



A Successful Intervention to Reduce Cigarillo Use Among Baltimore Youth

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A recent survey demonstrated that in 30 days, almost a quarter (23.9%) of African Americans aged 18–24 years in Baltimore smoked a Black & Mild, a popular cigarillo brand at least once. The theory of reasoned action (TRA) is the best-fitting theoretical model to use for intervention because it has been shown to be a good predictor of smoking behavior among adolescents. We have devised a campaign that involves both active advertising and the creation of an informational website, which can be used to learn about the consequences of cigarillo smoking. Smokers have decreased the number of cigarillos smoked per day by 1, and in particular, there was a dramatic decrease in smokers in Baltimore after the campaign. Particularly, positive impression in both groups tended to have differences in statistics before and after the campaign. In conclusion, our results show that the campaign was successful. We intend to expand it to other cities throughout the United States where cigarillo use is prevalent.

Key Words: African American; Baltimore; cigarillos; inoculation theory; theory of reasoned action

Introduction

While not much larger than a cigarette, a cigarillo is classified as a cigar, which is defined as a “roll of tobacco wrapped in leaf tobacco or in any substance containing tobacco”.^{1–11} A recent survey has shown that over a 30-day period, almost a quarter (23.9%) of African Americans aged 18–24 years in Baltimore smoked a Black & Mild, a popular cigarillo brand, at least once.³ The Baltimore City Health Department³ has also reported that Black & Milds are popular among African Americans aged 12–17 years. Although quantitative data have not been collected nationally for youths younger than 18 years,

cigarillo use has been observed among 8th and 9th graders,^{12–32} and among children as young as 11.²⁵ In fact, middle schoolers are more likely to smoke Black & Milds than high schoolers.³² Overall, Black & Milds are the most popular brand of cigars for US youths and adults aged 12–25 years.^{33–35}

John Middleton Inc., manufacturer of Black & Milds, has seen revenue growth of 10% annually since 2002, driven by sales of Black & Milds.² Even more worrisome, the company was just bought by Philip Morris in November 2007. While announcing the \$2.9 billion purchase, Philip Morris CEO Michael Szymanczyk said he plans to “accelerate the Black & Mild brand’s market share growth momentum.”²

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Since cigars are made from the same basic materials as cigarettes, people who smoke cigars are at risk for the same health consequences as cigarette smokers.²² These health consequences are well-documented and include an increased risk of heart disease and stroke, as well as lung, mouth, esophageal, bladder, and pharyngeal cancers.⁸ These health problems are associated with high mortality rates and result in over 430,000 preventable deaths annually in the US.⁹ Cigar smokers are have a slightly reduced risk compared with cigarette smokers because they typically do not inhale directly.²² However, unlike cigar smokers, cigarillo smokers typically inhale;²⁵ therefore, they are likely to have similar, if not greater, health risks than cigarette smokers.

Black & Milds contain 5–12 times the amount of nicotine as cigarettes, indicating a serious addiction risk.²⁵ Teens are at much greater risk of addiction than adults because nicotine addiction occurs almost exclusively in adolescence.²⁵ The younger an adolescent begins smoking, the more likely he or she will have a strong addiction to nicotine,³⁴ making future cessation more difficult.

Materials and Methods

The goal of our intervention was to reduce the prevalence of cigarillo use in African-American youth in Baltimore aged 12–17 years by 0.75% over an 18-month period. We expected the baseline prevalence to be approximately 23.9% of adults aged 18–24 years. As a reference point to determine what change is feasible, the American Legacy Foundation's "truth" campaign has been credited with a 1.6% reduction in youth cigarette smoking over 3 years.¹⁰ While behavioral effects may not show a linear effect over time, we believe that a 0.75% reduction in 18 months is achievable. This time period was chosen as the time frame based on the Centers for Disease Control's (CDC) recommendation to allow 18 months for a tobacco media campaign to show effects on behavior.³⁰

Our objectives (over the 18-month time frame) included the following: (1) To determine the incidence of cigarillo use among African-American youth and reduce the baseline incidence by a factor of 20%; (2) to increase awareness that cigarillos are not associated with a reduced risk of negative health consequences by a factor of 50% of baseline; (3) to increase awareness of tobacco industry targeting of African-American youth by a factor of 30% of baseline; (4) following CDC recommendations, to reach 80% of Baltimore City youth aged 12–17 years per quarter of a year, with 4-week target rating points (TRPs) of 400 or higher in the introductory phase and 200 or higher throughout the rest of the campaign [(% of target audience seeing ad) × (no. of

times seen in 4 weeks)=4-week TRPs];³⁰ (5) to show reductions in self-reported sales of cigarillos from Baltimore City retailers (primarily convenience stores) by 1% or higher.

Primary theory

The theory of reasoned action (TRA)¹² stipulates that the intention to engage in a behavior is determined by attitudes towards that behavior and subjective norms (Appendix A¹). Attitude towards the behavior is in turn determined by beliefs that the behavior leads to certain outcomes and by evaluation of those outcomes. Subjective norms are determined by beliefs about how specific referents think the person should behave and by the degree of motivation to comply with the beliefs of those referents.

The TRA is the best-fitting theoretical model to use for our intervention because it has been shown to be a good predictor of smoking behavior among adolescents.²³ In fact, the TRA and modified versions are also very accurate in explaining components of why adolescents initiate and continue smoking.²⁴ The TRA has also been shown to be accurate in predicting smoking behavior cross-culturally.¹³

Not only is the TRA a good predictor of smoking among adolescents, but many effective anti-smoking campaigns have used it to form the theoretical basis of their interventions. Although the use of specific theories is not explicitly stipulated in most anti-smoking campaigns, the use of the TRA is implicit in many of them.¹⁶ For example, Hersey and colleagues¹⁶ argue that the successful "truth" counter-tobacco media campaigns in California, Massachusetts and Florida all employed the TRA in developing their intervention goals and message content. For example, in the "truth" campaigns, messages were chosen to increase negative beliefs about the tobacco industry. This created a social inoculation effect, changing attitudes toward smoking, reducing receptivity toward industry advertising, thus reducing smoking intention and behavior.¹⁶ The TRA has also been shown to be effective in marijuana interventions, especially when messages focus on the attitude-intention component of the TRA.²⁹ As cigarillo and marijuana smoking populations may significantly overlap, this study further indicates that the TRA is an appropriate model for our intervention.

It is important to note that although subjective norms play an important role in youth smoking initiation,¹⁵ the CDC does not recommend using interventions to change smoking norms because these interventions can be difficult to implement and have not been found to be effective.³⁰ We hypothesize that youth likely trust the norms they actually see around them more than those they

are told about in advertisements. For these reasons, we chose to focus on the attitude branch of the TRA for our intervention. An application of the attitudinal branch of TRA toward cigarillo use reduction via emphasis on health risks and industry targeting is shown and described in Appendix B.

We chose the TRA over the newer theory of planned behavior (TPB).¹ Based on our literature review, research showed that although both theories are accurate and reliable in predicting behavior, the TRA or a modified version of the TRA is more effective in planning youth smoking prevention programs, whereas the TPB is more effective in planning smoking cessation programs.^{7,24} Given that our intervention is prevention-focused, we opted to use the TRA as our theoretical foundation.

Additional theory

Another theory that we incorporated into our study was the inoculation theory (IT).²⁰ IT states that one can counter-attack persuasive arguments by first warning the receiver of an impending argument, presenting a weak argument, and getting the receiver to defend his or her attitude towards the argument. Based on the idea of medical inoculation, the theory states that if people are able to build up defenses against strong arguments by first presenting weak ones, they will be less easily persuaded by messages.

IT has been used in smoking prevention by many interventionists with successful results. One classic example of how IT can be used is an anti-smoking intervention for junior high schoolers conducted by Pfau and colleagues.²⁶ In this intervention, young adolescents were presented with a video containing weak arguments about why smoking is bad. They were able to comment on the video, think about it, and build up their defenses against competing persuasive messages such as “smoking is cool.” The results showed that 30–70% less children started smoking years later.²⁶ Proponents of IT claim it is useful in anti-smoking initiatives.⁴ Indeed, as noted above, inoculation was found to be a key aspect of the success of the “truth” campaign.¹⁷

Both the TRA and IT are useful theoretical foundations for anti-smoking campaigns and interventions. The theories work well together, focusing on changing people’s attitudes and beliefs about smoking to change their intent and behavior toward tobacco.

Design and dissemination

Campaign delivery—content, format, and tone

In March of 2006, the CDC released a report, *Tobacco Use Prevention Media Campaigns*, thoroughly

outlining best practices based on evaluations of previous state and national campaigns. In terms of content, the CDC report found that focusing on the negative health effects of smoking and on the tobacco industry’s practices of deception are the most remembered and effective topics.³⁰ These content areas are core components of the American Legacy Foundation’s national version of the “truth” ad campaign, which has been found to be responsible for an estimated 22% of the youth smoking decrease among students in grades 8–12, down from 25.3% in 1999 to 18.0% in 2002.¹⁰ The effectiveness of the “truth” campaign agrees with our understanding that addressing the attitude change aspect of TRA is a strong approach. The “truth” campaign, although focused primarily on cigarettes, serves as a good model for our campaign.³⁰

Advertisement details and target audience

We used advertisements on radio, television, billboards, and internet, and signs on the sides of buses, at subway stops or in subway cars, and on abandoned buildings as potential media mechanisms. We may eventually run trailers on popular DVD’s or post our commercials on YouTube.

Most of our advertisements use an 18-year-old African-American teen as the main actor because younger teens look up to someone who is a few years older. It has been found that youth pay less attention to advertisements showing children of the same age, and they prefer advertisements that show an older age group, which they believe are in a more desirable stage of life.^{36,37} Exact language was determined in focus groups to use the vernacular of urban areas, especially Baltimore teens. Ideally, the actors themselves are Baltimoreans to increase credibility. Our goal was to have actors as similar as possible to our target audience, since similarity has been shown to increase persuasiveness and reduce reactance.³¹

Our campaigns involved both active advertising and the creation of an informational website, which can be used to learn about the consequences of cigarillo smoking. The tagline that could unify and define our campaign was designed to be clear, concise and direct.

Cigarillos and cigarettes: different color, same death

Appendix C shows some potential television advertisement scripts. These advertisements can also be modified for use on billboards or other signage.

Sample advertisements

In creating the advertisements, we look to incorporate elements from our research that are found

to be effective in creating youth behavior change. For the topic of industry manipulation, we approach it from various directions, as seen in the “What would you do?” and “Good deal” advertisements shown in Appendix C. These advertisements use the theories of TRA and inoculation as discussed above. They highlight the deceptive and targeting practices of the industry and also encourage cognition and inoculation. Youth who see these advertisements are encouraged to think about how the industry markets cigarettes. IT postulates that this prepares them for when tobacco companies subtly advertise to them in the future. Each advertisement also has additional unique advantages. The “What would you do?” advertisement denigrates cigarillos by associating them with a very young child and candy, directly opposing the concept that cigarillos are for the “cool” older kids. A “Good deal” aims to incite reactance against Big Tobacco by making the underlying point that the majority of stockholders of the new owner of Black & Milds are likely wealthy old white men, in contrast to the low socioeconomic status African-American urban youth smoking them.

Website

It is interesting to note that although Philip Morris’s new acquisition, John Middleton Inc., is a company worth \$2.9 billion, there is no website for Black & Milds or the company itself. We can only speculate as to the possible reasons for this. Possible explanations are that the manufacturer feels that the internet would damage the urban authenticity of the product, that they do not think there is any use for a website, or that they are trying to avoid the attention of the tobacco control community.

Data from Baltimore (the exposed city) was compared with similar data collected in the control city of Philadelphia. Philadelphia was chosen due to its similarities with Baltimore in terms of age demographics and cultural backgrounds (Appendix D³⁸). Additionally, Philadelphia is far enough away that contamination should be minimal. In the control city, the advertisement exposure was carried out randomly once per day, while the target audience in Baltimore was exposed to advertisements over 10 times during after-school hours (3–9 PM). All enrolled African-American youth in both the control (Philadelphia) and exposed (Baltimore) groups participated in our study in a continuous, uninterrupted manner, because missing data resulting from withdrawals in the middle of this study were excluded in the final analysis.

For campaign evaluation, we used a random sample from both the control and exposed groups. The baseline surveys measured current smoking levels, attitudes toward cigarillos, awareness of health risks,

and awareness of industry targeting. The follow-up survey asked the same questions, but it also asked whether participants had heard or seen the campaign, and whether it influenced smoking attitudes or behavior in participants in the campaign. Before we administered our survey, we conducted cognitive interviews and pilot tests to ensure that it was interpreted and understood correctly and to make sure that we were measuring the intended concepts. While administering our survey, we selected a random sample of schools and public places frequented by our target audience and performed the survey in person. We took into account social desirability bias and acquiescence bias when phrasing our survey questions. In addition, to determine sales data, we gathered information from a representative sample of shopkeepers and convenience store owners by in-person interviews.

Statistical analysis

Variable data were divided into descriptive information as follows: the number of cases, percentage, and SD of the distribution. We performed *t* tests to test the differences between the cases. The χ^2 test was mainly used to test the association between variables. We used the statistical software package SPSS 13 (SPSS Inc., Chicago, IL, USA). Odds ratios and relative risks were used to evaluate the relationship between intervention and outcomes.

Results

Clinical characteristics of the study population

The participants’ characteristics are depicted in Table 1.³⁰ There were no significant differences in sex and age among the groups. Advertisement use had a significantly positive effect on the numbers of cigarillos per day ($p < 0.0001$), the percent of positive attitudes toward cigarillos ($p = 0.001$), awareness of health risks ($p = 0.002$), and awareness of industry targeting ($p = 0.001$). We also tested the influence of our intervention and found that over 75% of teenagers had heard or seen our advertisement and there was a significant increase in the number of participants who had their smoking attitude or behavior influenced compared with the control group ($p = 0.000$ and $p = 0.0003$). Overall, smokers decreased the number of cigarillos smoked per day by 1 cigarillo; in particular, there was a dramatic decrease in the number of smokers in Baltimore after the campaign. In particular, positive impression in both groups tends to have differences in statistics in prelaunch and postlaunch.

Table 1 Baseline survey of 10–19 year-olds³⁰

Variables	Prelaunch				Postlaunch				p
	Control group		Exposed group		Control group		Exposed group		
	Smokers	Nonsmokers	Smokers	Nonsmokers	Smokers	Nonsmokers	Smokers	Nonsmokers	
n	995	930	904	928	995	930	904	928	0.661
Sex									
Male	482	454	462	435	482	454	462	435	
Female	513	476	442	493	513	476	442	493	
Age (yr)	15.3±2.8 (11–19)	14.7±3.9 (10–19)	14.1±3.3 (10–19)	13.9±4.4 (11–19)	15.3±2.8 (11–19)	14.7±3.9 (10–19)	14.1±3.3 (10–19)	13.9±4.4 (11–19)	0.721
No. of cigarillos per day	2.3±0.8 (1–4)	0	3.8±1.1 (1–5)	0	1.5±0.3 (0–2)	0	1.1±0.3 (0–2)	0	0.000*
Positive attitudes toward cigarillos (%)	65	8	72	6	43	3	44	2	0.001*
Awareness of health risk (%)	35	87	28	75	74	89	66	82	0.002*
Awareness of industry targeting (%)	15	54	22	38	69	76	74	79	0.001*
Participants had heard or seen campaign (%)					85	76	87	88	0.000*
Participants' smoking attitude or behavior was influenced (%)					87	64	93	69	0.003*

*p is significant when less than 0.05 by t test. All the negative health effects³⁰ occurred in the study population over 1 year before being enrolled in this study.

Table 2 Odds ratios and relative risk ratios of the incidence of cigarillo use in the target audience

Independent variables	Relative risk ratio	95% Confidence interval	<i>p</i>
<i>Prelaunch</i>			
Baltimore (exposed)			
Smokers	2.2335	0.0632–4.4552	0.0701
Nonsmokers	0.0007	0.0002–2.9730	0.1173
Philadelphia (control)			
Smokers	1.7346	0.0433–5.3341	0.8840
Nonsmokers	0.0004	0.0001–1.2063	0.0500
<i>Postlaunch</i>			
Baltimore (exposed)			
Smokers	0.6500	0.0012–0.9624	0.0006*
Nonsmokers	0.0006	0.0001–1.8876	0.4401
Philadelphia (control)			
Smokers	1.2833	0.0774–1.7941	0.3541
Nonsmokers	0.0003	0.0001–0.7063	0.6714

**p* was calculated by χ^2 test.

Relative risk ratio

The pooled estimates for the postlaunch endpoint that reported on the association between the intervention and a decrease in smokers in Baltimore were all significant compared with the control group in Philadelphia ($p=0.006$, Table 2). The intervention yielded results consistent with a positive response relation. The effect of this intervention occurred in fewer smokers in Philadelphia compared with nonsmokers; however, this was not statistically significant ($p=0.3541$). Therefore, smokers in both groups in the postlaunch campaign (Table 2) showed a decrease ($p=0.0006$), while there were only minor effects in nonsmokers in the exposed and control groups.

Discussion

We achieved most of our five original objectives in the final evaluation. Among smokers, the number of cigarettes smoked per day significantly decreased from 2.3 to 1.5 cigarettes in the control group and from 3.8 to 1.1 cigarettes in the exposed group over 18 months. This finding was due to increased awareness of health risks among youths. The awareness of industry targeting significantly increased in smokers from 15% to 69% in the control group and from 22% to 74% in the exposed group. Positive attitudes toward cigarillos among our target audience changed in smokers after the intervention, with a decrease of 33% in the control group and 39% in the exposed group ($p=0.001$). Therefore, these findings indicate that we successfully changed perspectives. With regard to the efficacy and effectiveness of our advertisements, the evaluation items including “subjects had heard or seen” the advertisements and “smoking attitude or

behavior of subjects was influenced” were well recognized among African-American youth.

In particular, we found that previous experience with tobacco, having a best friend who is a smoker, lack of sensitization from school, thinking that smoking made one feel cool, and that tobacco advertisements should be forbidden in public places, were highly associated with smoking initiation in our study. Furthermore, peers who exhibited risk behavior such as smoking were likely to influence each another to engage in that behavior. Initiation of smoking accelerated more rapidly among pupils whose best friend smoked because throughout adolescence, youngsters experience feelings of uncertainty about self-image and see themselves in the eyes of their peers. Therefore, associating with friends is easier when one’s behavior is congruent with others. Therefore, the reason why our intervention succeeded could be because it contributed to reduced peer pressure as shown by decreased incidence of cigarillo use among smokers, while the incidence rate was still higher in Philadelphia. Therefore, our advertisements should be shown during the appropriate time at high frequency to build up impressive images in target audiences’ minds to ultimately decrease the baseline incidence.

Conclusion

Our campaign targeted at-risk African-American youths in Baltimore to prevent them from starting to smoke cigarillos. The basis of our campaign was to change people’s attitudes and beliefs about cigarillos through messages that convey that smoking cigarillos is seriously harmful to their health, cigarillos are as harmful as cigarettes, and that the industry targets youth. Our campaign was based on

the TRA and proven methods as evaluated in peer-reviewed literature.

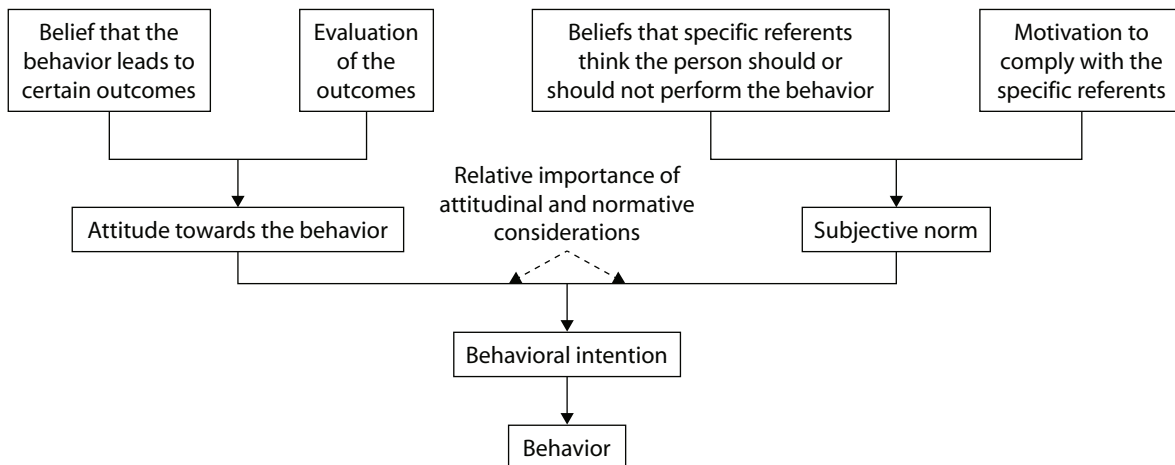
In this study, we showed that our campaign was a success. We intend to expand it to other cities throughout the United States where cigarillo use is prevalent. In such areas, cigarillo-specific education should be included in all anti-tobacco campaigns. Cigarillo use is a growing and serious public health issue in need of immediate research and intervention. It is hoped that these educational efforts will work most effectively when combined with the legislative and litigious action needed to close current loopholes and rein in the ambitions of the tobacco industry.

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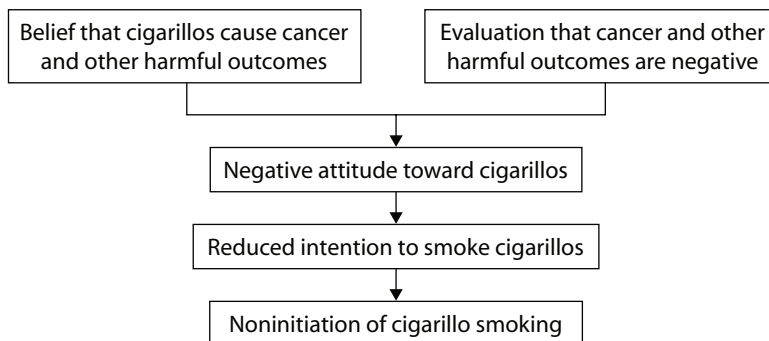
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Appendix A Theory of Reasoned Action¹



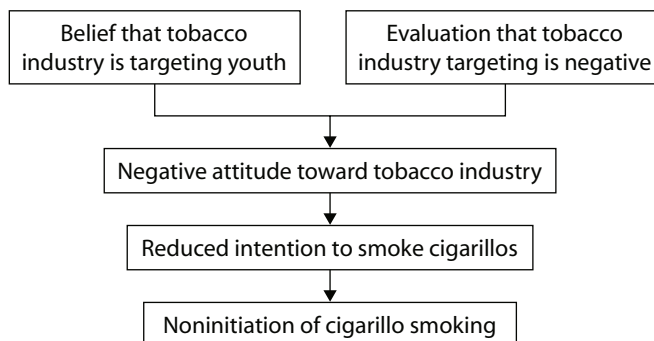
Appendix B Cigarillo-specific Attitudinal Branches of the Theory of Reasoned Action

I. Health risks of cigarillos



Advertisements addressing the health risks of smoking cigarillos reinforce the belief that cigarillo smoking causes cancer and other harmful outcomes, and that evaluation of these outcomes is negative, ultimately causing death.

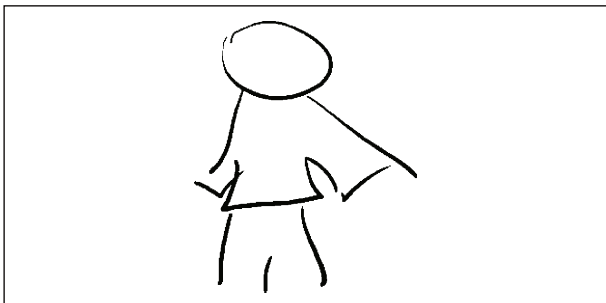
II. Tobacco industry targeting



Advertisements addressing industry targeting reinforce the belief that youths are being targeted and that this targeting is negative because it turns youth into manipulated pawns. Research by Hersey et al. (2005) has shown that by educating youth in this manner, they react against tobacco advertising and reduce their propensity to start smoking.

Appendix C Possible Campaign Television Advertisements

I. What would you do?



1. Older teen African American says *“Suppose you wanted to sell cigarettes and cancer to poor city kids. What would you do?”*

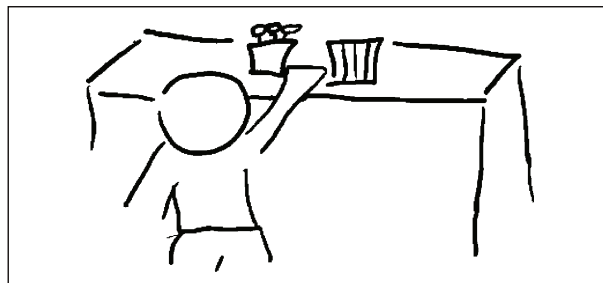
[Pause to encourage and allow cognition]



2. *Make it cheap? Wrap it in a brown tobacco wrapper to look “natural”...*



3. *Encourage hip-hop stars to use it... make it smell good... and of course...*

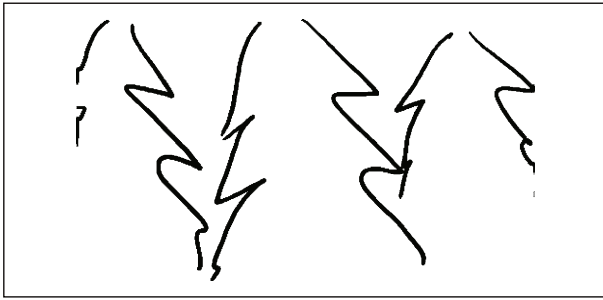


4. *“Put it right on the counter next to the candy.”*
[Camera shows a young child (8 years old) reaching for a cigarillo in a convenience store.]

CIGARILLOS, CIGARETTES
DIFFERENT COLOR
SAME DEATH.

5. Tagline [End]

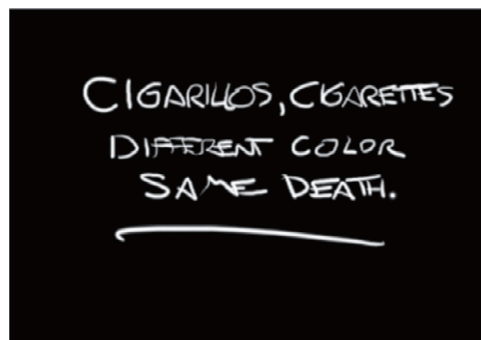
II. Cigarillo testimonial



1. Adult voice saying "I thought cigars, cigarillos... hey they're natural... they smell nice... there's a tobacco wrapper... they're not as bad as cigarettes... they're no big deal"



2. "I was wrong" [Image of sickly African American man in a hospital on a ventilator]

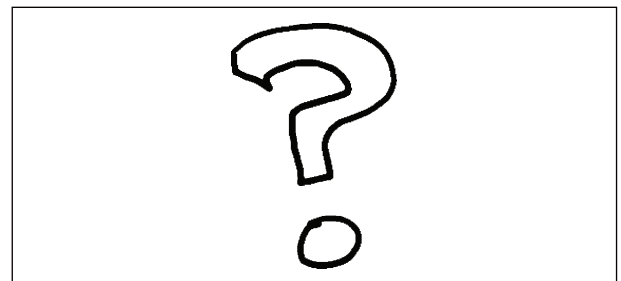


3. Tagline [End]

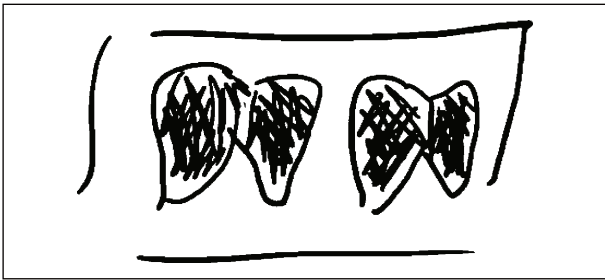
III. Whose lungs?



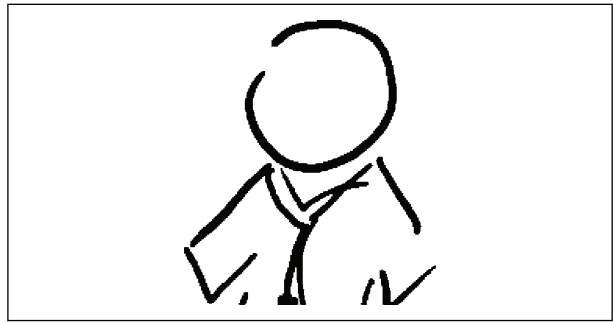
1. Young African American doctor in hospital says "Hey, I got a question for you".



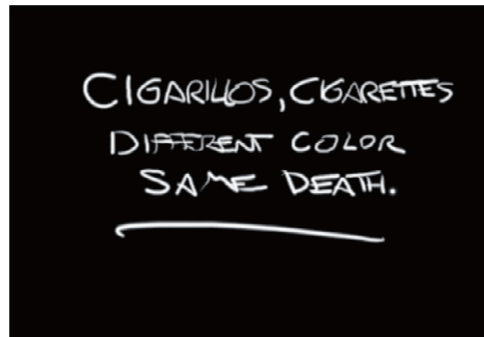
2. [Image of question mark]



3. "Do you think these lungs belong to a cigarette smoker or a cigarillo smoker?"

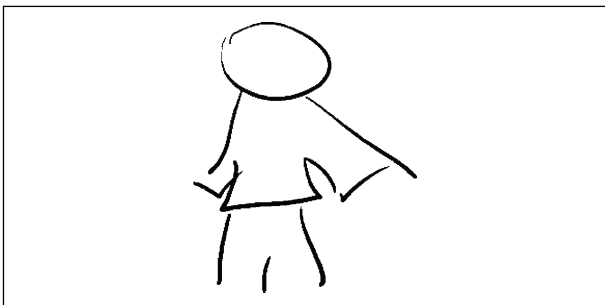


4. "Can't tell?
Neither can we... not that it matters at this point."



5. Tagline [End]

IV. Good deal



1. Older teen African-American says, "Imagine you're running a big rich cigarette company."



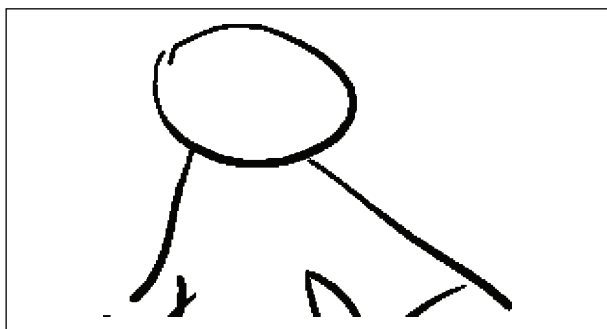
2. But people are quitting because they know it will kill them. What do you do? [Image of lungs]
[Dramatic pause to encourage and allow cognition]



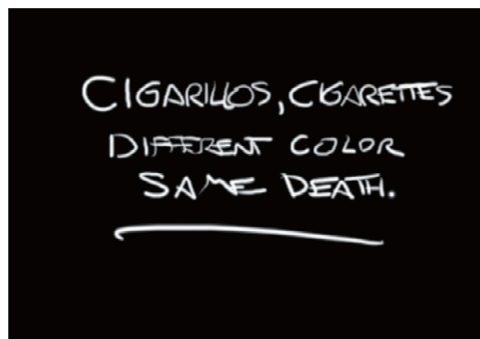
3. "Buy a company that makes brown cigarettes and sell 'em to the city kids."



4. [Image of old overweight white male in suit grinning widely and crushing a handful of cigarillos (symbolizing shameless corporate greed)]



5. "Congratulations Philip Morris on your takeover of Black & Milds."



6. Tagline [End]

Appendix D Demographic Comparison of Baltimore and Philadelphia³⁸

Characteristics	Baltimore	Philadelphia	United States
Total population	631,336	1,448,394	303,596,445
Males (%)	46.5	46.8	49.2
Females (%)	53.5	53.2	50.8
African-Americans (%)	64.4	44.3	12.4
10–19 years (%)	14.5	15.4	
Below federal poverty level (%)	19.5	25.1	13.3