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## A Tobacco-Free Campus Ambassador Program and Policy Compliance

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### Abstract

**Objective**—Assess impact and feasibility of a Tobacco-free Ambassador Program on campus policy compliance.

**Participants**—Trained Ambassadors made 253 visits to campus sites over 15-months to observe and/or approach violators.

**Methods**—Policy violators were observed at 23 locations during Wave 1 (April-June 2012) and/or Wave 2 (April-June 2013). For locations with at least 5 visits, average violators per visit were compared between two Waves using a paired t-test. Attributes of violators were summarized. Cigarette butts were collected over 3-day periods in four campus hotspots during each Wave. Personnel time and cost to implement the program were determined.

**Results**—There were declines in observed violators per Ambassador visit and number of cigarette butts over time. Rate of violators per visit declined from 5.47 to 1.93, a 65% decrease. Personnel time was equal to 1.5 FTE annually.

**Conclusions**—The Ambassador Program was a feasible and potentially effective strategy to increase policy compliance.

### Keywords

college; compliance; policy; tobacco control; tobacco-free

### Introduction

There has been a dramatic increase in tobacco-free college campuses in the United States. As of July 2014, there were 1,372 campuses with 100% smoke- or tobacco-free policies,<sup>1</sup> 938 of which were tobacco-free.<sup>1</sup> The American College Health Association (ACHA) acknowledges that impactful tobacco-free policy requires consistent enforcement.<sup>2</sup>

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Unfortunately, compliance challenges remain an often-cited barrier to policy implementation and success.<sup>3,4</sup> These challenges include lack of dedicated and consistent tobacco control personnel, ownership issues, inadequate funding for compliance and enforcement efforts, and inability to monitor violations of the policy and/or deal with ongoing follow up related to the policy.<sup>5-11</sup> As additional campuses adopt these policies, there is a need to understand feasible and impactful efforts to improve compliance, as lack of policy enforcement may thwart intended efforts to decrease tobacco use behaviors on college campuses.<sup>6,12-14</sup>

Interestingly, across 162 U.S. campuses, Plaspohl and colleagues<sup>3</sup> found approximately 75% reported they had met the criterion for enforcement as proposed by the ACHA.<sup>2</sup> Yet among campuses that have implemented smoke- and tobacco-free policies, perceived lack of enforcement is frequently reported.<sup>3,10,15</sup> Even when there is visible signage,<sup>10</sup> there may be a disregard for the policy, particularly when a plan for compliance is lacking. Student tobacco users expressed they were initially prepared to comply with smoke- or tobacco-free campus policies, but witnessing others disregard the policy without consequence altered their attitudes toward the policy and subsequent noncompliance.<sup>6</sup> Efforts to improve compliance and enforcement strategies are needed to ensure that campus policies impact the campus community environment as intended.<sup>13</sup>

Campuses often integrate ‘voluntary’ enforcement in an effort to evoke peer pressure to conform to the policy.<sup>16,17</sup> However, without a plan for enhancing compliance and/or implementing corrective action, it is unlikely this strategy alone will be successful.<sup>17,18</sup> Research conducted on Canadian college campuses reported even those who did not use tobacco were tolerant of those who did not comply with the policy.<sup>6</sup> Plaspohl and colleagues reported that enforcement was primarily the responsibility of resident advisors and dormitory staff, particularly at religious and private colleges/universities.<sup>3</sup> However, details regarding training, protocols, and outcomes were not reported. On one Australian campus, security personnel patrol the campus, approach violators, and issue warnings and fines to repeat violators to promote compliance with the smoke-free policy.<sup>19</sup> Half of the noncompliant individuals surveyed on the same campus indicated they had been asked by security to stop smoking. Unfortunately, specific outcome data on overall campus compliance as a result of this approach were not reported.

There have also been efforts to employ students to enforce smoke- and tobacco-free campus policies.<sup>6,18,20</sup> Canadian campuses did not find success hiring students to assist with compliance efforts;<sup>6</sup> however no details of the program, student training, or compliance outcomes were reported. Another campus trained undergraduate students as Ambassadors to promote compliance with a tobacco-free campus policy resulting in a 25% decline in cigarette butts at campus hotspots.<sup>21</sup> However, there may be limitations to using student volunteers for compliance efforts. Students may not feel equipped to carry out enforcement of smoke- and tobacco-free policies, particularly without adequate authority and training.<sup>6,21</sup> Future research is needed to explore impactful interventions aiming to create a culture of compliance on college campuses.<sup>9,10,13,19,22-25</sup> Further, it is imperative that longitudinal analyses be conducted to determine if the Ambassador approach is both feasible and effective in promoting compliance.<sup>21</sup>

The primary aim of this study was to determine if an innovative *Tobacco-free Take Action!* Ambassador Program<sup>21</sup> increased compliance with a tobacco-free policy on a large public university campus over a 15-month period. It was hypothesized that the Ambassador Program would reduce the number of observed violators and cigarette butts in campus hotspots. The secondary aim was to assess the feasibility of implementing the Ambassador Program, as evidenced by personnel time and financial costs.

## Methods

### Design

A pre-post quasi-experimental design evaluated the impact of the *TFTA!* Ambassador Program over a 15-month period. The setting was a large, southeastern public university, which implemented a 100% tobacco-free policy in 2009 prohibiting all tobacco use inside and outside all university-owned property. Data collection occurred from April 2012 to June 2013. Assessments for Wave 1 were conducted between April 16 and June 3, 2012.

Assessments for Wave 2 took place between April 16 and June 3, 2013. Cigarette butts were collected during 3-day periods in each Wave. This study did not require institutional review board approval based on university guidelines.<sup>26</sup>

### Ambassador Program

The *Tobacco-free Take Action!* (*TFTA!*) Ambassador Program was developed based on the 3-Ts framework: Tell, Treat, and Train, to promote an environment of compliance throughout the campus.<sup>18,20</sup> The ‘Train’ component focused on empowering individuals to remind violators on campus of the tobacco-free policy in a firm, compassionate manner.<sup>18</sup> *TFTA!* was developed in Spring 2011, transitioning from a campus-wide call for volunteers, to a pilot with undergraduate nursing students in Fall 2011.<sup>21</sup> During the pilot, 13 students were trained as *TFTA!* Ambassadors and they targeted campus hotspots for a total of four weeks. Ambassadors approached 63% of the 529 observed violators; 68% responded positively and complied with the policy. The total number of cigarette butts in select campus hotspots declined 25% during the 4-week pilot study.<sup>21</sup> As a result of the pilot, it was recommended that part-time university employees be hired and trained to promote compliance, as students did not perceive they were taken seriously. This is similar to findings in Canada reported by Baille and colleagues that students did not feel they had the proper training to approach those violating campus policies.<sup>6</sup> Building on these lessons and promising data, four Ambassadors were hired as part-time staff in Spring 2012.

During Spring 2012, the Ambassadors received comprehensive training including: a) general information on tobacco use, consequences of tobacco use and exposure to secondhand smoke; b) trends in tobacco-free policies; c) overview of the tobacco-free campus policy including campus boundaries; d) summary of the 3Ts approach;<sup>18</sup> e) meeting with the tobacco treatment specialists on campus; f) communicating and meeting with other key campus stakeholders; g) policy implementation guidelines; h) scripting on how to approach and respond to violators; i) monitoring the campus report line; j) evaluation and data collection; and k) campus events and partnerships. The training was modified from lessons learned during the pilot study,<sup>21</sup> to include more comprehensive training, protocol

development for approaching and reporting violators, significant time spent on scripting with more diverse scenarios, observational learning, role play, and peer mentoring.

Scripting is a hallmark of the Ambassador's role. Scripting ensures that a consistent message is used with everyone on campus.<sup>18</sup> Training on scripting was spread out over several weeks ensuring Ambassadors were comfortable and consistent when approaching policy violators. To summarize the scripting process, Ambassadors were trained to: 1) approach the violator; 2) introduce self to the violator; 3) remind the violator of the tobacco-free policy; 4) firmly, but politely request that the violator respect others on campus by extinguishing/getting rid of their tobacco product; 5) accurately answer questions about the policy; 6) provide the violator with information on available tobacco treatment resources; 7) thank the violator for complying and respecting others on campus (if applicable); and 8) discuss possible sanctions with the violator (if they do not comply). Ambassadors distributed informational cards with details of the tobacco-free policy and available tobacco treatment resources as needed. As a result of the pilot study,<sup>21</sup> the need to take a helpful, treatment-focused approach (i.e., offering information about tobacco treatment resources) was reinforced.

Ambassadors spent time on their own, in pairs, and with a mentor as they practiced scripting. Both role play and observational learning were integral to the intensive scripting training. Once Ambassadors were checked off by the *TFTA!* Director, they were permitted to approach violators on campus, always in pairs. The *TFTA!* team also had weekly meetings and daily check-ins to ensure training protocols were followed and Ambassadors shared concerns or ask questions. The Ambassadors typically worked 10 a.m. – 2 p.m., Monday through Friday, wearing a *TFTA!* button, their university badge for identification purposes, and comfortable clothes and walking shoes.

Although Ambassadors spent most of their time documenting and approaching violators, they also engaged in a variety of other compliance-promoting activities including: student group presentations, information sharing at summer advising conferences, training and information sharing for residence advisors, promoting policy awareness at staff appreciation day, attending additional health promotion campus events, developing and disseminating social media messaging, developing PSAs for campus radio, policy website reviews and updates, environmental scanning (i.e., signage assessment), monitoring the report line, and communication with all campus sectors.

## Procedure

During Waves 1 and 2, the Ambassadors conducted visits to four known campus hotspots, as well as 19 additional campus areas to collect data. Hotspots were selected prior to the 15-month period based on observational rounds through campus, as well as areas reported during the Ambassador pilot study.<sup>21</sup> The descriptions of the four hotspots are found in Table 1. All identified hotspots were located on the main campus, and additional areas visited included other locations on both the main and medical center campuses.

Ambassadors were paired and observed/approached violators on campus during their scheduled shifts. They completed site-specific checklists to document violators observed and approached, as detailed below. Ambassadors were expected to approach as many violators

as possible during their shifts, using approved scripting. As previously found, there were instances when there were multiple violators at the same location/time.<sup>21</sup> Ambassadors were trained to use scripting with each individual approached and move on to the next person as quickly as possible.

## Measures

For the purposes of this study, compliance was operationally defined as the number of observed violators of the tobacco-free policy in campus locations during a given time period (i.e., Wave), divided by the corresponding number of Ambassador visits to the locations during the same period. Both policy violator observation and cigarette butt data have been used to collect objective compliance data.<sup>15,16,19,21-23,27</sup>

**Direct Observation of Violators**—The trained Ambassadors observed and approached violators of the tobacco-free policy across all campus locations. Ambassadors completed a location- and date-specific checklist to document each visit. The checklist included location, date, start and stop times of observations, number of violators observed, number of male and female violators observed, and number of violators approached. After each shift, Ambassadors summarized the observational data using an online data collection tool created with Qualtrics software.<sup>28</sup> To assess the degree of change in observed violator rate between Waves 1 and 2, campus locations that had at least five observations during each of the time periods were identified and the rate of violators per visit for each time period at each location was calculated. A minimum of five visits was chosen for this analysis to promote stability in the estimates for rate of violators per visit. Three of the four campus hotspots (Table 1) were included and three additional locations on campus Ambassadors visited on a regular basis. The fourth campus hotspot was only visited by Ambassadors during the first time period, so it was not included in the analysis of change in rate of violators.

**Cigarette Butts**—Cigarette butt data were collected by the trained Ambassadors during 3-day periods at each Wave. Data were collected using The Tobacco-free Compliance Assessment Tool (TF-CAT), a validated direct observation method.<sup>22,23</sup> Cigarette butts were collected from four hotspot locations on campus grounds on three consecutive days. Due to weather conditions and scheduling logistics, it was not always possible to collect cigarette butts at the same time each day. Boundaries for each campus location were noted so that collection areas remained consistent across Waves. Since the first collection day in each 3-day time period represented a much larger count of cigarette butts (due to a buildup since the previous collection), the sum of the counts on Days 2 and 3 was analyzed to reflect a representative picture of current cigarette use at each location.

**Measures of Feasibility**—To assess Aim #2, personnel time and financial investment to implement the Ambassador Program were determined.<sup>27</sup> Time was estimated in terms of total weekly hours logged by the Ambassadors and summarized relative to a Full Time Equivalent (FTE). Financial investment included the total personnel costs, including hourly wage and fringe benefits, of hiring and training part-time Ambassadors. As an additional measure of feasibility, we assessed how the violator responded when approached by the Ambassador (e.g., positive response – compliant; negative response – noncompliant).<sup>18,20</sup>

## Data Analysis

The Ambassadors' direct observations data and cigarette butt counts were summarized using descriptive and graphical methods. Across all 23 campus locations monitored at least once by Ambassadors, a campus-wide violator rate was determined by dividing the total number of violators by the total number of Ambassador visits. Gender of the violators, as well as percent of violators approached and response to being approached, were summarized using frequency distributions. Length of Ambassador visit in minutes was summarized using means and standard deviations. The assessments for violator rate and characteristics of violator observation data were determined for Wave 1 and Wave 2 separately. For those campus locations with at least 5 visits in each time period, a location-specific violator rate was determined and compared between Wave 1 and Wave 2 using a paired t-test. For the four hotspot locations that were chosen for cigarette butt collection, a total butt count was determined by summing the counts from Days 2 and 3. All descriptive analyses and the t-tests were conducted using SAS for Windows, v. 9.3.

## Results

### Violator summary for 23 campus locations

For the 177 campus-wide Ambassador visits during the 7-week period in April-June 2012 (Wave 1), the number of violators was 585, indicating a rate of 3.31 violators per visit. Slightly more than half of the violators were male ( $n = 335$ ; 57%). Of the 585 violators, 444 were approached (76%). Although length of visit was missing or miscoded for most of the Wave 1 visits, the average length of visit was 11.1 minutes ( $SD = 3.9$ ), ranging from 5-20 minutes for the 34 visits that had a valid time of at least 5 minutes.

During the 7-week period in April-June 2013 (Wave 2), Ambassadors made 76 visits to various campus locations and observed 88 violators. The rate during this time period was 1.16 violators per visit. Consistent with Wave 1 data, more than half of the violators were male ( $n = 45$ ; 52%). Of the 88 violators, 28% were approached ( $n = 25$ ). For the 69 Wave 2 visits with a valid length of 5 or more minutes, the average time per visit was 17.1 minutes ( $SD = 12.1$ ), and length of visit ranged from 5 to 45 minutes.

### Summary of tobacco use indicators at hotspots

Tobacco use indicators for the four specific hotspot locations based on the pilot study<sup>21</sup> are shown in Table 2. For Locations A through C, the percent decrease in observed violators per visit from Wave 1 to Wave 2 ranged from nearly 50% to almost 100%. Across these three hotspots, the rate of violators per visit declined from 5.47 to 1.93, indicating a 65% decrease in observed violators per visit between Spring 2012 and Spring 2013. The observed violator rates at the two time periods are displayed in Figure 1. The average change in rate of violators per visit between Wave 1 and 2 for the six locations with rates at both waves was a decrease of 2.49. The average decrease in rate over the 15-month period was significant ( $t = 9.0$ ;  $p < .001$ ).

This pattern is very similar to the trend in cigarette butts collected. The average percent decrease in cigarette butts from 2012 to 2013 across the four sites was 35%. All of the



hotspot locations showed a decrease in number of butts with the exception of Location A. For this site, there were relatively small numbers of cigarette butts at both Waves, with a larger number collected in Spring 2013. Even though the largest number of cigarette butts was found at Location D, there were relatively few Ambassador visits made to this location (with none during Wave 2), so few violators were identified in this area.

### Feasibility of Ambassador Program

Ambassadors worked a maximum of 60 hours total per week (combined across the four staff members who held this position) over the 15-month study period, equivalent to 1.5 FTE per week. Ambassadors were paid an hourly wage (\$10/hour). Estimated annual costs, based on 60 total hours per week for 52 weeks, were \$31,200.

As an additional measure of feasibility, violator responses when approached by Ambassadors were documented. During Wave 1, of observed violators approached ( $n = 444$ ), the majority responded positively and complied by disposing of their cigarette/tobacco product ( $n = 394$ ; 89%). During Wave 2, of observed violators approached ( $n = 25$ ), nearly all responded in a positive way and complied when asked ( $n = 24$ ; 96%).

### Comment

The purpose of this study was to determine if an innovative Tobacco-free Ambassador Program increased compliance with a tobacco-free policy over time on a large public university campus. The results support the hypothesis that compliance with the tobacco-free policy would improve over time, as evidenced by the 65% decrease in observed violators per Ambassador visit and a 35% decline in cigarette butts across campus hotspots. According to previous research, the majority of individuals who do not comply with tobacco-free campus policies are aware of the policy and express strong intentions to continue using tobacco on campus, particularly if not enforced.<sup>19</sup> Consequently, promoting awareness of the policy alone is likely not enough to evoke compliance. However, as indicated by the 15-month study of the Ambassador Program reported here, education in collaboration with monitoring and enforcing the policy near campus hotspots was implemented with continued success, and is seemingly a sustainable strategy to improve compliance on college campuses. Further research is needed to compare policy compliance on campuses with and without Ambassador Programs, including long-term impact and sustainability of this approach on compliance.

The secondary aim of this study was to assess the feasibility of implementing an Ambassador Program in an effort to improve compliance. Findings of the study reported here show that the Ambassador program was both cost-effective and impactful. The personnel needed were equivalent to 1.5 FTE per week and estimated yearly costs were \$31,200. Considering the campus serves over 28,000 students, 12,000 staff, and 2,000 faculty, and spans over 700 acres, this yearly cost is justified. Another encouraging finding from this research is that the majority of individuals violating the tobacco-free policy complied when Ambassadors approached them using approved scripting and a compassionate, firm approach.<sup>18</sup> This positive response also increased over time, indicating

that the messaging was feasible and effective, regardless of the number of individuals approached.

Although the Ambassador Program positively impacted compliance, there may be hesitation on the part of college administrators to adopt these programs, citing inadequate funding and lack of dedicated personnel to implement and enforce tobacco-free campus policies.<sup>5-11</sup> Campuses may tend to make decisions based on what is cost-effective, rather than what might ultimately promote compliance with the policy. Depending on the campus size and specific duties required of Ambassadors, the total FTEs for personnel needed may be less than reported here. However, particularly when beginning compliance efforts, it is imperative that Ambassadors are able to spend adequate time observing and approaching violators particularly in campus hotspots. Results from this study provide support for continuous campus coverage, as there was a significant decline in observed violators per visit in locations with five or more Ambassador visits over time. Although \$31,200 per year may seem like a significant annual investment, the benefits outweigh the costs considering the positive outcomes of successful tobacco-free campus policies for students, staff, faculty, and visitors.<sup>9,18,29,30</sup> It is recommended that compliance efforts be built into initial and continuing budgets for implementing tobacco-free campus policies. This will also reinforce the commitment by college administrators to implement effective tobacco-free campus policies.<sup>7</sup>

The impact of this Ambassador Program on compliance is promising. It is important to note, however, that the Ambassador Program reported here was developed and tested on a 100% tobacco-free campus. Although a similar strategy could be tested on smoke-free campuses, there may be added challenges since covering only combustible products may produce loopholes and confusion about which products are not allowed on campus. Research is needed to test the impact of Ambassador Programs on smoke- as well as tobacco-free campuses to ensure translation to campuses with various types and strengths of campus policies. These data in addition to policy outcome studies will provide evidence-based strategies to promote compliance with tobacco-free campus policies.

## Limitations

There are several limitations to this study. First, there was a lack of complete information on the amount of time spent at each location during the violator observations. Although the Ambassadors were asked to track visits made and to document the start and stop time of each visit, many of the early visits were missing either start or stop time, so determining elapsed time (i.e., violators per minute or similar) was not possible. This has implications for training (i.e., remembering to write down both start and stop times for each visit, documenting time spent on campus even when no violators were observed), as 80% of the observations during Wave 1 had missing times, compared to only 10% of Ambassador visits during Wave 2. This limitation is mitigated by the fact that the visits during Wave 2 were at least as long as those with recorded times during Wave 1.

Second, although data collection occurred at multiple campus hotspots, there is the possibility that campus hotspots may have shifted over time. Therefore, direct observation and cigarette butt data may not have been generalizable to all campus areas. Hotspot



locations may have been time-of-day sensitive, with tobacco users congregating in certain campus areas during the daytime hours when Ambassadors were working; and in other campus areas during the evening when Ambassadors were not available. Results have implications for assigning varying shifts to incorporate evening hours so that Ambassadors can promote compliance in all campus locations. Future research is warranted to investigate trends in observed violators throughout the day and academic year as well as impact on compliance when Ambassadors work varied hours and/or when paired teams are on campus throughout the day.

## Conclusion

Despite the benefits of tobacco-free campus policies, research indicates the ongoing struggle with compliance.<sup>3,6,13,15,16,22</sup> Yet, few strategies to improve compliance have been evaluated prior to this Ambassador Program.<sup>15,27</sup> We found that the *TFTA!* Ambassador Program improved compliance on a tobacco-free campus over a 15-month period, resulting in decreased observed violators and cigarette butts at campus hotspots. Implementing sustainable compliance strategies is critical to providing support for tobacco-free campus policies.<sup>3,15,31</sup> Future research is needed to investigate similar approaches to determine if Ambassador Programs are both impactful and feasible, regardless of setting and/or type or strength of policy. Nevertheless, the *TFTA!* Ambassador Program holds promise as an effective compliance strategy on tobacco-free college campuses.

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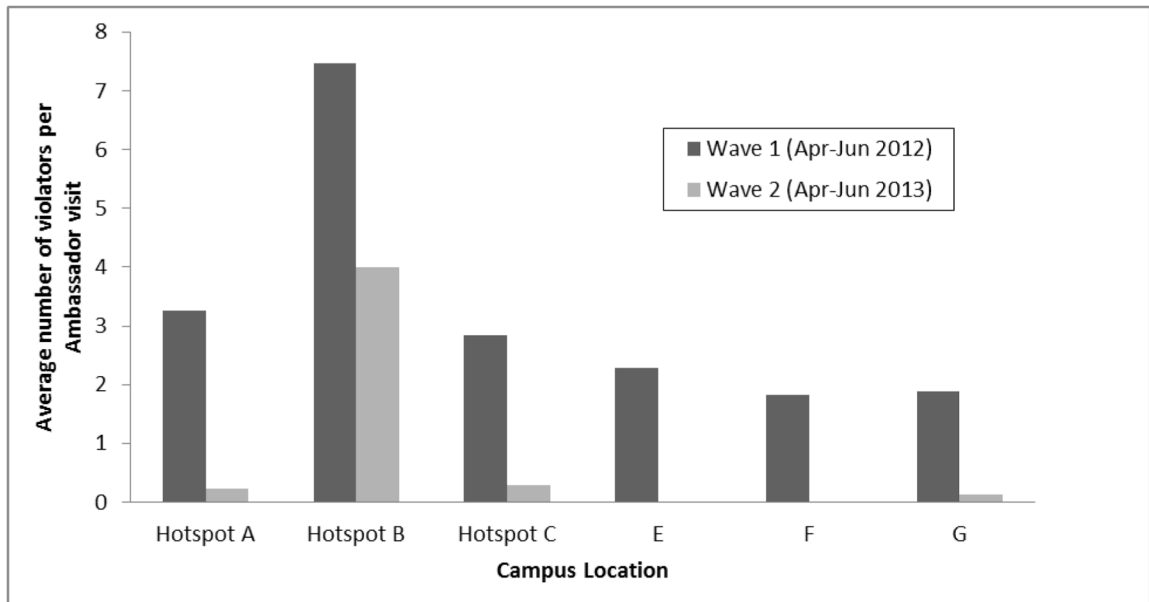
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**Figure 1. Average number of observed violators per Ambassador visit by location: Wave 1 and Wave 2 ( $n = 6$ )\***

\*Note: All locations with at least 5 Ambassador visits at both Wave 1 and Wave 2 were included

**Table 1**  
**Description of campus hotspots selected for cigarette butt collection and direct observation**

<b>Hot Spot</b>	<b>Brief Description</b>
Hotspot A	Student hub of main campus and centrally located; building includes dining choices, a campus bookstore and student organization offices, among other services.
Hotspot B	A large classroom building on main campus and centrally located, with 59 classrooms (over 3,500 seats), labs and a US Post Office.
Hotspot C	Also centrally located on main campus, this building houses faculty offices and conference room.
Hotspot D	The main campus library, with seats for over 4,000; it houses over 1 million volumes and library services staff.

**Table 2**  
**Summary of violators and cigarette butt counts in four campus hotspots over time**

Location	Average number of observed violators per Ambassador visit			Number of cigarette butts (2-day total)		% change
	Wave 1 <sup>b</sup>	Spring 12	Wave 2 <sup>c</sup>	Spring 13	Spring 13	
Hotspot A	3.25		0.22		37	+16.2%
Hotspot B	7.46		4.00		451	-46.4%
Hotspot C	2.85		0.29		81	-89.8%
Hotspot D <sup>a</sup>	2.00		–		493	–
Combined	5.47		1.93		1062	-64.7%
					43	-27.4%
					245	-34.7%
					47	-42.0%
					358	-42.0%
					693	-34.7%

<sup>a</sup> Ambassadors did not visit Hotspot D during Wave 2, so data from this site not included in combined analysis of observed violator rates

<sup>b</sup> Wave 1 was April 16 - June 3, 2012

<sup>c</sup> Wave 2 was April 16 - June 3, 2013