

Tobacco Retail Licensing and Density 3 Years After License Regulations in Philadelphia, Pennsylvania (2012–2019)

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Objectives. To evaluate changes in licensed tobacco retailers and retailer density 5 years before and 3 years after novel tobacco retailer licensing regulations were implemented in a large, urban area.

Methods. We used administrative tobacco license data ($n=23\,806$ licenses, 2012–2019) to calculate (1) annual retailer density by district ($n=18$), (2) density by district and school income status, and (3) retailers within 500 feet of schools ($n=673$) before and after regulations.

Results. Observed tobacco retailer density declined by 20.3% (from 1.97 to 1.57 per 1000 daytime residents) 3 years after regulation implementation. Regression results showed a decline in the trend of retailers per 1000 daytime population ($b=-0.19$; 95% confidence interval[CI]= $-0.23, -0.14$) that was modestly but significantly greater in low-income districts (interaction $b=-0.18$; 95% CI= $-0.25, -0.11$) and a 12% decline in the rates of retailers near schools (rate ratio=0.88; 95% CI=0.85, 0.92) following implementation of the regulations. We did not observe similar density changes in comparable cities.

Conclusions. Tobacco retailer licensing strategies can be an effective policy approach to reduce the availability of tobacco and tobacco marketing, lessen socioeconomic disparities in tobacco retailer density, and decrease the number of tobacco outlets near schools. (*Am J Public Health*. Published online ahead of print February 20, 2020: e1–e7. doi:10.2105/AJPH.2019.305512)

products to youths. Nationally, only a handful of jurisdictions have any one of these policies, and since passing licensing regulations in December 2016, Philadelphia, Pennsylvania, is the only jurisdiction with all 4 of these retailer licensing strategies in place. Recent simulation studies^{15–17} and preliminary health department reports¹⁸ suggest that these policy approaches will result in fewer tobacco outlets. However, studies to date have not yet empirically evaluated the effectiveness and patterns of these strategies for decreasing retailer density.

Using city tobacco licensing data from Philadelphia, we sought to evaluate the impact of a set of novel tobacco retailer licensing changes on (1) district level tobacco retailer density, (2) tobacco retail exposure within 500 feet of schools, and (3) socioeconomic differences in district density and school retailers.

METHODS

New tobacco retailer licensing regulations were passed in Philadelphia in December 2016 by Board of Health vote and implemented beginning in January 2017.¹⁹ Philadelphia had up to double the number of retailers per 1000 people (2.21) compared with other major cities—including New York City (1.15); Chicago, Illinois (0.92); San Francisco, California (1.05); and Washington, DC (1.20)²⁰—and a large, diverse population

Tobacco use remains the leading cause of mortality and cancer in the United States, accounting for 1 in 5 deaths annually and 29% to 40% of all cancer deaths.^{1,2} Despite consistent declines in smoking over the past 50 years, tobacco-related health disparities have worsened.³ Research demonstrates that marketing at the point of sale is overwhelmingly concentrated in economically disadvantaged and high-minority areas.^{4–8} Given that point-of-sale marketing and price discounts accounted for 86% of tobacco industry marketing expenditures in 2017,⁹ disparities in tobacco retailer density—and consequently in point-of-sale marketing—are particularly problematic. High retailer density has also been associated with decreased cessation success,^{10–12} more cigarettes smoked per day, increased youth tobacco

experimentation and use,¹³ and more favorable social norms about tobacco.^{13,14}

Novel policy strategies, particularly tobacco retailer licensing policies at the state or local level, are of increasing interest. Policies include but are not limited to tobacco retail license density caps (e.g., 1 tobacco retailer per 1000 people limit), tobacco-free school zones (e.g., no permits granted within 500 feet of schools), increased tobacco permit fees, and strict permit penalties for selling tobacco

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(1.6 million residents; 40.9% African American, 14.8% Hispanic). Philadelphia's adult smoking prevalence is high (20%; Table A of the Appendix, available as a supplement to the online version of this article at <http://www.ajph.org>). Tobacco retailers of any type (e.g., wholesalers, corner stores) selling any type of tobacco product (e.g., cigarettes, e-cigarettes) are required to apply for a tobacco retail license annually from the Philadelphia Department of Public Health. Licenses are specific to each business owner and location, and a new license is required if the sale or transfer of a business occurs.²¹ Retailers may appeal license determination decisions to an independent licensing review board, which will make a final determination of eligibility. The new regulations, which were implemented with a grandfather clause for existing retailers, included (1) a density cap of 1 retailer per 1000 daytime population for each of the 18 city planning districts, (2) smoke-free school zones that prohibited new retailers within 500 feet of school property, (3) an increase in the licensing fee from \$50 to \$300 to fully fund the compliance program, and (4) a standardization of penalties for youth sales violations, such that after the third violation in 2 years, tobacco sales privileges are suspended and grandfather status is lost. Therefore, a reduction in current levels of tobacco retailers is observed only when existing retailers located in capped districts sell or close their business or when retailers lose sales privileges for repeated youth sales violations.

Procedures

The current study used administrative license data from the Philadelphia Department of Health's Philadelphia Tobacco Retailer Database to examine changes in licensed retailers from 2012 to 2019 (analyzed in 2019) at the district level or within 500 feet of schools. This included annual data from 5 years prior to (2012–2016) to 3 years after (2017–2019) the regulatory change. Outlet characteristics at the time the license application was submitted included store address (used for geocoding), self-reported store type (e.g., convenience store, supermarket, alcohol outlet), and the number of years retailers had held a license since 2012, when a city license requirement was implemented in addition to a state license. The current study

included data on the total number of city-licensed tobacco retailers, which does not include stores operating illegally without a license. Although reliable estimates of the number of stores operating illegally are not available, it is expected to be relatively low.

Retailer density. The data set that we constructed used 4712 unique retailers and included every year that each retailer had held a permit since 2012 ($n = 23\,806$ licenses). Stores that changed ownership technically held multiple permits at the same location, but they were counted as 1 retailer and license for the purposes of this study. Approximately 11.1% of all licensed stores submitted at least 1 application for locations with existing licenses under different owner or legal names, suggesting an ownership change. We matched geocoded establishment addresses for each license holder to property data outlining the parcel of land the retailer was located on. We then used geocoded annual license records to determine the total number of licensed retailers each year in each of the city's 18 planning districts. We used census data (2015 5-year American Community Survey estimates) for total population and worker populations to determine each district's daytime population level, according to standard census methodology (total resident population plus total workers working in area minus total workers living in area).²² We used daytime population estimates for the density denominator, as this was specified in the regulations to account for differences in district population levels when large numbers of people commute into the city for work. We divided total number of retailers per district by total district daytime population in thousands to create estimated annual retailer density per 1000 daytime population for each district, which we used as the primary outcome (referred to as retailer density). The final data set included annual retailer counts and densities for each district.

We used census data to determine the percentage of adults aged older than 25 years with some college (a time-invariant covariate) and the percentage of residents at or below the US Census federal poverty level (FPL) living in the census tract, which were aggregated into districts. We classified districts with more than 25% of residents at or below the FPL as low income ($n = 8$; % FPL range = 28.1%–45.4%), which is in the range of US Census definitions of concentrated poverty.²³ We

classified all others as not low income ($n = 10$; % FPL range = 9.7%–24.3%), but they are not necessarily considered high income because of the overall high poverty rates (26%) in Philadelphia (section A1 of the Appendix). We used 2012–2015 data from the South-eastern Pennsylvania Household Health Survey²⁴ to estimate district adult smoking prevalence (a time-invariant covariate) before the regulations were implemented.

School zone retailer density. We identified school property ($n = 617$ parcels, including public, charter, and parochial schools) using data from the School District of Philadelphia and Philadelphia City Planning Commission, which identified parcels of land on which schools or school-owned property was located (section A2 of the Appendix). We removed duplicate parcels. We included school buildings and other school property (e.g., parking lots, sports fields), matching the regulation implementation as well as youths' school exposures to tobacco retailers. We considered the school property parcels to be consistent over time because of the relatively few changes over time and the infrequency of updated data. Using Euclidean distance, we drew 500-foot school zone circular buffers around school property parcels. Following the exact procedures used by the city,²¹ we classified a retailer as being within the smoke-free school zone if any portion of its parcel (i.e., property boundary) intersected the school property buffer. We counted the annual number of licensed tobacco retailers in each school's smoke-free school zone and used these numbers as the outcome measure. For retailers within 500 feet of more than 1 school ($n = 263$ in 2016), we counted how many tobacco retailers were within 500 feet for each school, hereafter referred to as school retailer exposures. We classified a school as low income if 25% of residents in its zip code were at or below the FPL (section A1 of the Appendix).

Data for comparable cities. We collected data from local and state health departments for comparable cities, including Baltimore City, Maryland; Boston, Massachusetts; Chicago, Illinois; Milwaukee, Wisconsin; and Minneapolis, Minnesota. Localities varied in the amounts of historical data available (2012–2019). We calculated citywide licensed retailers per 1000 daytime population residents for each city for each available year, and we used this number to examine secular trends in tobacco retail licenses.

Statistical Analysis

We calculated descriptive statistics for tobacco retailers by income and school zone status. To account for nonindependence of districts' repeated measures, we used a linear mixed effects model with a random intercept for district to determine if there was a change over time in retailer density after the regulations were passed. Residuals showed no evidence of spatial autocorrelation (Moran's $I = 0.09$; $P = .17$). The 2 covariates were district-level adults with some college and district-level adult smoking prevalence. Count of retailers near schools was not normally distributed. Because of evidence of spatial autocorrelation in the school retailer count outcome and model residuals, we used a Bayesian structured additive regression with a Poisson distribution (logarithmic link function) to determine if there was a change over time in the count of retailers near schools after the regulations were passed. The model included a random intercept for school and a spatial effect to control for spatial autocorrelation, and we examined the model's fit (see section A3 of the Appendix for details). School zone model parameters are expressed as rate ratios (rate reductions in counts of school zone retailers per year).

We included time and intervention parameters according to a recommended interrupted time series specification.²⁵ Specifically, we included 3 variables: (1) treatment: a binary variable indicating whether the year was before or after the regulations passed (interpreted as level changes at the time the regulations passed); (2) time: a continuous variable coded 1 to 8 for each year of data (interpreted as time trends prior to the regulation implementation); and (3) time since treatment: a continuous variable coded 0 prior to the regulations and 1 to 3 for the 3 years after the regulations passed (interpreted as trend or slope changes after regulation implementation). For socioeconomic analyses, we added 2 interaction terms with district income status: posttreatment trend (i.e., time since treatment) and time (i.e., to allow for preregulation trend differences). We performed 2 robustness checks, which did not change the results: (1) excluding 2012 as the first year the city license requirement was implemented, and (2) changing the low-income threshold of residents at or below the

FPL to 20% or 30%. We examined secular trends by calculating trends in tobacco retailers per 1000 daytime residents in comparable cities. To inform whether the regulations or other ongoing social processes may have contributed to tobacco outlet distribution changes, we compared Philadelphia's density per 1000 daytime residents with those of other comparable cities using a difference-in-differences approach. The model included treatment, time, and time since treatment parameters as well as 2 additional terms: interactions with city and time to allow for differences in preregulation trends and with city and postregulation slope (i.e., the difference-in-differences estimate of the effect). We analyzed data using R version 3.3.0 (R Foundation, Vienna, Austria). We fitted the Bayesian structured additive regression models for schools by full Bayesian inference using Markov chain Monte Carlo simulation methods, which allow for random samples to be drawn from posterior distributions. We used positive hyperparameters ($a = b = 0.001$). We used a total of 50 000 Markov chain Monte Carlo iterations with the first 10 000 samples as the burn-in period, and we used a final sample of 2500 for posterior parameter estimates. We used the posterior distribution to obtain the 95% credible intervals, and we exponentiated the estimated parameters. We analyzed Bayesian models using the BayesX package.

RESULTS

Tobacco retailers in Philadelphia at baseline in 2016 were predominantly small convenience stores (51.9%) such as corner stores, gas stations, and groceries, and had held a permit for a mean of 6.6 of 8 possible years (Table 1). More tobacco retailers in low-income areas identified as convenience stores and take-out restaurants compared with not-low-income areas (Table 1). More tobacco retailers in not-low-income districts identified as alcohol or tobacco outlets, pharmacies, or supermarkets (Table 1). Retailer characteristics 3 years after regulation implementation were similar (Table B of the Appendix).

Retailer Density

Compared with 2016, observed retailer density showed a 20.3% reduction (from 1.97 to 1.57 per 1000 daytime residents) 3 years after implementation (Table 2; Figure 1). Regression results showed that there was a significant decline in the trend of retailer density over time following the regulation implementation (i.e., posttreatment slope change; $b = -0.19$; 95% confidence interval [CI] = $-0.23, -0.14$; $P < .01$). Prior to the regulations, there was a significant increasing trend of retailer density over time ($b = 0.05$; 95% CI = $0.04, 0.07$; $P < .01$).

Tobacco-Free School Zones

The observed average annual counts of retailers within 500 feet of a school are shown in Table 2 and Figure 2. Compared with 2016, there was a 22.1% reduction (from 2.62 to 2.04 per 1000 daytime residents) in the average count of school zone retailers 3 years after implementation. This translated to an estimated 84 300 youths from over 200 schools and school properties who cumulatively experienced more than 300 fewer tobacco retailer exposures near their schools in the 3 years following regulation implementation. This included an estimated 10 500 youths from 32 schools whose tobacco retailer exposure near their school declined to zero. Regression results showed that prior to the regulations, there was a 4% increase per year in the count of school zone retailers (rate ratio [RR] = 1.04; 95% CI = 1.02, 1.05). Following the regulations, there was an 12% decline in the rate change (i.e., posttreatment slope) of school zone retailers per year (RR = 0.88; 95% CI = 0.85, 0.92).

Socioeconomic Status

Compared with 2016, observed retailer density in low-income districts showed a 20.7% reduction (from 2.76 to 2.19 per 1000 daytime residents) 3 years after regulation implementation and a 19.4% reduction (from 1.44 to 1.16 per 1000 daytime residents) in not-low-income districts (Table 2; Figure 1). Regressions results, including interactions between income status and pre- and postregulation trends over time, showed that this difference in rate reduction was modestly but significantly greater in low-income

TABLE 1—Baseline Characteristics of Tobacco Retail Stores: Philadelphia, PA, 2016

	Total	Low Income	Not Low Income	Within 500 ft of a School	Not Within 500 ft of a School
Store count	3231	1820	1411	1139	2092
Years permit held, mean (SD) ^a	6.58 (1.78)	6.54 (1.81)	6.63 (1.73)	6.53 (1.82)	6.6 (1.75)
Store-reported store type, %					
Convenience store ^b	51.9	55.1*	47.8	52.6	51.5
Take-out restaurant	14.4	18.5*	9.2	15.2	14.0
Other ^c	10.6	6.8*	15.7	9.6	11.2
Alcohol outlet or bar ^d	6.9	6.1*	7.9	6.5	7.1
Restaurant or deli	6.7	6.5	6.9	6.9	6.6
Pharmacy	3.8	3.0*	4.9	4.0	3.7
Discount store ^e	2.5	2.6	2.3	2.6	2.4
Supermarket	1.5	0.9*	2.3	1.3	1.6
Tobacco store ^f	1.5	0.4*	3.0	1.2	1.7

Note. A planning district was defined as low income if more than 25% of residents were at or below the US Census federal poverty level. "School zone" was defined as within 500 ft of school property.

^aMaximum time period that permits could be held was 8 years (2012–2019), beginning with when city-level permits were instated and tracked.

^bConvenience stores include corner stores, chain convenience stores, groceries, and gas stations.

^cOther includes stores such as newsstands (n = 125), laundromats (n = 44), check cashing stores (n = 27), department stores (n = 6), beauty salons (n = 4), and others.

^dIncludes beer distributors, taverns and bars, alcohol retail outlets, hookah bars, and others.

^eIncludes dollar or discount stores.

^fIncludes specialty tobacco stores, distributors, or wholesalers.

*Significantly different at $P < .05$ from not low income; no significant differences based on school zone status.

districts compared with not-low-income districts (interaction $b = -0.18$; 95% CI = $-0.25, -0.11$; $P < .01$; section A1 of the Appendix). No effect modification by income status was observed in school zones.

Secular Changes

Key demographics and trends in tobacco retailer licenses across other comparable US cities (Figure A of the Appendix) generally showed stable secular trends over time. Difference-in-differences results showed that Philadelphia had a significantly reduced rate of tobacco retailers after implementation of the regulations compared with other major cities during that time ($b = -0.26$; 95% CI = $-0.35, -0.17$; $P < .001$).

DISCUSSION

This is the first empirical study of the impact of tobacco retailer license regulations on licensed tobacco retailer density. There were 3 key findings from the study.

First, the trend of licensed tobacco retailer density significantly declined 3 years after the regulations were implemented. This reduction amounted to over 650 (20%) fewer licensed tobacco retail locations after 3 years, suggesting that license regulation changes can be an effective way to reduce the availability of tobacco and consequent tobacco advertising. Observed 1-year reductions (6.1%) are comparable with those found in a preliminary report of 1-year reductions (9%) following San Francisco's tobacco retailer license changes and may be lower because the current study accounted for ownership changes.¹⁸ There have been no prior peer-reviewed studies of the impact of tobacco retailer licensing changes. However, simulation studies suggest that tobacco license regulations may be effective in reducing tobacco availability and modestly reducing smoking prevalence, and would be cost-saving to the health system.^{15–17} The fact that retailer density declined after regulation implementation—compared with an increasing trend prior to implementation—is encouraging. Importantly, results showed that Philadelphia had

significantly sharper declines in licensed retailers after implementation compared with other similar cities, offering further evidence that these tobacco retailer reductions were attributable to the regulations rather than to other social processes. In addition, a reduction in tobacco retailers could improve resources available for compliance efforts. However, despite these improvements, the number of tobacco retailers remained high (1.57 per 1000 daytime residents, or over 2500 retailers citywide), which emphasizes the need for additional and complementary approaches to reducing the negative health impact of tobacco.

Second, results from the current study demonstrated that, from 2016 to 2019, postregulation reductions in tobacco retailer density in low-income districts, although small, were significantly greater than in not-low-income districts. This pattern did not hold near schools where there was no evidence of differences in low-income versus not-low-income schools. This is in contrast with the income patterns prior to regulation implementation. Furthermore, over time the density cap of 1 retailer per 1000 daytime residents will more than halve the number of retailers in low-income districts compared with not-low-income districts, which are closer to meeting the cap (2.76 vs 1.44 per 1000 residents in 2016, respectively). Overall, these patterns translate into larger improvements in low-income compared with high-income districts, or a pro-equity effect, and may most benefit disadvantaged neighborhoods, in which residents encounter other challenges, such as reduced access to health care and cessation support, and may not benefit from some other tobacco control policies. These results are partially consistent with a simulation study that showed that retail density reductions halved the disparity between low- and high-income communities and were most effective when multiple or multifaceted policies were implemented,¹⁵ as was the case in Philadelphia. Although no empirical studies have examined the impact of license regulations by income status, there is a robust literature documenting the disproportionately high number of tobacco retailers in low socioeconomic neighborhoods.^{5,8,26,27} Furthermore, with the exception of some price changes, tobacco control policy strategies to date have yet to improve disparities²⁸ or cessation.²⁹ As a result of existing disparities

TABLE 2—Observed Tobacco Retailer, Population, and Retailer Density, by Income Status: Philadelphia, PA, 2012–2019

	2012	2013	2014	2015	2016	2017	2018	2019
Total no. of retailers								
Citywide	2746	3122	3209	3176	3231	3025	2725	2572
Low-income districts	1480	1693	1745	1768	1820	1698	1515	1439
Not low-income districts	1266	1429	1464	1408	1411	1327	1210	1133
Retailer density, per 1000 daytime residents								
Citywide	1.68	1.91	1.96	1.94	1.97	1.85	1.66	1.57
Low-income districts	2.25	2.57	2.65	2.68	2.76	2.58	2.3	2.19
Not-low-income districts	1.29	1.46	1.49	1.44	1.44	1.35	1.24	1.16
Total no. of school retailer exposures								
Citywide	1356	1533	1588	1598	1617	1495	1337	1258
Low-income districts	916	1036	1082	1106	1133	1051	942	895
Not low-income districts	440	497	506	492	484	444	395	363
Average no. of retailers per school								
Citywide	2.20	2.48	2.57	2.59	2.62	2.42	2.17	2.04
Low-income districts	2.59	2.93	3.07	3.13	3.21	2.98	2.67	2.54
Not-low-income districts	1.67	1.88	1.92	1.86	1.83	1.68	1.50	1.38

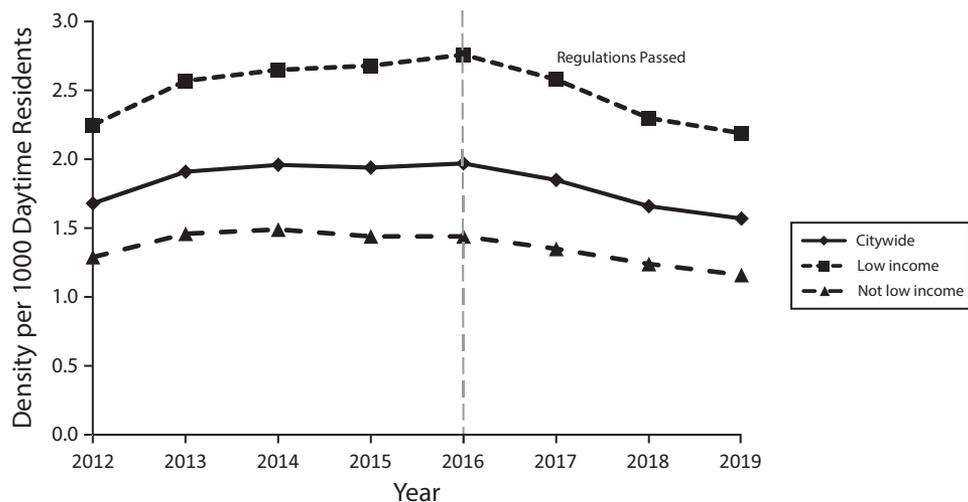
Note. We calculated daytime population using 2015 American Community Survey 5-year estimates of citywide (1 637 936), low-income (658 566), and not-low-income (979 370) population. Low income was defined as living in a planning district in which more than 25% of residents were at or below the federal poverty level; for schools, it was defined as being in a zip code with more than 25% of residents at or below the federal poverty level. School zone was defined as within 500 ft of school property. School retailer exposures are counted by including retailers near multiple schools (n = 263 in 2016) for each school exposure.

in retailer density, and consequently in exposure to tobacco marketing and advertising, the current study results suggest that retailer licensing strategies can have a pro-equity

effect through reducing density more in low- versus high-socioeconomic areas. However, the pro-equity potential of retailer licensing strategies is heavily based on specific, local

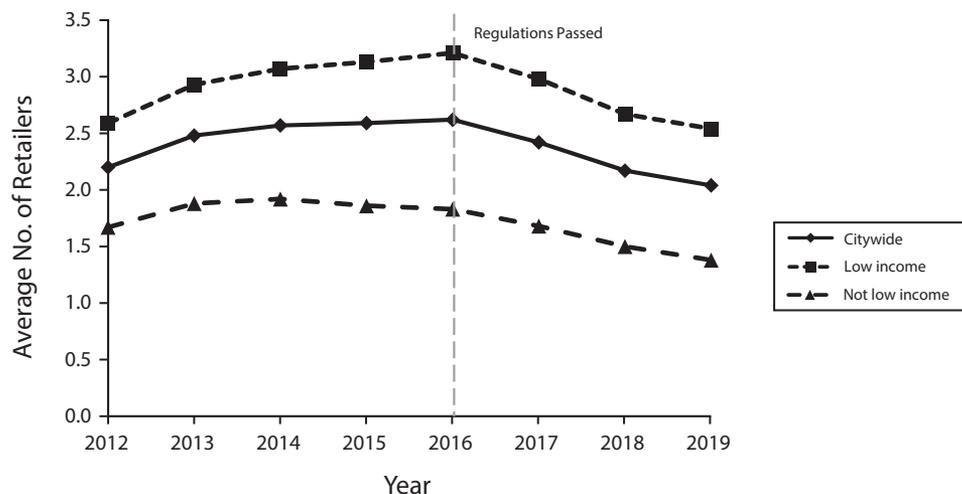
retail environments, regulations, and implementation decisions, which have not yet been studied and for which there is little guidance for best practices.

Third, the current study demonstrated significant reductions in the number of tobacco outlets within 500 feet of school property after the regulations took effect. Three years after implementation, an estimated 84 300 youths from over 200 schools in Philadelphia benefited from a reduction in tobacco retailers near their schools, including over 10 500 youths who had their school zone exposure drop to zero. This is particularly encouraging given some literature demonstrating high tobacco retailer density near schools in low-income and high-minority areas.²⁶ Although youth cigarette smoking continues to decline, use of other tobacco products among youths, such as cigarillos and electronic tobacco products, is increasing nationally.³⁰ The current policy approach—in which tobacco licenses are carefully regulated with regard to density, placement near schools, and compliance with youth sales laws—is particularly promising in that it addresses all forms of tobacco. In addition, youths remain targeted by location of tobacco outlets near schools,⁵ placement of tobacco products near candy,⁵ and concentrated point-of-sale marketing where youths shop,³¹ emphasizing the need to limit youth



Note. A planning district was defined as low income if more than 25% of residents were at or below the US Census federal poverty level. Tobacco retailer license regulations were passed in December 2016 and took effect beginning with 2017 licenses.

FIGURE 1—Observed Licensed Tobacco Retailer Density per 1000 Daytime Residents Citywide and by District Income Status: Philadelphia, PA, 2012–2019



Note. A school was defined as low income if it was in a zip code in which more than 25% of the residents were at or below the US Census federal poverty level. Tobacco retailer license regulations were passed in December 2016 and took effect beginning with 2017 licenses.

FIGURE 2—Observed Average Number of Licensed Tobacco Retailers Within 500 Feet of a School or School Property Citywide and by School Income Status: Philadelphia, PA, 2012–2019

exposure to tobacco products in retail environments. However, it may be many years before true tobacco-free school zones are achieved because of the grandfathering status of existing retailers near schools. Results from the current study suggest that tobacco retailer license regulations may be effective strategies to protect youths from exposure to all types of tobacco products.

Strengths and Limitations

Strengths of the current study include the use of tobacco retailer licensing data spanning 8 years in a large, diverse city, and the examination of a set of novel, complementary tobacco retailer license policies. The study also has several limitations, including the reliance on aggregated retailer counts rather than individual retailer license data for some comparison cities, lack of data on compliance with license regulations (i.e., selling tobacco without a permit), the inability to fully disentangle effects from the multiple regulations enacted at the same time, the lack of historical data on school property, and the reliance on data not collected for research purposes, which had limited data on other measures of interest. However, the use of administrative data is also a strength of the study and likely to be the best data option available, given the potential for out-of-date information from commercially available sources. Results from Philadelphia may not generalize to other

large cities because of the city's distinct tobacco retail environment; there may also be other unmeasured social processes influencing tobacco outlet distribution over time, although these are expected to be similar across Philadelphia and comparison cities.

Public Health Implications

The current study is the first empirical study of the impact of tobacco retailer license regulations. It provides urgently needed data regarding a salient tobacco control policy approach that may lessen disparities over time and includes comparable data from other cities. The study demonstrated that 3 years after tobacco retailer license regulations in Philadelphia were passed, there was a 20% decline in the density of tobacco retailers, a modest reduction in the disparity in tobacco retail density in low-income versus not-low-income districts, and over 300 fewer retailer exposures within 500 feet of school property. If the results can be replicated, tobacco retailer licensing strategies may be an effective policy approach to reduce the availability of tobacco and tobacco marketing and advertising and decrease tobacco-related disparities in low socioeconomic communities. *AJPH*

CONTRIBUTORS

H. G. Lawman was responsible for drafting the article, conducting analyses, and overseeing data management.

H. G. Lawman and A. A. Strasser conceptualized and designed the study. A. Scheeres and A. Hillengas were responsible for data management and analysis. K. A. Henry was responsible for data analysis. R. Coffman was responsible for overseeing policy implementation and data collection. All authors critically reviewed and approved the article.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

HUMAN PARTICIPANT PROTECTION

The Philadelphia Department of Public Health determined that this study did not qualify as human participant research.

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