracts, they can serve in the military. Why discriminate against them?

The argument starts with the alcohol purchase age. As you know, the federal government forced states to adopt the 21-year-old minimum purchase age for alcohol or faced the loss of federal transportation funds. The argument at that time was that the carnage caused by alcohol-related car crashes would be reduced if the age changed. It was never an effort to limit teen use of alcohol. We have not seen evidence that raising the age did reduce underage drinking.

In terms of tobacco sales, nearly 90 percent of smokers start before the age of 18<sup>13</sup> with the average age of the of beginning smokers in New York at 13!<sup>14</sup>

What evidence is advanced to support raising the age? Proponents cite a 2015 report issued by the Institute of Medicine, which used modeling to predict the impact of raising the age under various scenarios.<sup>15</sup> Using that modeling, the researchers concluded that teens would be less likely to smoke and lives would be saved.

We do not dispute that the Institute of Medicine is an impressive research organization and we do not dispute the use of modeling to better understand the impact of policies. However, its predictions are not borne out by the real-world impacts of raising the age.

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<sup>12</sup> New York State Division of the Budget, FY2018 Executive Briefing Book, p. 8.

<sup>13</sup> U.S. Centers for Disease Control and Prevention, see:

[https://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/youth\\_data/tobacco\\_use/index.htm](https://www.cdc.gov/tobacco/data_statistics/fact_sheets/youth_data/tobacco_use/index.htm).

<sup>14</sup> New York State Department of Health, see: [https://www.health.ny.gov/prevention/tobacco\\_control/](https://www.health.ny.gov/prevention/tobacco_control/).

<sup>15</sup> Institute of Medicine, *Public Health Implications of Raising the Minimum Age of Legal Access to Tobacco Products*, March 2015.

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New York City has embarked on a *real-life* experiment on the impact of raising the minimum age. In 2013 it passed a local law raising the age. Last year, in an article published in the American Journal of Public Health, researchers examined the impact of the law.<sup>16</sup> The authors concluded:

*Increasing the MLPA [Minimum Legal Purchasing Age] to 21 years in NYC did not accelerate reductions in youth tobacco use any more rapidly than declines observed in comparison sites.*

Their conclusions should come as no surprise. As mentioned earlier, nearly 90 of smokers start before the age of 18. Instead of discriminating against young adults, the state should focus its energies on the strategy recommended by the CDC and adequately fund its tobacco control program.

### **WE URGE SUPPORT FOR THE GOVERNOR'S PROPOSAL TO REGULATE AND TAX ELECTRONIC CIGARETTES**

The executive budget proposes to require that e-cigarette liquids be sold only through licensed tobacco retailers and taxes the e-cigarette liquid. NYPIRG urges you to support those initiatives.

Information from the U.S. Centers for Disease Control and Prevention (“CDC”) concludes that among other chemicals, nicotine present in e-cigarette aerosol can be directly absorbed by users and bystanders.<sup>17</sup>

Peer-reviewed studies have concluded that electronic cigarettes release significant amounts of nicotine into the air, exposing to nicotine nonsmokers as well as people who choose not to use e-cigarettes.<sup>18</sup> Propylene glycol is also exhaled by users of the electronic device. While the compound is generally considered to be safe, it can be a skin irritant and there is a lack of data pertaining to the health risks associated with prolonged exposure to these vapors. Studies have shown that propylene glycol can cause upper airway irritation.<sup>19</sup> Other chemicals emitted upon exhalation include the weed killer acrolein, the respiratory irritant formaldehyde, as well as other cancer-causing agents.<sup>20</sup>

**The growing use of e-cigarettes, particularly by minors, underscores the need for a robust public education program about the hazards of e-cig use. Taxation can provide the necessary resources.**

**2. Support Codification of, and Funding for, the New York State Health Exchange.** As you know, the numbers of New Yorkers who lack health insurance is considerable. According to the Office of the State Comptroller, US Census Bureau, in 2017 4.9 percent of state residents were uninsured. This represents both the lowest percentage and number of New Yorkers who lacked health insurance since 1999.<sup>21</sup>

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<sup>16</sup> James Macinko, PhD, and Diana Silver, PhD, MPH, “Impact of New York City’s 2014 Increased Minimum Legal Purchase Age on Youth Tobacco Use,” May 2018, Vol 108, No. 5 American Journal of Public Health, p. 669. We’ve attached the article to the end of our testimony.

<sup>17</sup> CDC Dual Use of Tobacco Products, see: <http://www.cdc.gov/tobacco/campaign/tips/diseases/dual-tobacco-use.html#ten>

<sup>18</sup> Secondhand Exposure to Vapors From Electronic Cigarettes, see: [http://njgasp.org/wp-content/uploads/2014/06/NTR\\_Czogala-Goniewicz-Travers\\_SHS\\_e-cig\\_vapors\\_12-2013.pdf](http://njgasp.org/wp-content/uploads/2014/06/NTR_Czogala-Goniewicz-Travers_SHS_e-cig_vapors_12-2013.pdf)

<sup>19</sup> Electronic Cigarette Liquid Increases Inflammation and Virus Infection in Primary Human Airway Epithelial Cells, see: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4171526/>

<sup>20</sup> Advocates: Include e-cigarettes in N.Y. Clean Indoor Air Act, see: <http://www.timesunion.com/local/article/Advocates-Include-e-cigarettes-in-N-Y-Clean-7943044.php>

<sup>21</sup> New York State Office of the State Comptroller, “7 Million and Counting; More New Yorkers Benefit from State Health Coverage,” September 2018, see: <https://osc.state.ny.us/reports/health/state-health-coverage.pdf>.

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What has happened to drive down the number of uninsured? Nationally, until recent efforts to destabilized the Affordable Care Act, the percentage of Americans without health insurance was at the lowest since 2009,<sup>22</sup> but given the fact that many states have been slow to embrace reforms, the national impact is hard to assess. However, the drop in the percentage of the uninsured has followed the timeline of the implementation of the federal health care law. Starting in the fall of 2010, coverage under the law started to kick in. Thus, it seems reasonable to conclude that the changes brought about by the Affordable Care Act (ACA) contributed to New York's decline.

The United States spends 17.9 percent of the Gross National Product on health care<sup>23</sup> yet ranks 27<sup>th</sup> of the 38 member Organisation for Economic Co-operation and Development (OECD member nations in life expectancy.<sup>24</sup> It is clear that American health care is expensive and yet doesn't deliver on its most basic mission, providing coverage to all those who need it. Public policy must ensure coverage for all residents.

Despite the demonstrable successes of the Affordable Care Act, many in need are left without health insurance. As mentioned earlier, 4.9 percent of New Yorkers still lack health insurance. And while this represents both the lowest percentage and number of New Yorkers who lacked health insurance since 1999, more must be done.

For those without health insurance, serious illnesses can be deadly. For example, cancer. Research suggests that nearly four percent of cancer patients are uninsured at the time of diagnosis.<sup>25</sup> Equally troubling, about one-third of cancer survivors report a loss of health insurance at some point in time since their diagnosis.<sup>26</sup>

For these individuals and their families, the cost of fighting cancer may mean choices that could lead to huge debts under the best of circumstances. The first concern of someone diagnosed with cancer is what are the chances of a recovery? For many, the cost of treatment will also become a top priority in surviving. According to the federal government, cancer is one of the five most costly medical conditions in the United States, forcing many patients to make decisions about their health based on their personal finances.<sup>27</sup>

While some individuals diagnosed with cancer have meaningful and adequate health insurance to cover most of the cost of treatment, the uninsured and an increasing number of privately insured individuals face the prospect of crippling out-of-pocket costs. Financial barriers that delay treatment for cancer can mean the difference between life and death.

Cancer patients face deductibles, copayments, and other cost-sharing requirements, often compelling them to make difficult decisions in order to make ends meet. The burden is greater for cancer patients, who pay

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<sup>22</sup> Ibid.

<sup>23</sup> U.S. Center for Medicare and Medicaid Services, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html>.

<sup>24</sup> Organisation of Economic Co-operation and Development, <http://www.oecdbetterlifeindex.org/topics/health/>.

<sup>25</sup> Thorpe KE, Howard D. "Health Insurance and Spending Among Cancer Patients" *Health Affairs* 2003. W3; 189-198.

<sup>26</sup> Indiana University, "Number of newly diagnosed cancer patients without insurance drops in first year of ACA," October 19, 2017, <https://news.iu.edu/stories/2017/10/iub/releases/19-cancer-affordable-care-act.html>.

<sup>27</sup> U.S. Agency for Healthcare Research and Quality, "Statistical Brief #471: Top Five Most Costly Conditions among Adults Age 18 and Older, 2012: Estimates for the U.S. Civilian Noninstitutionalized Population," [https://meps.ahrq.gov/data\\_files/publications/st471/stat471.shtml](https://meps.ahrq.gov/data_files/publications/st471/stat471.shtml).

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more out of pocket for care than those with other chronic illnesses. For example, 13 percent of nonelderly cancer patients spend at least 20 percent of their income on out-of-pocket expenses. Fifty percent of Medicare beneficiaries with cancer pay at least 10 percent of their income towards cancer treatment-related out-of-pocket costs.<sup>28</sup>

**Even with the expansion of coverage under the Affordable Care Act, many Americans still faced financial strains from medical costs.** Even those with coverage face uncertainties, “roughly 20 percent of people under age 65 with health insurance nonetheless reported having problems paying their medical bills over the last year. By comparison, 53 percent of people without insurance said the same.”<sup>29</sup>

Of course, the full-throated attack by the Trump Administration and its Congressional allies on the expansion of health insurance, makes it clear that states need to protect their gains. In the executive budget, the governor proposes to codify certain ACA provisions and state regulatory protections into law, including protections for people with preexisting conditions, a mandate for essential benefits, and putting into law the New York State of Health Marketplace.

Government must ensure coverage for all, including immigrants. We urge your support for the Affordable Care Act as well as your support for the creation of a **Commission on Universal Access to Healthcare**.

### 3. Attack the problem of prescription drug costs.

The problem of rising costs for prescription drugs is real and complicated. The executive budget proposes that the state comprehensively regulate Pharmaceutical Benefit Managers. NYPIRG agrees, but more should be done.

For example, for those who lack health insurance, or have inadequate pharmaceutical coverage, drugs costs can be excessive. New York State enacted a law that established a website to check the price of any one of the 150 most prescribed drugs – in order to help them to shop for the lowest cost. In addition, the law required pharmacies to post a sign of the availability of that website.<sup>30</sup>

In order to examine the price differences in each region of the state, NYPIRG searched the most current pricing information contained in the Department’s database as available on the state’s website. In addition, we “spot checked” pharmacies’ compliance with the requirement to publicize the website address.

**We found that there were huge price differences by region.** Our review shows surprisingly large ranges in the retail prices of drugs *within* geographic regions.

- In the city of **Albany**, the drug Advair Diskus had the greatest range in price, from a high of \$417.97 to a low of \$263.99 – a difference of \$153.98.

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<sup>28</sup> Zafar, S.Y., “Financial Toxicity of Cancer Care: It’s Time to Intervene,” The Journal of the National Cancer Institute, December 11, 2015, <https://academic.oup.com/jnci/article/108/5/djv370/2412415>.

<sup>29</sup> Sanger-Katz, M., “Even Insured Can Face Crushing Medical Debt, Study Finds,” The New York Times, January 5, 2016, <https://www.nytimes.com/2016/01/06/upshot/lost-jobs-houses-savings-even-insured-often-face-crushing-medical-debt.html>.

<sup>30</sup> New York State Education Department, Office of the Professions, **Questions and Answers About Pharmacists and Pharmacies**, July 10, 2003, <http://www.op.nysed.gov/prof/pharm/pharmqa703.htm> and the New York State Department of Health, <https://apps.health.ny.gov/pdpw/Faq.action#Q1>.

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- In the city of **Binghamton**, the drug Advair Diskus had the greatest range in price, from a high of \$417.97 to a low of \$277.94 – a difference of \$140.03.
- In the city of **Buffalo**, Ventolin HFA Inhaler had the greatest range in price, from a high of \$177.17 to a low of \$44.59 – a difference of \$132.58.
- In the city of **Ithaca**, the drug Nexium had the greatest range in price, from a high of \$292.99 to a low of \$201.32 – a difference of \$91.67.
- In the city of **Rochester**, the drug Advair Diskus had the greatest range in price, from a high of \$389.99 to a low of \$230.99 – a difference of \$159.
- In the city of **Syracuse**, the drug Nexium had the greatest range in price, from a high of \$348.97 to a low of \$188.99 – a difference of \$159.98.
- In suburban counties surrounding New York City we examined three communities. In **Suffolk** County, in Commack the drug with the greatest range in price – Nexium, from a high of \$304.99 to a low of \$188.43 – a difference of \$116.56. In **Nassau** County, in Hempstead the drug with the greatest range in price was Advair Diskus, from a high of \$379.29 to a low of \$225 – a difference of \$154.29. In **Westchester** County, in White Plains the drug with the greatest range in price was Advair Diskus, from a high of \$411.50 to a low of \$253.32 – a difference of \$158.18.
- Within New York City we examined areas contained in or near zip codes in each borough.
  - In one area in the **Bronx** the drug with the greatest range in price was Advair Diskus, from a high of \$350.50 to a low of \$267.39 – a difference of \$83.11.
  - In one area in **Brooklyn** the drug with the greatest range in price was Advair Diskus, from a high of \$346.49 to a low of \$230.99 – a difference of \$115.50.
  - In one area in **Manhattan** the drug with the greatest range in price was Advair Diskus, from a high of \$467.75 to a low of \$260 – a difference of \$207.75.
  - In one area in **Queens** the drug with the greatest range in price was Lantus Solostar, from a high of \$188.05 to a low of \$123.72 – a difference of \$64.33.
  - In one area in **Staten Island** the drug with the greatest range in price was Advair Diskus, from a high of \$396.19 to a low of \$283.99 – a difference of \$112.20.

These price differences within the regions of New York underscore the financial threat posed to residents who lack prescription drug coverage. For those individuals, checking the state’s website can save a bundle. But that can only work if they know of the website’s existence.

NYPIRG’s review found many pharmacies appear to fail to display the drug price website address, as required by law. NYPIRG conducted a spot check of pharmacies across New York State, including in the regions of Albany, Buffalo, Manhattan, Nassau, Queens, Rochester, and Syracuse, to test whether consumers could easily find the required website posting as required under state law. We found 12 of 29 pharmacies that had signs displaying the state’s drug price website. In addition, when the web address *was* observed, it was difficult to understand the value of the site and the URL itself was difficult to remember.

Our “spot check” price check and review of compliance raises serious concerns about the program. Despite its existence for over a decade, wide price variations continue and pharmacies appear to ignore the requirement that the web address for the state’s pricing website be posted at or near the checkout counter. Without that notice, New Yorkers simply cannot benefit from the price comparison law.

Moreover, we urge the New York State Education Department’s Board of Pharmacy to immediately review whether the anecdotal violations of the disclosure requirement are, in fact, widespread across the state.

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**NYPIRG urges your support for the executive budget proposal to regulate Pharmaceutical Benefit Managers.** Pharmacy Benefit Managers (PBMs), the pharmaceutical “middlemen,” arrange sales programs between drug manufacturers and health care plan providers (such as state health benefit programs, large businesses, and HMOs) seeking to reduce the cost of their prescription drug plans. PBMs provide pharmacy coverage to more than 266 million American consumers<sup>31</sup>; three PBMs— ExpressScripts, CVSHealth (also referred to as “CVS Caremark”) and OptumRx – controlling approximately 80% % of the lucrative market.<sup>32</sup> Since 2003, the two largest PBMs—Express Scripts and CVS Caremark— have seen their profits increase by almost 600% from \$900 million to almost \$6 billion.<sup>33</sup> Despite the impact of PBMs on health care spending, tremendous secrecy surrounds how PBMs conduct business. Investigations by both the federal and state governments charge that PBMs exploit their ability to negotiate secret deals and increase their revenues without passing cost savings on to clients.

The problem with PBMs is that they are not the impartial third parties they present themselves as. Many PBMs have relationships with pharmaceutical companies that give them incentives to sell certain drugs in exchange for rebates. They are also perpetually looking to cut costs, often regardless of the effect such programs will have on the health of their customers. Regulation is needed to oversee these relationships.

**4. New York’s Heightened Lead Poisoning Problem.** Lead poisoning is a longstanding national problem with long-term health, social and economic effects, including developmental delays, cognitive damage, reproductive health problems, cardiovascular issues, reduced earning potential, greater social service costs and lifelong behavioral issues.

In New York, childhood lead poisoning is and has been at epidemic levels, with thousands of children newly identified as having dangerous levels of lead in their blood, indicating repeated exposure to lead in their lives. Under the latest national guidelines, data shows that almost 10,000 children in New York have elevated blood lead levels. This is a wholly preventable epidemic.

**Using the latest data and viewed under the latest national guidelines, almost 10,000 children have elevated levels of lead in their blood. This is a wholly preventable epidemic.**

New York has the both the greatest number (3.3 million) and the highest percentage (43.1 percent) of its housing stock built before 1950, the houses most likely to contain lead paint, the greatest source of childhood lead poisoning.<sup>34</sup> Thus, New York’s children are at heightened risk for being exposed to lead in their homes.

Children are the most vulnerable to the effects of lead contamination in their environment. Even seemingly miniscule increases in the concentration of lead in a child’s blood level can have significant cognitive impacts. Research has shown that the greatest impact on IQ occurs at concentrations lower than 10 µg/dL for children. Studies have found that “children’s intellectual functioning at three and five years of age is inversely associated with blood lead concentrations, even when their peak concentrations remain below the

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<sup>31</sup> Pharmaceutical Care Management Association (PCMA) (March 14, 2016), see: *That's What PBMs Do*.

<sup>32</sup> Testimony of David A. Balto “The State of Competition in the Pharmacy Benefits Manager and Pharmacy Marketplaces.” Before the House Judiciary Subcommittee on Regulatory Reform, Commercial and Antitrust Law November 17, 2015, see: <https://judiciary.house.gov/wp-content/uploads/2016/02/Balto-Testimony-1.pdf>.

<sup>33</sup> Ibid.

<sup>34</sup> *Eliminating Childhood Lead Poisoning in New York State by 2010*, New York State Department of Health (2004), Table 3. <https://www.health.ny.gov/environmental/lead/exposure/childhood/finalplanscan.htm>.

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CDC and WHO [2003] level of concern.”<sup>35</sup> Additional studies have used population statistics and public safety data to note the correlation between early childhood lead exposure and rates of criminal activity.<sup>36</sup> An article reviewing these studies found positive correlations between lead exposure and criminal activity in local, state and national surveys.<sup>37</sup>

In the now distant past, New York State was at the vanguard of protection children’s health from the scourge of lead poisoning. However, in 2019, the state continues to use an outdated standard for triggering intervention—a standard that is seven years out of date. This is placing us behind national public health standards.<sup>38</sup> New York must immediately revise its regulations to—at a minimum—match the CDC guideline of 5 µg/dL *set in 2012*. Some researchers report that even a blood lead level of 2 µg/dL can prove harmful to a child’s health.<sup>39</sup> There’s not a moment to waste.

A study, “Blood Lead Levels in Young Children: US, 2009-2015,”<sup>40</sup> took a retrospective look at testing results across the country. The study looked at a sample of data from zip codes and regions and found that six regions had the highest percentages of children testing for very high levels of lead in their blood. Various cities in New York State are deeply affected by lead poisoning cases.

**Three cities in New York made the list for notably high levels in their sampling: Syracuse at 40.1 percent, Buffalo at 18.8 percent and Poughkeepsie at 14.9 percent.**<sup>41</sup> These findings were correlated with lower income levels and environmental factors such as residing in housing that contains lead contaminated dust.<sup>42</sup>

**The Case for Early Intervention is Clear.** Currently, New York’s Public Health Law requires mandatory blood lead testing for all children, with testing required twice by age three. This time period represents both a critical neural development window for children and the time that they are exploring their world at floor level and engaging in hand-to-mouth activities. The Department of Health has an action plan in place for health care providers and families depending on the levels of lead found in a child’s blood. These include scheduling follow-up appointments, regular monitoring and investigations into the sources or areas where lead may be present in the child’s environment. The goal is to identify and mitigate these sources as soon as possible. Currently, state law requires the child’s health care provider to begin providing risk reduction counseling if a child’s blood lead level is 10 µg/dL or higher. National guidelines state that risk

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<sup>35</sup> *Intellectual Impairment in Children with Blood Lead Concentrations below 10 mcg per Deciliter*, N Engl J Med 2003; 348: 1517-1526, April 17, 2003.

<sup>36</sup> Mielke, Howard W., and Zahran, Sammy, *The urban rise and fall of air lead (Pb) and the latent surge and retreat of societal violence*, Environmental International, 43 (2012) 48-55.

<sup>37</sup> Drum, Kevin, <http://www.motherjones.com/environment/2016/02/lead-exposure-gasoline-crime-increase-children-health/>, Feb. 11, 2016, last accessed, Aug. 7, 2017.

<sup>38</sup> The Department of Health’s lead poisoning prevention action plan noted the steady march towards lower action levels, including the consideration of moving to the 5 ug/dL level in 2004—13 years ago. *Eliminating Childhood Lead Poisoning in New York State by 2010*, New York State Department of Health (2004), <https://www.health.ny.gov/environmental/lead/exposure/childhood/finalplanscan.htm>.

<sup>39</sup> Steven G. Gilbert, Bernard Weiss, *A rationale for lowering the blood lead action level from 10 to 2µg/dL*, *NeuroToxicology*, Volume 27, Issue 5, Pages 693-701, September 2006.

<sup>40</sup> McClure, Leland, F., Niles, Justin K., Kaufman, Harvey W., *Blood Lead Levels in Young Children: US, 2009-2015*, *The Journal of Pediatrics*, at 3.

<sup>41</sup> *Ibid.*

<sup>42</sup> Lanphear, Bruce P. et.al, *The Contribution of Lead-Contaminated House Dust and Residential Soil to Children’s Blood Levels: A Pooled Analysis of 12 Epidemiologic Studies*, *Environmental Research*, Section, A 79. 51-68, 1998

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reduction counseling is much more effective if started when lower levels of lead are detected in the blood due to the harm that even smaller amounts of lead may have on a child's development. Earlier intervention would help eliminate a child's ongoing exposure to lead before the most serious damage is already done. Experts have confirmed the benefits of early intervention and primary prevention for lead poisoning cases. **It is critical to either remove/contain the source of the lead in the child's life or remove the child from the exposure setting at the earliest possible point. Primary prevention approaches focus on removing or containing lead *before* a child is exposed.**

**Lower The Children's Blood Lead Threshold Action Level.** New York is doing an incredible disservice to its children by continuing to use a woefully out of date standard for determining when to take action for a child exposed to lead.<sup>43</sup> Moreover, the state's failure to use the more stringent level recommended by the U.S. Centers for Disease Control and Prevention, creates the false impression that the lead poisoning epidemic in is significantly smaller than it actually is. **Under the more stringent standard, the problem is several times worse: Instead of about 2,000 children meeting the lead standard for intervention, the total number is likely closer to 10,000.** According to NYSDOH 2015 data, more than 2,100 children had blood lead levels above 10 ug/dL (the old CDC standard; and additional 7,128 children tests showed blood lead levels of 5-9 ug/dL—a combined total of 9,300 at or above the CDC-recommended level.<sup>44</sup>

The Department of Health should use existing authority to lower the blood lead “level of concern” for children—set more than 25 years ago—to trigger an investigation from the current standard of 10 ug/dL to 5 ug/dL, as was done by the U.S. Centers for Disease Control and Prevention (“CDC”) in 2012 and has been done in several jurisdictions. In addition to the CDC, several states have taken the lead towards lowering the level of concern to 5 ug/dL, namely Connecticut<sup>45</sup>, Idaho<sup>46</sup>, Maine<sup>47</sup>, Maryland<sup>48</sup>, Minnesota<sup>49</sup>, New Jersey<sup>50</sup> and Vermont.<sup>51</sup> All states cite their decision to move towards the lower CDC guidelines as based on the evidence that supports early intervention as the primary way to prevent the serious health effects suffered by victims of lead poisoning.

Article 13 of the Public Health Law requires that the Department of Health establish a childhood lead poisoning prevention program and “exercise any and all authority which may be deemed necessary and appropriate” to effectuate the state's policy of reducing lead poisoning. Public Health Law section 1370-a(1). Thus, the Department of Health is obliged by law to revise the policies and standards to implement the law by staying current with the latest medical science and lead poisoning prevention strategies. However, in 2019 the Department of Health is using an outdated standard of 10 ug/dL—last revised in

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<sup>43</sup> NYSDOH guidelines do not require identifying the source of lead exposure until a child's blood tests at 10 ug/dL and above; for test results of 5-9 ug/dL monitoring and parental education are required. *Guidelines for the Identification and Management of Lead Exposure in Children*. Accessed at <https://www.health.ny.gov/publications/2501/#management>.

<sup>44</sup> Data presented at the meeting of the Advisory Council September 28, 2017.

<sup>45</sup> Conn Gen Stat Ann § 19a-110 [d].

<sup>46</sup> Idaho Admin Code 16.02.10.380 [01] [b].

<sup>47</sup> 10-144 Code of Me Rules Ch. 292, § 3 [Y].

<sup>48</sup> Code of Md Regulations § 10.11.04.02 [B] [8] [b].

<sup>49</sup> Minn Stat Ann § 144.9504 Subd. 12.

<sup>50</sup> NJ Stat Ann 26:2-137.3.

<sup>51</sup> Vt Stat Ann § 1751 [b] [7].

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1992—which can still lead to significant health impairments and fails to capture the full extent of the lead poisoning epidemic in the state.<sup>52</sup>

The current level was set 25 years ago and was based mainly on the effects of prenatal lead exposure.<sup>53</sup> The CDC revised its standard seven years ago in light of evidence that early intervention mitigates the harmful effects of lead poisoning.<sup>54</sup> Changing the action level can be easily done and would yield life-long benefits to millions of children across New York State. All that's missing is the will to aggressively tackle this problem.

Local governments have also adopted the CDC guidelines for their residents even though their states may still adhere to higher levels of concern. In New York, the City of Buffalo has codified the CDC's current guidelines, stating that "[e]xcessive absorption of lead in the blood in concentrations defined as an "elevated blood lead level" in children by the Center of Disease Control (CDC) of the United States Department of Health and Human Services, as that definition may be revised in the future by the CDC."<sup>55</sup>

If the City of Buffalo has already made strides towards protecting its residents, the state must now take the opportunity to make this the universal standard for all New Yorkers. New York City requires inspections for children six or younger if their blood level is 10 ug/dL or greater; with inspections required for children of 16 months or younger testing at 8 ug/dL or greater.<sup>56</sup>

While we note recent New York legislative activity in this area, we resolutely believe that state law and policy is clear that the Department of Health has the authority, history and obligation to act by regulating the action level through agency action. We support the governor's proposal in section P of the Health and Mental Hygiene Article 7 legislation to lower the level to 5 ug/dL. Irrespective of whether a legislative or administrative approach is taken, the Department of Health must retain the ability to administratively reduce the action based on evolving science and demographic data.

**Reduce the Lead Dust Clearance Level for Lead Clean Ups.** In 1992, Congress directed the U.S. Environmental Protection Agency to reduce dust-lead hazards in residential housing.<sup>57</sup> EPA issued rules years behind the Congressionally-mandated schedule in 2001. The regulations were established in micrograms (a millionth of a gram) of lead per square foot or ug/ft<sup>2</sup>: 40 ug/ft<sup>2</sup> for floors and 250 ug/sf<sup>2</sup> for interior windowsills.<sup>58</sup> Presence of lead paint dust above these levels demonstrates the presence of a lead

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<sup>52</sup> Cognitive Deficits Associated with Blood Lead Concentrations < 10 µg/dL in US Children and Adolescents, Public Health Reports, Volume 115, 521-529, November/December 2000.

<sup>53</sup> Ibid at 522.

<sup>54</sup> Bellinger, David C., Chen, Aimin, Lanphear, Bruce, Establishing and Achieving National Goals for Preventing Lead Toxicity and Exposure in Children, JAMA Pediatrics, published online, May 15, 2017, explaining that "Children with a blood lead concentration of 5 µg/dL or greater will experience an average IQ score deficit of approximately 6 points. In 2012, the US National Toxicology Program

<sup>55</sup> Buffalo Code of Ordinances § 261-1

<sup>56</sup> Report to the New York City Council on Progress in Preventing Childhood Lead Poisoning, NYC Department of Health and Mental Hygiene, August 30, 2018. Accessed at <https://www1.nyc.gov/assets/doh/downloads/pdf/lead/lead-cc-annual-18.pdf>.

<sup>57</sup> Residential Lead-Based Paint Hazard Reduction Act of 1992, Pub L. 102-550, 106 Stat. 3672.

<sup>58</sup> 40 C.F.R. section 745.65(b), <https://www.law.cornell.edu/cfr/text/40/745.65>.

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hazard or that a remediation effort has failed to achieve the minimum clean-up standard. The lead-dust standards were developed at the time when a child's blood lead level of 10 ug/dL was considered safe.<sup>59</sup>

As stated earlier, the science is clearer now and it is universally the position of the U.S. regulators, toxicologists and pediatric health experts that there is no safe level of exposure to lead. Accordingly, to keep pace with the evidence-based understanding of the hazards posed by lead to children, the levels of lead dust on floors and window sills in residential settings should be lowered. EPA spent years developing a lower standard based on CDC's position, but it has dragged its feet on promulgating and implementing the lower standards.

While the United States Court of Appeals for the Ninth Circuit ordered that the EPA put in place a final rule, that action is still pending and New York should not wait. New York should adopt the stronger standard of 10 ug/ft<sup>2</sup> for floors and 100 ug/sf<sup>2</sup> for windowsills—levels that EPA explicitly found are technically and practically feasible.

**Enact a Twenty-Five Cent Per Gallon of Paint Fee to Fund Lead Programs.** New York should adopt a proposal advanced by Governor Mario Cuomo in 1992 and subsequently enacted by the state of Maine to add a \$.25 per gallon surcharge at the corporate level for all paint sales in New York to create an ongoing dedicated funding stream for childhood lead poisoning prevention programs.

As of July 1, 2006, the state of Maine began collecting a fee from paint manufacturers and wholesalers equal to \$.25/gallon of residential and commercial paint and coatings sold in the state.<sup>60</sup> *These fees are not collected as a sales tax at the retail level.* Under Maine's law manufacturers and wholesalers are the only parties responsible for administering and paying the fees.

It is appropriate that the paint industry bear a small fraction of the costs for the toxic legacy of lead paint that plagues New York. Moreover, paint manufacturers will benefit from additional paint sales as lead paint hazards are remediated and older homes are properly maintained through more frequent painting.

Based on the success of Maine's program, New York would generate more than \$10 million each year for lead poisoning prevention and remediation programs. These funds should be dedicated to supplement robust general funds annual support by the state for primary prevention.

While the governor's briefing book states that "the Budget commits an additional \$9.4 million annually to help combat child lead exposure," it is unclear what level of *total spending on childhood lead poisoning prevention* is proposed—separate from *testing children for lead in their blood*. Moreover, it is unclear whether monies allocated in prior budgets are spent and if so whether the programs have been effective in preventing lead poisoning. This is an area where Legislative oversight is needed.

**Administer the Lead Hazard Contractor Certification Program.** New York should take over administration of the federal Renovation, Repair and Painting Program ("RRP") worker training and certification program to ensure quality oversight of lead paint hazard remediation contractors in New York State. The RRP, currently run by the EPA, oversees the federal program designed to assure that firms

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<sup>59</sup> This was based on the science at that time, using a 1-5% probability of a child's developing a blood lead level of 10 ug/dL. See Identification of Dangerous Levels of Lead, 66 Fed. Reg. 1206, 1215 (Jan. 5, 2001). As noted above, the U.S. CDC now uses 5 ug/dL as the level of concern—50% lower than the level used to determine the 2001 floor and window sill lead-dust levels.

<sup>60</sup> Chapter 403 of the Maine Statutes, [http://www.maine.gov/dhhs/eohp/lead/documents/PL2005\\_C403.pdf](http://www.maine.gov/dhhs/eohp/lead/documents/PL2005_C403.pdf).

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disturbing lead-based paint in homes built before 1978 are trained, qualified and certified to perform the work in a way that protects public health and worker safety.<sup>61</sup>

The program came in for significant criticism, including for a provision that required a dust wipe of surfaces and comparison of the wipe cloth to a color chart—instead of laboratory testing of dust samples—to demonstrate that lead hazards have been properly remediated. New York should take over this program, strengthen its requirements and set fees so that the program is revenue neutral. Moreover, in the absence of state oversight, there is widespread belief that many contractors are not properly trained and/or not employing lead safe work practices in buildings containing lead paint.

**Strengthen the State’s Childhood Lead Poisoning Prevention Advisory Council.** The statutorily created New York State Advisory Council on Lead Poisoning Prevention (Public Health Law section 1370-b) should be strengthened to ensure that it plays a stronger role in the formulation of state childhood lead poisoning prevention policy, including the state budget, action levels, primary prevention efforts and public education. The Advisory Council’s involvement is often an afterthought or footnote, with no meaningful input into the state lead poisoning program budget or policy. For example, the Advisory Council has had no input into the budget and has not to date been briefed on the FY2020 budget in the area it is obliged to advise upon. The lack of regard for the role of the Advisory Council is clear from a visit to its NYSDOH webpage: The page says the next Advisory Council meeting is September 28, 2017; the last meeting minutes are from 2016; the last Advisory Council report is from 2008—more than a decade old.<sup>62</sup>

**Require Residential Property Insurance Policies to Cover Lead Poisoning Insurance.** In 1992, the State Insurance Department, forerunner to the Department of Financial Services (“DFS”), acting administratively began providing a waiver for lead poisoning liability coverage in property and casualty policies approved by the department for residential rental housing.<sup>63</sup> The state should eliminate the waiver for this coverage. The absence of liability coverage eliminates the positive role insurers can have in underwriting landlords who take lead hazards seriously; in pricing policies based on the risk of lead poisonings; and in ensuring that resources are available in the event a child is lead poisoned while residing in a rental property. Moreover, as a practical matter it means that poor families will have no recourse to the civil justice system if their children are harmed because there may be no resources to pursue as compensation. New York should remedy this situation and require lead poisoning prevention coverage for rental housing properties constructed prior to 1978.

**Beef Up the Governor’s Proposal for Residential Rental Housing.** In the Article VII proposal, the governor would add a new section 1370-f to the Public Health Law to regulate lead paint hazards in residential rental housing. The proposal would presume that all pre 1978 rental housing contains lead paint, require property owners to maintain premises in a lead safe condition, and direct the Department of Health to establish minimum “lead safe” standards for internal and external painted surfaces for such properties.<sup>64</sup> Unfortunately, local governments and departments of health would not be required to participate in enforcing the law or given resources to induce participation.

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<sup>61</sup> U.S. Environmental Protection Agency, “Renovation, Repair and Painting Program,” <https://www.epa.gov/lead/renovation-repair-and-painting-program>.

<sup>62</sup> NYSDOH Advisory Council on Lead Poisoning webpage. Accessed at [www.health.ny.gov/environmental/lead/advisory\\_council/index.htm](http://www.health.ny.gov/environmental/lead/advisory_council/index.htm).

<sup>63</sup> *Insurers Avoid Lead Coverage*, Janet Aschkenasy, *Journal of Commerce*, October 24, 1993, [https://www.joc.com/insurers-avoid-lead-coverage\\_19931024.html](https://www.joc.com/insurers-avoid-lead-coverage_19931024.html).

<sup>64</sup> Article VII, Health and Mental Hygiene, Section P.

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This is like establishing a speed limit and relying on all drivers to drive within the limit, without requiring that police enforce the law. Landlords already have a duty to maintain their properties in habitable condition, including being free from lead hazards. Yet the lack of enforcement renders this obligation virtually meaningless. Without the state requiring regular inspections, owner certifications and local enforcement, we continue to rely on children—mostly poor, children of color—as the canaries in the coal mine to alert us to lead hazards that should be obvious to us if we were paying attention.

Last year the governor proposed that local code enforcement agencies inspect properties and enforce code violations related to lead paint hazards. That proposal—dropped from this year’s budget proposal—would have required municipalities that administer the New York State Uniform Fire Prevention and Building Code and have a lead poisoning designated high risk area to submit aggregate reports to DOH on outcomes of inspection and remediation. That proposal was worthy of support last year and should be part of the final budget.

Almost ten years after the state committed to be lead-safe by 2010, New York lags woefully behind in the standards it uses to assess lead poisoned children, fails to adequately fund lead programs, and does not have a comprehensive prevention regime in place. **We urge the Legislature to strengthen the governor’s proposals and make lead history in 2019.**

**5. Protection of New York State’s drinking water supplies.** The public has the basic right and expectation from government that the water coming from their taps is going to be safe for them to drink. Sadly, there are numerous threats to water today that New York must step up to the plate to address for this right to be assured to all New Yorkers.

Climate change is warming the planet’s waters, leading to worsening and increasingly frequent algal blooms. As the climate warms, precipitation has also been increasing in the Northeast, causing strains on the state’s old, outdated water infrastructure. New York’s industrial past is wreaking havoc on drinking water supplies across the state - emerging contaminants have harmed communities from Long Island, to Newburgh, to Hoosick Falls, which is just one hour away from the Capitol.

The picture of these crises is not pretty. NYPIRG found that, of communities that have already had testing, approximately 2.8 million and 1.2 million New Yorkers have been exposed to drinking water that exceeds EPA’s health guidance levels for 1,4-dioxane and PFOA/PFOS respectively.<sup>65</sup> All three of these chemicals have been associated with cancer and other illnesses.

Aging water infrastructure is threatening public health and disrupting daily life. Sewage overflows plague the state’s waters annually - over 20 billion gallons are discharged by New York City,<sup>66</sup> 4 billion gallons into waterbodies around Buffalo,<sup>67</sup> and 1.2 billion gallons in the Hudson River from just the Capital

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<sup>65</sup> NYPIRG, [https://nypirg.org/pubs/201810/final\\_merged.pdf](https://nypirg.org/pubs/201810/final_merged.pdf), October 2018

<sup>66</sup> Fetters, Ashley, “How worried should New Yorkers be about sewage ending up in city waterways?,” Curbed New York, March 30, 2018, <https://ny.curbed.com/2018/3/30/17178662/new-york-waterways-combined-sewer-overflow-risks>

<sup>67</sup> Telvock, Dan, “Sewage Inundating Buffalo Waterways,” Investigative Post, November 21, 2017, <http://www.investigativepost.org/2017/11/21/sewage-inundating-buffalo-waterways/>

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Region.<sup>68</sup> Additionally, watermain breaks are frequent throughout the State - Syracuse alone reported 178 watermain breaks in 2018.<sup>69</sup>

New York must pursue all measures necessary to put an end to drinking water contamination crises. This means adopting aggressive policies that are proactive and protect drinking water from source to tap – we can't afford to continue waiting for people to get sick before action is taken.

New York's SFY2019-2020 budget presents an opportunity for addressing water contamination comprehensively. The following are a few key measures that must be led on during the budget process and legislative session to set New York on a path for protecting water for all.

### *Increase funding for the Clean Water Infrastructure Act by at least \$2.5 billion*

The governor included in his 2019 State of the State a commitment to an additional \$2.5 billion on top of the existing \$2.5 billion for the Clean Water Infrastructure Act ("the Act").<sup>70</sup> However, the Capital Appropriations budget bill only includes \$500 million.<sup>71</sup> The final SFY 2019-2020 should include, at a minimum, an additional \$2.5 billion in the Capital Appropriations bill to ensure funding is available for projects over the lifespan of the Act.

The legislature should take into serious consideration adding more than another \$2.5 billion for this program. It has been estimated that over the next twenty years, New York will need to invest approximately \$80 billion to make needed updates, repairs, and replacements for wastewater and drinking water infrastructure.<sup>72</sup> These estimates are now over ten-years old and have likely increased since then.<sup>73</sup>

That figure doesn't include other water needs that are encompassed in the Clean Water Infrastructure Act, like funding to preserve land around source water, septic system replacement, and water filtration systems. For example, \$185 million from New York's Water Infrastructure Improvement Act (WIIA) grant program was recently put aside to assist communities with addressing emerging contaminants, like PFOA, PFOS, and 1,4-dioxane.<sup>74</sup> According to the Department of Health (DOH), costs for treating these chemicals can cost as much as \$1.5 billion for PFOA and PFOS, and \$1.1 billion for 1,4-dioxane.

Additionally, the FY2017–2018 state budget included \$20 million for the replacement of lead drinking water service lines. Replacing lead service lines is an important undertaking that will need increased funding to ensure all lead service lines are identified and replaced. The \$20 million allocated in the budget

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<sup>68</sup> Albany Pool CSO Long Term Control Plan, Page ES-7, June 30, 2011, [http://www.dec.ny.gov/docs/water\\_pdf/albanypooltctcp2011.pdf](http://www.dec.ny.gov/docs/water_pdf/albanypooltctcp2011.pdf)

<sup>69</sup> Syracuse Open Data, <https://data.syr.gov.net/datasets/water-main-breaks/data?orderBy=fullDate&orderByAsc=false>, accessed January 20, 2019

<sup>70</sup> New York State Governor Andrew Cuomo, 2019 State of the State Address, <https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/2019StateoftheStateBook.pdf>, p. 336

<sup>71</sup> New York State, Capital Projects Budget, S.1504 <https://www.budget.ny.gov/pubs/archive/fy20/exec/approps/capitalprojectsbudget.pdf>, p. 109

<sup>72</sup> Hamilton, Matthew, "New York's water infrastructure needs estimated at \$80B over 20 years," Times Union, February 13, 2017, <https://www.timesunion.com/local/article/New-York-s-water-infrastructure-needs-estimated-10930256.php>

<sup>73</sup> DEC Commissioner Joseph Martens, 2-14-2015: <https://www.youtube.com/watch?v=IDNm9wfFsUc>

<sup>74</sup> EFC, Grants for Emerging Contaminants in Drinking Water, <https://www.efc.ny.gov/EmergingContaminants>

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covers the expected estimated cost of replacing about 8,000 lines,<sup>75</sup> or about half the number of lead service connections in Syracuse alone.<sup>76</sup>

The cost to public health if these investments are not made is enormous, which is why it is critical for New York to put funding on pace to catch up with outstanding needs.

### *Require private well testing*

The governor's proposed budget for SFY 2017-18 contained a proposal for private well testing. Unfortunately, that legislation did not make it into the final budget.

While public water supplies are regularly tested for contaminants, and the results are sent to each ratepayer and made publicly available, private groundwater wells are not held to the same standards. As a result, homebuyers have no assurances of water quality, and the public does not get the full picture of local water quality issues.

The 2016 water quality hearings promised New Yorkers that this key component to protecting drinking water would finally be addressed. The public has the right to know what's in their water, and requiring well testing before the sale of a home is a simple step New York should take this year. A strong model NYPIRG supports is Assemblywoman Jaffee's and Senator Hoylman's "private well testing act."<sup>77</sup>

### *Test and Regulate Emerging Contaminants*

Following joint legislative hearings on water quality in September 2016, in the SFY 2017-18 budget, two critical pieces of legislation were passed to address emerging contaminants in New York. One piece of legislation created New York's Drinking Water Quality Council (DWQC), a body tasked with producing recommendations for regulating emerging contaminants.<sup>78</sup> The second piece creates New York's Emerging Contaminant Monitoring Act, which directs the Department of Health to create a list of unregulated emerging contaminants to be tested in drinking water statewide.<sup>79</sup>

"Emerging contaminants" are unregulated chemicals that may have health risks and have shown up in drinking water. Under the federal Unregulated Contaminant Monitoring Rule, UCMR, communities with 10,000 or more residents have to test for lists of emerging contaminants every few years.

There are over 80,000 unregulated chemicals on the market, many without any evidence to prove that they're safe for public health. When chemicals are unregulated, there's a greater chance that they can get in our water – which is exactly what has happened in Hoosick Falls, Petersburg, Newburgh, and numerous communities on Long Island.

Unfortunately, DOH has yet to implement the Emerging Contaminant Monitoring Act, which means there are still hundreds of communities that don't know the full extent of what is in their water. The Department

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<sup>75</sup> Fears, D. and Dennis, B., "One city's solution to drinking water contamination? Get rid of every lead pipe," *Washington Post*, May 10, 2016. [https://www.washingtonpost.com/national/health-science/one-citys-solution-to-drinking-water-contamination-get-rid-of-every-lead-pipe/2016/05/10/480cd842-0814-11e6-bdcb-0133da18418d\\_story.html?utm\\_term=.9baa67f857d0](https://www.washingtonpost.com/national/health-science/one-citys-solution-to-drinking-water-contamination-get-rid-of-every-lead-pipe/2016/05/10/480cd842-0814-11e6-bdcb-0133da18418d_story.html?utm_term=.9baa67f857d0)

<sup>76</sup> Mulder, J., "Syracuse's 15,000 lead pipes pose risk to drinking water," *Syracuse.com*, March 20, 2016.

[http://www.syracuse.com/health/index.ssf/2016/03/syracuses\\_15000\\_lead\\_pipes\\_pose\\_risk\\_to\\_drinking\\_water.html](http://www.syracuse.com/health/index.ssf/2016/03/syracuses_15000_lead_pipes_pose_risk_to_drinking_water.html)

<sup>77</sup> N.Y. Senate bill, S. 1854, 2019

<sup>78</sup> New York State Public Health Law § 1113

<sup>79</sup> New York State Public Health Law § 1112

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must promulgate an emerging contaminant list as soon as possible and begin immediate testing – they can easily start with the federal emerging contaminant list, UCMR 3.<sup>80</sup>

Hoosick Falls, a small community of approximately 3,500 residents, discovered dangerously high levels of PFOA in their water not because of state or federally required testing, but because an individual resident took the initiative to do so. This resident, Michael Hickey, had noticed a lot of cancer cases and other illnesses in his community and thought maybe it had to do with the water and the resident company, Saint-Gobain Performance Plastics. Since then, Hoosick Falls is both a state and federal superfund site.

The story is different for Newburgh. Newburgh discovered elevated levels of a chemical related to PFOA, PFOS, because of federally required emerging contaminant testing. Newburgh benefitted from such testing simply because they have over 10,000 residents. Not long after, this testing also led numerous communities on Long Island to discover unsafe levels of PFOA, PFOS, and 1,4-dioxane. It should never be the responsibility of a regular citizen to discover dangerous levels of a chemical in their water.

New York did the right thing by passing a law that would require statewide testing of emerging contaminants regardless of a community's size – but two years later, New Yorkers are still in the dark. Without emerging contaminant testing, the sad truth is there could very well be other Hoosick Falls situations in New York, but those residents just don't know it yet.

The longer there isn't testing, the longer people may be getting exposed to unsafe levels of contaminants. EPA's third emerging contaminant list, known as UCMR 3, included PFOA, PFOS, and 1,4-dioxane along with numerous other dangerous chemicals known to show up in water supplies – at a minimum, DOH should immediately begin testing for this list of chemicals.

Additionally, PFOA, PFOS, and 1,4-dioxane are just three of thousands of chemicals available for use on the market that are unregulated. It has been estimated that there are over 80,000 unregulated chemicals. New York needs to not only test for many of these chemicals – they must be regulated.

*Here are some ways New York should address this, either legislatively or administratively:*

Instruct the Drinking Water Quality Council and Department of Health to review a new round of chemicals. DWQC and DOH recently reviewed and recommended regulatory action for PFOA, PFOS, and 1,4-dioxane. Those three chemicals were explicitly listed in the statute creating DWQC to be addressed. Now it is unclear when DWQC will meet again and what they will review when they do. DWQC and DOH should be instructed to review and move forward on regulatory action for other emerging contaminants.

Created deadlines for the establishment of MCLs after recommendations are produced. DWQC produced recommendations for MCLs (legally enforceable drinking water standards, Maximum Contaminant Levels), for PFOA, PFOS, and 1,4-dioxane, at their December 2018 meeting. Now it is up to DOH to adopt those recommendations and move on a regulatory rulemaking process. Unfortunately, it is unclear when DOH will do this. During an Assembly oversight hearing in December 2017, DOH testified that MCLs and testing for PFOA, PFOS, and 1,4-dioxane would be in place by the end of 2018. New Yorkers should have the surety of knowing when drinking water standards and testing will be in place – legislation could instruct the Department of Health to begin a rulemaking no later than 30 days after DWQC produces recommendations.

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<sup>80</sup> EPA, Third Unregulated Contaminant Monitoring Rule, <https://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule>

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Ban dangerous chemicals from use in products. There are several pieces of existing legislation that would accomplish this. Legislation should be passed this session that would ban PFAS chemicals (the family of chemicals that includes PFOA and PFOS) from use in food packaging and fire-fighting foam and ban 1,4-dioxane from being in consumer products. Additionally, the Child Safe Products Act should finally be passed in both the Assembly and Senate. If dangerous chemicals aren't used in products, the public won't be exposed to them in their homes or drinking water.

### *Create a public drinking water database*

The public expects to be able to easily find out basic information about the quality of their drinking water. Unfortunately, this information isn't always easily available. The first step in ensuring that drinking water supplies are adequately protecting the public is to empower New Yorkers through access to drinking water quality information.

NYPIRG has made available a database, *What's in My Water?*, for the public to find their water quality data.<sup>81</sup> The database compiles information on regulated and unregulated contaminants found in drinking water sources, searchable by zip code, from local annual water reports, EPA water reports, and information on public water systems from the Department of Environmental Conservation (DEC) and DOH.

A database like this should exist on the State level. DEC and DOH, together, could reach a greater percentage of the public and make available information that consumers may not always easily find, such as testing results for emerging contaminants.

**6. New York has more doctors than ever before and that the rate of increase exceeds the growth in the state's population.** Despite some recent comments that New York's supply of doctors is shrinking, new national data show that the state continues to be one rich in its physician supply. As seen below, New York ranks among the top states in physician supply:

Category	Physicians Per 100,000, 2016 <sup>82</sup>	National Rank, 2016	National Average, 2016
Total physicians per 100,000 people	365.1	3	271.6
Active patient care physicians per 100,000	299.8	4	236.8
Active primary care physicians per 100,000	111.2	7	91.7
Active patient care primary physicians per 100,000	94.3	11	82.5
Active general surgeons per 100,000	10.2	7	7.8
Active patient care general surgeons per 100,000	7.6	15	6.7
Active physicians by age, under 40	17.8%		17%
Active physicians by age, over 60	33.4%		30.9%

<sup>81</sup> NYPIRG, *What's in My Water*, <https://nypirg.org/whatsinmywater/>

<sup>82</sup>Data from AAMC "2017 State Physician Workforce Data Book," see: <https://www.aamc.org/data/workforce/reports/484392/2017-state-physician-workforce-data-report.html>. Released November, 2017.

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As seen above, New York is ranked *third* in the total overall number of physicians per capita practicing in the state. Where major categories of specialty physicians are concerned, the state ranks well above the national averages. The data also suggests that New York remains an attractive place for younger physicians under 40 to practice, ranking above the national average. Moreover, the growth in the total number of physicians practicing in the state is expanding at a rate more than *four* times as great as is New York's general population, roughly twice the difference nationally:

	Total physician population <sup>83</sup>	Total general population <sup>84</sup>
New York, 2016	72,095	19.8 million
New York, 2008	67,545	19.5 million <sup>85</sup>
New York growth 2008-16	~6.7%	~1.8%
U.S., 2016	877,616	323 million
U.S., 2008	773,809	301 million <sup>86</sup>
U.S. growth 2008-16 <sup>87</sup>	~13.4%	~7.4%

As seen above, rate of the growth in the number of physicians practicing in the state exceeds rate of the growth in New York's population. New York State has more physicians practicing now than at any other time.

Moreover, according to New York licensing data the state continues to add to its number of practicing physicians.

### Licenses Issued, Past Seven Calendar Years<sup>88</sup>

	2012	2013	2014	2015	2016	2017	2018
Number of physicians	4,272	5,223	4,644	4,575	4,589	4,776	4,970

There is no doubt, however, that certain communities within the state have more difficult access to physician care than others.<sup>89</sup> Yet, in the aggregate, New York's physician supply continues to grow at a rate that far exceeds the growth of the state's population.

In terms of statewide numbers, no shortage of physicians exists in New York.

<sup>83</sup> Data from AAMC "2017 State Physician Workforce Data Book," see: <https://www.aamc.org/data/workforce/reports/484392/2017-state-physician-workforce-data-report.html>. Released November, 2017.

<sup>84</sup> U.S. Census, 2016 estimates, see: <https://www.census.gov/programs-surveys/popest/data/data-sets.html>.

<sup>85</sup> New York State population, New York State Department of Health, "Table 2: Population, Land Area, and Population Density by County, New York State – 2008 see: [https://www.health.ny.gov/statistics/vital\\_statistics/2008/table02.htm](https://www.health.ny.gov/statistics/vital_statistics/2008/table02.htm). According to the Health Department, the 2008 New York State population was 19,490,297.

<sup>86</sup> U.S. Census, "American Fact Finder, Total Population Universe: Total population, 2006-2008 American Community Survey 3-Year Estimates," [https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_08\\_3YR\\_B01003&prodType=table](https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_08_3YR_B01003&prodType=table). Total U.S. population was 301,237,703.

<sup>87</sup> Calculation, NYPIRG

<sup>88</sup> New York State Education Department, see: <http://www.op.nysed.gov/prof/med/medcounts.htm>.

<sup>89</sup> New York State Department of Education, "Regents: Designated Physician Shortage Areas in New York State," see: <http://www.highered.nysed.gov/kiap/scholarships/documents/2015PLFShortageBulletin.pdf>.

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**7. Allow the sale of recreational marijuana for adult use.** The executive proposes language to allow the sale of marijuana and proposes regulations to oversee the sale and control of this product for some adults. NYPIRG urges your support for the idea.

The way New York State currently deals with cannabis causes harm. While personal possession of small amounts of cannabis was decriminalized in 1977, a loophole allows police officers to distinguish between what they consider personal or public possession. This has amounted to hundreds of thousands of arrests for possessing marijuana “in public view.” On average, over 60 people are arrested every day in New York State for marijuana possession.<sup>90</sup> While national statistics are stark in comparing arrest rates for marijuana offenses among racial groups, New York ranks particularly badly.

Despite data showing equal cannabis use among racial groups,<sup>91</sup> the New York State Division of Criminal Justice Services finds that 86 percent of the people arrested for marijuana possession in 2017 were people of color (48 percent were Black, and 38 percent were Hispanic, 9 percent were White.)<sup>92</sup> Individuals with marijuana convictions can lose out on jobs, housing, and educational opportunities. As the New York State Department of Health states plainly:<sup>93</sup> “The over-prosecution of marijuana has had significant negative economic, health, and safety impacts that have disproportionately affected low-income communities of color.”

Further, in addition to the growing evidence to support the benefits of cannabis for medical use to treat pain, epilepsy, and nausea, cannabis has been found to be an asset in the battle against the opioid epidemic. According to the U.S. Centers for Disease Control and Prevention (CDC), between 2010 and 2015, the number of lethal deaths from opioid overdose doubled in NYS and the number of lethal heroin overdoses increased more than five times.<sup>94</sup> Studies have shown that the availability of marijuana products significantly deters opioid related deaths.<sup>95</sup>

The New York State Department of Health report, the *Assessment of The Potential Impact of Regulated Marijuana In New York State*,<sup>96</sup> found that: “Studies have found notable associations of reductions in opioid prescribing and opioid deaths with the availability of marijuana products. States with medical marijuana programs have been found to have lower rates of opioid overdose deaths than other states.”

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<sup>90</sup> New York State Division of Criminal Justice Services (2017, April). New York State Arrests for Marijuana Charges by year, Computerized Criminal History System.

<sup>91</sup> American Civil Liberties Union (2013). The War on Marijuana in Black and White. Retrieved from <https://www.aclu.org/files/assets/aclu-the-war-on-marijuana-re12.pdf>.

<sup>92</sup> Cheney, B. (2018, Feb 13). Racial disparities persist in New York City marijuana arrests.” POLITICO. Retrieved from [www.politico.com/states/new-york/cityhall/story/2018/02/13/racial-disparities-continue-in-new-york-city-marijuana-arrests-248896](http://www.politico.com/states/new-york/cityhall/story/2018/02/13/racial-disparities-continue-in-new-york-city-marijuana-arrests-248896).

<sup>93</sup> New York State Department of Health, Assessment of The Potential Impact Of Regulated Marijuana In New York State, July 2018, [https://www.health.ny.gov/regulations/regulated\\_marijuana/docs/executive\\_summary\\_07-13-18.pdf](https://www.health.ny.gov/regulations/regulated_marijuana/docs/executive_summary_07-13-18.pdf).

<sup>94</sup> New York State Department of Health, New York State Opioid Annual Report, October, 2017, [https://www.health.ny.gov/statistics/opioid/data/pdf/nys\\_opioid\\_annual\\_report\\_2017.pdf](https://www.health.ny.gov/statistics/opioid/data/pdf/nys_opioid_annual_report_2017.pdf).

<sup>95</sup> Goldman, Henry. "New York Health Officials See Marijuana as an Alternative to Opioids." Bloomberg. July 13, 2018. <https://www.bloomberg.com/news/articles/2018-07-13/n-y-health-officials-see-marijuana-as-an-alternative-to-opioids>.

<sup>96</sup> New York State Department of Health, Assessment of The Potential Impact Of Regulated Marijuana In New York State, July 2018, [https://www.health.ny.gov/regulations/regulated\\_marijuana/docs/executive\\_summary\\_07-13-18.pdf](https://www.health.ny.gov/regulations/regulated_marijuana/docs/executive_summary_07-13-18.pdf).

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Legalizing cannabis for adult use will reduce these harms.

**Health and Safety Considerations:** How will New York create a legal marijuana system for adult use that both reduces the harms that the current system creates and that considers public health and safety considerations? Below are a few proposals along those lines.

*Driving Under the Influence:* The National Highway Traffic Safety Administration (NHTSA) has reported that the number of drivers killed in crashes who tested positive for marijuana doubled from 2007 to 2015.<sup>97</sup> However, state strategies to legislate around drugged driving note that more data, specifically as it relates to crash and citation information, is needed. Other hurdles have been identified in testing for drug impairment such as limitations of drug-testing technology and differing strategies for measuring and setting limits to determine impairment.

In crafting regulations, New York State should also be mindful of the criminal justice impact that imprecise regulations may have on racial profiling. New York should collect crash and citation data and then set drugged driving regulations based on data and best practices in other states which improves road safety as it relates specifically to drugged driving.

*Maintain A Well-Funded Public Health Program:* The state should create and maintain a robust public health program, similar to the Health Department's Tobacco Control Program, which would be funded with recurring revenues derived from taxing cannabis. Such a program would be tasked with ongoing public health research and public education campaigns; cessation efforts and drug treatment; and more. The Legislature and such a Public Health Program should also consider what pro-health messages or labels should be included on all cannabis sales containers, in the same way warning labels exist on tobacco packaging.

*Clean Indoor Air Impact:* New York should create rules for cannabis use in restaurants, work spaces, and other indoor locations that respects and mirrors current Clean Indoor Air Act laws for tobacco and e-cigarette use. Even if secondhand cannabis smoke has not been proven to cause cancer, being exposed to smoke is still being exposed to smoke which can trigger adverse reactions for people grappling with asthma and others who suffer from respiratory sensitivities.

*Regulatory Structure:* There will have to be robust discussion about how to regulate the sale of recreational cannabis. Models that currently exist in the state can provide a starting point for the conversation. One such model that has been introduced is the State Liquor Authority, which strictly separates production, distribution, and retail sales, with carve outs for craft brewers and small wineries.

**Define Adults as Adults, 18 Years and Older:** Eighteen year olds can enlist in the armed services, sign contracts, vote for president, and serve on juries and decide death penalty cases. NYPIRG sees no valid reason to treat 18, 19, or 20-year-old adults differently than adults 21 or older.

**Questions to Answer: Economic Benefit and Criminal Justice Reform:** Individuals who have attended the State's public listening sessions have identified important questions for the Legislature to consider. *Will New Yorkers have the ability to grow cannabis at home and will smaller businesses benefit, or will large businesses be in control?*

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<sup>97</sup> National Conference of State Legislatures, Drugged Driving, Marijuana-Impaired Driving, September 13, 2018, <http://www.ncsl.org/research/transportation/drugged-driving-overview.aspx>.

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Intentional regulations are proving important for small business and minority and women-owned business growth. Boston, Massachusetts passed a ballot initiative in 2018 to allow for the sale of recreational marijuana. However, the City's opaque and slow process for issuing marijuana licenses has been criticized for favoring larger, wealthy investors. The mayor's administration in Boston now seems ready to consider a system where equal numbers of licenses are available for "larger investor-backed cannabis firms and those owned by local residents, people of color, and women."<sup>98</sup>

New York's medical marijuana requires vertical integration, meaning companies in the industry must handle the cultivation, processing, distribution, and retail sales themselves. This demands high up-front costs and closes the door to smaller niche businesses within the industry. New York's medical marijuana program required applications be sent to New York Department of Health for licensure. Of the 43 businesses vying for the original five licenses (there are 10 total now), there was "not a single minority applicant", according to Senator Diane Savino, Senate sponsor of the original 2014 bill to legalize medical marijuana.<sup>99</sup> New York should move away from system that requires only vertical integration and to one that promotes minority and women owned businesses. Oakland, California has begun an "Equity Permit Program" which gives preference to residents of certain neighborhoods which were heavily targeted for drug arrests, when doling out medical marijuana licenses for dispensaries. Additionally, having a prior cannabis-related conviction does not negatively impact their application.

Canada is also seeing large corporations angling to get in on and dominate the market. The makers of Marlboro cigarettes, Altria, has been reported to be in takeover talks with Canadian cannabis company Cronos. If the move happens, it would be among the largest investments in the cannabis industry to date.<sup>100</sup>

*How will tax revenues be reinvested?* Justice should be a leading tenet in these discussions and impacted communities should have a seat at the table, particularly in light of the outsized impact of the "War on Drugs" on communities of color. Any state effort should also address expungement or sealing of past marijuana convictions that would have been legal had they occurred after a legalization bill becomes law.

Tax revenues from the sale of legal cannabis can be invested in any number of public interest projects such as infrastructure, higher education, or mental health services, to name a few. Funding public health and safety programs that address any negative impacts from legalized cannabis should be prioritized, such as impacts from drugged driving. As stated earlier, the state should create and maintain a robust public health program, similar to the Tobacco Control Program, which is funded with recurring cannabis taxes.

*Who will bank cannabis businesses?* Federally-insured financial institutions are barred from marijuana business. Banks who do interact with legal marijuana businesses face steep compliance costs and are required to file Suspicious Activity Reports (SAR) with the Treasury Department's Financial Crimes Enforcement Network (FinCen). Forcing the cannabis industry into a cash business creates a sizable public safety problem. For instance, with large sums of cash on hand and predictable transaction times, cannabis businesses can become targets for robberies.

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<sup>98</sup> Adams, Dan, Boston Globe, "Boston City Council questions Walsh administration over marijuana licensing," December 05, 2018, <https://www.bostonglobe.com/metro/2018/12/04/boston-city-council-questions-walsh-administration-over-marijuana-licensing/5xCPOzM18jQixA03IMVb2J/story.html>.

<sup>99</sup> Wishnia, Steven, Gothamist, "Pot Stores Are Coming To NY, But Cuomo Won't Say What They'll Look Like," December 10, 2018, [http://gothamist.com/2018/12/10/legal\\_weed\\_ny\\_marijuana.php](http://gothamist.com/2018/12/10/legal_weed_ny_marijuana.php).

<sup>100</sup>Financial Times, December 3, 2018, "Marlboro-maker in takeover talks with Canadian marijuana group," <https://www.ft.com/content/46043990-f728-11e8-af46-2022a0b02a6c>.

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There are some paths forward starting to emerge, such as a federal bill to enact a safe harbor for banks and credit unions serving marijuana businesses. However, relying on a federal solution is tenuous at best. Other states which have legalized recreational marijuana can serve as an example. California passed a resolution urging Congress to pass legislation that would allow financial institutions to provide services to the cannabis industry.

In Colorado, state-chartered credit unions have embarked on efforts to follow their state's recreational marijuana laws while meeting requirements in the federal "Cole Memo" and the accompanying Fincen guidance both issued in 2014, which set federal guidance for financial services relating to marijuana businesses. While the Cole Memo was rescinded by former US Attorney General Sessions, the Fincen guidance has remained in effect.<sup>101</sup> Colorado credit union Partner Colorado is estimated to be one of the largest marijuana bankers in the nation, providing services with full knowledge of their customers businesses.<sup>102</sup>

In New York, a campaign to charter a public bank in New York City has been launched. The campaign seeks to create a municipal public bank which will, among other things, support credit unions and Community Development Financial Institutions. Similar to other states, these municipally or state-chartered institutions could bank marijuana businesses when federal banks are a no-show. North Dakota's Public Bank was created in the early 1900's to fill a void too – local farmers in need of loan services that national banks weren't meeting.

New York State Chartered Banks do not currently have the power to provide financial services to recreational marijuana businesses. However, regarding medical marijuana and industrial hemp operations, which are legal in New York but face similar federal-level hurdles, state-chartered banks and credit unions received guidance from the New York State Department of Financial Services this summer to "encourage [them] to offer banking services to these New York businesses."<sup>103</sup> An extension to recreational marijuana seems within reach, once legalized in the state.

Thank you.

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<sup>101</sup> New York State Department of Financial Services, "Guidance On Provision of Financial Services To Medical Marijuana & Industrial Hemp-Related Businesses in New York State," July 3, 2018, <https://www.dfs.ny.gov/legal/industry/il180703.pdf>.

<sup>102</sup> New York Times, "Where Pot Entrepreneurs Go When the Banks Just Say No," January 4, 2018, <https://www.nytimes.com/2018/01/04/magazine/where-pot-entrepreneurs-go-when-the-banks-just-say-no.html>.

<sup>103</sup> New York State Department of Financial Services, "Guidance On Provision of Financial Services To Medical Marijuana & Industrial Hemp-Related Businesses in New York State," July 3, 2018, <https://www.dfs.ny.gov/legal/industry/il180703.pdf>.

# Impact of New York City's 2014 Increased Minimum Legal Purchase Age on Youth Tobacco Use

James Macinko, PhD, and Diana Silver, PhD, MPH

**Objectives.** To assess the impact of New York City's (NYC's) 2014 increase of the minimum legal purchase age (MLPA) for tobacco and e-cigarettes from 18 to 21 years.

**Methods.** We performed a difference-in-differences analysis comparing NYC to the rest of New York State by using repeated cross-sections of the New York Youth Tobacco Survey (2008–2016) and to 4 Florida cities by using the Youth Risk Behavior Surveys (2007–2015).

**Results.** Adolescent tobacco use declined slightly in NYC after the policy change. However, this rate of change was even larger in control locations. In NYC, e-cigarette use increased and reported purchases of loose cigarettes remained unchanged, suggesting uneven policy implementation, enforcement, or compliance.

**Conclusions.** Increasing the MLPA to 21 years in NYC did not accelerate reductions in youth tobacco use any more rapidly than declines observed in comparison sites.

**Public Health Implications.** Other cities and states currently raising their MLPA for tobacco may need to pay close attention to policy enforcement and conduct enhanced monitoring of retailer compliance to achieve the full benefits of the policy. (*Am J Public Health.* 2018;108:669–675. doi:10.2105/AJPH.2018.304340)

 See also Winickoff, p. 594.

The large reductions in adolescent smoking over the past 20 years in the United States have been attributed to an aggressive and multipronged public health strategy.<sup>1</sup> Still, in 2015, nearly one fifth of high-school students reported using a tobacco product in the past 30 days and use of e-cigarettes has continued to rise.<sup>2</sup> The risks of such use are considerable, given tobacco's deleterious effects on adolescent tissue and organ development and that early exposure is associated with higher risk of nicotine addiction.<sup>3,4</sup>

One new strategy is to raise the minimum legal purchase age (MLPA) for tobacco products to from 18 to 21 years.<sup>5</sup> To date, more than 270 localities and 5 states have already raised their tobacco MLPA to 21 years. Policymakers and advocates reason that doing so will not only make it more difficult for young people to purchase tobacco products directly but will also reduce the probability that young people will obtain tobacco through social sources—usually a friend or relative who has turned 18 years.<sup>6</sup>

However, evidence regarding the effects of raising the tobacco MLPA is surprisingly sparse. Although an Institute of Medicine report concluded that raising the MLPA above 18 years could substantially reduce tobacco use and its effects, it also highlighted the absence of empirical evidence.<sup>3</sup> Simulations conducted for the report suggested that raising the MLPA to 21 years could reduce cigarette use by as much as 12% and could lead to nearly 250 000 fewer premature deaths over the next 85 years, assuming strong compliance with the law.<sup>3</sup> The report concluded by calling for further research to establish the evidence base for the effectiveness of such laws. To date, there has only been 1

empirical study showing modest reductions in youth cigarette smoking after an MLPA 21 law was passed in 1 small town.<sup>7</sup>

In August 2014, New York City (NYC) became the largest US municipality to raise the tobacco MLPA from 18 to 21 years. The change in the MLPA, passed in October 2013, was accompanied by Sensible Tobacco Enforcement legislation, which strengthened provisions and penalties for a variety of sales regulations, established minimum pricing, and set minimum pack sizes for tobacco products other than cigarettes (existing laws had already set minimum packaging requirements for cigarettes).<sup>8</sup> Although NYC has had the highest cigarette taxes in the United States, the new laws were passed to stimulate additional reductions in tobacco use.<sup>9,10</sup>

The purpose of this study was to assess the impact of these legal changes on adolescent tobacco use in NYC.

## METHODS

Data for our main analyses were derived from the even-year biennial New York State Youth Tobacco Survey (YTS) 2008 to 2016. The YTS, developed by the Centers for Disease Control and Prevention (CDC), is administered with state and local health departments to public- and private-school students, grades 7 to 12. Details about the survey can be found elsewhere.<sup>11</sup> We began the time series with the earliest year that included questions regarding multiple tobacco products and note that the 2014 YTS data

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were collected in the fall school year of 2014, after the new MLPA was implemented in NYC. Because the New York YTS underwent a sample redesign (regarding oversampling of minority populations) in 2014, we accounted for these changes by controlling for year and race/ethnicity and by using appropriate weights for each model.

We also used the Youth Risk Behavior Survey (YRBS) 2007 to 2015, a cross-sectional survey developed by the CDC for use nationally and by states and localities. It samples high-school students from public and private schools, biennially on odd years. Further information about the YRBS can be found elsewhere.<sup>12</sup> Although the YRBS has fewer items related to tobacco use, the public-use files include 4 large urban areas in Florida—Miami (Miami-Dade County), Orlando (Orange County), Fort Lauderdale (Broward County), and Jacksonville (Duval County)—which we used as a comparison group because they share similar demographic characteristics to NYC, had lower tobacco use than the national average, exhibited a secular rate of change that closely mirrors that of the United States as a whole, and neither they nor the state of Florida passed any significant tobacco legislation during the period under observation (see Tables A–C and Figure A, available as supplements to the online version of this article at <http://www.ajph.org>, for more details).

## Measures

Student-reported measures from both surveys included current (past-30-day) use of any tobacco product including cigarettes, e-cigarettes, cigars (including little cigars, pipes, bidi, and kretek), and smokeless tobacco (chew, snuff, dip, snus, and dissolvables). Cigar use in NYC was not included in the 2011 YRBS public-use data set, so we applied multiple imputation methods to estimate values for NYC for that year only. Questions regarding current (past-30-day) e-cigarette use were first included in the YTS in 2014 (and the YRBS in 2015), so although we report data on their use, we could not include these outcomes in impact analyses.

We investigated proxy measures of policy implementation by using the YTS data set only, as these are not collected in the YRBS. These questions (asked only of current

adolescent cigarette users) included reported age of tobacco initiation, reports of buying cigarettes from stores, whether current smokers were asked for identification (ID) when purchasing cigarettes, reports of attempting to quit, and reported purchases of single cigarettes (loosies).

## Analysis

We present descriptive statistics as weighted proportions and, because we used complex survey data, we obtained statistical significance through an adjusted Wald test.<sup>13</sup> We calculated a pre-post policy measure and tested for statistical significance by using a design-corrected *F* test.

We then estimated the impact of the NYC legislation on youth tobacco use with a difference-in-differences design with 2 control groups that allowed us to assess secular trends.<sup>14</sup> In the YTS, the control group was composed of all adolescents in the rest of New York State, while in the YRBS, we compared NYC adolescents with those in the 4 Florida control counties. All models controlled for grade (or age when using the YRBS), gender, race/ethnicity, and disposable income (for YTS only).<sup>15</sup> We assessed the parallel trends assumption of the difference-in-differences design by constructing, for each outcome, a separate regression model that included a coefficient for time, the treatment site (NYC), their interaction, and other control variables (age or grade, race/ethnicity, gender) for the period before the August 2014 policy change. The assumption of parallel pretreatment trends was met for both data sets, except for the case of cigar use only in the YRBS.

We estimated models by using robust Poisson regression because some outcomes have prevalence rates of greater than 10% and the assumptions of the Poisson model were met. Analyses controlled for each survey's sample design and included final sample weights.

## RESULTS

Table 1 presents the weighted proportions of adolescents reporting current tobacco and e-cigarette use in NYC and the rest of New York State according to the YTS 2008 to 2016, and NYC versus the Florida counties

2007 to 2015 according to the YRBS. We calculated differences in the immediate before and after periods of NYC's legal changes.

Over the study period, combined rates of cigarette, smokeless tobacco, and cigar use declined in both NYC and the rest of New York State, although the decline in New York State was steeper with a statistically significant difference in 2016. A significantly smaller proportion of NYC respondents reported using cigarettes, smokeless tobacco, and cigars compared with those in the rest of the state in 2008 and 2010, but that gap narrowed in subsequent years. When we assessed product use individually, the proportion reporting using cigarettes and using smokeless tobacco products in NYC was significantly smaller than the rest of the state only until 2012. In 2016, a significantly larger proportion of NYC adolescents reported using cigars compared with those in the rest of the state. Current e-cigarette use, asked beginning in 2014 only, increased significantly in both locations by 2016.

A pre-post test for change in reported use of any tobacco product in the YTS samples revealed a small, but significant decrease (1.04;  $P < .05$ ) between 2012 and 2016 in NYC. We observed this pre-post decrease for cigarette use only when we examined products individually. After the policy changes took place in NYC, the rest of New York State experienced a decrease of more than 9 percentage points in the rate of adolescent tobacco use overall, and significant ( $P < .001$ ) decreases in the use of any individual product.

The YRBS samples demonstrate a slightly different pattern. Over the study period, the proportion of adolescents reporting the use of any tobacco product declined in the Florida counties while increasing in the middle of the period in NYC. Rates of combined product use and for individual products were significantly lower in NYC than in the Florida counties in the 2007, 2009, and 2011 surveys. By 2015, however, rates for the use of all tobacco products in NYC and the Florida counties were nearly identical, although rates of both smokeless tobacco and cigars were significantly lower in NYC. Pre-post tests for change in product use 2013 to 2015 revealed significant declines in all products, both combined and individually, in NYC. Significant declines were evident in the Florida

**TABLE 1—Time Trends in Percentage of Adolescents Reporting Tobacco-Related Behaviors: 2008–2016, 2007–2015, New York City, New York State, and Selected Florida Counties**

Measure	Year 1	Year 2	Year 3	Year 4	Year 5	Pre-Post Difference <sup>a</sup>
<b>Youth Tobacco Survey</b>						
Year (no.)	2008 (n = 43 292)	2010 (n = 9500)	2012 (n = 8416)	2014 (n = 8288)	2016 (n = 7192)	2016–2012
Current <sup>b</sup> cigarette, smokeless tobacco, or cigar use, % (95% CI)						
NY	16.01 (15.20, 17.06)	15.90 (12.57, 19.92)	16.49 (12.59, 21.32)	10.45 (7.98, 13.56)	7.1 (5.69, 8.76)	-9.39***
NYC	11.87** (9.422, 15.14)	10.92* (8.72, 13.59)	11.64 (9.31, 14.46)	9.53 (7.87, 11.50)	10.6* (8.16, 12.16)	-1.04*
Current cigarette use, % (95% CI)						
NY	11.16 (10.26, 12.13)	10.05 (7.66, 13.06)	9.81 (7.31, 13.04)	5.53 (3.85, 7.88)	3.22 (2.34, 4.42)	-6.59***
NYC	8.16* (6.18, 10.69)	6.21* (4.77, 8.04)	6.01* (4.50, 7.99)	3.75 (2.64, 5.30)	3.11 (2.29, 4.21)	-2.9**
Current smokeless tobacco use, <sup>c</sup> % (95% CI)						
NY	4.41 (3.87, 5.02)	5.29 (3.77, 7.36)	6.60 (4.22, 10.19)	3.18 (2.12, 4.73)	1.51 (1.01, 2.26)	-5.09***
NYC	2.41*** (1.81, 3.20)	1.33*** (0.93, 1.89)	2.88** (1.95, 4.25)	2.08 (1.48, 2.93)	2.1 (1.32, 3.32)	-0.78
Current cigar use, <sup>d</sup> % (95% CI)						
NY	9.73 (8.66, 10.31)	9.45 (6.95, 12.73)	10.41 (7.83, 13.70)	5.94 (4.40, 7.97)	4.49 (3.51, 5.73)	-5.92**
NYC	7.50 (5.69, 9.83)	7.78 (6.21, 9.71)	8.35 (6.63, 10.47)	6.16 (5.02, 7.52)	7.50* (5.22, 10.65)	-0.85
Current e-cigarette use, <sup>e</sup> % (95% CI)						
NY	...	...	...	8.1 (5.82, 11.17)	14.06 (10.01, 19.40)	...
NYC	...	...	...	6.85 (5.70, 8.22)	14.9 (11.61, 18.92)	...
<b>Youth Risk Behavior Survey</b>						
Year (no.)	2007 (n = 13 890)	2009 (n = 19 452)	2011 (n = 20 313)	2013 (n = 18 390)	2015 (n = 17 559)	2015–2013
Current cigarette, smokeless tobacco, or cigar use, % (95% CI)						
FL	17.03 (15.30, 18.92)	19.48 (18.16, 20.87)	18.17 (16.86, 19.55)	15.05 (12.01, 14.16)	10.93 (9.88, 12.07)	-4.12**
NYC	11.76*** (10.34, 13.35)	12.91*** (11.61, 14.32)	13.91*** (12.63, 15.30)	13.94* (12.54, 15.48)	10.19 (8.85, 11.71)	-3.75***
Current cigarette use, % (95% CI)						
FL	12.5 (10.98, 14.19)	14.08 (12.88, 15.36)	11.35 (10.31, 12.48)	7.06 (6.29, 7.93)	5.32 (4.58, 6.16)	-1.74**
NYC	8.48*** (7.35, 9.76)	8.43*** (7.39, 9.60)	8.49** (7.39, 9.72)	8.22 (7.03, 9.60)	5.76 (4.65, 7.12)	-2.46*
Current smokeless tobacco use, % (95% CI)						
FL	3.40 (2.84, 4.07)	4.89 (4.28, 5.58)	4.70 (4.06, 5.43)	4.06 (3.51, 4.69)	4.30 (3.69, 5.00)	0.24
NYC	2.18** (1.67, 2.85)	3.38** (2.84, 4.03)	3.35** (2.84, 3.95)	4.45 (3.69, 5.35)	3.14* (2.60, 3.78)	-1.31**
Current cigar use, % (95% CI)						
FL	9.48 (8.41, 10.68)	11.61 (10.64, 12.66)	10.70 (9.70, 11.78)	8.20 (7.43, 9.05)	7.54 (6.71, 8.47)	-0.66
NYC	4.46*** (3.71, 5.35)	5.85*** (5.18, 6.61)	6.81*** (6.07, 7.62)	7.69 (6.76, 8.73)	5.72** (4.86, 6.73)	-1.97**
Current e-cigarette use, % (95% CI)						
FL	...	...	...	...	20.74 (19.49, 22.04)	...
NYC	...	...	...	...	15.86*** (14.35, 17.50)	...

Note. CI = confidence interval; FL = Selected Florida counties; NY = New York State; NYC = New York City. Numbers represent weighted percentages and their 95% CIs. Difference between NYC and control groups (rest of NY State, 4 combined Florida cities) are from adjusted Wald test. Statistical significance of the pre-post difference from design-corrected *F* test.

<sup>a</sup>Pre-post difference for Youth Tobacco Survey data are between 2012 and 2016 and for Youth Risk Behavior Survey between 2013 and 2015.

<sup>b</sup>Current use is defined as any use in the past 30 days. Note that because of poly use, these numbers are not simply the sum of each product's rate of use.

<sup>c</sup>Includes chew, snuff, dip, snus, or dissolvable tobacco.

<sup>d</sup>Includes cigars, little cigars, bidi, kretek, or pipes.

<sup>e</sup>E-cigarette questions first asked in 2014.

\**P* < .05; \*\**P* < .01; \*\*\**P* < .001.

sample for combined tobacco product use and cigarette use alone only.

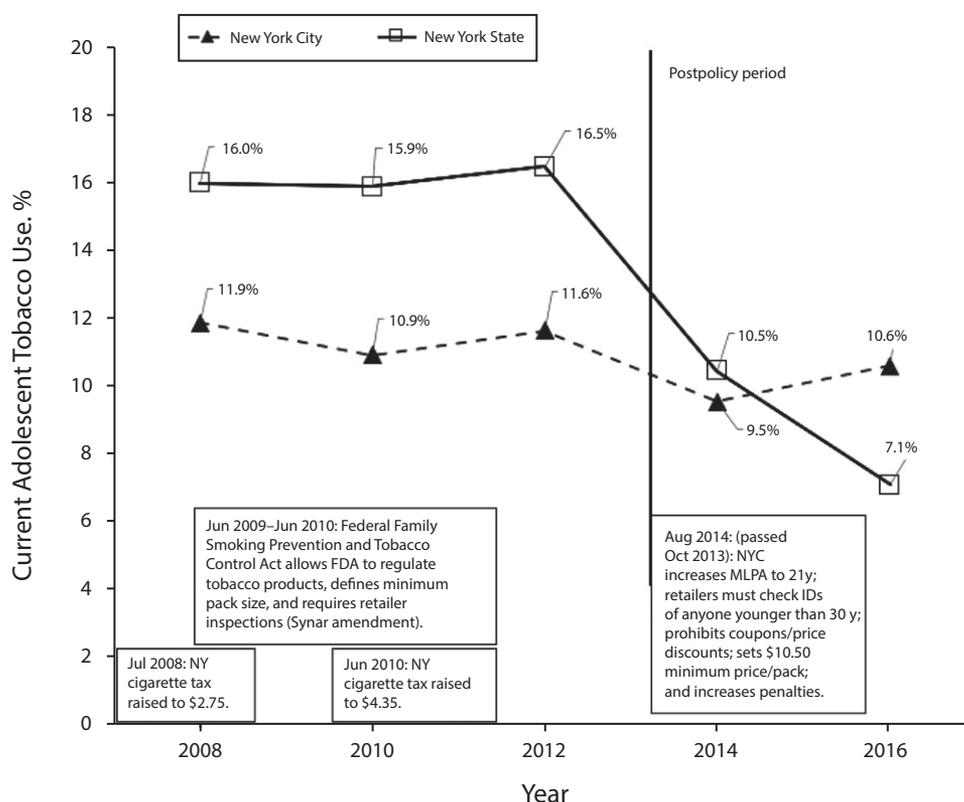
Figure 1 plots trends in NYC and New York State tobacco product use 2008 to 2016 and major federal, state, and city regulations during the same period. The figure shows that, after an initial stable period, in 2014, tobacco use declined in New York State and NYC and by 2016 New York State rates were lower than those observed in NYC. Over the same period, the price of cigarettes in New York State increased substantively, with state tax increases in 2008 and 2010 and the imposition of a federal tax in 2009. In 2010, in NYC, which had a tobacco tax of \$1.50, cigarette prices became the highest in the nation (though Chicago subsequently raised theirs even further). The federal Family Smoking Prevention and Tobacco Control Act (FSPTCA) mandated a pack size of 20 cigarettes and, through the Synar amendment, required regular inspections of retailers to enforce the minimum legal purchase age of 18 years nationally (though New York State had already established an MLPA of 18).

Table 2 presents behaviors asked of adolescent cigarette smokers only (YTS data). We observed no significant change in NYC or in the rest of New York State in the percentage reporting buying cigarettes in stores or having their ID checked from 2008 to 2016, but observed an increase in the purchase of loose cigarettes in both locations over time, albeit with no significant change before and after policy in NYC. The percentage reporting quit attempts during the study period increased in New York State and decreased in NYC. However, in the pre–post period, there was no significant change in these behaviors. The mean age of tobacco initiation also demonstrated no significant differences between NYC and New York State over time or pre–post policy change.

Table 3 presents results from the 2 difference-in-differences analyses of the impact of the NYC laws. The YTS analyses find tobacco use in NYC in the postpolicy period had a 42% higher prevalence rate, when we compared observed rates with the expected

counterfactual (i.e., the difference between expected postpolicy trends in NYC vs observed trends in New York State). In NYC, both the use of smokeless tobacco (adjusted prevalence ratio [APR] = 2.43; 95% confidence interval [CI] = 1.58, 3.73) and cigar use (APR = 1.72; 95% CI = 1.33, 2.22) in the postpolicy period had positive statistically significant values. When participants were stratified by grade (a proxy for age groups), these values were nearly identical for high-school students. For those in middle school (whose tobacco use prevalence is considerably lower), the value of the coefficients designating policy impact were even higher, although the coefficient for any tobacco use was not statistically significant.

Table 3 also presents results from the difference-in-differences analyses of the YRBS surveys. In the postpolicy period, only the prevalence ratio for current cigarette use was statistically significant (APR = 1.40; 95% CI = 1.10, 1.80). When the sample was restricted to those younger than 18 years



Note. FDA = Food and Drug Administration; MLPA = minimum legal purchase age; NY = New York State; NYC = New York City.

FIGURE 1—Timeline of Major Tobacco-Related Legislation and Adolescent Tobacco Use in New York City and New York State, 2008–2016

**TABLE 2—Time Trends in Percentage of Adolescent Cigarette Purchasing Behaviors Among Current Adolescent Smokers: New York City and New York State, 2008–2016**

Measure	Youth Tobacco Survey <sup>a</sup>					Pre-Post Difference, Percentage Points (2016–2012)
	2008 (n = 4570)	2010 (n = 666)	2012 (n = 552)	2014 (n = 361)	2016 (n = 216)	
<b>Buy cigarettes in store, weighted %</b>						
NY	25.34	26.99	26.98	28.64	32.26	5.28
NYC	39.29***	33.61	38.5*	40.79*	32.48	-6.02
<b>ID/age checked, weighted %</b>						
NY	48.41	54.46	49.97	51.35	38.22	-11.75
NYC	45.78	42.23	39.62	42.3	38.49	-1.13
<b>Buy loose cigarettes, weighted %</b>						
NY	19.68	22.62	33.36	34.49	43.13	9.77
NYC	41.35***	51.45***	55.52**	54.67*	54.68	-0.84
<b>Attempted to quit smoking, weighted %</b>						
NY	54.63	61.38	56.13	57.04	48.29	-7.84
NYC	63.30***	57.01	59.79	65.70	60.28***	0.49
<b>Mean age of cigarette initiation, y</b>						
NY	12.84	12.12	13.23	12.97	12.98	-0.25
NYC	12.53	13.05	13.16	12.91	12.71	-0.45

Note. ID = identification; NY = New York State; NYC = New York City. Data from Youth Tobacco Survey, 2008–2016. Difference between NYC and control group (rest of New York State) from adjusted Wald test. Statistical significance of the pre–post difference from design-corrected F test. No pre–post differences were statistically significant.

<sup>a</sup>Sample size of current cigarette smokers.

\* $P < .05$ ; \*\* $P < .01$ ; \*\*\* $P < .001$ .

(thus legally prohibited from purchasing tobacco in either NYC or the Florida counties), current cigarette use was similarly positive and statistically significant. We observed no

significant impacts for combined tobacco use or for smokeless tobacco alone. These patterns remained the same when we analyzed by gender (Figure B, available as a supplement

to the online version of this article at <http://www.ajph.org>). By 2015, adolescent tobacco use in the 4 Florida counties was nearly equivalent to that reported in NYC.

**TABLE 3—Difference-in-Differences Estimates of the Impact of New York City's Policy Change on Current Tobacco Use: New York City, New York State, and Selected Florida Counties, 2007–2016**

	Cigarette, Smokeless Tobacco, or Cigar Use, APR (95% CI)	Cigarette Use, APR (95% CI)	Smokeless Tobacco Use, <sup>a</sup> APR (95% CI)	Cigar Use, <sup>b</sup> APR (95% CI)
<b>NYC vs rest of NY state (YTS)</b>				
Overall	1.42 (1.12, 1.79)	1.25 (0.88, 1.76)	2.43 (1.58, 3.73)	1.72 (1.33, 2.22)
High school only	1.42 (1.11, 1.82)	1.24 (0.85, 1.82)	2.41 (1.48, 3.93)	1.63 (1.19, 2.23)
Middle school only	1.50 (0.84, 2.69)	1.26 (0.65, 2.44)	2.48 (1.10, 5.55)	2.70 (1.64, 4.45)
<b>NYC vs 4 FL counties (YRBS)</b>				
Overall	1.18 (1.00, 1.39)	1.40 (1.10, 1.80)	0.87 (0.66, 1.15)	... <sup>c</sup>
Younger than 18 y only	1.13 (0.96, 1.32)	1.34 (1.04, 1.71)	0.84 (0.62, 1.13)	... <sup>c</sup>

Note. APR = adjusted prevalence ratio; CI = confidence interval; FL = Florida; NY = New York State; NYC = New York City; YRBS = Youth Risk Behavior Survey; YTS = Youth Tobacco Survey. Policy changes refer to when, in August 2014, NYC raised the tobacco minimum legal purchase age from 18 to 21 years, accompanied by Sensible Tobacco Enforcement legislation, which strengthened provisions and penalties for a variety of sales regulations, established minimum pricing, and set minimum pack sizes for tobacco products other than cigarettes (existing laws had already set minimum packaging requirements for cigarettes). Results are prevalence ratios and 95% confidence intervals from robust Poisson regression. Models additionally controlled for NYC fixed effect, year, self-reported weekly income (YTS only), grade (age for YRBS), gender, and race/ethnicity (results not shown).

<sup>a</sup>Includes chew, snuff, dip, snus, or dissolvable tobacco.

<sup>b</sup>Includes cigars, little cigars, bidi, kretek, or pipes.

<sup>c</sup>This outcome did not meet the parallel trends assumption in the YRBS, so difference-in-differences results are not presented.

## DISCUSSION

This is the first study, to our knowledge, to assess the relationship between the passage of a broad set of regulations—the most significant of which included raising the MLPA to 21 years—on adolescent tobacco use in a major population center. In a straightforward pre–post test of the policy, our findings revealed a modest decrease in tobacco product use among NYC adolescents, largely driven by a decline in cigarette use. However, our difference-in-differences analysis revealed that this decrease was overshadowed by the steep decline in tobacco use in the rest of New York State after policy implementation, indicating a strong secular decline in current tobacco use. This decline was further confirmed when we compared NYC rates with those from a large urban and diverse sample from Florida. Moreover, we observed no changes pre–post policy change in youths' purchasing of loose cigarettes, suggesting that stiffer penalties included in the legislation may not have substantively altered this activity either by licensed retailers or street vendors. These findings suggest that either the broad set of regulations adopted by NYC were not robust enough to alter youth tobacco use in the city beyond those occurring in comparison communities or may have been rendered less effective because of poor retailer compliance and illicit tobacco supplies.

These analyses demonstrated that the comparison areas experienced considerable and sustained declines in most aspects of adolescent tobacco use. The CDC has reported declines in all forms of tobacco use among adolescents nationally from 1991 to 2015, with the exception of smokeless tobacco products and e-cigarettes.<sup>16</sup> Passage of the 2009 FSPTCA provided new funding and a host of antitobacco measures, which likely contributed to the substantial secular declines throughout the United States. Many states have also increased taxes on tobacco products, though of varying magnitude. New York State passed a substantial increase in cigarette taxes in 2010, affecting both city and state residents. Florida's increase in tobacco taxes in 2009 was less than a quarter of that of New York State (Tables B and C, available as supplements to the online version of this article at <http://www.ajph.org>).

Our results may point to the difficulty of substantially lowering adolescent tobacco use

in NYC with these policies given its context. The Institute of Medicine report estimated a 12% reduction in cigarette use (over the long term) following a simulated increased national MLPA of 21 years, whereas NYC saw only a 3% decline in this behavior. One possible explanation is that many of the policies with the strongest evidence base (raising taxes, licensing tobacco retailers, and strong smoke-free laws) had already been established in NYC, including many provisions of the FSPTCA.<sup>17–21</sup> Arguably, NYC may have already experienced the largest gains from these laws. Furthermore, NYC's tobacco retail market is different from that in many places throughout the country because of its size, its population density, the predominance of small independent retailers, and the proximity of neighboring states and counties whose policies were less restrictive. The diversity of this market presents challenges to the enforcement of laws governing retailers. For instance, evidence of bootlegging has been found in New York State following the 2002 and 2008 tax increases,<sup>22–25</sup> and in NYC, recent studies found limited compliance with ID check laws immediately following the increase in the MLPA<sup>26</sup> and a high proportion (15%) of in-store purchases yielded bootlegged cigarettes.<sup>27</sup> Our results regarding the frequency of purchases of loose cigarettes support the hypothesis that such illicit activities continue to flourish in both NYC and New York State.

The results presented here differ somewhat from the only previous empirical study of raising the MPLA to 21 years, in Needham, Massachusetts (population 36 000). Their postpolicy assessment attributed a reduction (compared with control communities) in youth cigarette smoking to the passage of the nation's first MLPA 21 law in 2005, and noted Needham's aggressive enforcement of the law in advance of the Synar amendment's requirements.<sup>7</sup> Still, although cigarette smoking declined in Needham much faster than it did in comparison communities from 2005 to 2010, declines in comparison communities outpaced declines in Needham after 2010.

## Limitations

This study had several important limitations. It relied on a series of cross-sectional surveys, so we cannot follow the same

students over time. Students surveyed are all in-school youths, so we cannot generalize to those who are out of school. For outcomes that included e-cigarettes, we were not able to conduct a difference-in-differences analysis, so, although we could not assess the policy's immediate impact on the use of these devices, we note that such devices are covered by NYC's MLPA laws and their use increased in absolute terms after these laws became effective. The results reported here are possible underestimates of overall tobacco use as “roll-your-own” tobacco was not included as a response option. In addition, we did not explicitly assess dual use or product substitutions over time.

Questions asked of current cigarette users were limited by small sample sizes that declined over time thus raising the possibility of type-2 error. These analyses could have underestimated MLPA 21 effects if it also had an impact on ID checks and sales refusals of tobacco products other than cigarettes.

Difference-in-differences analyses depend on the parallel trends assumption. We explicitly tested this assumption and found that it held for all outcomes except for cigar use in the YRBS. We note additionally that any policy changes that occurred in New York State should also affect NYC. However, estimates for the rest of New York State did include a few municipalities that had a slightly higher MLPA (19 vs 18 years) and in 2016, counties representing about 20% of the rest of New York State population (not just adolescents) increased their MLPA to 21 years. This suggests that we may have underestimated the impact of the policy in NYC as compared with the rest of New York State in the second postpolicy period (2016). However, none of the 4 large population centers in Florida experienced policy changes in any major aspect of tobacco control (Tables B and C, available as supplements to the online version of this article at <http://www.ajph.org>) and results found were similar to those with the New York YTS data. Finally, we note that we were unable to measure retailers' compliance with the law, nor measure enforcement efforts. Future studies should focus on assessing the law's implementation and impact in different jurisdictions, over longer time periods, within different tobacco regulatory environments, and with a cohort of adolescents to assess within-person changes over time.

## Conclusions

This study suggests that Institute of Medicine estimates of significant declines in adolescent tobacco use resulting from raising the MLPA for tobacco to 21 years may need to be placed into context. It could be the case that MLPA 21 laws implemented in sites with high tobacco use and low tobacco excise taxes, for example, would have larger effects, or that impacts in NYC will only be realized over a longer time period. Still, the results presented here should not be taken to mean that raising the MLPA is ineffective; they simply reveal that the law did not reduce tobacco use in NYC at a faster rate than that observed in comparison sites. Further empirical evidence is needed to determine in which contexts MLPA 21 policies can be expected to make a significant impact on reducing youth tobacco use. **AJPH**

## CONTRIBUTORS

Both authors each equally contributed to the design and implementation of the research, to the analysis of the results, and to the writing of the article.

## HUMAN PARTICIPANT PROTECTION

All analyses used publicly available secondary data and were considered exempt from human participants review.

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