



Published in final edited form as:

*Tob Control*. 2018 September ; 27(5): 578–579. doi:10.1136/tobaccocontrol-2017-053800.

## Changes in the availability and promotion of non-cigarette tobacco products near high schools in New Jersey, USA

Daniel P Giovenco<sup>1</sup>, Christopher Ackerman<sup>2</sup>, Mary Hrywna<sup>2</sup>, and Cristine D Delnevo<sup>2</sup>

<sup>1</sup>Department of Sociomedical Sciences, Columbia University Mailman School of Public Health, New York, USA

<sup>2</sup>Rutgers School of Public Health, Center for Tobacco Studies, New Brunswick, New Jersey, USA

Most of the research on tobacco marketing at the point of sale describes patterns and trends in cigarette promotion.<sup>1–3</sup> Among youth in the USA, however, use of other tobacco products, such as cigars/cigarillos, electronic cigarettes (e-cigarettes) and smokeless tobacco, exceeds rates of smoking.<sup>4</sup> There is an urgent need to understand how diverse tobacco products are marketed in retailers that youth visit and how promotion differs by store type and neighbourhood demographics. We examined 1-year changes in the availability and advertising of non-cigarette tobacco products in a cohort of tobacco retailers near high schools in New Jersey, USA.

### METHODS

In April 2015, research staff visited all tobacco retailers falling within a half-mile radius of the 41 high schools participating in the 2014 NJ Youth Tobacco Survey, a representative, probability sample of NJ youth<sup>5</sup> (n=194 retailers). A half-mile is perceived by adolescents to be an easy walking distance and has been used in other studies assessing tobacco retailer density near schools.<sup>6</sup> Data collectors documented product availability and presence of exterior and interior advertisements for cigarettes, cigars/cigarillos, e-cigarettes and smokeless tobacco.<sup>7</sup> Stores were revisited in April 2016 using identical data collection methods. Details about the study's methodology, including store sampling procedures, definitions of measures and other critical information, have been published elsewhere.<sup>7</sup> Inter-rater reliability between data collectors was excellent in both years, with Cohen's kappa statistics ranging from 0.8 to 1.0 for all categorical measures. Descriptive statistics highlighted prevalence differences between years, as well as by store type, student income level (percentage of students receiving free or reduced lunch) and percentage of non-white

**Correspondence to** Dr Daniel P Giovenco, Department of Sociomedical Sciences, Columbia University Mailman School of Public Health, New York, NY 10032, USA; dg2984@cumc.columbia.edu, **Twitter** @dannygiovenco.

**Contributors** DPG took primary responsibility for the study's conceptualisation, data collection and analysis, and writing. CA participated in data collection, analysis and manuscript writing. MH and CDD contributed to the study's conceptualisation and manuscript writing.

**Competing interests** None declared.

**Ethics approval** This study was approved by the Rutgers Biomedical Health Sciences IRB.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data sharing statement** Unpublished data are available upon request.

students. Eleven stores could not be reaudited in 2016 (eg, store not open, researchers asked to leave) but were retained in the analysis by assigning their 2015 values to produce the most conservative estimates. Given the study's small sample size, statistical significance tests were not performed.

## RESULTS

Aside from cigarettes, which remain the most common tobacco products promoted at the point of sale, cigars/cigarillos were the most accessible products near schools and were the only products to experience an increase in availability, exterior advertising and interior advertising from 2015 to 2016 (Table 1). Despite higher availability near low-income schools (91.2%) and schools with majority non-white students (91.4%), cigar/cigarillo advertising increased across all school districts. Notably, availability and advertising for e-cigarettes declined between years, decreasing across virtually all store types and school districts. Smokeless tobacco promotion remained relatively stable. The accessibility and promotion of e-cigarettes and smokeless tobacco were substantially more common in mid-to-high-income districts and near schools where a majority of students were white. Consistent with the literature on tobacco retailer density, lower-income schools had a higher average number of nearby retailers than mid-to-high-income schools (average: 20.4, range: 5–43 vs average: 4.4, range: 1–16, respectively).

## DISCUSSION

Although e-cigarette use among youth continues to receive considerable media attention, this study suggests that e-cigarette point-of-sale marketing at traditional tobacco retailers is slowing, mirroring the deceleration in youth e-cigarette use between 2015 and 2016.<sup>8</sup> A greater concern may be the pervasiveness of cigars/cigarillos, more harmful combustible products whose health effects are well-documented.<sup>9</sup> Cigarillos are particularly appealing to youth given their extremely low prices and extensive flavour options.<sup>10 11</sup> Moreover, cigars/cigarillos are more likely to be available near low-income schools, whereas lower-risk, non-combustible products (ie, e-cigarettes, smokeless tobacco) are more commonly sold and promoted in mid-to-high-income school districts, a pattern that can potentially worsen existing disparities. Exposure to tobacco marketing has consistently been linked with youth smoking,<sup>2 3</sup> and emerging evidence indicates that this relationship may be similar for non-cigarette tobacco products.<sup>7</sup> While policy initiatives should restrict all tobacco advertising at the point of sale, curbing the promotion of the most dangerous combustible products that are popular among youth warrants prioritisation.

## Acknowledgments

**Funding** This study was funded by a contract from the New Jersey Department of Health and Award Number DP5OD023064 from the Office of the Director, National Institutes of Health. The content is solely the responsibility of the authors and does not necessarily represent the official views of the State of New Jersey or the National Institutes of Health.

## References

1. Lee JG, Henriksen L, Rose SW, et al. A systematic review of neighborhood disparities in point-of-sale tobacco marketing. *Am J Public Health*. 2015; 105:e8–e18.
2. Paynter J, Edwards R. The impact of tobacco promotion at the point of sale: a systematic review. *Nicotine Tob Res*. 2009; 11:25–35. [PubMed: 19246438]
3. Robertson L, McGee R, Marsh L, et al. A systematic review on the impact of point-of-sale tobacco promotion on smoking. *Nicotine Tob Res*. 2015; 17:2–17. [PubMed: 25173775]
4. Singh T, Arrazola RA, Corey CG, et al. Tobacco use among middle and high school students—United States, 2011–2015. *MMWR Morb Mortal Wkly Rep*. 2016; 65:361–7. [PubMed: 27077789]
5. New Jersey Department of Health. Tobacco control - Research. 2017. <http://www.nj.gov/health/fhs/tobacco/research/> (accessed 11 Apr 2017)
6. Henriksen L, Feighery EC, Schleicher NC, et al. Is adolescent smoking related to the density and proximity of tobacco outlets and retail cigarette advertising near schools? *Prev Med*. 2008; 47:210–4. [PubMed: 18544462]
7. Giovenco DP, Casseus M, Duncan DT, et al. Association between electronic cigarette marketing near schools and e-cigarette use among youth. *J Adolesc Health*. 2016; 59:627–34. [PubMed: 27720358]
8. Johnston LD, O'Malley PM, Miech RA. , et al. Monitoring the future national survey results on drug use, 1975–2016: overview, key findings on adolescent drug use. Institute for Social Research, The University of Michigan; 2017. <http://www.monitoringthefuture.org/pubs/monographs/mtf-overview2016.pdf>. (accessed 11 Apr 2017)
9. Chang CM, Corey CG, Rostron BL, et al. Systematic review of cigar smoking and all cause and smoking related mortality. *BMC Public Health*. 2015; 15:390. [PubMed: 25907101]
10. Delnevo CD, Giovenco DP, Ambrose BK, et al. Preference for flavoured cigar brands among youth, young adults and adults in the USA. *Tob Control*. 2015; 24:389–94. [PubMed: 24721967]
11. Delnevo CD, Giovenco DP, Miller Lo EJ. Changes in the Mass-merchandise Cigar Market since the tobacco Control Act. *Tob Regul Sci*. 2017; 3:8–16.

Non-cigarette tobacco product availability and advertising in a cohort of retailers near New Jersey high schools, 2015–2016 (n=194)

**Table 1**

	Cigarettes		Cigars/cigarillos		E-cigarettes		Smokeless tobacco	
	2015	2016	2015	2016	2015	2016	2015	2016
	%	%	%	%	%	%	%	%
<i>Product availability*</i>								
Overall (n=194)	99.0	99.0	82.0	87.1	57.7	46.9	20.1	16.5
Store type								
Convenience (chain) (n=11)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	90.9
Convenience (non-chain) (n=88)	98.9	98.9	87.5	92.1	45.5	33.0	9.1	9.1
Gas station (n=30)	100.0	100.0	86.7	90.0	63.3	50.0	40.0	33.3
Drug store (n=18)	100.0	100.0	61.1	61.1	88.9	77.8	33.3	11.1
Liquor store (n=25)	100.0	100.0	84.0	96.0	56.0	44.0	8.0	4.0
Other <sup>‡</sup> (n=22)	95.5	95.5	59.1	68.2	54.6	50.0	0.0	4.6
School income level <sup>‡</sup>								
Low income (n=102)	98.0	98.0	82.4	91.2	44.1	33.3	8.8	5.9
Mid-to-high-income (n=92)	100.0	100.0	81.5	82.6	72.8	62.0	32.6	28.3
Percent non-white students								
>90% (n=104)	98.1	98.1	82.7	91.4	45.2	34.6	9.6	6.7
50%–90% (n=45)	100.0	100.0	77.8	80.0	62.2	48.9	13.3	6.7
<50% (n=45)	100.0	100.0	84.4	84.4	82.2	73.3	51.1	48.9
Exterior advertising <sup>§</sup>								
Overall (n=194)	53.6	51.0	10.8	13.9	29.4	19.6	4.1	3.6
Store type								
Convenience (chain) (n=11)	81.8	90.9	0.0	9.1	63.6	45.5	18.2	9.1
Convenience (non-chain) (n=88)	58.0	56.8	13.6	17.1	27.3	18.2	0.0	1.1
Gas station (n=30)	73.3	66.8	20.0	26.7	60.0	43.3	16.7	16.7
Drug store (n=18)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquor store (n=25)	32.0	32.0	8.0	8.0	12.0	4.0	0.0	0.0

	Cigarettes		Cigars/cigarillos		E-cigarettes		Smokeless tobacco	
	2015	2016	2015	2016	2015	2016	2015	2016
Other (n=22)	63.6	50.0	4.6	4.6	22.7	13.6	4.6	0.0
Student income level								
Low income (n=102)	54.9	52.0	9.8	12.8	18.6	8.8	0.0	1.0
Mid-to-high-income (n=92)	52.2	50.0	12.0	15.2	41.3	31.5	8.7	6.5
Percent non-white								
>90% (n=104)	55.8	52.9	9.6	13.5	20.2	9.6	0.0	1.0
50%–90% (n=45)	51.1	48.9	11.1	11.1	28.9	13.3	2.2	0.0
<50% (n=45)	51.1	48.9	13.3	17.8	51.1	48.9	15.6	13.3
Interior advertising								
Overall (n=194)	64.4	63.9	15.0	22.7	32.0	25.3	10.8	11.9
Store type								
Convenience (chain) (n=11)	90.9	90.9	54.6	63.6	90.9	90.9	72.7	81.8
Convenience (non-chain) (n=88)	61.4	62.5	15.9	22.7	26.1	18.2	2.3	5.7
Gas station (n=30)	56.7	53.3	16.7	30.0	43.3	40.0	33.3	30.0
Drug store (n=18)	72.2	66.7	0.0	0.0	33.3	16.7	0.0	0.0
Liquor store (n=25)	72.0	68.0	8.0	20.0	16.0	4.0	0.0	0.0
Other (n=22)	59.1	63.6	9.1	13.6	27.3	31.8	4.6	0.0
School district								
Low income (n=102)	58.8	56.9	8.8	17.7	20.6	16.7	2.9	3.9
Mid-to-high-income (n=92)	70.7	71.7	21.7	28.3	44.6	34.8	19.6	20.7
Percent non-white								
>90% (n=104)	59.6	57.7	10.6	18.3	22.1	18.3	3.9	4.8
50%–90% (n=45)	68.9	71.1	13.3	17.8	35.6	22.2	8.9	4.4
<50% (n=45)	71.1	71.1	26.7	37.8	51.1	44.4	28.9	35.6

\* Product availability was assessed by visual inspection, or if not seen, by asking the store employee if the product in question was sold there.

<sup>†</sup> Other stores\* included tobacco stores, smoke shops, dollar stores, delis.

<sup>‡</sup> Low income defined as retailers near schools with >75% of students receiving free or reduced lunch.

An 'advertisement' was defined as an industry-made sign, larger than a standard index card, featuring a product logo and/or image

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript