

**Case Study Report of
Tobacco Free San Mateo County Project**

**American Lung Association
of San Francisco & San Mateo Counties**

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Report Abstract

This report presents a quantitative case study of the American Lung Association (ALA) of San Francisco and San Mateo Counties, specifically with respect to its Tobacco Buying Survey. The buying survey, deployed in retail outlets throughout the County, was used to assess the effectiveness of the ALA's intervention efforts towards reducing youth access to tobacco. In a four-year span beginning in the fall of 1997, five waves of implementation and impact measurement were carried out. Data were collected through a series of comprehensive undercover buy operations. While the project encompassed several layers of objectives, the primary measure of success was the reduction in the number of stores that sold tobacco products to minors. The results show that this objective was clearly met, as the efforts of the ALA led to a significant overall decrease ($\Delta = - 21\%$). The other two project objectives that were assessed in this study were not met, although they clearly did not carry as much weight in priority, as did reduction in tobacco sales. In addition, one of the objectives encountered an insurmountable floor effect, which made achieving it an impossibility. Other measures of success include a significant decrease in the number of stores exhibiting self-service tobacco displays, as well as a reduction in the placement of tobacco items near candy displays. Across most measures, local geographical differences were evident and suggest a non-uniform approach to implementation to maximize effectiveness.

Background

The American Lung Association (ALA) of San Francisco and San Mateo Counties, under a grant from the Tobacco Control Section (TCS) has conducted a long term, multi-strategy tobacco prevention program for youths in select cities. The ALA has focused its efforts in several areas of tobacco prevention including reducing youth access, reducing tobacco promotion and advertisement, and reducing tobacco placement near candy. The data from the purchase surveys provided the project with baseline information for a particular city before the interventions were implemented and the post surveys were used as an evaluation component as to how successful the project was in reducing youth access.

One element of the ALA's curricula has been an attempt to educate retailers that serve as potential suppliers of tobacco products to youth about the problems of tobacco use by minors and the consequences of selling tobacco to minors. These retail stores, which range from convenience stores to supermarkets, are embedded in communities where youths reside or have immediate access. Historically, these retail outlets have often times disregarded existing laws concerning sales to minors and simply ignored their obligation to even ask for identification. According to the ALA, many of these retail outlets also serve as showcases for tobacco advertisements and tobacco promotional offers.

In an effort to address these problems, the ALA has focused on a representative sample¹ of retail outlets, hoping to reduce the accessibility of tobacco through those stores and also to decrease the presence and impact of tobacco advertisements. To measure the success of its prevention efforts, the ALA has attempted to quantify the impact they have had on these stores by measuring the changes in accessibility to tobacco, specifically in the ability for minors (i.e. under the legal age) to purchase tobacco products from these outlets. The ALA has also measured its effectiveness in reducing the amount of strategically placed advertising, which may target young children.

The on-going evaluation of the tobacco prevention program consisted of administering pre and post-test buying surveys designed to assess observable and quantifiable changes in the retail stores. The surveys were conducted in five separate cities within San Mateo County. In each city, the pre and post-tests were separated by a sufficient amount of time to allow the ALA to implement its anti-tobacco efforts and prescribed campaign.

Table 1 presents the evaluation schedule of the project, which paralleled the implementation efforts.

¹ Samples varied from wave to wave, although in each case, an effort was made to obtain a comprehensive list of retail outlets that sold tobacco products.

Table 1: Distribution of Tobacco Buying Survey Implementation

Targeted Geographical Location	Wave	Pretest Timeframe
East Palo Alto	1	Fall 1997
Redwood City	2	Winter 1998
Daly City	3	Winter 1999
San Mateo City	4	Winter 2000
Belmont, Burlingame, and San Bruno	5	Fall 2000

The primary goal of the evaluation was to measure changes from the pre-test to the post-test in the following areas. The percentage of stores:

- ... in which a youth successfully purchased a tobacco product
- ... in which the clerk asked for identification
- ... that had a self serve tobacco display at the payment counter
- ... that displayed tobacco advertisements
- ... that displayed tobacco advertisements at or below three feet
- ... that sold tobacco near candy displays
- ... that sold tobacco look-alike candy near the candy displays

Outcome Objectives & Performance Measures

By June 30, 2001, the following activities will be accomplished in 4-7 cities in San Mateo county resulting from the passage of a local youth access and advertising policy and an education and media campaign targeting merchants, police departments, chambers of commerce and city councils as measured by a pre and post buying survey: 1) Youth access will be reduced by 15-20% in stores; 2) Tobacco advertising will be reduced by removing tobacco look alike products 3 feet from candy displays in 15-20% of stores surveyed; 3) Tobacco advertisements three feet and below will be removed from 15-20% of stores surveyed; and 4) Retailers who have obtained tobacco permits will be increased 15-20% in 1-3 cities that have passed the ordinance².

Project Activities Directed Towards Achieving Objectives

The intervention activities were youth driven that focused on providing retailers education about the laws through information packets and presentations to merchant associations, raising community awareness about the youth access issue through petition drives and presentations, developing a media campaign that included press releases and paid ads, and speaking to key policy leaders, i.e. police chiefs and city councils regarding the importance of a comprehensive youth access policy.

² Only the first three of the four project objectives are assessed in this study.

Methodology

Design

The design of this evaluation was universal across all cities in which the tobacco prevention efforts took place. In each city a pre-test (baseline) survey was conducted, followed by a post-test survey. The timeframe between the pre and post-tests varied from wave to wave (city to city), depending on how much time was needed to implement the prevention measures/campaign. Most commonly, pre and post-test surveys were separated by approximately six months.

Procedures

The survey protocol consisted of pairs of youths (participants of the American Lung Association's Tobacco Free San Mateo County program) entering a store discreetly, one surveying the store for tobacco and tobacco advertisement placement, and another (the "buyer") who would attempt to make a purchase of cigarettes, or other available tobacco products. Following the survey, the pair would leave the premises and meet a supervisor, where they would immediately complete the survey instrument, based upon their accounts in the store. Information regarding the placement of tobacco and tobacco advertisements in each store was confirmed between the surveyors, as was information regarding signs warning of the illegality and consequences of sales of tobacco to minors.

If asked for identification or proof of age, the buyer was instructed to simply indicate that he or she does not have any. If asked for his/her age, the buyer provided an honest answer.

Sample/Target Population

In each city, the ALA attempted to obtain a list of all retail stores known to sell tobacco. Each store was categorized as one of the following:

- Gas station
- Supermarket
- Liquor store
- Market
- Convenience store
- Drug store
- Other
- Unidentified

Since the sample for each city was intended to be comprehensive, the survey was designed as a panel study. However, there was some attrition from pre to post surveys due primarily to store closures. The distribution of the pre-test sample of retail outlets is presented in Table 2.

Table 2: Distribution of Pre-test Retail Outlets Surveyed

Targeted Geographical Location	Type of Retail Outlet							Total
	Gas Station	Super-market	Liquor Store	Market	Conv. Store	Drug Store	Other	
East Palo Alto	1	3	6	6	1	0	1	18
Redwood City	1	4	18	14	7	2	2	48
Daly City	15	4	11	13	6	2	6	57
San Mateo City	11	5	11	7	1	5	1	41
Belmont, Burlingame, and San Bruno	13	6	1	1	2	4	2	29
Total	41	22	47	41	17	13	12	193

Survey Instrument

A survey instrument (see Appendix) was developed by the ALA and the project evaluator and used for all rounds of surveys. The survey instrument was completed by the surveyors and consisted of questions addressing the following items:

- Successful tobacco purchase
- Request for identification from the clerk
- Type of transaction – self-serve or clerk assisted
- Presence of signs acknowledging the illegality and consequences of sales to minors
 - Stake Act
 - Penal Code 308
 - “We Card”
 - Others
- Presence of tobacco products within 3 feet of candy displays
- Presence of tobacco/cigarette look-alike candy
- Presence of self-serve tobacco displays at register
- Presence of tobacco advertisements
- Presence of tobacco advertisements at or below 3 feet from the floor

Results

In this section, aggregate results for the project, as a whole, are shown. Pre-test results are compared to the respective post-test results and significant and noteworthy directional differences are discussed. Aggregate figures are calculated using unweighted averages. This was done to give equal weight to each city surveyed, since each was treated as a separate, independent wave of implementation.

Findings are further reported within four subsections, which correspond to the different areas of the survey. For each subsection, evidence of the impact of the ALA program, as demonstrated by data from specific waves, is presented.

Tobacco Purchase

Surveyors noted whether or not a successful purchase was made and whether or not the clerk asked for identification when the attempt was made. In addition, the surveyors noted whether their attempted purchase was made through a self-service display or by asking for assistance from the clerk.

- By far, the most definitive indication of the efficacy of the Tobacco Free San Mateo County Program is the decrease in the percentage of retail stores from which a successful tobacco purchase was made (Figure 1).
 - While baseline figures indicate that, prior to the ALA's intervention, minors were able to purchase tobacco products (i.e. cigarettes) from one-third (33%) of the retail stores surveyed, post-test results show this figure decreased dramatically to only 12%.
- The ALA's program was marginally effective in increasing the percentage of stores in which identification was asked of the buyer (minor) when the attempted tobacco purchase was made. Pre-test figures were relatively high overall: nearly three-fourths of all stores (74%) asked for ID. This figure increased to 77% in the post-test results (Figure 1).
 - It is important to note that unlike purchase rate, the rate for which ID was requested was not definitively an indicator of success (see Discussion and Recommendations for details).

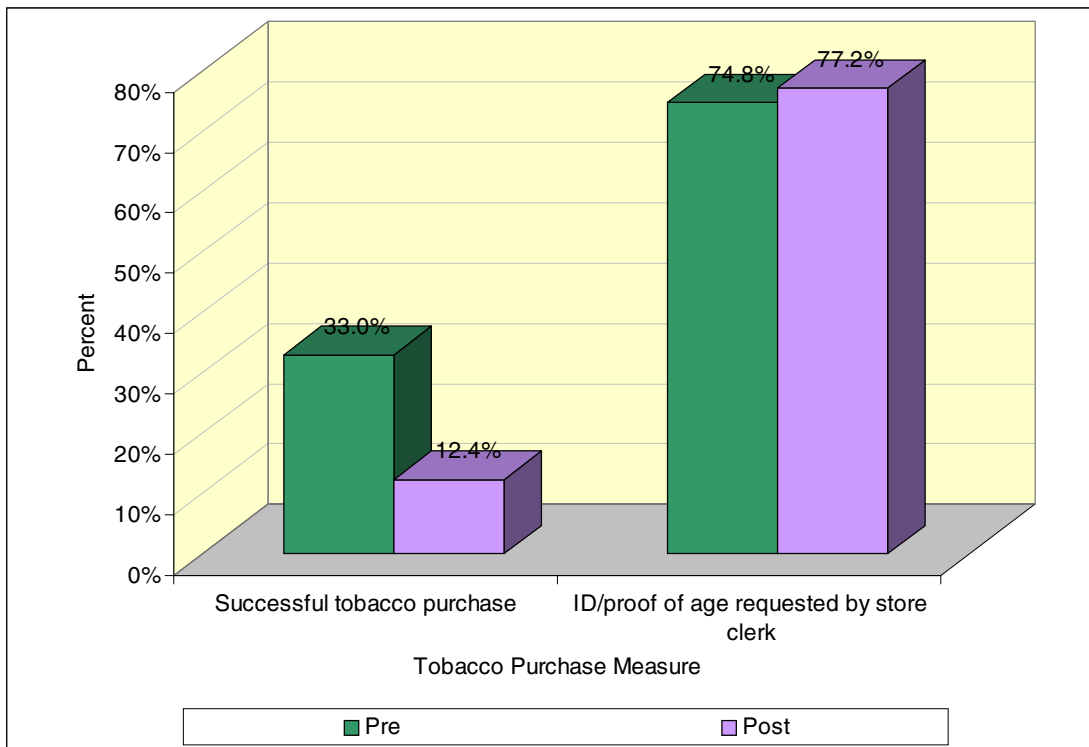
Specific Evidence of Impact

- The effectiveness of the ALA's efforts to reduce tobacco sales to minors is clearly evident in the aggregate results. Certain cities showed even more dynamic results, however. The three-city area of Belmont, Burlingame, and San Bruno, for example, which netted a startling 55% purchase success rate in the pre-test measure subsequently obtained a 16% rate following the intervention efforts – this drop of 39% was the most dramatic of all the cities surveyed. In fact, in

Belmont and San Bruno, none of the retail stores in the post wave data collection sold tobacco to minors on any of the attempts.

- In East Palo Alto, a city historically known for having easy access to tobacco, the success of the ALA is also seen in the decrease in measured tobacco sales. In fact, the purchase success rate was the lowest of all the post-test measurements, declining from 33% to 6%.

Figure 1: Tobacco Purchase



Signs Regarding Illegal Sales to Minors

The survey instrument asked surveyors to focus on three specific signs common to retail stores carrying tobacco products: a sign acknowledging the Stake Act, one addressing Penal Code 308, and one explicitly saying “We Card”. Surveyors noted whether any of these signs, as well as any other signs acknowledging the illegal sale of tobacco to minors, were displayed anywhere in the store.

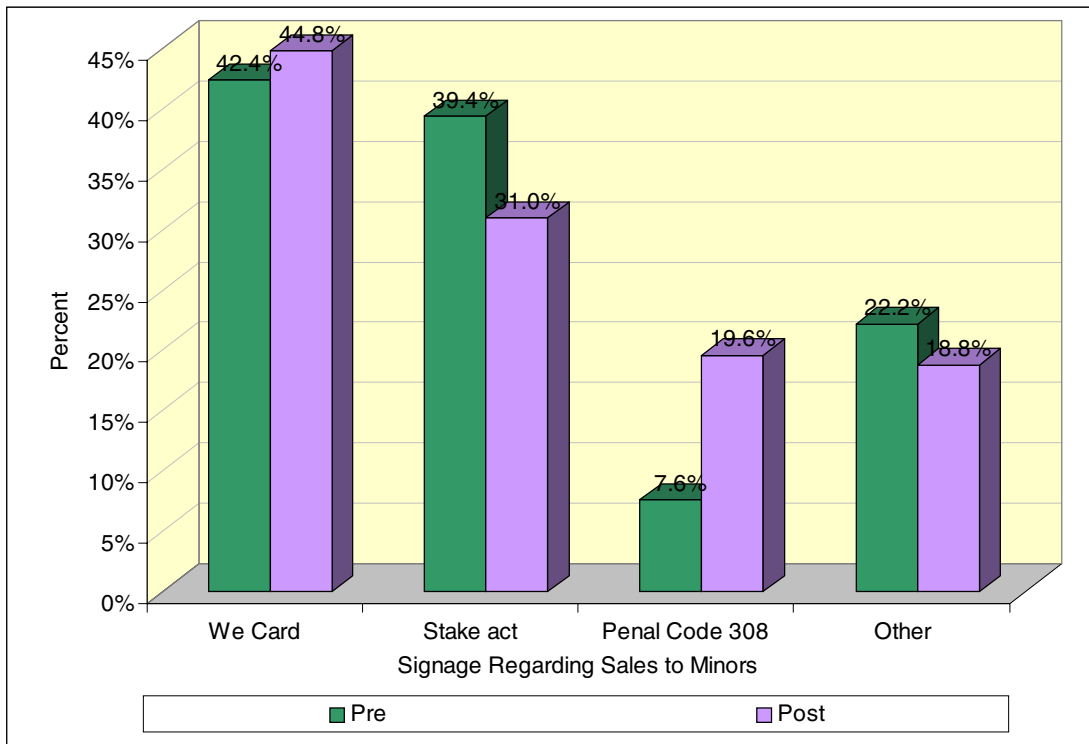
- Across all cities and trials, the most common sign (regarding the illegality and consequences of tobacco sales to minors) observed in the retail stores surveyed was the “We Card” sign, followed by the Stake Act sign, and distantly by the Penal Code 308 sign (Figure 2).

- The impact on the presence of signage varied depending on the type of sign. While there was a directional increase in the percentage of stores that carried “We Card” signs, there was a significant decrease in the number of stores displaying the Stake Act sign. While it was the sign that was least often displayed in the retail outlets, the Penal Code 308 sign, demonstrated the greatest increase in stores that did carry it. This pattern was evident in a number of sites, particularly in the most recent wave of data collection, suggesting that the weight of Penal Code 308 was a more salient issue than was the Stake Act over the past year. The data also suggest that there was a slight decrease in the percentage of noticeable “Other” signs addressing the illegal sales of tobacco to minors (Figure 2).

Specific Evidence of Impact

- While the types of signs that were observed regarding illegal sales to minors fluctuated, the overall presence of any type of sign increased marginally overall by 3% from pre to post-test.

Figure 2: Tobacco Sales to Minors Signage



Tobacco Placement

Surveyors were asked to indicate whether or not tobacco was being sold near candy displays. If candy was being sold near candy displays, surveyors indicated whether the tobacco was 3 feet or closer to the display or more than 3 feet away. Surveyors also noted whether or not tobacco look-alike candy was sold near the candy display. Finally, surveyors noted if self-service tobacco displays were present at the counter.

As with the signage data, the data for tobacco placement were aggregated. If any data were discrepant, the more conservative observation (the closer to the candy display or the presence of a self serve tobacco display) was counted.

- On the whole, the presence of self-serve tobacco products/displays at the retail stores' checkout counter decreased significantly from the pre (19%) to post (16%) intervention measures (Figure 3).
- On average, the ALA had a significant impact on reducing the presence of tobacco items in the proximity of candy displays/counters (Figure 4).
 - The percentage of stores having tobacco items within proximity of candy displays decreased from 41% to 35%. In addition, the percentage of stores having tobacco items within three feet of candy displays decreased from 29% to 24%.
- The ALA's efforts did not have a significant impact on the presence of tobacco look-alike candy in the proximity of candy displays/counters. However, this was primarily a factor of the low baseline figures (Figure 4).

Specific Evidence of Impact

- While the overall impact of the ALA on the presence of self-serve tobacco displays was significant, its effectiveness is even more resonant when considering the effect by city and by time. For example, in Daly City, the presence of self-serve tobacco displays at the check out counter fell from 26% to 10% between pre and post measures. More interestingly, there was clearly an indication of the county-wide impact of the ALA's efforts, based on temporal measurements, that is, when comparing earlier to later waves of data collection. In the first three waves of implementation, the combined aggregate percentage of stores that had self-serve tobacco displays was 28%. In the subsequent two waves of implementation this figure was 3%. This suggests a longitudinal and sustained impact of the ALA's efforts.
- While the reduction of tobacco sold/displayed in the proximity of candy displays was moderate in most cities, the impact was most noticeable in the three-city aggregate of Belmont, Burlingame, and San Bruno. By comparison to other areas, these three cities proved to have a relatively moderate problem, in terms of tobacco sold near candy displays. In the pre-test, tobacco was sold near

candy in 37% of the retail stores – 34% within three feet. Following intervention, however, these respective figures dropped to 8% each.

Figure 3: Self-Serve Tobacco Displays Present at Check-out Counter

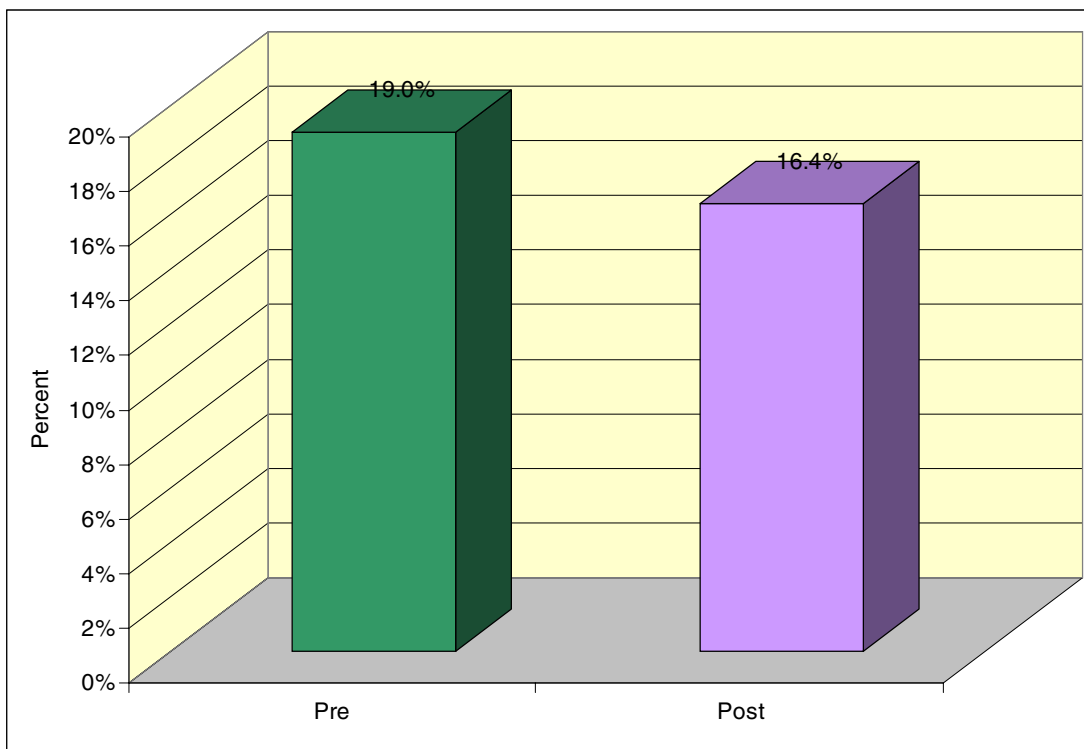
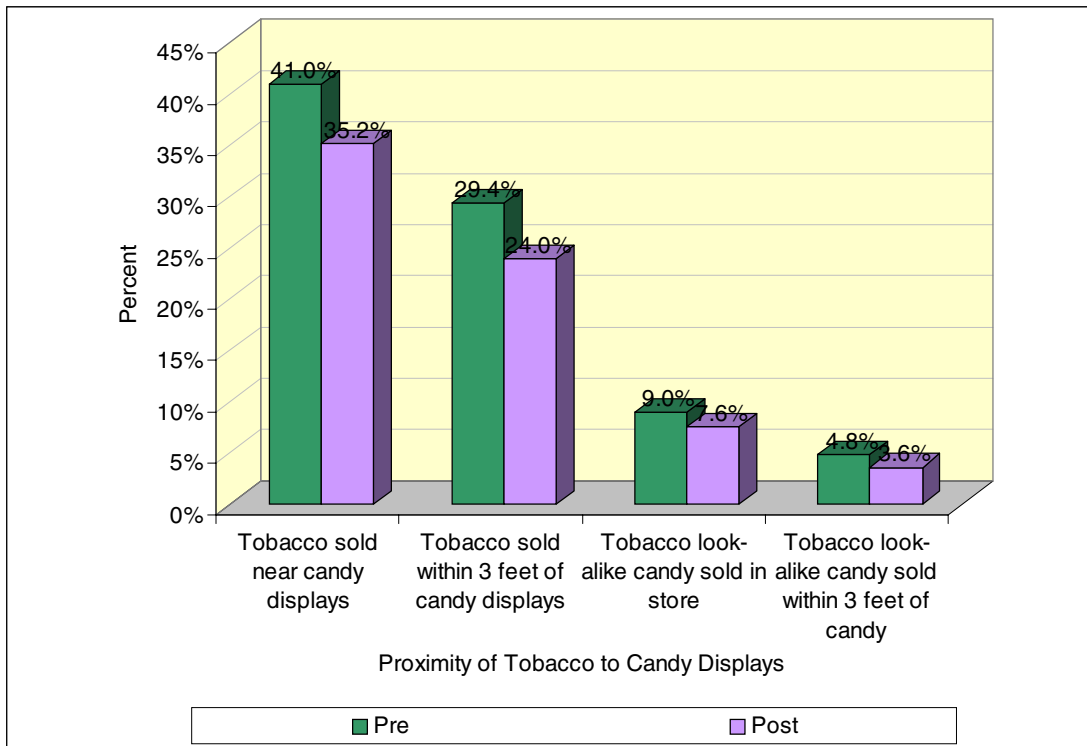


Figure 4: Tobacco Placement



Tobacco Advertising Placement

Surveyors also surveyed the store to assess the presence of tobacco advertising in the stores. Surveyors noted whether or not there was advertising in each store and if so, whether or not any of the advertising was located at or below three feet, where it is more easily viewed by young children.

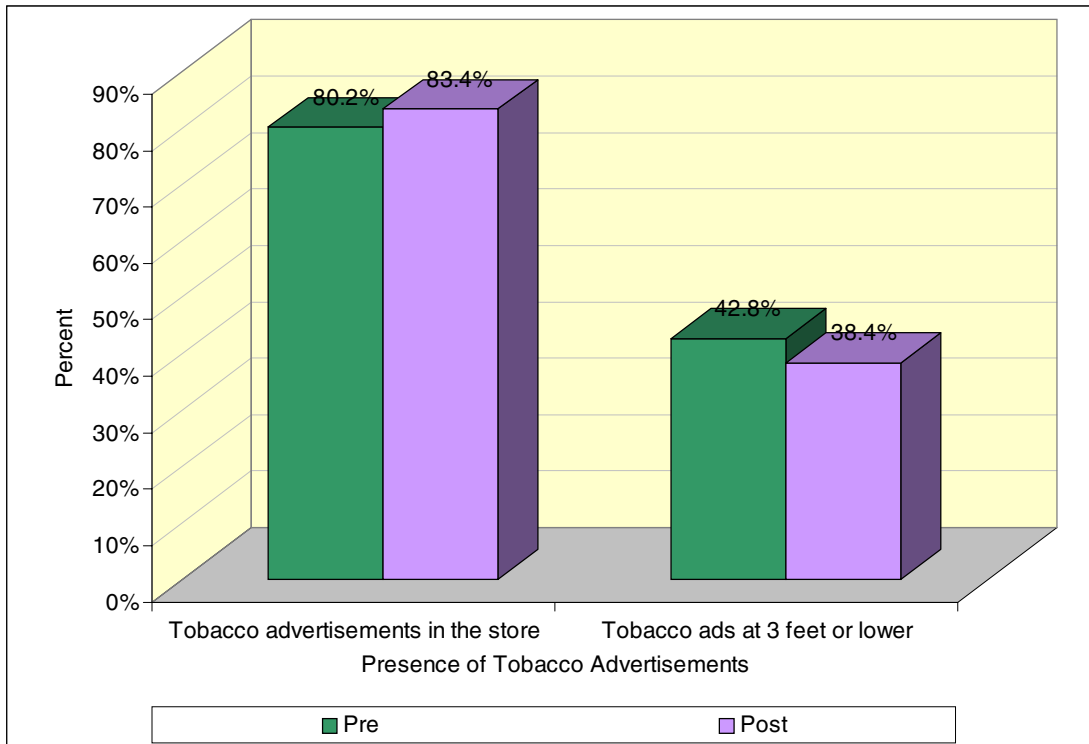
As with the tobacco placement data, the data for tobacco advertising placement were aggregated. If any data were discrepant, the more conservative observation (the presence of advertising or the presence of advertising at or below 3 feet) was counted.

- There was no impact on the presence of tobacco advertisements in the retail stores (80% to 83%) – as would be expected, the large majority of stores displayed tobacco advertisements in both pre and post-test measures. Correspondingly, there was no significant change in the presence of tobacco ads at or below 3 feet (42% to 38%, Figure 5).

Specific Evidence of Impact

- The presence of tobacco advertisement was not significantly impacted by the ALA’s efforts. In fact, 3 of the 5 waves of surveys showed an increase in the presence of advertising.
- It is important to note that these retail stores often have extraneous influences, which tend to dictate their likelihood to display advertising (see Discussion and Recommendations).

Figure 5: Presence of Tobacco Advertisement



Pre and Post-test Comparisons

The net changes between pre and post-test measurements are shown in Table 3.

- Clearly the most prominent figure is the decrease of successful tobacco purchases by nearly 21% (Table 3).
- The ALA was successful in significantly changing 7 of the 13 impact measures in this evaluation (Table 3).

Table 3: Comparison of Post-test to Pre-test Results

Benchmark	Net change ³	Intent ⁴
Successful tobacco purchase	- 20.6%*	-
ID/proof of age requested by store clerk	2.4%	+
Signs - Stake act	- 8.4%*	+
Signs – Penal	12.0%*	+
Signs - We card	2.4%	+
Signs – Other	- 3.4%	+
Self serve tobacco displays at counter	- 2.6%*	-
Tobacco advertisements in the store	3.2%	-
Tobacco ads at 3 feet or lower	- 4.4%*	-
Tobacco sold near candy displays	- 5.8%*	-
Tobacco sold within 3 feet of candy displays	- 5.4%*	-
Tobacco look-alike candy sold in store	- 1.4%	-
Tobacco look-alike candy sold within 3 feet of candy	- 1.2%	-

* Indicates a statistically significant change at the 95% level of confidence.

³ Net change represents the difference between the post-test figure and the corresponding pretest figure (post-test – pretest).

⁴ Intent refers to the intended change from the pre to the post-test figure (i.e. a minus sign indicates the desire to decrease the figure, whereas a plus sign indicates the desire to increase the figure).

Discussion and Recommendations

- Clearly, the primary take-away from this evaluation is the effectiveness of the ALA's efforts in reducing the number of stores from which tobacco was easily accessible to minors, as measured by the percentage of successful purchases. As the principal measure of impact and effectiveness of its efforts, the ALA succeeded in reaching its primary objective.
 - Clearly, location played an important role in the measurement of success, as well as strategy for the implementation of intervention measures. The results show that overall the ALA was most effective in the areas/cities that demonstrated the greatest need for attention. This type of geography-specific implementation strategy is one that warrants attention from future programs of a similar nature.
- While the success of the ALA in its efforts to reduce youth access can not be understated, the program did not meet two objectives which were assessed in this study, although both showed positive directional changes.
 - The effort to reduce the appeal of tobacco to minors was noticeably evident in the ALA's endeavors to eliminate tobacco look-alike candy. However, it faced a dramatic problem in that a significant floor effect became apparent, leaving little room for improvement. With the exception of East Palo Alto, the aggregate pre-test average percent of stores that sold look-alike candy was very low. Nonetheless, the ALA was successful in reducing this figure by a few percentage points. In future efforts, this measure may be a low priority objective and once again, sustainability rather than reduction may be the goal.
 - Tobacco advertising (overall, and at or below 3 feet) also presented a major obstacle to overcome, and is a problem that retailers carrying tobacco products are often encouraged to perpetuate. Nonetheless, the results of this study indicate a need to further this objective in future projects.
- The presence of tobacco advertisements in retail outlets is an unavoidable issue, which has often divided business and community and one that has in the past years been of major concern. The controversy over tobacco advertising directed at youth has gained a great deal of attention through the media. Even currently, anti-smoking campaigns have presented advertising flights which mock, yet highlight, the tobacco industry's attempts at placing their advertising at very visually strategic and accessible locations for young people. While the attempt to reduce the presence of tobacco advertising is clearly measurable, it may be one that faces a great deal of extraneous factors other than the store or store proprietors, themselves. Clearly, the interaction between retailer and the tobacco industry is a difficult hurdle to overcome and one that may require a fully dedicated campaign.

- Throughout the course of the project, the measurement of stores asking for ID from the minors attempting to purchase tobacco evolved into a non-definitive indicator of effectiveness.
 - Initially, the ALA assumed that gauging whether or not a store clerk asked for ID would be a straightforward, unidirectional indicator of compliance. However, this was not the case. This was primarily due to the interaction with the buy rate, itself. In several instances, stores that were complying by not selling to minors, did not ask for ID, but instead, straight out denied the sale, and in a few occasions, the store clerks even “kicked-out” the minor from the retail outlet.
 - An even stranger scenario, and one which demands re-evaluating this impact measure, occurred in one pre-test wave of data collection. In this instance, a relatively large percentage of stores (clerks) did ask for identification, but nonetheless half of them sold tobacco to the minor. This paints a very disturbing picture of the disregard for the law these retailers can have, and from a measurement perspective truly confounds the issue.
 - Clearly requesting ID is not by itself an effective gauge of compliance, nor program efficacy.
- The fluctuations in the types of signs regarding the illegality and consequences of sales of tobacco to minors (e.g. “We Card”, Penal Code 308, Stake Act) were unexpected. The observed variation reinforces the notion that “once a sign is up, it won’t necessarily stay up.” Nonetheless, signage remains to be a simple measure of store compliance, for which ambitious goals (i.e. near 100% compliance) can be set. Even though a ceiling effect may exist as a barrier for measurable impact of future projects, sustainability may be a goal.
- The magnitude of the problem across the different locations/cities within San Mateo County, as well as the impact the ALA had on each, was clearly not uniform. Social and economical differences among the targeted cities revealed themselves in the data, although sometimes not as expected.
 - While program efforts were clearly evident in Daly City, as well as the aggregate three cities of Belmont, Burlingame, and San Bruno, the ALA was not as effective in Redwood City.
- Interestingly, the type of retail outlet did not have an effect on the results, as initially anticipated. While drug stores and gas stations were expected to be more likely to sell to minors than were either markets or supermarkets, this did not turn out to be the case.

- One of the very important components of the ALA’s efforts to reduce access of minors to tobacco was the reduction of self-serve tobacco displays at check out counters. For obvious reasons, providing direct access to tobacco products for any customer, without requiring the immediate assistance of a clerk, removes a big hurdle to inhibiting its purchase. The ALA was very successful at reducing or maintaining a low level of self-serve tobacco displays in four of the five cities studied. Redwood City remained the significant “sore thumb” in these regards, with roughly 50% of its stores boasting self-serve tobacco displays. By this evidence, there appears to be a systematic difference between Redwood City and the other locations, which may need to be addressed in future implementations.

Appendix

Tobacco Free San Mateo County - Buying/Placement/Advertisement Survey

Name of store: _____	Survey ID# _____
Address: _____	Buyer: <input type="checkbox"/> Male <input type="checkbox"/> Female
City: _____	Age: _____
Zip code: _____	Date: _____

Tobacco Purchase

Were you able to buy cigarettes..... ① Yes② No

Did the clerk ask for ID? ① Yes ② No

The tobacco you attempted to purchase was: ① Self service...② Requested from the clerk

Did you notice any of the following sign(s)?:

Stake Act Sign ① Yes ② No

Penal Code 308 ① Yes ② No

We Card Signs ① Yes ② No

Other signs stating sales to minors are unlawful..... ① Yes② No

Which ones: _____

Tobacco Placement

Did they sell tobacco items near the candy display? ① Within 3 feet..... ② More than 3 feet ③ No

Was tobacco/cigarette look-alike candy sold near the display? ① Within 3 feet ② More than 3 feet ③ No

Were there self-service tobacco displays on the counter? ① Yes..... ② No

Tobacco Advertisements

Were there tobacco ads inside the store? ① Yes.....② No

Was at least one of these ads three feet or less from the floor? ① Yes.....② No

Type of store:	① Gas station	② Supermarket	③ Drug store	④ Convenience store
	⑤ Market	⑥ Liquor store	⑦ Other: _____	

Notes:
