

Population Use, Sales, and Design: A Multidimensional Assessment of “Light” Cigarettes in the United States, 2009

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Cigarette smoking is the primary cause of preventable morbidity and mortality in the United States, causing more than 400 000 deaths each year.¹ A causal link between smoking and disease was established with the first Surgeon General’s report on smoking in 1964.² The ensuing public concerns about smoking and health prompted the tobacco industry to develop so-called “light” and “low-tar” cigarettes, which were promoted as being less harmful than “full-flavor” cigarettes.³ Consumers were influenced by marketing of light cigarettes, which led smokers to switch to light cigarettes rather than quitting altogether.^{4–6} However, manufacturers’ claims were shown to be profoundly misleading, with evidence that light cigarettes offer no health benefits.³ In 2006, several leading tobacco companies were found by a US federal court to have violated the Racketeer Influenced and Corrupt Organizations Act, citing that, among other actions, the companies knew that light and low-tar cigarettes were no less harmful than full-flavor cigarettes but marketed them as such despite this knowledge.⁷ More recent studies performed after the Racketeer Influenced and Corrupt Organizations decision have reported that a substantial proportion of US smokers continue to believe that light cigarettes are less harmful (27.5%), ease quitting (15.2%), and deliver less tar (42.7%).⁸ The continued marketing of light cigarettes in the United States is a major public health concern.³ In a 2006–2007 nationally representative sample of adult smokers, almost half (47%) reported smoking a brand with the text descriptor *light* or *mild*.⁹ The Federal Trade Commission (FTC) has classified cigarettes using machine-measured tar yields. Cigarettes with tar yields of less than 15 milligrams per cigarette have been classified as lights or ultra lights, and those with yields of 15 milligrams per cigarette or more have

Objectives. We compared multiple measures of surveillance of “light” cigarette use, including population use, sales, and design features. Measures were obtained before the 2010 descriptors ban to establish a baseline for future evaluation of the effect of the ban.

Methods. We examined light cigarette use, sales, and design using 3 data sets from 2009. We assessed population use using National Survey on Drug Use and Health data. Sales data were drawn from AC Nielsen. We gathered design features, including nicotine concentration, filter ventilation, and weight, from tobacco industry disclosures mandated by the Massachusetts Department of Public Health.

Results. In 2009, 52.7% of smokers self-reported light cigarette use, which accounted for 56.0% of cigarettes sold in the United States. Self-reported light smokers were more likely to be female, White, older, and nondaily smokers. Of design features analyzed, only average filter ventilation differed significantly between light and “full-flavored” cigarettes.

Conclusions. Assessment of the impact of the descriptors ban and any future policies surrounding light cigarettes should use multiple surveillance strategies, including measures of population use, sales, and cigarette design. (*Am J Public Health.* 2013;103:e93–e99. doi:10.2105/AJPH.2012.300950)

been classified as full flavor.³ Machine smoke-yield methods, including the FTC method, have been criticized as flawed and misleading measures because they have no relationship with actual human exposure to tobacco smoke toxicants.¹⁰ Nevertheless, manufacturers have exploited the flawed machine yield measures to perpetuate the misperception among smokers that certain brands may deliver lower levels of toxicants and thus produce less risk, communicated through the use of text-based light-style descriptors on cigarette packs. Under the classification based on the FTC’s former machine yield method, the domestic market share of light cigarettes increased from 54.2% in 1988 to 81.9% in 1998 and 82.6% in 2008, the most recent year for which data are available.¹¹ In response to public health concerns, in 2008 the FTC rescinded its support of its machine yield tar measure, explaining that it was confusing and misleading for consumers.¹²

In 2009, the Family Smoking Prevention and Tobacco Control Act granted the US Food and Drug Administration (FDA) broad regulatory authority over tobacco products. Public health concerns about deceptive marketing of light cigarettes were addressed in Section 911 of the act, which prohibited manufacturers, as of June 22, 2010, from labeling or advertising cigarettes with misleading text descriptors such as *light*, *low tar*, and *mild*.^{13,14} Such terms explicitly communicate the relative risk of a given cigarette compared with its full-flavored counterpart. Evidence from international markets has suggested that similar bans on descriptors that communicate risk have been circumvented by manufacturers who substitute explicit strength descriptors with color schemes or sensory descriptors, such as *smooth* or *mellow*, that may also imply reduced risk.^{15,16} Thus, when implemented without supporting educational measures, the removal of explicit strength descriptors has

been ineffective in changing risk perceptions in the long term.¹⁷

Physical design features inherent to light cigarettes, including high filter ventilation or mentholation, may affect the sensory experience of smoking.^{18,19} For example, filter ventilation allows an influx of outside air to mix with smoke as it passes through the filter, thus reducing the temperature and harshness of inhaled smoke.¹⁸ Such features, which can be highly brand specific, may provide the smoker with chemosensory information that implies reduced risk.²⁰ Research has shown that even when text descriptors are removed from cigarette packaging, certain physical design features may perpetuate smokers' perceptions of lower risk.²¹ Reduced harshness may also make it easier for youths to initiate smoking with light cigarettes²² and discourage cessation.²³ This evidence has suggested that cigarette manufacturers have used strategies other than light-type pack descriptors to imply lowered risk, including descriptors and colors that instead communicate cigarette design or formulation differences that alter taste, strength, and harshness.^{8,9,15,16,17}

The effect of removal of US cigarette pack descriptors on smokers' use of light cigarettes can be empirically assessed.²⁴ Research needs that have been identified to inform the implementation of the Family Smoking Prevention and Tobacco Control Act include surveillance and evaluation of reported use, persistence of perceptions surrounding light cigarettes (particularly in specific populations, including gender, race/ethnicity, age, etc.), tracking of marketing practices, and expanded characterization of tobacco constituents.^{21,25} To address the challenge of surveillance needs surrounding light cigarettes, we sought to simultaneously compare multiple measures, including population use, sales, and design features of light cigarettes. Measures were obtained before the 2010 descriptors ban to provide an assessment of light cigarette use epidemiology before the ban and to establish a baseline for future postban surveillance.

METHODS

We examined reported population use, sales, and design of light cigarettes in the United States before the 2010 descriptors ban using

three 2009 cross-sectional data sources. We obtained reported light cigarette use from the National Survey on Drug Use and Health (NSDUH). We obtained sales data from AC Nielsen ScanTrack and product design data from publicly available tobacco manufacturer disclosures to the Massachusetts Department of Public Health (MDPH). All statistical analyses were performed using STATA version 10.0 S.E. (StataCorp, College Station, TX).²⁶

Population Tobacco Use Data

We took nationally representative population data from the 2009 NSDUH, an annual nationwide survey of randomly selected non-institutionalized US civilians aged 12 years or older. NSDUH collects data on tobacco, alcohol, and illicit drug use and mental health in the United States and oversamples youths (aged 12–17 years) and young adults (aged 18–25 years).²⁷ The complex survey design used to randomly select individuals is described elsewhere in detail.²⁸ Nationally representative estimates incorporated survey weights and design variables into all results.

We included only current smokers in our analyses. For adults (aged 18 years and older), we defined current smoking as having ever smoked at least 100 cigarettes and having smoked at least once in the past 30 days. For youths, we defined current smoking as having smoked at least once in the past 30 days. Demographic measures of interest included binary gender; race/ethnicity, dichotomized to non-Hispanic White and non-White; household family income in its given 4-tiered categorical form, less than \$20 000, \$20 000–\$49 999, \$50 000–\$74 999, and \$75 000 or more; and age, in 1 of its given categorical forms, 12–17 years, 18–25 years, 26–34 years, and 35 years and older. We initially used a second categorical age variable that parsed the 35 years and older group into 3 groupings (35–49 years, 50–64 years, and 65 years and older); however, we found no significant differences between the 3 older groupings and thus collapsed them to 1 group for all analyses.

Smoking history measures of interest included cigarette type, menthol type, and smoking frequency. Current smokers answered questions about the reported strength and menthol status of their usual past-30-day brand. If respondents reported smoking a light, mild,

or ultra-light cigarette, we classified them as smoking light cigarettes. If respondents reported smoking a full-flavor or medium cigarette, we classified them as smoking full-flavor cigarettes. We categorized smokers as menthol smokers if they reported that the cigarette they smoked most frequently was mentholated and as non-menthol smokers otherwise. Smoking frequency was dichotomized into daily and less than daily smoking. Full population estimates of current smokers in the sample by cigarette type can be found in Table 1 with unweighted sample size and weighted population estimates.

To characterize light cigarette users, we crossed row percentages of light cigarette smokers with demographic and smoking history measures. We used the Pearson χ^2 test ($\alpha = .05$) to test for differences in survey weighted proportions. Last, we modeled a multivariate logistic regression ($\alpha = .05$) to predict the likelihood of respondents reporting that their usual cigarette brand was light. Predictors in the model included age (categorical), gender (binary), menthol use (binary), race (binary), income (categorical), and smoking frequency (binary). We performed a subanalysis by re-running the latter multivariate model, with the 2 separate gender and age categorical variables transformed into a single 8-tiered categorical variable (gender crossed with age), which allowed for interpretation of detailed age–gender specific interactions. Regression coefficients were exponentiated to produce reported odds ratios. Presented results of logistic regressions are weighted but are similar to unweighted regression results, demonstrating the robustness of the data.

Product Sales Data

We took product sales data from 2009 AC Nielsen ScanTrack, an in-house dataset representing cigarette sales in the United States. Nielsen data include sales in drug stores, food stores, convenience stores, tobacco shops, gas stations, and select mass merchandisers. Nielsen data include all brands sold in these market channels. In the Nielsen data, cigarettes were classified as light or full flavor on the basis of the brand's text descriptor. As with NSDUH data, we considered products as light if package descriptors included the words *light*, *ultra light*, or *mild* and as full flavor otherwise.

TABLE 1—Smoker Characteristics by Cigarette Category: National Survey on Drug Use and Health, 2009

Characteristic	Light ^a		Full Flavor ^a		χ^2 (P)
	Sample Frequency, No.	Population Estimate (95% CI)	Sample Frequency, No.	Population Estimate (95% CI)	
Total sample	5319	52.7 (51.1, 54.3)	6641	47.3 (45.6, 48.9)	
Gender					130.82 (<.001) ^b
Male	2391	47.9 (45.6, 50.2)	3684	52.1 (49.8, 53.4)	
Female	2928	58.1 (55.9, 60.3)	2957	41.9 (39.7, 44.2)	
Age category, y					303.96 (<.001) ^b
12-17	599	38.1 (34.9, 41.5)	1044	61.9 (58.5, 65.1)	
18-25	2092	41.3 (39.5, 43.1)	3358	58.7 (56.9, 60.5)	
26-34	956	54.6 (51.4, 57.6)	840	45.5 (42.4, 48.6)	
≥ 35	1125	55.7 (52.9, 58.4)	972	44.3 (41.6, 47.1)	
Race					183.17 (<.001) ^b
Non-Hispanic White	4034	58.1 (56.2, 59.8)	4275	42.0 (40.2, 43.8)	
Non-White	1285	38.7 (35.6, 41.9)	2366	61.4 (58.2, 64.5)	
Family income, \$					428.97 (<.001) ^b
< 20 000	1173	39.0 (36.0, 42.0)	2170	61.0 (58.0, 64.0)	
20 000-49 999	2051	51.9 (49.3, 54.5)	2566	48.1 (45.5, 50.7)	
50 000-74 999	851	55.4 (51.4, 59.4)	899	44.6 (40.6, 48.6)	
≥ 75 000	1244	66.7 (63.2, 69.9)	1006	33.4 (30.1, 36.8)	
Menthol status ^a					539.73 (<.001) ^b
Menthol	1502	37.0 (34.6, 39.6)	3269	63.0 (60.4, 65.5)	
Nonmenthol	3788	60.4 (58.5, 62.4)	3359	39.6 (37.6, 41.5)	
Smoking frequency					126.91 (<.001) ^b
Daily smoker	2850	50.2 (48.2, 52.3)	4225	49.8 (47.7, 51.8)	
< daily smoker	2428	57.9 (55.4, 60.5)	2355	42.1 (39.5, 44.7)	

Note. CI = confidence interval.

^aReported most frequently used cigarette type in the past 30 d.

^bIndicates a difference in proportion at $\alpha = .05$.

Products were also classified as either menthol or nonmenthol.

Market presence and performance of light cigarettes were measured in dollar and unit sales (number of cigarette sticks sold). We tabulated product sales by cigarette type and by cigarette type adjusted for menthol. Market share was determined by dividing sales in each subcategory by total sales in that category.

Product Design Data

We took product design data from disclosures provided to MDPH in 2009. Cigarette manufacturers are required to disclose product design data to MDPH under Massachusetts state law. Technical specifications of the methods used in MDPH disclosures are provided in the legislation.²⁹ These data have

previously been used in tobacco control research and include data on all subbrands with a brand-family market share in the United States of more than 3%.²⁹⁻³¹ In the Massachusetts disclosures, a total of 348 brands were reported on (161 light and 187 full flavor). The most relevant design features available from MDPH disclosures were filter ventilation (percentage), nicotine concentration of the raw (unburned) tobacco (milligrams per gram), and total tobacco weight (grams). Excluded non-relevant design features included machine-generated mainstream nicotine and tar smoke yields, which do not adequately represent actual human smoking or resulting smoke constituent exposure. We tabulated mean values with 95% confidence intervals for the available features. The a priori hypothesis

assumed that light cigarettes are more highly ventilated and contained less tobacco mass and lower concentrations of nicotine than their full-flavor counterparts. We classified cigarettes as either light or full flavor using the same classification scheme as with NSDUH and Nielsen data. Results were tabulated separately for light and full-flavor and crossed with menthol type. We ran the Student *t* test at $\alpha = .05$ to determine differences between light and full-flavor cigarettes within each category (all cigarettes, menthol cigarettes, nonmenthol cigarettes).

RESULTS

In 2009, 52.7% (95% CI = 51.1, 54.3) of current smokers aged 12 years and older reported a light cigarette as their usual cigarette type (Table 1). A larger proportion of women than men (58.1% vs 47.9%, respectively; $\chi^2 = 130.8$; $df = 1$; $P < .001$) and of non-Hispanic Whites than non-Whites (58.1% vs 38.7%, respectively; $\chi^2 = 183.2$; $df = 1$; $P < .001$) reported smoking light cigarettes. We also found significant differences in proportions by age group ($\chi^2 = 304.0$; $df = 1$; $P < .001$), income group ($\chi^2 = 429.0$; $df = 1$; $P < .001$), menthol preference ($\chi^2 = 539.7$; $df = 1$; $P < .001$), and smoking frequency ($\chi^2 = 126.9$; $df = 1$; $P < .001$; Table 1). Full demographics and smoking characteristics by self-reported light smoking status can be found in Table 1.

We used a logistic regression model to characterize demographics and smoking patterns of light cigarette smokers (Table 2). Findings from this analysis suggested that light cigarette smokers have a greater likelihood of being female, older, and non-Hispanic White; being of higher family income; and being nondaily smokers. Girls and women were 1.64 (95% CI = 1.43, 1.88) times as likely to report a light cigarette as their usual cigarette type than were boys and men. Smokers who reported a nonmentholated brand as their usual cigarette were 2.29 (95% CI = 1.97, 2.66) times as likely as menthol smokers to report a light cigarette as their usual cigarette type. Daily smokers (OR = 0.49; 95% CI = 0.43, 0.57) and non-White smokers (OR = 0.49; 95% CI = 0.42, 0.59) were less likely to report a light cigarette as their usual cigarette type than were nondaily smokers and

TABLE 2—Likelihood of Reporting Smoking a Light Cigarette: National Survey on Drug Use and Health, 2009

Predictor	OR (95% CI)	P
Gender		
Male (Ref)	1.00	
Female	1.77 (1.53, 2.03)	<.001
Age, y		
12–17 (Ref)	1.00	
18–25	1.59 (1.31, 1.92)	<.001
26–34	2.59 (2.08, 3.24)	<.001
≥ 35	2.83 (2.29, 3.50)	<.001
Race		
White (Ref)	1.00	
Non-White	0.54 (0.46, 0.64)	<.001
Family income, \$		
< 20 000 (Ref)	1.00	
20 000–49 999	1.65 (1.39, 1.97)	<.001
50 000–74 999	1.90 (1.52, 2.37)	<.001
≥ 75 000	2.96 (2.40, 3.65)	<.001
Mentholated status		
Menthol (Ref)	1.00	
Nonmenthol	2.31 (1.98, 2.69)	<.001
Smoking frequency		
Nondaily smoker (Ref)	1.00	
Daily smoker	0.50 (0.43, 0.59)	<.001

Note. CI = confidence interval; OR = odds ratio.

non-Hispanic White smokers, respectively. Testing age × gender interactions yielded that boys (aged 12–17 years) were significantly less likely (OR = 0.53; 95% CI = 0.38, 0.74) than girls of the same age to report smoking a light cigarette as their usual cigarette type. Among women, the likelihood of reporting smoking a light cigarette increased as age increased, with women aged 18–25 years (OR = 1.50; 95% CI = 1.16, 1.91), 26–34 years (OR = 2.28; 95% CI = 1.71, 3.04), and 35 years and older (OR = 2.84; 95% CI = 2.16, 3.73) being significantly more likely to report smoking a light cigarette as their usual cigarette type than girls (aged 12–17 years).

Product Sales Data

In 2009, 143.6 billion sticks of light cigarettes were sold, accounting for 56.2% of cigarette sales. Of those 143.6 billion sticks, approximately one third (27.9 billion sticks) were light mentholated cigarettes, accounting

for 40.9% of all menthol cigarettes sold; the remaining 115.5 billion were light nonmentholated, accounting for a 61.8% market share among all nonmentholated cigarettes sold in 2009 (Figure 1).

Product Design Data

In 2009, light cigarettes had a mean filter ventilation of 34.1% (95% CI = 31.5, 36.8), significantly greater than that of full-flavor cigarettes (14.7%; 95% CI = 11.7, 17.6; t test $P < .001$). We found significant differences in filter ventilation between light and full-flavor cigarettes among both menthol and nonmentholated cigarettes (t test $P < .001$, for both comparisons). We found no significant differences ($P > .05$ for all t tests) in raw tobacco nicotine concentration or tobacco weight between light and full-flavor cigarettes (Table 3).

DISCUSSION

We examined reported use, sales, and design of light cigarettes in 2009, before the removal of text descriptors from cigarette packs in the United States. Approximately half of all US smokers (53%) reported smoking a light cigarette. A similar proportion (56%) of all cigarettes sold in 2009 were labeled *light*, highlighting the overwhelming presence of light cigarettes in the US market. Light cigarettes contained similar levels of rod nicotine as full-flavor cigarettes but had a higher percentage of filter ventilation (34% vs 15%, respectively).

Smokers of light cigarettes differed from smokers of full-flavor cigarettes by gender, age, race, income, menthol status, and smoking frequency. Previous research has demonstrated a relationship between targeted tobacco marketing and product design on reported light cigarette smoking.³² For example, the tobacco industry has targeted women with light cigarettes, appealing to weight-loss aspirations and health concerns.³³ We found that younger women were more likely to smoke light cigarettes than were younger men and that older women were more likely to smoke light cigarettes than were younger women. Approximately 38% of youths (aged 12–17 years) reported light cigarettes as their usual cigarette type in 2009. This finding is noteworthy because nearly 80% of smokers initiate

cigarette use during this age period,³³ and concerns have been raised regarding the potential for light cigarettes to promote initiation because of their lower harshness.²² We also observed differences in reported use of light and full-flavor cigarettes by menthol status: menthol smokers were less likely to report use of a light cigarette. This observation may be because the sensory effects of menthol cigarettes are similar to those of light cigarettes.¹⁹ Studies have shown that menthol reduces the harshness of tobacco smoke and may lower perceptions of risk, enhance initiation, and provide a disincentive for quitting.^{19,34–36}

Nielsen data showed that 56% of cigarettes sold before the 2010 ban included a light-type descriptor. In contrast, when cigarettes were classified using the standard 15-milligram FTC machine tar yield, light cigarettes represented a market share of more than 80%. In the most recent FTC report, when classified on the basis of a 12-milligram FTC machine tar yield, light cigarette sales were estimated at 57.5% of cigarettes sold in 2008, aligning more closely with the present findings.¹¹ This wide discrepancy underscores the challenge in defining light cigarettes. The closer similarity between the NSDUH and the Nielsen data suggests that consumers rely heavily on cigarette labeling (including brand, written descriptors, and pack design) as a means of identifying cigarette strength. As such, in 2009 consumer perceptions of light cigarettes may have been as related to brand positioning and marketing as to the sensory experience of the smoker, which is particularly relevant because after the descriptors ban, most brands continued to use pack color to communicate strength differences between types, having used this strategy in the past in conjunction with written descriptors.³⁷

Filter ventilation may be the defining design feature that distinguishes light from full-flavor cigarettes. Ventilation enhances smoothness of smoke, which increases sensory appeal for some smokers.^{18,38} However, high filter ventilation may be accompanied by other product characteristics that are designed to offset the reduction in certain sensory effects that arise from dilution of mainstream cigarette smoke. Such product characteristics may include chemical additives that promote taste, mouth feel, or “impact” that are not reported in MDPH

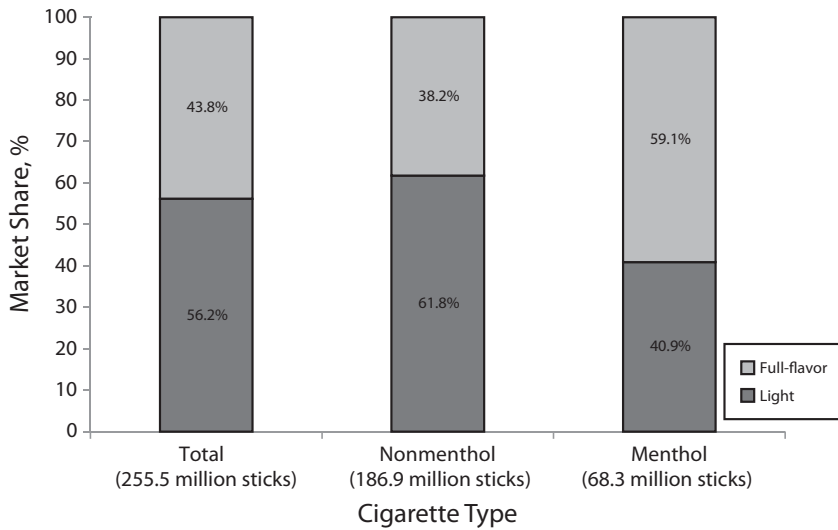


FIGURE 1—Market share of light cigarettes: AC Nielsen ScanTrack, 2009.

disclosures.³¹ Given the present finding that older women and nondaily smokers are the groups most likely to use light cigarettes, a concern may be that light cigarettes are a deterrent to cessation among this population. Future research may investigate the potential role for high filter ventilation and other design features or additives to promote lower perceptions of risk.

NSDUH light cigarette data are self-reported and therefore prone to recall or response bias;

however, concern for such bias might be mitigated by the objectivity of Nielsen sales data, which closely mirrored NSDUH data. Sales data do not capture possible illicit markets including contraband, counterfeit, and smuggled cigarettes. The proportion of the market not included in these results is difficult to estimate, but a nationally representative survey of US smokers reported that approximately 4.5% made their last cigarette purchase from Native American reservations or Internet

sources.³⁹ Some cigarette brands removed descriptors before the ban's enactment.⁴⁰ Although the most popular brands did not remove pack descriptors early, the effect is likely to make follow-up results more conservative. Finally, despite the intuitive appeal of linking the 3 data sources, this approach was not possible because of differences in data collection strategies. Despite this limitation, assessment of product population impact should not be limited to 1 facet of measurement. Using 3 different but complementary data sets allows for a fuller understanding of epidemiological trends in light cigarette use.

We can make several recommendations on the basis of the present findings. As part of its duties to regulate tobacco products to protect the public health, the FDA should pay particular attention to these populations and elucidate reasons for use, particularly those that surround product perceptions. For example, physical design features such as the higher filter ventilation observed in light cigarettes may produce lowered risk perceptions and thus promote use. Likewise, other product design or formulation features that contribute to initiation, deter cessation, or maintain dependence must be addressed as being damaging to public health. If such design features alter perceptions of risk or promote enhanced use, the FDA should consider requiring tobacco manufacturers to disclose such features under section 904 of the Family Smoking Prevention and Tobacco Control Act. The changes in cigarette branding inherent to the mandated descriptors ban may pose challenges to future surveillance. As a solution, the FDA may mandate tobacco companies to disclose new identifiers for brands formerly labeled as light and identify correspondence with the preban branding of the same product. Any design features that may have changed in conjunction with the change in branding must be accounted for as well. Finally, NSDUH includes no questions on cigarette brand used at initiation and therefore cannot be used to assess the influence of light cigarettes on smoking initiation. This relationship is important to investigate, given evidence that the tobacco industry may have targeted youths with light products, using design features that decrease harshness to ease initiation.²² The inclusion of such a question in future NSDUH surveys would provide

TABLE 3—Product Design Features of Light and Full-Flavor Cigarettes: Massachusetts Department of Public Health, 2009

Product Design Feature	Light		Full Flavor	
	No.	Mean (95% CI)	No.	Mean (95% CI)
Filter ventilation, %				
All cigarettes	86	34.14 ^a (31.47, 36.82)	61	14.68 (11.73, 17.63)
Nonmenthol cigarettes	51	35.55 ^a (32.22, 38.89)	33	16.39 (12.00, 20.77)
Menthol cigarettes	35	32.09 ^a (27.61, 36.57)	28	12.67 (8.83, 16.50)
Nicotine raw tobacco concentration, mg/g				
All cigarettes	86	17.96 (17.65, 18.27)	61	18.15 (17.68, 18.61)
Nonmenthol cigarettes	51	17.96 (17.58, 18.35)	33	18.01 (17.44, 18.59)
Menthol cigarettes	35	17.96 (17.42, 18.49)	28	18.31 (17.53, 19.09)
Raw tobacco weight, g				
All cigarettes	86	0.71 (0.69, 0.73)	61	0.75 (0.72, 0.77)
Nonmenthol cigarettes	51	0.71 (0.68, 0.73)	33	0.74 (0.71, 0.77)
Menthol cigarettes	35	0.72 (0.69, 0.75)	28	0.75 (0.72, 0.78)

^aIndicates a row difference using a Student *t* test at $\alpha = .05$ level

a necessary tool for investigating this potentially critical relationship.

Consumer products known as light cigarettes have historically been arbitrarily or misleadingly defined, leading to misperceptions of their risks by consumers. Perhaps the only defining characteristic of light cigarettes is high filter ventilation (with its attendant enhancement of smoothness) rather than lowered smoke toxicant yield or human exposure. The high reported use of light cigarettes among sub-populations including women and girls (compared with boys and men), and higher reported use among women underscores public health concerns about the ways these products are communicated to consumers. The present data highlight the need for effective continuous surveillance to gauge the impact of the removal of light pack descriptors in the United States. These data may provide a baseline for future assessment of the impact of this ban in the United States. To build on these results and to more effectively assess the impact of the ban on package text descriptors, future surveillance should take a multidimensional approach including (but not limited to) assessments of population use, design, and marketplace presence of light cigarettes. Future surveillance should also incorporate measures of consumer risk and sensory perceptions as they pertain to light cigarettes. Given the large proportion of smokers who use light cigarettes, these products should be considered a priority for evaluation and surveillance. ■

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This article was accepted June 18, 2012.

Contributors

I. Behm, N. A. Sokol, and R. D. Kennedy conceptualized and designed the study. I. Behm and N. A. Sokol carried out the data analysis and statistical undertakings.

I. Behm, N. A. Sokol, R. D. Kennedy, V. W. Rees, and G. N. Connolly interpreted the results, wrote the article, and critically reviewed and commented on the article.

Acknowledgments

We would like to acknowledge Andrew Seidenberg for his invaluable editing of the article.

Human Participant Protection

Institutional review board approval was not needed for this study because secondary data sources were used.

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