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## Use of tobacco retail permitting to reduce youth access and exposure to tobacco in Santa Clara County, California



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## ABSTRACT

**Objective.** To target youth smoking, the impact of a local tobacco retail permit was evaluated on the number and location of tobacco retailers, and on the level of enforcement and compliance with tobacco sales regulations from 2010 to 2012 within unincorporated Santa Clara County, California.

**Methods.** Geographic Information Systems (GIS) mapping of each of 36 tobacco retailers pre- and post-intervention, observational surveys of tobacco retail environments pre- and post-intervention, and post-intervention enforcement surveys to measure location of sales, level of enforcement action, and compliance with laws governing sale of tobacco products were conducted.

**Results.** Eleven (30.6%) of the initial 36 retailers selling tobacco at the start of the intervention stopped selling tobacco post intervention. Of these 11 retailers, one was within 500 feet of another retailer, and three were within 1000 feet of a K–12 school. Ten (91%) of the retailers who stopped selling tobacco were non-traditional retailers.

**Conclusion.** An immediate reduction in the number of stores selling tobacco occurred following implementation of tobacco retail permitting. Post-implementation, all retailers who underwent compliance checks were in compliance with laws prohibiting sales of tobacco to minors. Compliance with laws governing the sale of tobacco has potential to reduce access and use of tobacco products by youth.

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## Introduction

Tobacco use is the most preventable cause of disease, disability, and death in the U.S.; nearly 1 in 5 deaths in the United States can be attributed to cigarette smoking (Centers for Disease Control and Prevention, 2008). Although in comparison to 20 years ago, fewer youth today use tobacco, a 2012 report of the Surgeon General found that almost 90% of adult smokers in the United States began smoking before adulthood (U.S. Department of Health and Human Services et al., 2012), and current youth tobacco use is still prevalent; 7% of middle school students and 23% of high school students used any tobacco in 2011 (Centers for Disease Control and Prevention, 2011a).

The density of tobacco retailers, particularly in neighborhoods surrounding schools, has been associated with increased youth smoking rates (Henriksen et al., 2008; Lipperman-Kreda et al., 2012; Loomis et al., 2012; McCarthy et al., 2009; Novak et al., 2006). Frequent exposure to tobacco retail displays has also been associated with increased smoking initiation among youth (Henriksen et al., 2004, 2010; Johns et al., 2013) and negative impact on tobacco quit attempts (Germain

et al., 2010; Hoek et al., 2010; Wakefield et al., 2008). Lack of enforcement of tobacco sales to minors laws is associated with higher levels of illegal sales to youth (American Lung Association-Center for Tobacco Policy and Organizing, 2007; Forster et al., 1998; Ma et al., 2001; Rigotti et al., 1997). Results from the 2011 National Youth Tobacco Survey found that among youth nationwide who were current cigarette users, 44% of middle school students and 51% of high school students reported that they were not refused purchase because of their age (Centers for Disease Control and Prevention, 2011b).

Tobacco retail policies have demonstrated success in reducing tobacco sales to youth (American Lung Association-Center for Tobacco Policy and Organizing, 2007; Ma et al., 2001; Novak et al., 2006); however, research is limited on whether implementing a tobacco retail permit policy would increase the amount of enforcement of laws preventing sale of tobacco to minors. Enforcement of these laws in California has been limited due to lack of funding. One way to remedy this concern is through a local tobacco retail permit which earmarks a portion of the permit fee for enforcement of laws regulating the sale of tobacco. Even less is known about how tobacco retail permitting policies impact youth exposure to and availability of tobacco products through the retail setting (American Lung Association-Center for Tobacco Policy and Organizing, 2007; Ma et al., 2001; Novak et al., 2006). Research on the impact of tobacco retail permit policies on reducing the overall number of

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stores selling tobacco in a community, including impacts on tobacco retail density and locations near schools, is even more limited.

In March 2010, California's Santa Clara County Public Health Department received funding from the U.S. Department of Health and Human Services through a Communities Putting Prevention to Work grant to support tobacco use prevention and secondhand smoke reduction efforts. The national Communities Putting Prevention to Work initiative, administered through the Centers for Disease Control and Prevention, funded 50 communities to apply environmental change strategies to reduce chronic diseases (Bunnell et al., 2012). Through this grant, the Santa Clara County Public Health Department led efforts aimed at decreasing youth access to tobacco and exposure to tobacco advertising. As CDC Director Thomas Frieden noted in his 2010 article, interventions that alter the environmental context in ways that become more supportive of health and health behavior will be more effective in creating long-term sustainable change (Frieden, 2010). The county's goals were: to reduce illegal youth access to tobacco by implementing a policy requiring tobacco retailers in unincorporated Santa Clara County to obtain an annual permit to sell any type of tobacco product while increasing tobacco enforcement; and to implement interventions to reduce youth exposure to tobacco near schools and other tobacco retailers.

This paper evaluates the number and location of tobacco retailers, and the level of enforcement and compliance of tobacco sales regulations within unincorporated Santa Clara County following implementation of these structural interventions.

## Materials and methods

### Overview of evaluation study design

Data was evaluated using three different methods: (1) geographic information systems<sup>1</sup> (GIS) mapping of tobacco retailers; (2) observational surveys of the tobacco retail environment; and (3) enforcement surveys.

### Setting and retailers

Santa Clara County is located in the southern San Francisco Bay Area and has a population of 1.8 million residents (U.S. Census Bureau, 2010). The county is ethnically diverse with 35.2% white, 2.4% black, 26.9% Latino, and 31.7% Asian residents (U.S. Census Bureau, 2010). There are 15 incorporated cities in the County, ranging in size from 945,942 in San Jose to 3341 in Monte Sereno (U.S. Census Bureau, 2010). The population of the unincorporated portion of the county is 89,960 (U.S. Census Bureau, 2010).

In California, there are approximately 36,700 licensed tobacco retail stores, one for every 254 children under age 18 (California Department of Public Health, California Tobacco Control Program, 2012). Santa Clara County has nearly 1600 retailers, which equates to about one for every 268 children under 18 (California Board of Equalization, 2010; U.S. Census Bureau, 2010). To sell tobacco, California retailers must acquire a state-issued license from the California Board of Equalization, the statewide tobacco permitting administrative agency, at a one-time cost of \$100, with no charge to renew. Tobacco retailers are spread throughout urban, suburban, and rural pockets of the unincorporated areas of Santa Clara County. In the Santa Clara County unincorporated areas, there were 36 tobacco retailers operating at the start of the intervention. The types of tobacco retailers in the unincorporated areas include: chain-convenience stores (6%), liquor stores or corner markets (31%), gas stations (11%), tobacco shops (11%), and non-traditional tobacco retailers, such as camping stores, restaurants and bars, sport and country clubs, and bait and tackle stores (42%).

### Intervention

Tobacco retailers in California sell tobacco in a variety of store types, including gift shops, donut shops, water supply stores, and other non-grocer non-convenience stores, with great ease, increasing tobacco outlet density and exposure to tobacco, particularly among low income communities and youth (Henriksen et al., 2010). One study in California found that non-traditional tobacco retailers had a higher illegal tobacco sale rate than any other store type, where 20.3% of youth attempts to purchase tobacco were successful, up from

9.8% in 2011, which is nearly three-times higher than traditional tobacco retailers (California Department of Public Health, California Tobacco Control Program, 2012). Limiting the places tobacco can be sold, along with consistent enforcement, is important in changing social norms. The statewide licensing program does not enforce illegal tobacco sales to minors, and no California state tobacco license has ever been revoked by the state licensing agency as a result of selling tobacco to a minor (McLaughlin, Tobacco Control Legal Consortium, 2010).

To address these public health concerns, the Santa Clara County Board of Supervisors implemented a comprehensive Tobacco Retail Permit, Ordinance NO. NS-300.832 (ChangeLab Solutions Model Tobacco Retailer Licensing Ordinance), in November 2010. The ordinance required all tobacco retailers to obtain an annual permit to sell tobacco and pay an annual fee of \$425. The ordinance also prohibited issuance of permits to any new retailer applying to operate within 1000 feet of a K–12 school or within 500 feet of another tobacco retailer; however, existing tobacco retailers operating at the time the ordinance went into effect were grandfathered in. Eleven retailers met the criteria of being within 500 feet of another tobacco retailer, and four retailers met the criteria of being within 1000 feet of schools. Significantly, the ordinance did not allow for the transferability of a tobacco retailer permit when a business is sold. The non-transferability clause was designed to contribute to an overall reduction in retailer density as any retailer that was granted a permit when the ordinance was enacted, but did not meet the permitting criteria, would have to cease selling tobacco if the business was sold. Retailers were restricted from covering more than 15% of windows with any type of sign or advertisement, regardless of product type; prior to the ordinance 25% coverage was permitted. Retailers also had to comply with all other federal, state, and local laws regarding the sale of tobacco. These laws included posting correct point-of-sale signage, displaying tobacco permits in plain sight, prohibition of sale or advertising of flavored non-menthol cigarettes, and a ban on self-service displays. By requiring adherence to all state and federal tobacco laws, the ordinance allowed the local government to consider retailer violations of these laws as part of the local ordinance penalty structure, which requires that tobacco sales to minors be enforced.

### Study procedures

*GIS mapping of tobacco retailers for Santa Clara County.* The Public Health Department obtained a tobacco retailer database prior to policy implementation from the California Board of Equalization and a local tobacco retailer permit database after policy implementation from the Santa Clara County Department of Environmental Health, which is the local tobacco retail permit administrative agency. Both databases were imported from Microsoft Excel 2007 into ArcGIS Version 9.1 (ESRI, Redlands, CA). The location of tobacco retailers was mapped and then the total number of stores selling tobacco in unincorporated areas, the number of stores selling tobacco within 500 feet of another retailer, and within 1000 feet of a K–12 school before and after the passage of the ordinance were assessed. Change in youth exposure to tobacco products and advertising was evaluated based on these measures of tobacco retailer proximity and density.

*Tobacco retail environment surveys.* The tobacco retail environment survey is an observational survey administered annually by Santa Clara County Public Health Department staff to assess the level of compliance with current laws governing the sale of tobacco products and the amount of tobacco advertising displayed in the retail environment. It was developed and tested by staff from the Santa Clara County Public Health Department in 2010 with input from the California Tobacco Control Program. Staff made unscheduled visits with each retailer and conducted on-site visual observations, measuring the percentage of windows covered with advertisement of any kind, counting the number of tobacco storefront advertisements, and noting compliance with tobacco sales laws, including proper display of tobacco license and required point of sale Stop Tobacco Access to Kids Enforcement warning signs. Each observational survey takes approximately 10–15 min to complete per retail location.

Tobacco retail environment surveys were conducted among a simple random sample of 6 retailers in December 2010 prior to the ordinance implementation and then among all permitted retailers in unincorporated Santa Clara County in November–December 2011 after ordinance implementation. Data were entered into Microsoft Access databases, exported into Microsoft Excel, and then imported into SPSS Version 20 (SPSS Corporation, Chicago, IL). The proportions for complying with tobacco sales, and display and advertising requirements were determined to examine differences between youth exposure to tobacco products and advertising before and after policy implementation.

<sup>1</sup> Geographic Information Systems

*Data on law enforcement operations conducted for illegal tobacco sales to youth.* There had been no enforcement operations of retailers in the unincorporated county prior to the passage of the ordinance. After implementation of the ordinance, data was collected through a survey from the Santa Clara County Sheriff's Office on enforcement operations concerning tobacco sales to minors in unincorporated Santa Clara County. The Sheriff's Office calculated the percentage of illegal sales as the number of sales made to youth divided by the number of total attempts made by youth to purchase tobacco products. Enforcement information was tracked in a database that documents dates of operations, number of stores checked, and number of stores that sold illegally to a minor. Enforcement operations typically involve minors participating in undercover tobacco-purchase operations with law enforcement, where minors attempt to make a purchase of tobacco products. If a purchase is made, law enforcement would then issue a citation to the retailer for selling tobacco products illegally to a minor, and their permit would be suspended or revoked, depending on the number of previous violations.

#### Ethical review

Human subjects were not a part of this evaluation study; therefore, approval through the Santa Clara County Health Services Institutional Review Board was not required.

## Results

### GIS mapping of tobacco retailers for Santa Clara County

Of the 36 retailers selling tobacco at the start of the intervention, 11 retailers decided to discontinue the sale of tobacco products, in lieu of paying the annual permit fee. The remaining 25 (69.4%) completed the permitting process. One of the 11 retailers (9.1%) located within 500 feet of another retailer chose to no longer sell tobacco after the implementation of the ordinance, as did three of four (75%) retailers located within 1000 feet of a K–12 school. Many of the retailers that chose to stop selling tobacco following implementation of the ordinance were non-traditional tobacco outlets (91%), including bait and tackle shops, bars and restaurants, wineries, and sport and country clubs. One traditional outlet (9%), a pipe tobacco shop, chose not to complete the permitting process.

### Tobacco retail environment surveys

Six tobacco retailers were included in the pre-implementation environmental survey and 25 in the post-implementation survey. There was a change in complying with the requirements related to window coverage restrictions for any type of advertising (<25% pre-ordinance and <15% post-ordinance) from 66.7% of stores (4/6) prior to policy implementation to 72% (18/25) after policy implementation (Table 1). However, there was a small change in the number of stores displaying external tobacco ads, with 50% of stores (3/6) displaying ads prior to implementation and 66.7% of stores (4/6) post-implementation. There was continued high compliance with state laws, including not selling flavored cigarettes, not having self-service

displays, having Stop Tobacco Access to Kids Enforcement signage posted, and having their tobacco retail license posted.

### Data on law enforcement operations conducted for illegal tobacco sales to youth

There was no enforcement of laws pertaining to tobacco sales to minors in the unincorporated areas of Santa Clara County prior to implementation (0 of 36 stores checked). After implementation, enforcement operations occurred in March 2011 and May 2012 at 14 (48%) of 25 tobacco retailers, and all 14 were found to be in compliance.

## Discussion

After implementation of tobacco retail permits, almost a third of retailers in the unincorporated areas of Santa Clara County stopped selling tobacco, despite the grandfathering of existing retailers. Retailers ceasing the sale of tobacco were predominantly non-traditional stores and included those within 1000 feet of a school or 500 feet of another retailer. The retailers otherwise continued to operate their non-tobacco product lines as they did prior to implementation.

Additionally, all retailers who underwent tobacco sales to minors compliance checks were in compliance following the implementation of a tobacco retail permit. While this finding does not compare sales to youth before and after the intervention, results from similar studies show a decline in illegal sales to youth following the implementation of a tobacco retail permit intervention (American Lung Association-Center for Tobacco Policy and Organizing, 2007; Ma et al., 2001; Novak et al., 2006). However, the number of retailers that discontinued the sale of tobacco following the intervention was surprising because the assumption was that the ordinance would prohibit more retailers from being permitted and not that existing retailers would stop selling tobacco. Considering these findings, further investigation in this area may be indicated.

One study of California retailers that voluntarily stopped selling tobacco products found that a desire to promote better health in the retail settings was a motivating factor in the decision (McDaniel and Malone, 2011). However, it is unknown whether retailers participating in that study operated in communities with tobacco retail permit ordinances.

Several factors may limit the generalizability of these findings. The small number of retail establishments assessed prior to the implementation of the tobacco retail permit, no baseline enforcement data, the small scope of the permitting intervention, and the assessment only being conducted at two points in time may impact this study's ability to attribute the 100% compliance observed in post-tobacco retail permit enforcement actions to implementation of the tobacco retail permits. In addition, a lack of a non-equivalent comparison area and Santa Clara County's unique geographic characteristics may limit the power to generalize the results to other municipalities.

Another limitation of this study is that retailer behavior may have also been influenced by several tobacco control policies at the state

**Table 1**  
Compliance with tobacco sales, display, and advertising laws before and after Tobacco Retail Permit implementation in unincorporated Santa Clara County, California, 2010–2011.

Tobacco sales, display, and advertising requirements	Before TRP (2010) proportion compliant	After TRP (2011) proportion compliant	% change
<b>Outside store</b>			
Window coverage requirements	4/6 (66.7%)	18/25 (72.0%)	+ 7.9%
No tobacco ads displayed <sup>a</sup>	3/6 (50.0%)	2/6 (33.3%)	– 33.4%
Flavored cigarette ads displayed (not menthol flavored)	1/6 (16.7%)	1/6 (16.7%)	0.0%
<b>Inside store</b>			
No self-service displays present	5/6 (83.3%)	25/25 (100.0%)	+ 20.0%
No flavored cigarettes are being sold (non menthol flavored)	6/6 (100.0%)	6/6 (100.0%)	0.0%
Stop Tobacco Access to Kids Enforcement (STAKE) signage posting requirements	5/6 (83.3%)	24/25 (96.0%)	+ 12.7%
Tobacco license visible	6/6 (100.0%)	23/25 (92.0%)	– 8.0%

Source: Santa Clara County Public Health Department, Retail Environment Observational Survey, 2010–11 and 2011–12.

<sup>a</sup> Tobacco advertisements are not restricted by law.

and local level that were introduced at the same time the tobacco retail permit ordinance was implemented. In October 2010, California adopted a new vertical identification (ID) law designed to curb underage sales of tobacco and alcohol by making it easier for retailers to identify individuals under the age of 21 by changing the orientation of driver's licenses and state identification cards from the traditional horizontal shape to vertical. Although 16-year olds have been shown to reduce tobacco consumption within 1–2 years after implementation of vertical ID laws, there is currently no evidence to suggest that retailer behavior changes in response to the vertical design (Bellou and Bhatt, 2013). Additionally, the tobacco retail permit ordinance was one of three local ordinances simultaneously implemented in Santa Clara County aimed at curbing the health impacts of tobacco use and secondhand smoke exposure. Ordinance NO. NS-625.5 and NS-625.6, implemented in November 2010, were not focused solely on tobacco retail environments, but rather on reducing secondhand smoke exposure in outdoor settings such as parks, dining areas, and entryways, and indoor settings such as multi-unit dwellings, hotels/motels, and tobacco-only retail establishments.

The introduction of several tobacco-related policies at the same time presents a challenge for the validity of this work. As such, it is not possible to infer causation from this study. The “before” and “after” effects may not be solely attributable to the county ordinance, and may be due in part to other factors, such as the policies mentioned above. Investigators were unable to exercise control over these and other types of interventions. This has been a limitation addressed in other studies of real-world interventions (Cummins, 2005; Rigotti et al., 1997). Future studies of tobacco permit laws might consider an experimental or quasi-experimental design to provide strong evidence of the impact of tobacco retail permits on retailer density and compliance, as has been demonstrated for studies of other tobacco legislation (Altman et al., 1999; Cummings et al., 1998; Eby and Laschober, 2013; Nguyen, 2013; Rigotti et al., 1997).

## Conclusions

Santa Clara County's tobacco license law is one of the most progressive in the country. The ordinance appears to have had a demonstrable, unexpected impact on the tobacco retail environment in Santa Clara County, even though it was expected to impact retail density in the long term through transfer of license. Following implementation of the tobacco retail permit, there was an immediate reduction of density, proximity to schools, and overall tobacco retailers in Santa Clara County. Additionally, the implementation of a comprehensive ordinance helped catalyze other tobacco control efforts around the county. Since the County ordinance was implemented, two additional cities in Santa Clara County, including the largest city, San Jose, have implemented tobacco retail permit ordinances. When these local county and city-level ordinances are combined with rigorous state regulation, a powerful potential exists to reduce youth access and exposure to tobacco products.

Given the limited research on the impact of tobacco retailer licensing, these findings are especially useful for other cities and counties considering similar policy interventions and highlight the need for future, more robust, research in Santa Clara County and other communities to provide stronger validation of the impacts of these interventions.

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the appropriate use of those funds. Under U.S. law, no Federal funds are permitted to be used for lobbying or to influence, directly or indirectly, specific pieces of pending or proposed legislation at the federal, state, or local levels. Organizations should consult appropriate legal counsel to ensure compliance with all rules, regulations, and restriction of any funding sources.

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## Conflict of interest statement

The authors declare that there is no conflict of interest.

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## References

- Altman, D.G., Wheelis, A.Y., McFarlane, M., Lee, H., Fortmann, S.P., 1999. The relationship between tobacco access and use among adolescents: a four community study. *Soc. Sci. Med.* 48, 759–775.
- American Lung Association of California, Center for Tobacco Policy and Organizing, 2007. *Tobacco Retail Licensing is Effective.*
- Bellou, A., Bhatt, R., 2013. Reducing underage alcohol and tobacco use: evidence from the introduction of vertical identification cards. *J. Health Econ.* 32, 353–366.
- Bunnell, R., O'Neil, D., Soler, R., et al., 2012. Fifty communities putting prevention to work: accelerating chronic disease prevention through policy, systems and environmental change. *J. Community Health* 37, 1081–1090.
- California Board of Equalization, 2010. *Tobacco retailer database, Santa Clara County.*
- California Department of Public Health, California Tobacco Control Program, 2012. *State Health Officer's Report on Tobacco Use and Promotion in California (Sacramento, CA).*
- Centers for Disease Control and Prevention, 2008. Smoking-attributable mortality, years of potential life lost, and productivity losses—United States, 2000–2004. *Morb. Mortal. Wkly Rep.* 57, 1226–1228.
- Centers for Disease Control and Prevention, 2011a. Current tobacco use among middle and high school students, United States. *Morb. Mortal. Wkly Rep.* 61, 581–585.
- Centers for Disease Control and Prevention, 2011b. *National Youth Tobacco Survey.*
- Cummings, K.M., Hyland, A., Saunders-Martin, T., Perla, J., Coppola, P.R., Pechacek, T.F., 1998. Evaluation of an enforcement program to reduce tobacco sales to minors. *Am. J. Public Health* 88, 932–936.

- Cummins, S., 2005. Large scale food retailing as an intervention for diet and health: quasi-experimental evaluation of a natural experiment. *J. Epidemiol. Community Health* 59, 1035–1040.
- Eby, L.T., Laschober, T.C., 2013. A quasi-experimental study examining New York State's tobacco-free regulation: effects on clinical practice behaviors. *Drug Alcohol Depend.* 132, 158–164.
- Forster, J.L., Murray, D.M., Wolfson, M., Blaine, T.M., Wagenaar, A.C., Hennrikus, D.J., 1998. The effects of community policies to reduce youth access to tobacco. *Am. J. Public Health* 88, 1193–1197.
- Frieden, T.R., 2010. A framework for public health action: the health impact pyramid. *Am. J. Public Health* 100, 590–595.
- Germain, D., McCarthy, M., Wakefield, M., 2010. Smoker sensitivity to retail tobacco displays and quitting: a cohort study. *Addiction* 105, 159–163.
- Henriksen, L., Feighery, E.C., Wang, Y., Fortmann, S.P., 2004. Association of retail tobacco marketing with adolescent smoking. *Am. J. Public Health* 94, 2081–2083.
- Henriksen, L., Feighery, E., Schleicher, N.C., Cowling, D.W., Kline, R.S., Fortmann, S.P., 2008. Is adolescent smoking related to the density and proximity of tobacco outlets and retail cigarette advertising near schools? *Prev. Med.* 47, 210–214.
- Henriksen, L., Schleicher, N., Feighery, E., Fortmann, S., 2010. A longitudinal study of exposure to retail cigarette advertising and smoking initiation. *Pediatrics* 126, 232–238.
- Hoek, J., Gifford, H., Pirikahu, G., Thomson, G., Edwards, R., 2010. How do tobacco retail displays affect cessation attempts? Findings from a qualitative study. *Tob. Control.* 19, 334–337.
- Johns, M., Sacks, R., Rane, M., Kansagra, S.M., 2013. Exposure to tobacco retail outlets and smoking initiation among New York City adolescents. *J. Urban Health* 90, 1091–1101.
- Lipperman-Kreda, S., Grube, J.W., Friend, K.B., 2012. Local tobacco policy and tobacco outlet density: associations with youth smoking. *J. Adolesc. Health* 50, 547–552.
- Loomis, B.R., Kim, A.E., Busey, A.H., Farrelly, M.C., Willett, J.G., Juster, H.R., 2012. The density of tobacco retailers and its association with attitudes toward smoking, exposure to point-of-sale tobacco advertising, cigarette purchasing, and smoking among New York youth. *Prev. Med.* 55, 468–474.
- Ma, G.X., Shive, S., Tracy, M., 2001. The effects of licensing and inspection enforcement to reduce tobacco sales to minors in Greater Philadelphia, 1994–1998. *Addict. Behav.* 26, 677–687.
- McCarthy, W.J., Mistry, R., Lu, Y., Patel, M., Zheng, H., Dietsch, B., 2009. Density of tobacco retailers near schools: effects on tobacco use among students. *Am. J. Public Health* 99, 2006–2013.
- McDaniel, P.A., Malone, R.E., 2011. Why California retailers stop selling tobacco products, and what their customers and employees think about it when they do: case studies. *BMC Public Health* 11, 848.
- McLaughlin, I., Tobacco Control Legal Consortium, 2010. License to kill? Tobacco retail licensing as an effective enforcement tool.
- Nguyen, H.V., 2013. Do smoke-free car laws work? Evidence from a quasi-experiment. *J. Health Econ.* 32, 138–148.
- Novak, S.P., Reardon, S.F., Raudenbush, S.W., Buka, S.L., 2006. Retail tobacco outlet density and youth cigarette smoking: a propensity-modeling approach. *Am. J. Public Health* 96, 670–676.
- Rigotti, N.A., DiFranza, J.R., Chang, Y., Tisdale, T., Kemp, B., Singer, D.E., 1997. The effect of enforcing tobacco-sales laws on adolescents' access to tobacco and smoking behavior. *N. Engl. J. Med.* 337, 1044–1051.
- U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion and the Office of Smoking and Health, 2012. Preventing tobacco use among youth and young adults. A report of the Surgeon General.
- United States Census Bureau, 2010.
- Wakefield, M., Germain, D., Henriksen, L., 2008. The effect of retail cigarette pack displays on impulse purchase. *Addiction* 103, 322–328.