

Original Investigation

Portrayal of Smokeless Tobacco in YouTube Videos

Julie E. Bromberg, M.H.S. C.H.E.S.,¹ Erik M. Augustson, Ph.D., M.P.H.,¹ & Cathy L. Backinger, Ph.D., M.P.H.²

¹ Tobacco Control Research Branch, National Cancer Institute, Bethesda, MD

² Center for Tobacco Products, Food and Drug Administration, Rockville, MD

Corresponding Author: Julie E. Bromberg, M.H.S., C.H.E.S., Tobacco Control Research Branch, Behavioral Research Program, Division of Cancer Control and Population Sciences, National Cancer Institute, 6130 Executive Blvd., EPN 4047, Bethesda, MD 20892, USA. Telephone: 301-594-6655; E-mail: brombergje@mail.nih.gov

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Abstract

Objectives: Videos of smokeless tobacco (ST) on YouTube are abundant and easily accessible, yet no studies have examined the content of ST videos. This study assesses the overall portrayal, genre, and messages of ST YouTube videos.

Methods: In August 2010, researchers identified the top 20 search results on YouTube by “relevance” and “view count” for the following search terms: “ST,” “chewing tobacco,” “snus,” and “Skoal.” After eliminating videos that were not about ST ($n = 26$), non-English ($n = 14$), or duplicate ($n = 42$), a final sample of 78 unique videos was coded for overall portrayal, genre, and various content measures.

Results: Among the 78 unique videos, 15.4% were anti-ST, while 74.4% were pro-ST. Researchers were unable to determine the portrayal of ST in the remaining 10.3% of videos because they involved excessive or “sensationalized” use of the ST, which could be interpreted either positively or negatively, depending on the viewer. The most common ST genre was positive video diaries (or “vlogs”), which made up almost one third of the videos (29.5%), followed by promotional advertisements (20.5%) and anti-ST public service announcements (12.8%). While YouTube is intended for user-generated content, 23.1% of the videos were created by professional organizations.

Conclusions: These results demonstrate that ST videos on YouTube are overwhelmingly pro-ST. More research is needed to determine who is viewing these ST YouTube videos and how they may affect people’s knowledge, attitudes, and behaviors regarding ST use.

Introduction

While the Internet provides many opportunities for the tobacco control community to discourage smoking through initiatives, such as online cessation services and counter-marketing, it also creates many challenges in regulating tobacco content. Although the United States and many other countries strictly regulate tobacco marketing in traditional media, such as print ads and television, the sprawling nature of the Internet along with

the rise of user-generated content makes it particularly difficult to restrict protobacco messages (Ribisl, 2003). Previous studies have found that protobacco content on the Internet is pervasive and easily accessible to youth (Hong & Cody, 2002; Ribisl, 2003), including popular websites, such as YouTube (Forsyth & Malone, 2010; Freeman & Chapman, 2007).

YouTube is the third most-visited website worldwide and the fourth most visited in the United States (Alexa, 2010), allowing millions of users to create, watch, and share videos. U.S. viewers represent more than one fifth of all viewers on YouTube. According to statistics from an August 2010 report by Nielsen Netview posted on YouTube’s website, more than half (51%) of U.S. Internet users have accessed YouTube and youth aged 2–24 years old make up 27% of YouTube visitors. Among people who use the Internet in the United States, a disproportionately high proportion of adolescents (12–17 years old) and young adults (18–24 years old) have visited YouTube (61% and 62% of Internet users, respectively) compared with older adults (YouTube, 2010a). YouTube clearly has a strong appeal to youth and young adults, who are frequently the target audience for tobacco companies and are particularly susceptible to protobacco messaging (National Cancer Institute, 2008). Although there are a few studies on YouTube videos and tobacco (Backinger et al., 2011; Elkin, Thomson, & Wilson, 2010; Forsyth & Malone, 2010; Freeman & Chapman, 2007; Kim, Paek, & Lynn, 2010), to the best of our knowledge, there are no published studies to date that have systematically assessed smokeless tobacco (ST) content on YouTube.

ST products include moist snuff (dip and snus), chewing tobacco, dry snuff, and dissolvable tobacco products (tobacco lozenges, sticks, orbs, and strips). There are more than 25 types of ST products used around the world (International Agency for Research on Cancer [IARC], 2007). The prevalence of ST use varies widely across countries and ranges from as low as 1% in Canada (Health Canada, 2010) to more than half of the population in some regions of India (IARC, 2007). Although overall ST prevalence in the United States is low (U.S. Department of Commerce, Census Bureau, 2008), declines in prevalence and social acceptability of smoking as well as increased smoking restrictions are creating an environment that may be more favorable to ST use (Carpenter, Connolly, Ayo-Yusuf, & Wayne, 2009).

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Major cigarette companies have noticed ST's market potential and are now turning their attention to ST (Carpenter et al., 2009; Mejia & Ling, 2010). The proliferation of ST marketing and development of new smokeless products has raised concerns that smokeless products will discourage people from quitting tobacco completely and undermine the effectiveness of smoking bans (Mejia & Ling, 2010). As cigarette sales in the United States continue to decline (Federal Trade Commission [FTC], 2009a), sales of moist snuff (the most popular type of ST) continue to increase (FTC, 2009b). ST appears to have increasing appeal among adolescents: After a substantial decline between the mid-1990s and mid-2000s, ST use has begun to rise among adolescents (Johnston, O'Malley, Bachman, & Schulenberg, 2011). Youth may be drawn to ST in part because it is much easier to conceal from adults and less expensive than cigarettes.

Previous studies on smoking imagery on YouTube have found that, although both pro- and antitobacco videos are present on YouTube, protobacco videos were more prevalent (Forsyth & Malone, 2010; Freeman & Chapman, 2007). These studies also found that there were a wide variety of genres of videos, including professionally produced cigarette advertisements and antismoking videos. While YouTube is intended for original user-generated videos (YouTube, 2010b), professionally produced advertisements are also available on YouTube (Forsyth & Malone, 2010; Freeman & Chapman, 2008). Seidenberg, Rees, and Connolly (2010) noted that Swedish Match, a major international ST company, had several promotional videos posted on YouTube, all of which have since been removed by the user. Other studies of smoking-related YouTube videos have identified several videos that may be covert tobacco advertising (Elkin et al., 2010; Freeman & Chapman, 2007). Although YouTube does censor videos that violate its "community guidelines," it does not proactively restrict videos. Regulation of YouTube videos depends entirely on users voluntarily flagging inappropriate videos, which are later evaluated by YouTube staff (YouTube, 2010b). The lack of strict regulation on YouTube provides a unique environment in which both tobacco marketers and regular users could promote the use of ST anonymously, cheaply, and instantaneously to a broad audience.

While several researchers have studied tobacco imagery and the other health issues on YouTube (Ache & Wallace, 2008; Hossler & Conroy, 2008; Keelan, Pavri-Garcia, Tomlinson, & Wilson, 2007), no study to date has assessed the impact of YouTube videos on people's knowledge, attitudes, or behaviors. Previous studies have established that tobacco advertising and imagery can help normalize tobacco use by making tobacco appear desirable and socially acceptable, which in turn may influence youth to use tobacco (National Cancer Institute, 2008). Previous research has also demonstrated that viewing smoking imagery in movies is associated with smoking initiation among adolescents (Dalton et al., 2003; Sargent et al., 2005) as well as established smoking behavior among young adults (Dalton et al., 2009; Song, Ling, Neilands, & Glantz, 2007). Although no studies have assessed the impact of YouTube videos on ST use, it is plausible that there is a similar relationship.

Given the potential that YouTube has to promote pro- and anti-ST messages through user-generated content or covert advertising, this study aims to assess how ST is being portrayed on YouTube.

Methods

Sampling Method

Searches for ST videos were conducted between August 19 and 20, 2010, using YouTube's search engine. The sample of videos for this study was selected from the top search results for the following terms: "ST," "chewing tobacco," "snus," and "Skool." These search terms were chosen because a Google Insights for Search analysis found that there is a higher proportion of web traffic searching for these terms than other ST search terms. A preliminary search of ST in YouTube videos also indicated that these terms would pull up more relevant and popular videos than other ST search terms. Other commonly used ST terms, such as dip and chew, were not used as search terms because they also refer to nontobacco topics and resulted in many videos that were unrelated to tobacco. Two searches were performed for each term (a) by relevance and (b) by view count. The search terms and methods were chosen to both mimic user behavior by using common search terms and the default search strategy (search by relevance) as well as cast a wide net to capture the most-viewed videos (search by view count). The sample was limited to the first 20 results for each search because previous research on a few Internet search engines indicates that the majority of people will only click on the first page of search results (Jansen & Spink, 2006), which is 20 videos on YouTube. The initial sample included a total of 160 videos: 20 videos for each of the four search terms and by both search strategies. Basic information was collected from each of the videos, including title; uploader alias (username of person posting the video); and number of views, likes, and dislikes (YouTube users can rate videos by whether they "like" or "dislike" a video).

Exclusion Criteria

Videos that were not in English ($n = 14$) and videos that were not relevant ($n = 26$) were excluded from any analysis. Videos were considered "not relevant" if ST was not central to the content of the video. Videos with only a brief mention or image of ST and videos about e-cigarettes (which are not traditionally considered ST products) were not included in the sample. Duplicate videos that appeared more than once using different search strategies and terms were also eliminated ($n = 40$). On two occasions, the exact same video was uploaded under different titles by two different users. The duplicate video ($n = 2$) was eliminated from the sample to prevent double coding, but their view counts and number of likes and dislikes were combined to accurately represent the total number of people who watched the video. A total of 78 unique videos were coded and analyzed.

Coding

A master's level researcher adapted the coding scheme from a previous YouTube analysis of smoking cessation (Backinger et al., 2011). After a preliminary viewing of ST videos, all the authors discussed and finalized categories and definitions of genres and other content variables. Videos were then coded by the master's level researcher. When video content was difficult to classify or was ambiguous, the authors met and came to a consensus decision on the appropriate classification. Videos were first classified by whether the overall portrayal of ST was pro-ST, anti-ST, or "sensationalized." Videos that promoted the use of ST or made it look enjoyable or socially acceptable were considered pro-ST videos. Videos about quitting, negative

consequences of ST, or other warnings were considered anti-ST. Although most videos could easily be categorized as either pro-ST or anti-ST, eight were neither pro- or anti-ST. These videos are referred to as “sensationalized” ST use videos and are characterized by excessive or inappropriate use of ST (e.g., eating ST) and/or use that induces nausea/vomiting. These videos could not be classified as either pro- or anti-ST because they could make ST appear either positive or negative depending on the viewer’s perspective.

Within each portrayal category, videos were further classified by whether they were produced by a professional organization or an amateur user as well as by genre of YouTube video. Videos were determined to be professional if the video promoted a specific brand, included text of the brand written across the screen, and had higher production value and/or (as with many anti-ST videos) if the video explicitly indicated that it was created by a professional organization. Genres were chosen based on recurring themes in the videos and include the following: education/public service announcement (PSA), news clip, advertisement, music, “how to” video, other entertainment, and “vlog.” Vlogs are user-generated “video blogs” that always consist of people talking to the camera about their use of ST. Sensationalized videos were not sorted into any further genres because they were all amateur and had the same theme.

Videos were also coded for various other content measures, such as specific mentions of negative health effects or promotion of ST, demographics of the messenger(s) in the videos, and brand name mentions.

Results

Among the 78 unique ST videos, 74.4% ($n = 58$) of the videos were pro-ST, whereas 15.4% ($n = 12$) were anti-ST and 10.3% ($n = 8$) involved “sensationalized” use of the ST (Table 1). Collectively, all ST videos were viewed almost 4 million times. Although there were fewer sensationalized videos than anti-ST videos, anti-ST videos received fewer views, on average, and comprised only 9.7% of total views, whereas sensationalized videos made up 15% of total views. The total number of views of pro-ST videos far exceeds the total views of sensationalized or anti-ST videos: 3,000,797 views of pro-ST videos, 599,179 views of “sensationalized,” and 386,499 of anti-ST videos. Viewers also rated sensationalized and pro-ST videos more favorably than anti-ST videos. The average ratio of likes to dislikes for sensationalized and pro-ST videos were 5.2:1 and 10.8:1, respectively, whereas anti-ST videos were 3.3:1. For both pro-ST and anti-ST videos, professionally produced videos received more favorable ratings than amateur user-generated videos.

The genre with the most videos was pro-ST vlogs, which made up 29.5% ($n = 23$) of the videos, followed by ST promotional ads with 20.5% ($n = 16$) and anti-ST PSAs with 12.8% ($n = 10$; Figure 1). Yet the genres with the most videos were not necessarily the most popular when ranked by view count. Although ST music videos only made up 9% of all ST videos, music videos had the highest number of views, accounting for 25.8% of all views, followed by ST promotional ads (20.3%) and pro-ST vlogs (15.2%). Videos in the “music” genre were all songs about ST and were generally intended to be humorous.

Table 1. Popularity of ST in YouTube Video Sample by Portrayal and Genre

Portrayal and genre of videos	No. of videos (n)	% of total videos	Total no. of views	% of total views	Likes: dislikes ratio ^a
Total sensationalized	8	10.3	599,179	15	5.2
Total anti-ST	12	15.4	386,499	9.7	3.3
Total PSA	10	12.8	343,546	8.6	3.8
Amateur PSA	4	5.1	134,026	3.4	3
Professional PSA	6	7.7	209,520	5.3	4.6
Vlog (amateur)	1	1.3	18,946	0.5	2.2
News (professional)	1	1.3	24,007	0.6	0.6
Total pro-ST	58	74.4	3,000,797	75.3	10.8
Total ad	16	20.5	807,399	20.3	13.7
Amateur ad	6	7.7	319,892	8	6.6
Professional ad	10	12.8	487,507	12.2	18
Total music	7	9	1,029,963	25.8	12.7
Amateur music	6	7.7	906,380	22.7	12.6
Professional music	1	1.3	123,583	3.1	12.8
“How to” (amateur)	8	10.3	375,482	9.4	3.1
Vlog (amateur)	23	29.5	606,449	15.2	10.3
Other entertainment (amateur)	4	5.1	181,504	4.6	14.4
Total	78	100	3,986,475	100	9.2

Note. PSA = public service announcement/education; ST = smokeless tobacco.

^aThe ratio of likes to dislikes is calculated by dividing the number of likes by dislikes for each video and then averaging these proportions across each genre category. Therefore, each video carries equal weight, regardless of how many likes and dislikes a video receives. For the nine videos that did not receive any dislikes, the “0” in the denominator was replaced with a “1” in order to calculate a ratio. One additional video did not receive any likes or dislikes and received a like to dislike ratio of “1.” Two PSA videos were removed from this analysis because ratings were disabled for those videos and users were unable to rate them.

Smokeless tobacco in YouTube videos

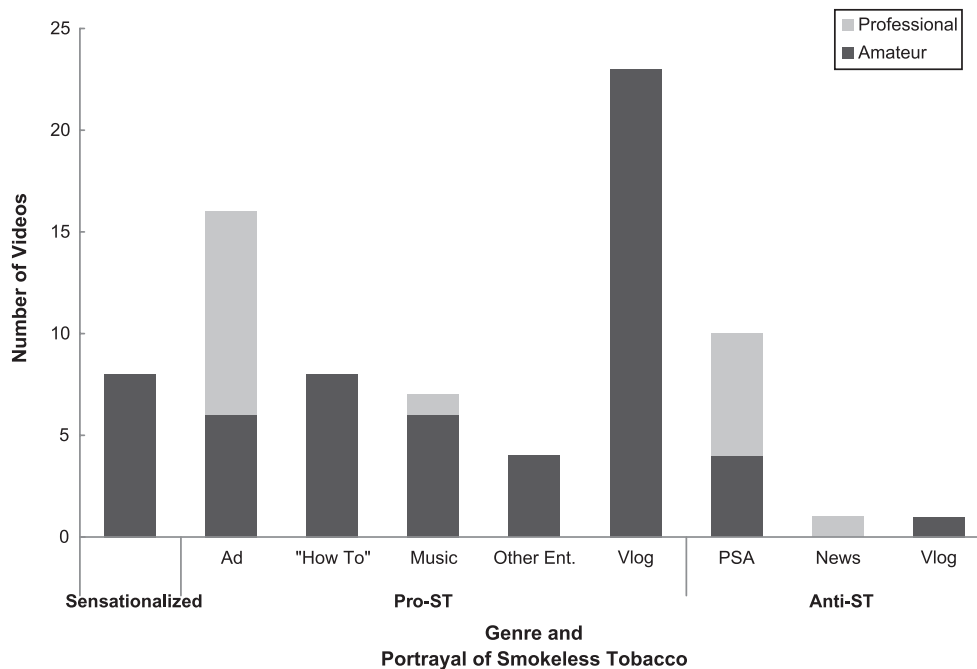


Figure 1. Video count of professional and amateur smokeless tobacco videos by genre.

Only one music video appeared to be professionally produced, and several were user-generated picture slideshows set to music. Almost one fourth (23.1%, $n = 18$) of the videos were produced by professional organizations, such as a tobacco merchant or nonprofit.

Pro-ST Videos

In all the vlogs, users videotaped themselves in their homes talking candidly to the camera about their ST use. Users who created vlogs also reviewed one or more ST products and/or discussed their personal lives in general. All the pro-ST vlogs mentioned at least one ST brand, and most vlogs actively promoted the use of the ST product(s). Many of these users posted multiple vlogs—in this sample alone, 13 of the 23 pro-ST vlogs were posted by a user with more than one vlog. These “vloggers” often referred to their vlogs as “dip videos” and usually ended their video by

giving “shout outs” to other dip video vloggers and commenting on their videos. Although a few of the vlogs appeared like advertisements posing as vlogs, there was not enough information to determine whether these vlogs were funded or produced by tobacco companies. See the Box 1 for a case study of a vlogger whose videos appear like covert advertising.

Ten of the 16 promotional advertisements appeared to be produced by a professional organization. Among the professional ads, three were vintage ads from the 80s for dip/chew and six were modern ads for snus. Unlike the other advertisements that promoted a specific ST brand, the snus ads all promoted buying snus on the website www.Northerner.com. These ads also sounded more “educational” in nature than other videos, focusing on the benefits of snus and how to use it rather than promoting a specific ST brand. It was not possible to determine whether these ads were posted by tobacco companies or regular users.

Box 1. A user named “Snusify” created many vlogs about snus (three of which were in this sample) that look authentic but feel more like a sales pitch than most vlogs. While Snusify did not state any formal connection to a tobacco company, his vlogs heavily promoted new snus-related products, tobacco vendor websites, and deals on snus purchases. Seidenberg et al. (2010) also reported that Swedish Match released several overtly promotional videos on YouTube. Seidenberg confirmed that three of these videos were uploaded by Snusify, and each of these videos included a video description informing viewers to visit “<http://snusify.com>,” which is the personal website of the YouTube user, Snusify. This information suggests that Snusify may have a formal connection to Swedish Match and that his videos may be tobacco industry advertising posing as user-generated content.

Anti-ST Videos

The anti-ST videos were largely educational videos rather than entertaining. Education/PSA videos made up 10 of the 12 anti-ST videos, 6 of which were produced by a professional organization. Five of these professional videos were developed by Narconon, a drug rehabilitation center. The other two anti-ST videos were a vlog about quitting smoking and a news report on dissolvable ST, which was the only video on dissolvables. With the exception of the pro-ST “how to” videos, each of the anti-ST genres averaged worse ratings than all the pro-ST genres.

Content and Messages

While 75% ($n = 9$) of anti-ST videos mentioned at least one negative health effect from ST, only 20.7% ($n = 12$) of pro-ST videos mentioned a negative health effect (Table 2). Among

Table 2. Video Content: Proportion of Videos That Contain Negative Health Messages or Messages That Promote ST Use

	Positive (<i>n</i> = 58)		Negative (<i>n</i> = 12)		Total (<i>n</i> = 78)	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Negative health effects						
Any mention of negative health effect	20.7	12	75.0	9	30.8	21
Cancer	10.3	6	50.0	6	16.7	12
Deformity	1.7	1	58.3	7	10.3	8
Addiction	1.7	1	41.7	5	9.0	6
Oral health problems	5.2	3	33.3	4	9.0	7
Death	3.5	2	25.0	3	7.7	5
Promoting use						
Minimize health risks	15.5	9	0.0	0	11.5	9
Convenient/concealable	20.7	12	8.3	1	16.7	13
Demonstrate or explain ST use	56.9	33	16.7	2	48.7	35
Brand mention	79.3	46	16.7	2	65.4	48
Flavored ST (visual or verbal mention)	56.9	33	8.3	1	46.2	34

Note. ST = smokeless tobacco.

pro-ST videos, 15.5% (*n* = 9) minimized the negative health effects of ST (such as stating that ST is healthier than smoking) or promoted the use of ST as a smoking cessation method—among ads only, 37.5% (*n* = 6) downplayed the health risks. Nine of the 10 videos that minimized health effects focused exclusively on snus. About 20.7% (*n* = 12) of pro-ST videos promoted ST as more convenient (can use it anywhere) and concealable than smoking. Among ads, 37.5% (*n* = 6) promoted ST as convenient/concealable. Eleven of the 12 pro-ST videos that promoted ST as convenient/concealable were for snus products, 8 of which exclusively promoted snus.

ST brands were mentioned or shown in 79.3% (*n* = 46) of pro-ST videos. About 56.9% (*n* = 33) of pro-ST videos mentioned or showed images of flavored ST, and 69.6% (*n* = 16) of vlogs mentioned or showed flavored ST products. About 56.9% (*n* = 33) of pro-ST videos provided verbal and/or visual demonstrations of how to use the ST product.

Among all videos that had a person in the video (88.5% of videos), the main messenger(s) in the videos were usually male (82.6% vs. 24.6% female), White (95.7% vs. 5.8% minority), and appeared under the age of 40 years (66.7% vs. 17.4% over 40 years and 17.9% undetermined age). These percentages do not add up to 100% because some videos had more than one messenger with different characteristics. A review of available YouTube user characteristics revealed that the majority of viewers were from the United States.

Discussion

To gain a better understanding of what ST messages people are being exposed to on YouTube, this study assessed what types of ST videos are present on YouTube and how ST is portrayed. This study found that vlogs promoting ST and advertisements for ST are two of the most common genres of ST videos on YouTube. This study also found that ST YouTube videos largely portray the use of ST as positive or socially acceptable. These

findings are in line with previous studies, which found that smoking-related YouTube videos were more prevalent than antismoking videos (Forsyth & Malone, 2010; Freeman & Chapman, 2007). Pro-ST YouTube videos were also viewed more frequently and rated much more favorably than anti-ST videos, suggesting that viewers enjoy and prefer to watch pro-ST videos. Although enjoying a video does not necessarily mean that the viewer is receptive to the message of the video, it is plausible that people are more likely to pay attention to these videos and watch additional similar videos.

Although there currently are no studies that address how ST imagery on YouTube may affect ST use, previous research has demonstrated that positive smoking imagery in movies and television can promote prosmoking attitudes and beliefs as well as smoking behavior among adolescents and young adults (National Cancer Institute, 2008). While the lack of published research findings makes it impossible to determine if this association is any different, it is plausible that a similar relationship exists between ST imagery on YouTube (a new form of entertainment media) and ST attitudes and use. Social Cognitive Theory also posits that people learn behaviors, in part, by observing the behavior and outcomes of other people (Bandura, 1986). This analysis found that the majority of pro-ST videos show people using and enjoying ST, including 13 videos actively demonstrating and explaining how to use ST. People are also more likely to follow the behavior of models who are similar to themselves (McAlister, Perry, & Parcel, 2008), and people featured in these videos largely reflect the population that is most likely to use ST in the United States—young White males (Substance Abuse and Mental Health Services Administration, 2009). These demonstrations and positive portrayals of ST use have the potential to shape youth and young adults' attitudes toward ST, leading them to think that ST use is normal or desirable.

This study reveals that professional advertisements for ST are easily accessible on YouTube, although it is impossible to determine who posted these videos. The snus-selling website Northerner.com had six advertisements and was the only

“brand” with multiple professional advertisements. These ads are of particular concern because viewers may not recognize these as advertisements since they do not promote a specific ST product/brand and are longer and more educational than a typical advertisement. Snus videos in general were also more likely to downplay the negative health effects of ST or promote the benefits that snus has over cigarettes compared with videos of other types of ST.

Although the Federal Communications Commission (FCC) and the FTC could regulate tobacco advertising on the Internet, it has not done so (Ciolli, 2007). Even if the FCC or FTC did assert authority over Internet tobacco advertisements, it would not be able to restrict the majority of protobacco videos, which are probably developed by independent users with no tobacco company involvement and could not therefore be regulated as “commercial speech” (Ciolli, 2007). The vlogs are a good example of what appear to be authentic user-generated promotional videos. Even without tobacco industry involvement, all the vlogs in this sample mention (and often heavily promote) a specific ST product, essentially providing free marketing to various ST brands. Analysis of the vlogs reveals that there is a community of users who create what they commonly refer to as “dip videos” on YouTube in which they review and promote various products and comment on each other’s dip videos. These vlogs are particularly interesting because unlike most other ST videos, they create a real sense of community and interpersonal interaction between people who make and/or regularly watch these videos. In this respect, YouTube’s influence on people’s attitudes and behaviors may be unique compared with other traditional media because it integrates elements of interpersonal interaction with a medium that allows a broad audience to have constant easy access to information. This hybrid interpersonal media platform and other social media websites could potentially be a highly influential source of “information.” These social networks transcend space and time, making it easy for this dipping community to spread their protobacco message to a vast audience. Further research should track these pro-ST vlogs over time and assess who is watching them and how they affect viewers’ attitudes and behaviors regarding ST.

Since traditional regulations and restrictions on tobacco marketing are likely to have a limited effect on protobacco messages on YouTube and other user-generated Internet websites, it is important to consider other means of tobacco control. Although YouTube bans videos that violate their “community guidelines” (such as underage smoking and copywritten materials; YouTube, 2010b), these policies are subjectively enforced and rely on users voluntarily flagging videos (YouTube, 2010b; Zeller, 2006). In addition, these guidelines do not apply to most of these ST videos because tobacco use in general (when not underage) is not banned from YouTube. When videos do not meet the standards for banning, YouTube can put age restrictions on videos that do not “violate our community guidelines but may not be appropriate for everyone” (YouTube, 2010b). To view these restricted videos, users must be signed into a YouTube account and be registered as 18 years or older. Protobacco messaging could easily fall into this “age restriction” category, yet none of the protobacco videos in this sample, including tobacco advertisements, were restricted to 18+ users. Interestingly, the one video in the sample that was restricted to 18+ was the most highly viewed anti-ST PSA and was restricted because

it contained graphic images of facial deformities from ST use (Narconon PSA, 2008). Yet age restrictions can easily be circumvented by entering a false age when creating a YouTube account. Future research should also assess the feasibility and potential effectiveness of various options for regulating or counterbalancing protobacco messaging on YouTube.

Tobacco control advocates could attempt to balance out the protobacco videos on YouTube by posting more antitobacco videos, but viewers could simply choose to only watch videos with protobacco messages. Although PSAs comprised a substantial portion of the videos, they tended to receive far fewer views and were rated more poorly than pro-ST videos. Because these anti-ST messages are less appealing than pro-ST videos, they currently are unable to effectively counterbalance protobacco messages on YouTube. The PSAs and the only other two anti-ST videos may have been less popular than the pro-ST videos because these videos on the whole were more educational rather than entertaining. Considering that YouTube is geared toward entertainment rather than gathering health information, it may be worth considering how a greater presence of creative and entertaining anti-ST videos may help counterbalance protobacco videos. It is therefore important for future research to assess how people find ST videos, whether they would watch both pro- and antitobacco videos, and what effect the videos have on their tobacco attitudes and behavior.

This study has several limitations. Because the sampling methodology was designed to mimic user search behavior and capture the most-viewed videos, it is likely that the sample was not representative of all ST YouTube videos. Also, the constantly changing nature of the Internet makes it difficult to determine whether these results are generalizable to the current top search results for ST YouTube videos. Another important limitation of this study is that only one person coded all the videos, and the reliability of coding was only assessed for videos that were deemed ambiguous. In the future, a more systematic approach to assessing appropriate interrater reliability should be used. Since the sample was limited to videos in English and the videos were all about “western” ST products (e.g., Skoal, snus, dip), the results are mainly generalizable to the United States and other countries with large English-speaking populations who use American or European ST products. Because YouTube has a global reach, it would be beneficial to conduct further research that expands the scope of this project to include other languages and search for other ST terms that capture a wider diversity of ST products.

Despite the challenges YouTube faces in regulating its content and compared with the Internet in general, YouTube is in a unique position with its ability to enforce regulations internationally. Regulating tobacco content on the Internet is challenging because restricting protobacco websites in one country only prevents that website from being “hosted” in that country—the same website could be hosted from another country, allowing global access regardless of whether it is restricted in a particular country. If the tobacco control community worked with YouTube to firmly establish and enforce regulations restricting protobacco content to only those viewers aged 18 years and older, YouTube could create a barrier to prevent youth globally from viewing protobacco content. While far from a perfect solution,

it may be worth exploring given the international reach and popularity of YouTube.

Regardless of whether the pro-ST videos are tobacco advertising or user generated, they are sending the message that using ST is normal and enjoyable. The dominant presence of pro-ST videos over anti-ST videos indicates that YouTube provides a virtual social environment where the use of ST and the presence of tobacco advertisements are accepted. As the percentage of Americans accessing the internet continues to increase each year (Pew Internet & American Life Project, 2009), it is vital for tobacco control advocates to turn their attention to tobacco promotion on YouTube and the Internet in general before decades of tobacco control efforts are undermined by “renormalizing” tobacco use and allowing tobacco advertisers to take advantage of the fact that the Internet is poorly regulated.

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Declaration of Interests

None declared.

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