

IknowUshould2: Feasibility of a Youth-Driven Social Media Campaign to Promote STI and HIV Testing Among Adolescents in Philadelphia

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Abstract A youth-driven, social media-based campaign aimed at improving knowledge about and increasing testing for sexually transmitted infections (STIs)/HIV among youth 13–17 years old was assessed by: tracking website/social media use throughout the campaign; online survey of knowledge of and attitudes towards STI testing 9 months after campaign launch; and comparing rates of STI testing at affiliated family planning clinics during the 1 year period immediately prior versus 1 year immediately after campaign launch. Over 1,500 youth were reached via social media. Survey results showed 46 % of youth had never been tested, but 70 % intended to test in the next 6 months. While the total number of GC/CT tests conducted and positive results were not significantly different pre- and post-campaign, there was a large increase in the proportion of visits at which Syphilis (5.4 vs. 18.8 %; $p < 0.01$) and HIV (5.4 vs. 19.0 %; $p < 0.01$) testing was conducted post-campaign launch. Future campaigns should incorporate lessons learned about engaging younger

adolescents, social media strategies, and specific barriers to testing in this age group.

Keywords Adolescents · HIV/AIDS · Sexually transmitted infections (STI) · Social media · Mobile health

Introduction

Sexually transmitted infections (STIs) represent a significant public health problem among adolescents in the United States. While youth ages 13–29 years make up 21 % of the population, they account for 39 % of new HIV infections [1]. Similarly, 72.3 % of the 1.2 million new cases of Chlamydia that were reported to state health departments in 2009 occurred in youth 10–24 years old [2]. Philadelphia youth age 10–14 are 5.3 times more likely to have Chlamydia than other American youth and those 15–19 are 3.5 times more likely [3, 4]. Despite this disparity in youth STI prevalence, Youth Risk Behavior Survey (YRBS) data show that fewer than 20 % of sexually active 9th graders and fewer than one-third of sexually active 12th graders report ever having been tested for HIV [5].

Social media and mobile technology are constantly consumed by youth and therefore represent a key outlet for providing health messages or interventions to adolescents [6]. A systematic review of youth digital media-based sexual health interventions found only 10 studies that evaluated impact of interventions on sexual health knowledge, attitudes, or behaviors [7]. Additionally, previous multi-media efforts related to STIs have focused on overcoming stigma and other barriers to improve STI testing among youth, most prominently the CDC sponsored the Get Yourself Tested campaign [8]. However, few such efforts have included youth in all aspects of campaign

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design and dissemination nor targeted younger adolescents who may experience age-specific barriers to testing and are more likely to never have been tested.

The *IknowUshould2* campaign was launched by the Children’s Hospital of Philadelphia (CHOP) from September 2012–August 2013 and targeted youth with a primary focus on youth 13–17 years old in Philadelphia (campaign also included youth 18–24 years old), aiming to improve knowledge about and increase testing for STI and human immunodeficiency virus (HIV). The campaign used a youth-driven, health behavior theory-based approach combining traditional media (print advertisements, t-shirts, radio, hotline), new media (website, Facebook, Twitter, Instagram, YouTube), campaign events, and community outreach and partnership. The primary objective of this study was to evaluate the feasibility and preliminary impact of using a social media-based, youth-driven campaign to improve knowledge and increase STI/HIV testing.

Methods

Campaign Development

The *IknowUshould2* campaign was developed through a partnership between multiple departments at the Children’s Hospital of Philadelphia and youth from several local community partner organizations. Additionally, Connect to Protect Philadelphia, a coalition of community members and researchers focusing on HIV prevention for adolescents through the Adolescent Trials Network, acted in an advisory capacity providing feedback on content and branding, and played a role in dissemination of the campaign. The campaign was developed based on the integrative model of behavior prediction [9] with a specific focus on addressing attitudes, beliefs and norms regarding STI/HIV testing among adolescents. The primary outcome of interest was feasibility as defined by the ability to reach youth in the target age range through various multimedia and engage them in campaign activities. Specifically, we tracked social media use, website traffic, and attendance at campaign-related events. A minimum of bi-weekly meetings were held throughout a 3 month period, during which campaign development occurred in an iterative process.

The process included three focus groups of youth (approximately 10 youth per group) in the target age range and demographic to develop the slogan, content, types of materials and design. There were also two sessions to photograph and video youth for the social media and other materials for the campaign. We learned many important lessons from youth during this process. For example, the youth felt it was important that the campaign slogan be provocative, but in no way stigmatizing or violating privacy for those choosing to

participate. They stated that the campaign should stress and clarify that parental consent was not needed for STI testing and that they have a right to privacy. The participants believed many youth do not obtain tests because they are afraid their parents will find out or need to provide permission. Once they learned that this is not the case, youth felt these facts could be an important message and focus of the campaign. They also requested videos and written descriptions about what happens when you get tested in order to address fears and/or misconceptions about the testing process. Lastly, they stressed that the campaign should have youth input, faces, voice and content, including photos and videos.

Campaign Website and Social Media

The campaign’s website (www.iknowushould2.com) consists of a homepage, a “Where To Get Tested” page with a locator to identify free, confidential HIV and STI testing based on zip code in the Philadelphia area, a page on “What Are STDs?,” “Why Care about STDs?,” “Who Should You Talk To?,” and a page on what testing entails called “STD Testing is Easy”. The campaign website was also formatted for phone and tablet users, and website traffic to the campaign’s homepage was tracked by type of electronic device used (phone, tablet, computer). The campaign utilized Facebook, Twitter, Instagram, and YouTube, which were all made accessible through the campaign’s website homepage. Youth involved in developing the campaign shared their experience with STI testing in a YouTube video which was posted on the homepage of the campaign’s website.

Community Events, Campaign Promotional Materials, Print and Other Media

Through our community partnerships, high-yield youth events were identified and then attended by an outreach worker with promotional materials and a smartphone displaying the campaign website. She oriented youth to the website and encouraged them to link to campaign social media at that time. Shirts and wristbands, which displayed the campaign name and website, were given out at these events in return for learning more about the campaign or connecting to the campaign through social media, such as “liking” the Facebook page. Bus shelter and subway poster advertisements were placed strategically throughout the city. Promotional shirts and wristbands were ordered and tracked as they were dispersed at events. Quick Response (QR) codes were available on campaign t-shirts and poster advertisements (see Fig. 1), which could be scanned by any smartphone or tablet with a camera and QR scanning application. When scanned, the unique QR code took the user to the *IknowUshould2* campaign website (www.iknowushould2.com). Campaign website visits were tracked



Fig. 1 Campaign poster with QR code

using these QR codes. The *IknowUshould2* campaign was also cross-promoted on a popular local radio station, Hot 107.9 Philly, and the station's website.

Evaluation Measures

The primary outcome of interest was feasibility as defined by the ability to reach youth in the target age range through various multimedia and engage them in campaign activities.

Tracking of Internet Social Media Activity During the First 6 months of the Campaign

Website use was tracked using Google Analytics, specifically to identify the number of unique users, number of total visits, number of page views, number of unique views, and average visit duration for each page of the website. The campaign's Facebook page activity was measured by the number of "likes" and visits to the page. Facebook Insights were used to track how users reached the *IknowUshould2* Facebook page (organic, paid, or viral reach). The *IknowUshould2* Twitter and Instagram pages tracked number of "followers". Additionally, the number of views of the campaign video and *IknowUshould2* website visits referred from a local radio station promoting the campaign were also tracked.

Web Survey

A short multiple choice survey was developed by the investigative team, and content validation methods included expert input from specialists in adolescent medicine, emergency medicine, and general pediatrics. The survey was made available on the campaign's website homepage for 4 weeks in Spring 2013 (May–June) using an institutionally supported, secure, web-based survey administration and data management application called Research Electronic Data Capture (REDCap) software [10]. The survey was anonymous and youth 13–17 years old were eligible to participate. Youth were recruited passively through advertisement on the campaign website and other social media. Potential subjects were also recruited at campaign-related events in the community during the 4 week survey period. Survey respondents were offered a \$5 electronic gift card for survey completion which was sent directly to their email address. Survey participants were prompted upon completion to link to a separate survey which asked only for their email address. A unique email address was required to receive the incentive. Therefore anonymity was ensured since email addresses could not be linked to individual survey responses. For additional protection, email addresses were discarded immediately after the incentives were mailed. The 11-item survey collected information on age, how they heard about the campaign, assessed knowledge of STIs, and if the campaign influenced intention to get tested.

STI Testing Pre- and Post-Campaign Launch

A review of electronic medical records for youth 13–24 years seeking care at 3 CHOP family planning clinics (which provide the majority of free and confidential testing to adolescents in the zip codes with the highest rates of STIs and HIV in the city) was conducted to compare the number of HIV and STI tests ordered and infections diagnosed during the year prior to campaign implementation (September 2011–August 2012) and 1 year after campaign launch (September 2012–August 2013). Inclusion criteria were as follows: [1] age 13–24 years and [2] sought care at the CHOP Family Planning clinics during the study period. The following lab orders and results were recorded: Chlamydia (vaginal, cervical, rectal, oropharyngeal, urine), Gonorrhea (vaginal, cervical, rectal, oropharyngeal, urine), Syphilis (RPR titer: rapid plasma regain), and HIV (HIV-1 antigen/antibody, HIV-1/HIV-2 antibody, HIV-1 RNA qualitative or HIV-1 RNA quantitative) tests from September 2011 through August 2013.

Analyses consisted of using standard descriptive statistics including means, standard deviations, and frequencies, where appropriate. χ^2 testing was used to compare rates of

STI testing pre- and post-campaign launch. Analyses were performed using STATA 13.0.

Results

Campaign Feasibility and Reach

The campaign reached a large number of adolescents, demonstrating the feasibility of this approach. The campaign was promoted at 13 community events where over 1,000 t-shirts and 1,600 wristbands were distributed. There were approximately 6,000 visits to the Facebook page (cannot determine if these are unique individuals due to limitation of analytic software) and over 1,500 unique individuals interacted with the campaign website during the first 6 months of the campaign. Additionally, during this same time period Facebook had 128 “likes,” Twitter had 46 followers, the campaign’s YouTube video had 390 views, and Instagram had 42 followers. Due to limitations of the available web analytic software available to the study team, we can say that at least 1,500 unique individuals interacted with the campaign, but this is quite possibly an underestimate since there were over 6,000 visits to the Facebook page and we also cannot determine whether individuals used multiple platforms.

More than two-thirds of traffic was through smartphone or tablet devices and approximately half of mobile traffic was on an iPhone. The majority (69 %) of website visitors reached the site directly, 13 % by QR codes on print advertisements, and 14 % directed from Google, Facebook, and Hot1079philly.com websites. Of the website pages, the “Where To Get Tested” was the most frequently visited and had the longest viewing time of all the pages, averaging over 2 min. The highest volume of website and Facebook traffic was seen during the time periods immediately following community events (see Fig. 2).

Survey

One hundred and four survey responses were collected. There was poor knowledge of STIs among respondents; 81 % incorrectly thought they would need to get their blood drawn for a Chlamydia test and 59 % incorrectly believed they would not get an STI if they only had oral sex. Almost half of youth surveyed (46 %) had never been tested for HIV or STIs before interacting with the campaign. Overall, participants had positive attitudes toward testing and high levels of intent to test in the next 6 months (70 %). The top barriers reported to testing included “It costs too much” (46 %), “My parents would be mad” (39 %), and “Someone might find out” (24 %).

STI Testing

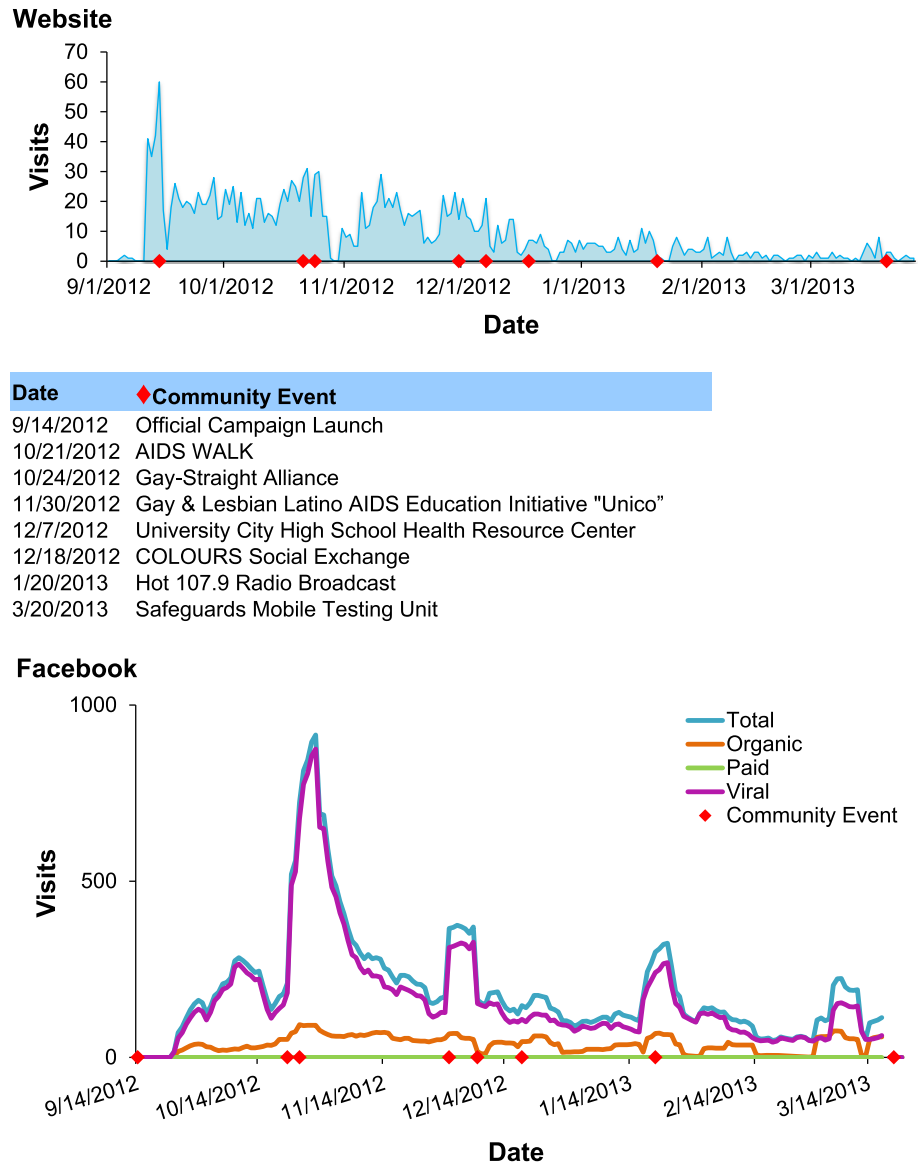
The number of visits to CHOP Family Planning clinics where a patient was tested for an STI increased from 4,386 pre-campaign (September 2011–August 2012) to 4,628 during the campaign (September 2012–August 2013). The mean age of youth who were tested before and during the campaign periods (17.53, SD 1.87; 17.23, SD 1.86, respectively) was similar. The total number of Chlamydia and Gonorrhea tests pre- and post-campaign launch (4,301 vs. 4,352; 4,302 vs. 4,350, respectively) and the proportion of positive results (500 vs. 498; 151 vs. 140, respectively) were relatively stable. However, there was a large increase in the number of total tests and the proportion of visits at which Syphilis (5.4 vs. 18.8 %; $p < 0.01$) and HIV (5.4 vs. 19.0 %; $p < 0.01$) testing were conducted (see Table 1). Interestingly, the proportion of CHOP Family Planning visits where 13–17 year olds (who were the primary target of the campaign and more likely to never have been tested) were tested, as compared to those 18 and over, increased substantially from pre- to post-campaign launch (48.8 vs. 55.6 %, $p < 0.05$).

Discussion

Overall, *IknowUshould2* showed that a youth-driven approach to designing and implementing a campaign and using both new media and community outreach is a feasible way to engage large numbers of youth about STI/HIV testing as evidenced by the social media activity tracked. Youth were most likely to have interacted with the campaign via mobile devices and the most time was spent by youth on the page of the website to find out where to get tested. Our most successful campaign reach was through activity on the website and Facebook page while we had relatively few “likes” on Facebook and “followers” on Twitter and Instagram. An important potential explanation for this difference, which we learned from staff interacting with youth at campaign events, was that many youth reported not wanting to “like” or “follow” us because parents or others who may not approve of their involvement in the campaign have access to their social media feeds. Fortunately, many of these youth were still able to access the Facebook page and website to interact with the campaign. In addition, our limited “likes” and “followers” may have been due to not having learned how best to engage youth on the newest social media platforms. Of note, we saw a consistent relationship between timing of community events and spikes in social media activity.

Our survey data indicate that younger adolescents who participated in the campaign may have poor knowledge of STIs and HIV testing and almost half had never been

Fig. 2 Campaign website page statistics and facebook reach, 9/1/2012–3/27/2013



tested. Unfortunately, we were unable to determine the extent of interaction that participants had with the campaign prior to completing the survey. Therefore, we are unable to interpret whether the campaign was effective in changing knowledge, but campaign materials may have influenced intention for future HIV/STI testing and also identified specific barriers to and knowledge gaps about testing to target in future campaigns. While social desirability bias may have led to falsely elevated rates of intention to test, the fact that the most website time on average was spent on the page about “where to get tested” points to high intention among those who used this feature. Comparisons of pre- and post-campaign launch data reveals significant increases in rates of testing for HIV and Syphilis among all youth and increases in the proportion of visits where 13–17 year olds were tested for any STI at CHOP Family Planning Clinics.

There are several other limitations to this study including: [1] likely contamination of other programs, campaigns or other factors (i.e. provider behavior) affecting testing rates to improve HIV or STI testing both locally or nationally; [2] generalizability may be limited given that the study took place in a single large urban area; [3] we were unable to track actual testing behavior of individuals who participated in the campaign and data for testing rates for other clinics across the city were not available; [4] we do not know when in the visit to the website the survey was completed by participants. Despite these limitations, important lessons were learned which have helped us to formulate the following recommendations for future campaign development, implementation, and evaluation: [1] Including youth input in all phases of development and dissemination may lead to messaging that is more acceptable to youth and may help to identify ways that

Table 1 STI tests ordered and positive results pre- and post-campaign launch

	Pre-campaign #	Post-campaign #
Total chlamydia tests	4,327	4,386
Chlamydia positive results	500	498
Cervical	0	2
Nasopharynx	1	1
Rectal/anal	2	1
Urine	493	471
Vaginal	0	2
Unspecified	4	21
Total gonorrhea tests	4,328	4,386
Gonorrhea positive results	151	140
Cervical	0	0
Nasopharynx	0	3
Rectal/anal	2	5
Urine	148	128
Vaginal	0	0
Unspecified	1	4
Total syphilis tests	410	1,150
Syphilis positive results	3	5
Total HIV tests	410	1,160
HIV positive results	0	2

interventions can engage youth in social media activity while respecting their privacy; [2] New interventions should consider mobile optimization since the majority of new media content is being consumed this way by youth (as confirmed in our study) and designers should consider the constantly changing landscape of social media platforms and trends in their use among the target demographic; [3] The relationship seen between community events and social media activity suggests an important role for strategically inserting face-to-face contact with trusted individuals (i.e. health care or other social service providers, community leaders) in promoting new media-based interventions; [4] Finding ways to track individual social media use and sexual health knowledge and attitudes and linking this information to testing behavior over the course of a campaign would be key to improving evaluation of future campaigns. Ultimately, the *IknowUshould2* campaign demonstrated the feasibility of engaging younger adolescents, who have often never been tested, with optimal social media strategies, and identified specific barriers to testing that can be used to shape future youth-driven,

social media-based campaigns with potential to improve STI/HIV testing rates among youth.

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