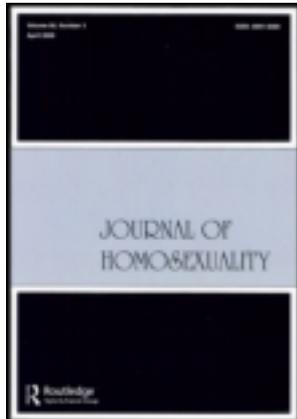


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The Last Drag: An Evaluation of an LGBT-Specific Smoking Intervention

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Many studies in the past 20 years have documented that lesbian, gay, bisexual, and transgender (LGBT) individuals smoke at rates that exceed the general population, yet, there have been few reports of smoking cessation interventions targeting this population. This study reports on data from 233 participants in The Last Drag, a seven-session, six-week group education and support intervention tailored for LGBT smokers. Data on smoking rates were collected during the first and last sessions, and at one, three, and six months post-intervention. As with many interventions over time, missing data is a challenge in determining success rates, but even using the most conservative estimates, nearly 60% were smoke-free at the end of the intervention, and 36% remained smoke-free by six months post-intervention. This success rate is comparable to, or better, than many mainstream smoking cessation interventions reported in the literature. The Last Drag is an effective, low-cost, LGBT-specific community intervention that can be replicated in other communities.

KEYWORDS *smoking, smoking cessation, LGBT*

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Smoking remains the number one cause of preventable death in the world, accounts for over 400,000 deaths each year in the United States alone, and is associated with significant health morbidity over the lifespan (Fiore et al., 2008). There is ample evidence that lesbian, gay, bisexual, and transgender (LGBT) people smoke at higher rates than the general population. A systematic review of 42 studies of smoking prevalence among LGB populations (Lee, Griffin, & Melvin, 2009), found higher rates of smoking in gay-, lesbian-, and bisexual-identified groups, as well as those who have same-sex relationships and behaviors, whether or not they use an LGB label (see also Gruskin, Greenwood, Matevia, Pollack, & Bye, 2007; Gruskin, Hart, Gordon, & Ackerson, 2001; McKirnan, Toulou-Shams, Turner, Dyslin, & Hope, 2006; Tang et al., 2004). In several studies, bisexual individuals and those with same-sex behaviors but who did not use LGB labels had even higher rates of smoking than those who identified as gay or lesbian (American Lung Association, 2010). Six states currently include sexual orientation questions on statewide health surveys, and all six report differences in smoking rate by sexual orientation label. For example, in California, heterosexual men have a 19.0% smoking rate, compared to 26.5% for gay men and 29.5% for bisexual men, and 11.5% of heterosexual women smoke compared to 22.3% of lesbians and 30.9% of bisexual women (American Lung Association, 2010).

Fewer studies have collected data on transgender identity, but those few also indicate smoking rates of 30% or higher (e.g., Xavier, Honnold, & Bradford, 2007). Other studies have found very high rates of smoking among LGBT or queer youth. Austin and colleagues (2004) found that lesbian and bisexual girls had a rate of smoking that was 9.7 times higher than heterosexual girls, and girls who said they were mostly heterosexual reported smoking rates 2.5 times higher than completely heterosexual girls. For boys, heterosexual and gay and bisexual boys smoked at similar rates, but mostly heterosexual boys had rates 2.5 times higher than other groups. Remafedi (2007) found that 63% of a venue-based sample of over 500 LGB youth age 13–24 years were current smokers. Sanchez, Meacher, and Beil (2005) found that 55% of African American and 62% of Latina lesbian and bisexual women from a low income urban area currently smoked.

REASONS FOR HIGHER SMOKING RATES

LGBT people smoke for the same reasons as any smoker, but may also have unique factors that contribute to a higher daily level of stress and as a result, experience higher rates of mood and anxiety disorders than are reported in the general population (Cochran & Mays, 2000; King et al., 2008). This extra stress, referred to as *minority stress* (Meyer, 2003) or *gay-related stress* (Rosario, Rotheram-Borus, & Reid, 1996) results from

the negative influences of societal stigma, experiences of discrimination, and internalized negative stereotypes about LGBT people (Eliason, Dibble, DeJoseph, & Chinn, 2009; Eliason & Drabble, 2010). Paradoxically, one study found that smoking actually appeared to increase the experience of stress, resulting in even greater anxiety, depression, and conduct problems in LGB youth who smoked compared to those who did not (Rosario, Schrimshaw, & Hunter, 2010). Another study found an association between smoking and sensation-seeking and impulsivity in LGB people (Trocki, Drabble, & Midanik, 2009).

In the general population, negative affect has been associated with smoking relapse (Kenford et al., 2002; Shiffman et al., 2007). Gruskin, Byrne, Altschuler, and Dibble (2008) compared 35 lesbians to 35 heterosexual women, all of whom were smokers with a recent failed attempt to quit. For all women, smoking was associated with regulation of negative emotions, stress management, and enhancement of social relationships, but under each category, lesbians reported experiences that were related to sexual stigma. These findings suggest that the overall models for smoking cessation interventions may apply to all women, but because lesbians reported sources of stress related to sexual stigma, having LGBT-specific experiences addressed directly might be more effective for lesbians than only using heterosexual examples found in most smoking cessation interventions and group discussions.

Another factor in LGBT smoking is targeted marketing by the tobacco industry. From Project SCUM (an RJ Reynolds plan to market products to gay men in San Francisco), to giveaways at gay bars, funding of LGBT organizations and events, and advertising and non-tobacco ads and photos that feature tobacco products in LGBT publications, the tobacco industry has been engaging in LGBT-specific marketing since the mid-1990s (Smith, Offen, & Malone, 2005; Stevens, Carlson, & Hinman, 2004). Stigmatized groups that do not see themselves positively reflected in the mainstream media may be more susceptible to this targeted marketing. Finally, because of the historic and current importance of gay bars in the coming out and social lives of many LGBT people, drinking and smoking have become normalized in many LGBT communities, and a libertarian attitude often interferes with public health messages.

LGBT SMOKING INTERVENTIONS

LGBT people may have more limited access to tobacco interventions offered through primary care because of greater likelihood of lacking health insurance and risk for delaying or avoiding health care for fear of discriminatory treatment. Same sex couples are two to three times less likely to have health insurance than married heterosexuals (Krehely,

2009; Ponce, Cochran, Pizer, & Mays, 2010), and two times more likely to have been denied or given inferior medical care than heterosexuals (Mays & Cochran, 2001). One study (Bye, Gruskin, Greenwood, Albright, & Kriotki, 2005) reported that physicians were less likely to ask their LGBT patients if they smoked than they were to ask heterosexual patients: 57% of heterosexual smokers had been advised to quit by a health care professional, but only 40% of the LGB smokers had been so advised.

For those who do not receive smoking cessation assistance from primary care (or cannot access primary care because of lack of health benefits, or will not access primary care for fear of discriminatory treatment), low-cost community-based smoking interventions are critical. There is very little research on the effectiveness of generic smoking interventions for LGBT populations. Some research indicates that LGB adult smokers are just as likely as heterosexual smokers to want to quit (Burkhalter, Warren, Shuk, Primavera, & Ostroff, 2009; Pizacani et al., 2009), but LGB youth may be less likely to want to quit than heterosexual youth (Remafedi, Jurek, & Oakes, 2008). Another study suggested that LGB individuals report about the same number of failed quit attempts as heterosexuals, about eight (Harris Interactive, 2001).

One study (Covey, Weissman, LoDuca, & Duan, 2009) compared 54 gay and bisexual and 243 heterosexual men who participated in an eight-week intervention with nicotine patch, bupropion, and counseling, finding that abstinence rates at the end of the intervention were nearly identical, thus, suggesting that at least for men, the generic treatment interventions are effective in the short-term for gay and bisexual participants, but no followup data were reported.

In spite of calls for the development of culturally responsive health services (e.g., American Lung Association, 2010), there has been very little research on the development or effectiveness of LGBT-specific tobacco interventions. The U.S. Public Health Service's document *Treating Tobacco Use and Dependence: 2008 Update* (Fiore et al., 2008), could not make any recommendations about LGBT smoking cessation for lack of evidence. The American Lung Association (2010) report on LGBT tobacco use called *The Last Drag*, a promising tobacco cessation program, and indeed, it was the only LGBT-specific intervention mentioned in their report.

ABOUT THE INTERVENTION

The Coalition of Lavender-Americans (CLASH) was formed in 1991 when a small group of LGBT tobacco control professionals met to share their concern about the high rate of smoking in the LGBT community. The first meeting took place at Lyon-Martin Women's Health Center in San Francisco,

an organization which, with Gloria Soliz from CLASH, went on to create and offer The Last Drag, the first stop-smoking classes created especially for and by the LGBT community. Since that first class in 1991, CLASH members have refined the curriculum, but it has been offered continuously in some form in the San Francisco Bay Area for nearly 20 years, in recent years at the San Francisco LGBT Community Center. In addition, The Last Drag cofacilitators, Gloria Soliz and Bob Gordon, have trained tobacco intervention professionals in other parts of California and other states to facilitate The Last Drag classes in their cities.

The facilitators for The Last Drag are certified by the American Lung Association's Freedom from Smoking program, and the underlying content of the program is based on Freedom from Smoking materials. The Last *Drag* provides education within an LGBT-supportive group, using LGBT-specific innovative activities and smoking information. The Last Drag program is advertised widely in the San Francisco Bay Area LGBT newspapers, a lesbian and bisexual women's listserv, and via outreach cards distributed at LGBT community venues, as well as having its own Web site (www.lastdrag.org).

There are two very brief evaluation reports of data from The Last *Drag* in San Francisco. In the first report, three sets of sessions of The Last Drag intervention were evaluated in 2000 and 2001: two were mixed LGBT groups with a total of 49 participants and one was specifically for lesbian, bisexual, and transgender women, with 7 participants. Quit rates at the end of the program were reported as 45% and 28% for the mixed groups and 58% for the women's groups (QueerTIP Coalition, 2002). Another report in 2007 found that quit rates at the end of the seven sessions was 85%, and at six months after the program, 55% of those who completed the program were still smoke-free (QueerTIP Coalition, 2002). Finally, Walls and Wisneski (2011) reported evaluation data from 44 participants of The Last Drag in Colorado. This study showed declining levels of anxiety about quitting across the sessions and a quit rate of 89% at the last session, but does not provide any followup data. All of these reports are limited by small sample sizes, lack of detail on demographic information about participants, and lack of detail about procedures for dealing with missing data and response rates, however, they suggest that The Last Drag compares favorably with other smoking cessation group interventions.

METHODS

Design

To determine the response over time to The Last Drag smoking cessation program, a pre-post test design was employed with six month longitudinal followup. The study was approved as exempt from the San Francisco State University Committee on Human Subjects.

Setting and Intervention

The intervention was conducted at the San Francisco Lesbian, Gay, Bisexual, and Transgender (LGBT) Community Center, and the data collected for this study were gathered from August 2005 to January 2010. The programs were conducted in the evening, and the same group facilitators (Soliz and Gordon) ran each of the 19 groups included in this evaluation study. Groups were co-facilitated to increase the diversity of the group leaders. The seven-session, six-week intervention was delivered in two hour sessions with the following topics:

- Week 1/Session 1: Orientation and pre-test, distribute participant manual
- Week 2/Session 2: Plan to quit smoking: process and tools
- Week 3/Session 3: Quit night
- Week 3/Session 4: Becoming a nonsmoker and developing peer support
(done 48 hours after the day participants quit)
- Week 4/Session 5: Staying smoke-free: Short-term strategies
- Week 5/Session 6: Staying smoke-free: Long-term strategies
- Week 6/Session 7: Post-test and celebration

The participant manual includes all of the Freedom from Smoking materials, plus additional readings on smoking in LGBT communities. Homework is assigned at the end of each session to give participants an opportunity to apply new skills outside of class meetings.

Sample

During the study period (August 2005 to January 2010), 371 smokers attended one of the 19 different The Last Drag program offerings. Some had attended the program previously, so the number of unique individuals participating in at least one of The Last Drag session was 326. Some (29%, $n = 93$) of the smokers only went to one class. This leaves a sample size of 233 smokers who attended more than one class.

Data

Data were gathered from the program records, kept in locked file cabinets at the CLASH office in San Francisco. Was informed consent sought from the participants? I assume it was not, but that should be specified. The files contained a) a pre-test with demographic information (age, gender, sexual orientation label, gender identity label, race and ethnicity), a readiness to quit smoking based on the stages of change model) and smoking history (number of cigarettes per day, whether smoked within 30 minutes of

awakening in the morning, whether the person smokes when ill) that is collected at the first session; b) a post-test about smoking quit attempts, current smoking, and readiness to quit collected at the last session, and c) three records of followup phone calls to those that attended more than one class with two questions:

1. Are you currently using tobacco? Yes/No;
2. If yes, how many cigarettes do you smoke per day?

The followup phone calls were made at one, three, and six months by a group facilitator. All the pre-tests, post-tests, and followup data were labeled with a 3 letter code and no names or other identifiers.

Data Analytic Procedures

Data were entered into SPSS, where they were cleaned and verified. Descriptive statistics were calculated including frequencies and percentages for categorical variables and means and standard deviations for continuous variables. Missing data were handled by SPSS by leaving the variable blank for later imputation strategies. With any longitudinal repeated-measures study, missing data can be an issue. Data about smoking cessation were collected during the last class; so if someone was unable to attend that session, we do not have their data. This represented 36% ($n = 83$) of the sample. At one month, data were missing for 34% of the sample ($n = 79$); at three months, 41% were missing data ($n = 92$); and at six months 52% were missing data ($n = 122$). For 33 (14%) people we have no followup data at any point in time; to be conservative we will presume that they were still smokers. For those that initially quit, missing data might have been because participants began smoking again. Thus, during the calculation of quit outcomes, we needed to be careful in our imputation strategies. Three assumptions were made when there were missing data concerning smokers.

1. Those who smoked at the end of the classes and had no followup data were considered as smokers during the followups.
2. Those who had missing data at the end of the classes and indicated that they smoked on any follow up, were considered smokers from that point on.
3. Nonsmokers at the end of the study reporting at any point in time that they started smoking again were considered a smoker from then on.

The data for nonsmokers were more difficult to evaluate. The following decisions were made regarding the nonsmokers.

1. Those who were nonsmokers at the end of the classes and nonsmokers at six months would have their data imputed as a nonsmoker for the intervening time periods.
2. Those who were nonsmokers at the end of the classes and a nonsmoker at three months would have their data imputed as a nonsmoker for the intervening time period.
3. Those who were nonsmokers at the end of the classes and a nonsmoker for the next two time periods would have their data imputed as a nonsmoker for the six month time frame.

The most challenging group were those who were nonsmokers at the end of the classes, a nonsmoker for the next followup at month one, but have no other data. We know from our data that 87 people were nonsmokers during those time periods and 22% became smokers by the third month so using the technique of last observation carried forward would be biased; yet, being careful and calling everyone smokers would also be biased, but in a more conservative direction. We will report the results using both conservative and more liberal methods to calculate success rates.

RESULTS

Demographic Characteristics of Participants

The initial sample of all participants who started The Last Drag program ($n = 326$) ranged in age from 21 to 78 (mean age of 44.5, $SD = 10.5$), and were predominantly White (77%) with Latino and Latina being the next largest group at 8%, followed by African American at 6%. Most of the participants were male (73%). Only five transgender individuals started The Last Drag, and only one attended more than one class. The majority reported their sexual orientation as lesbian or gay (90%), with fewer bisexual (6%) and heterosexual participants (4%). To determine if those who did not pursue smoking cessation with The Last Drag were different from those who attended more than one class, comparisons were done between the two groups. Table 1 contains the results of those comparisons. There were some significant differences between the groups including: a) those who identified as transgender were less likely to attend more than one class; b) those who smoked more at baseline were less likely to attend more than one class; and c) those who smoked when they were sick were less likely to attend more than one class. The latter two factors reflect heavier smokers.

Smoking Cessation

By the end of The Last Drag program, 92% ($n = 150$) of the remaining participants with cessation data collected during the last class were smoke

TABLE 1 Proportion attending only one class versus more than one class across demographic and smoking intensity characteristics

Variable	1 class	>1 class	<i>p</i> value
Age	43.9 (<i>SD</i> = 12.6)	44.7 (<i>SD</i> = 11.9)	0.623
Cigarettes per day	20.6 (<i>SD</i> = 14.7)	16.2 (<i>SD</i> = 9.1)	0.001
Number of times gone to The Last Drag	1.28 (<i>SD</i> = 0.65)	1.24 (<i>SD</i> = 0.60)	0.643
Gender			
Female	23 (28%)		
Male	66 (28%)	59 (72%)	0.037
Transgender	4 (80%)	172 (72%)	
		1 (20%)	
Ethnicity			
Latino	5 (20%)	20 (80%)	0.012
Non-HispanicWhite	64 (26%)	184 (74%)	
Other	22 (46%)	26 (54%)	
Sexual orientation			
Bisexual	7 (35%)	13 (65%)	
Heterosexual	2 (15%)	11 (85%)	0.467
Lesbian/gay	77 (28%)	203 (72%)	
Time to first cigarette			
After awakening			
<30 minutes	67 (32%)	145 (68%)	0.103
30 minutes or more	25 (22%)	87 (78%)	
Smokes when ill			
No	47 (25%)	141 (75%)	0.013
Yes	44 (39%)	68 (61%)	
Quit readiness			
Thinking about quitting	20 (39%)	31 (61%)	
Want to quit in the next 6 mo.	9 (27%)	24 (73%)	0.195
Want to quit in the next 30 days	64 (27%)	176 (73%)	

free. Under the assumption that all participants who did not attend the last class were smokers, the cessation rate was still 59%. Using various imputation strategies to adjust for missing data, the cessation rate ranged from: 65 to 92% at the last class, 53 to 83% at one month; 36 to 63% at three months; and 36 to 65% at six months. Quit rates at three and six months were virtually identical. Figure 1 shows the variation in results from those with complete data at each followup period, and the imputed data.

Stop Smoking Methods

Along with The Last Drag intervention, some participants reported using other techniques to support their cessation efforts. For those participants who actually quit smoking by the last class, most (56%) reported using only The Last Drag (some respondents described this as “cold turkey”). The people who used only The Last Drag smoked significantly fewer cigarettes per day at baseline than those who used other methods ($M = 11.6$ vs. 18.8,

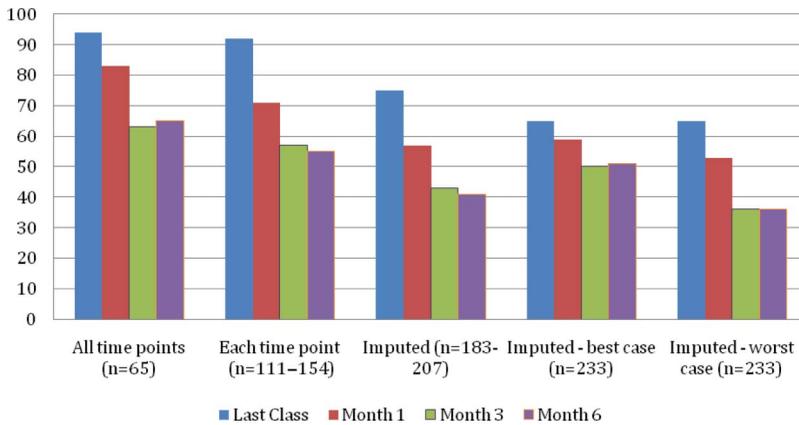


FIGURE 1 Smoking cessation over time after The Last Drag intervention (color figure available online).

$p < .001$). The next most commonly used method was nicotine replacement (34%). As might be expected, those using this cessation aid smoked significantly more cigarettes per day at baseline than those who used other methods ($M = 20.8$ vs. 12.9 , $p < .001$). The frequency of use of other methods can be found in Table 2. There were no differences in outcomes at six months based on whether or not participants used an additional smoking cessation aid along with The Last Drag.

Smokers versus Quitters (Across Demographic, Programmatic, and Smoking Intensity Variables)

There were no significant differences by age, gender, sexual orientation or cigarettes per day at baseline in those who stayed smoke-free at six months versus those who continued or resumed smoking. Those who quit smoking versus those who continued or resumed smoking at at one month after the program, attended significantly ($p < .001$) more of The Last Drag classes (5.6 vs. 4.0). Latino and Latina and non-Hispanic White participants were significantly more successful in quitting smoking than those of other ethnicities. These data are summarized in Table 3.

TABLE 2 Additional smoking cessation methods

Aids	<i>n</i>	%
Nicotine replacement	44	34%
Chantix	19	15%
Bupropion	10	8%
Acupuncture	8	6%
Hypnosis	4	3%

TABLE 3 Smokers versus quitters across demographic, programmatic, and smoking intensity variables

Item	Quitters (smoke free at 6 months)	Smokers	<i>p</i> value
Age	<i>M</i> = 46.0 <i>SD</i> = 11.9	<i>M</i> = 42.6 <i>SD</i> = 12.1	0.139
Baseline number of cigarettes	<i>M</i> = 16.3 <i>SD</i> = 9.2	<i>M</i> = 16.8 <i>SD</i> = 10.2	0.755
Number of classes attended	<i>M</i> = 5.3 <i>SD</i> = 1.6	<i>M</i> = 4.7 <i>SD</i> = 1.8	0.071
Gender			
Female	17 (52%)	33 (43%)	0.592
Male	43 (57%)	16 (48%)	
Transgender	1 (100%)	0	
Ethnicity			
Latina/o (<i>n</i> = 20)	40%	60%	0.022
Non-Hispanic White (<i>n</i> = 184)	39%	61%	
Other (<i>n</i> = 26)	12%	88%	
Sexual Orientation			
Bisexual (<i>n</i> = 6)	(33%)	(67%)	0.476
Heterosexual (<i>n</i> = 6)	(67%)	(33%)	
Lesbian/Gay (<i>n</i> = 97)	(56%)	(44%)	

Those of other than Latina and Latino or non-Hispanic White ethnicities attended significantly less classes (O = 2.8 vs. L = 4.2 vs. W = 3.8; $p < .05$).

CONCLUSIONS

How do these findings compare with mainstream smoking cessation interventions? For this discussion, we will use the midpoint between the conservative and liberal estimates of quit rates at six months, a success rate of about 54%. Studies of the efficacy of self-help support groups in the general population estimate quit rates to be about 5–10%; use of nicotine replacement alone results in about a 15% success rate; use of behavioral therapy group treatments yield success rates of 20–30%, and behavioral group therapy combined with nicotine replacement results in success rates of about 30–40% (Fiore et al., 2008). The Last Drag fares well in comparison, with an estimated quit rate between 36% and (72%).

Rates of success were much lower for ethnic-minority participants, and fewer women and transgender individuals attended more than one session. This may suggest that interventions that are sensitive only to sexual orientation are not sufficient and that curricula that address the intersectionality of oppressions (race, class, gender, sexuality) are needed. The curriculum is one of general empowerment, but when women or people of color come to sessions and do not see a critical mass of individuals like themselves, they

may not feel as comfortable with the intervention. Alternatively, the bias toward White gay males may have to do with the recruitment efforts and word-of-mouth, and the location of the intervention rather than any aspect of the curriculum itself. The intervention was held at the LGBT Community Center, whose clientele is predominantly White and male.

There are significant limitations to consider. First, only very cursory information was collected from participants, and potentially important demographic factors, such as educational level and income, were not collected. In addition, no information about health, such as HIV status, was collected, although anecdotally, the facilitators reported that groups are typically diverse in education, income, and health status. Finally, the high rates of missing followup data make interpretations of the findings difficult, and the success rates may be higher or lower than what we report here. Evaluation of community-based interventions frequently suffers from drop-out and inconsistent participation, and the population served by this intervention has been historically transient and likely to change their address, phone number, and e-mail addresses frequently. Nevertheless, even using the most conservative estimates, *The Last Drag* is an effective smoking-cessation intervention.

Whereas one study found that, at least for gay men, mainstream smoking cessations interventions were effective (Covey et al., 2009), many LGBT people may be hesitant to use mainstream services because of prior negative experiences or a fear that they may not be accepted or included in group discussions. For those individuals, an LGBT-specific intervention is likely to be much more attractive than mainstream programs. More research is needed to determine how great the need for LGBT-specific interventions is in specific communities, and how best to include all subsets of LGBT communities, based on sex and gender, gender identity, age, ethnic and racial identifications, and other characteristics. A challenge for all community interventions today is to develop curricula and interventions that are responsive to the needs of a diverse, multi-cultural population.

The Last Drag is one of many needed interventions to reduce health disparities related to smoking in LGBT people. In a broader public health campaign, individual smoking cessation interventions would be coupled with research to identify risk and protective factors for smoking and explore more thoroughly the interactions between drinking and drug use that may complicate smoking cessation efforts. Prevention efforts are needed to educate LGBT community leaders and community members about the dangers of tobacco use to the health of the whole community, and to institute policies that limit tobacco marketing at LGBT events, in bars, and in LGBT publications and organizations (Drabble, 2000). Funding is needed to expand the reach of the intervention. Tobacco group facilitators already certified by the Freedom from Smoking program of the American Lung Association could be targeted for the LGBT-competency training to conduct *The Last*

Drag intervention in more communities, extending the reach beyond San Francisco and the handful of other locations where health advocates have been trained. Qualitative information could be collected from participants to more fully understand how the intervention works and what demographic or personal characteristics predict success.

In conclusion, The Last Drag is an effective, low-cost community-based intervention for smoking cessation in LGBT communities. It is at least as effective as the standard practices called for by clinical guidelines for tobacco interventions in mainstream populations, and serves as an example for how mainstream interventions can be modified to be LGBT-specific interventions.

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