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The Knowledge, Attitudes, and Behaviors of Gay, Lesbian, Bisexual and Transgender University of South Florida (USF) Students Concerning Human Papillomavirus (HPV) and the HPV Vaccine

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**THE KNOWLEDGE, ATTITUDES, AND BEHAVIORS OF GAY, LESBIAN,
BISEXUAL, AND TRANSGENDER UNIVERSITY OF SOUTH FLORIDA (USF)
STUDENTS CONCERNING HUMAN PAPILLOMAVIRUS (HPV)
AND THE HPV VACCINE**

by

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ABSTRACT

Human papillomavirus (HPV) is one of the most common sexually transmitted diseases and can cause several types of cancer, including cervical and anal cancer. The lesbian, gay, bisexual, and transgender (LGBT) population is an often overlooked subgroup at risk for HPV. The purpose of this research was to describe LGBT college students' knowledge, attitudes, and behaviors pertaining to HPV and the HPV vaccine. An online survey consisting of 54 items was created and sent to members of an organization consisting primarily of LGBT students at the University of South Florida. A total of 155 students completed the survey. Several major premises were identified: most students had heard of HPV and were fairly knowledgeable about the general concept, but were much less knowledgeable when it came to specific details. Most students agreed that HPV and HPV-related disease were serious, but did not perceive themselves to be at risk for contracting HPV. Approximately one-third of participants received the HPV vaccine, and while over half of participants reported condom use, use of other safer sex barrier methods was lacking. By conducting this exploratory survey, we were able to identify and understand factors associated with preventive sexual health measures (i.e., HPV vaccination), which may serve as an important step toward developing and planning interventions to promote these measures in the future.

Key Words: human papillomavirus, HPV vaccine, LGBT, college students

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SECTION 1: INTRODUCTION

1.1 Overview of HPV

Genital human papillomavirus (HPV) is among the most common sexually transmitted infections in the world (Dunne et al., 2007). The World Health Organization estimates that 630 million people are infected with HPV worldwide (Forcier & Musacchio, 2010). Approximately 20 million Americans are currently infected with HPV and an additional 6 million people become infected each year (CDC, 2009). The virus is so common that at least 50% of sexually active men and women will be infected with HPV at some point in their lives (CDC, 2009). While the majority of HPV infection clears without medical intervention (CDC, 2009), persistent HPV infection causes nearly all cases of cervical cancers (99.7%) and has been strongly associated with anal cancer in men and women (Daling et al., 1987; Peltecu, Bari, Lancu, & Popa, 2009). Approximately 12,000 women get cervical cancer in the U.S. each year (CDC, 2009). Anal cancer affects approximately 3,400 men and women in the U.S. annually and has increased over 35% among women in the past 15 years. Approximately 50% of cancers of the vulva, vagina, and penis may also be attributable to HPV infection, as well as 20% of oropharyngeal cancers and 10% of cancers of the larynx, respiratory and digestive tracts (Giuliano & Viscidi, 2007). Approximately 6% of the estimated 9 million cases of cancer worldwide per year may be attributable to HPV infection (Frazer, 1999). The majority of infections are transient and subclinical, with approximately 90% of infections being low grade (CDC, 2009), non-cancer causing and clearing within two years. Although only 1% of infections progress to invasive cancer, the public health impact is great with several million individuals worldwide developing HPV-associated cancer (Forcier & Musacchio, 2010).

Since HPV usually clears without medical intervention within two years, causes no signs and symptoms, and is common, routine DNA based HPV testing is currently not recommended (CDC, 2009). Women are encouraged to get routine cervical cancer screening tests, such as the Papanicalou (Pap) test, which can find abnormal cells on the cervix so that they can be removed before cancer develops (CDC, 2009). An HPV DNA test may be used in conjunction with a Pap test in certain cases, such as when a Pap test result is mildly abnormal (CDC, 2009; Foundation, 2011). There is no approved screening test to find HPV in men or early signs of penile or anal cancer, but some experts recommend yearly anal Pap tests to screen for anal cancer in gay and bisexual men and in HIV-positive persons because of the higher incidence of anal cancer in these populations (CDC, 2010b).

1.2 HPV Vaccine

The HPV vaccine aims to prevent the HPV types that cause cervical cancer. There are currently two HPV vaccines: Gardasil and Cervarix. Both confer immunity against HPV types 16 and 18, which account for about 70% of cervical cancers. Gardasil additionally protects against types 6 and 11, which cause 90% of anogenital warts (Saslow et al., 2007). The vaccines have been approved and recommended for females, and more recently, males ages 9 to 26 years of age for the prevention of cervical, vulvar, and vaginal cancer (FDA, 2010; McRee, Reiter, Chantala, & Brewer, 2010). In October 2010, Gardasil was approved for prevention of anal cancer in both males and females (FDA, 2010).

1.3 HPV and the Lesbian, Gay, Bisexual, and Transgender (LGBT) Population

Although several studies have examined knowledge and attitudes related to HPV infection across college campuses, the primary focus has been on differences by ethnicity and gender (Baer, Allen, & Braun, 2000; D'Urso, Thompson-Robinson, & Chandler, 2007; Daley et al., 2010; Gerend & Magloire, 2008; Li Ping & Sam, 2010; Vogtmann, Harlow, Valdez, Valdez, & Ponce, 2010). An overlooked subgroup that may be at risk for HPV infection is the lesbian, gay, bisexual, and transgender (LGBT) college student population. Primary care for women tends to be organized around reproductive health needs and since pregnancy is not as big of a concern for lesbians, they might skip out on routine care (Solarz, 1999). Also, members of the LGBT community may feel uncomfortable if their primary care provider does not agree with their sexual orientation or gender identity, which could cause them to miss out on routine care as well (Petroll & Mosack, 2010; Power, McNair, & Carr, 2009). In addition, there is a lack of sexual health educational materials directed at the LGBT population that could lead to unsafe sexual practices and increased exposure to infection.

HPV-related disease is a growing concern for gay and bisexual men (Reiter, Brewer, McRee, Gilbert, & Smith, 2010). In the U.S., approximately 63% of oropharyngeal cancers, 93% of anal cancers, and 36% of penile cancers are attributable to HPV infection (mainly types 16 and 18) (Reiter et al., 2010). An estimated 60% of gay and bisexual men have anal HPV infection and numbers increase to over 90% for HIV-infected individuals (Reiter et al., 2010). The incidence of anal cancer in sexually active gay men is higher than cervical cancer in women (Pitts, Fox, Willis, & Anderson, 2007). Men who have sex with men (MSM) are 17 times more likely to develop anal cancer than heterosexual men (CDC, 2010a). Additionally, bisexual women were 60% more likely to report having a sexually transmitted disease during the past

year than their heterosexual counterparts (Lindley, Barnett, Brandt, Hardin, & Burcin, 2008). There is a common misconception that sexually transmitted infections (STIs) cannot be transmitted between women, despite recent evidence that lesbian and bisexual women are at risk for many STIs, including HPV infection (Power et al., 2009). Data from the National Women's Health Information Center also suggest lesbians are less likely to visit a doctor or nurse for routine screenings, including Pap testing. In addition, some women and their doctors may assume that lesbians do not need a regular Pap test (Center, 2005). Women who have sex with women (WSW) may not see themselves as having HPV or other STIs because they do not engage in sexual intercourse with men (Eaton et al., 2008). However, the majority of WSW have been sexual with men at some point in their lives and may still carry HPV (Eaton et al., 2008). WSW can contract HPV from a female partner as well (Eaton et al., 2008). The lack of health promotion materials specific to lesbian and bisexual women may further reinforce these misconceptions (Eaton et al., 2008).

Given the potential for HPV vaccine to confer protection against multiple HPV-associated cancers (Saslow et al., 2007), understanding knowledge and awareness related to HPV vaccine among understudied populations (e.g. LGBT population) and particularly among high-risk subgroups (e.g., homosexual men) may be an important step toward prevention.

1.4 Purpose of Study

More information is needed regarding the knowledge, attitudes, and behaviors related to HPV infection and HPV vaccination in the LGBT student population. The purpose of the current study, therefore, is to describe the degree of knowledge; current state of attitudes, beliefs, and perceptions; and sexual health behaviors related to HPV and HPV prevention in the LGBT

community. Gaining information regarding HPV-related knowledge, attitudes, and behaviors will serve as an important step toward developing and planning interventions to promote uptake of vaccination in this community.

SECTION 2: METHODS

2.1 Participant Recruitment

People Respecting Individual Diversity and Equality (P.R.I.D.E.) Alliance is an LGBT advocacy student organization based at the University of South Florida (USF) with approximately 600 students registered on its list serve. P.R.I.D.E. members include many lesbian, gay, bisexual, and a few transgender students. P.R.I.D.E. Alliance also includes Allies, which are heterosexuals that support LGBT equality. P.R.I.D.E. Alliance holds weekly meetings with an attendance of 30-50 students. We received permission from the president of P.R.I.D.E. Alliance to survey members at P.R.I.D.E. Alliance meetings. In order to reach more P.R.I.D.E. Alliance members, we also contacted members through the P.R.I.D.E. Alliance email list serve. The study was approved by the Moffitt Cancer Center's Scientific Review Committee and the USF Institutional Review Board (IRB). Given the minimal risk nature of this study and the ability to complete the survey anonymously, the IRB granted a waiver of informed consent.

2.2 Survey Development

The study team developed a 54-question survey to measure college students' HPV and HPV vaccine related knowledge, attitudes, and behaviors. The survey includes six sections: HPV Knowledge; Sexual Health Behaviors; HPV Vaccine; Attitudes, Beliefs and Perceptions; Health Care Experiences; and Demographic Characteristics. The survey was 12 pages in length and took approximately 20 minutes to complete.

The majority of survey questions were adapted from questionnaires developed by Boehner and colleagues (2003), Yacobi and colleagues (1999), Power and colleagues (2009), Reiter and colleagues (2010), Bynum and colleagues (2010), and Daley and colleagues (2010). In addition, several knowledge questions were constructed by our investigative team based on information from the Centers for Disease Control and Prevention's HPV Fact Sheet (CDC, 2009).

Survey Instrument (See Appendix B)

1. Knowledge (Section 1, #1,2a-y)

There are 25 items in this section to determine participants' HPV knowledge (e.g., "You can always tell when someone has HPV"). Participants were asked to respond "yes, no, or don't know/not sure" to each statement. Responses were categorized based on the total number of items answered correctly. The last three items in the section did not count towards the participants' composite knowledge score, but were designed to aid in a better understanding of LGBT-specific HPV knowledge and perceived risk (e.g., "Lesbians are at a much lower risk for getting HPV than women who have sex with

men”). The first question asked if the participant had ever heard of HPV. Participants who were not aware of HPV were directed to skip the remaining items in this section.

2. Sexual Health Behaviors (Section 2, #3-22)

There are 19 items in this section pertaining to sexual health behaviors. These items pertain to sexual activity (e.g., “Are you sexually experienced [had vaginal, anal, or oral sex]”), sexual health practices (e.g., “How long has it been since you had your last Pap smear?”), partner interactions (e.g., “If you are sexually active, do you ask your sexual partner[s] if they have been tested for sexually transmitted infections [STIs] or sexually transmitted diseases [STDs]?”), and HPV previous exposure (e.g., “Have you ever been diagnosed with HPV or genital warts?”). Participants were asked to respond “yes/no,” to indicate the frequency of the behavior in question, or to provide a categorical answer based on the scale provided.

3. HPV Vaccine (Section 3, #23-27)

There are five items in this section related to the HPV vaccine. These questions include HPV vaccine previous exposure and practices regarding the HPV vaccine (e.g., “Before this survey, had you ever heard of the HPV vaccine? This vaccine is also referred to as the HPV shot, GARDASIL, or CERVARIX.”). Participants were asked to respond “yes/no” or to provide a categorical answer based on the scale provided.

4. Attitudes, Beliefs, and Perceptions (Section 4, #28a-p)

There are 16 items in this section relating to attitudes, beliefs, and perceptions about HPV and the HPV Vaccine (e.g., “It is extremely likely that I will get HPV in my lifetime”). Participants were asked to respond to each statement on a 5-point Likert-type scale (1=*strongly disagree*, 5=*strongly agree*).

5. Health Care Experiences (Section 5, #29-45)

There are 16 items in this section pertaining to health care experiences. These questions include: the doctor's sexual orientation and gender identity (e.g., "What is your doctor's gender?"), the participant's relationship with the doctor (e.g., "How comfortable does your doctor seem to be with your sexual orientation?"), and whether the participant's doctor has discussed HPV, other STIs, or the HPV vaccine with him/her (e.g., "Has your doctor ever talked to you about the HPV vaccine?"). Participants were asked to respond "yes/no," to indicate his/her perceived degree of comfort or importance on a 4-point Likert-type scale (e.g., 1= *not at all comfortable*, 4=*very comfortable*), or to provide a categorical answer based on the scale provided.

6. Demographic Characteristics (Section 6, #46-54)

This section consisted of eight demographic items. These questions include gender identity (female; male; MTF transgender; FTM transgender; other), sexual orientation (heterosexual; homosexual; bisexual; questioning; other), age, ethnicity (American Indian or Alaska Native; Asian; Black or African American; Hispanic or Latino; Native Hawaiian or other Pacific Islander; White; more than once race; other), college major (Science; Liberal Arts; Business; History; Social Sciences; Math; Education; other), health-related career (yes; no; don't know/undecided), year in college (freshman; sophomore; junior; senior; graduate student), relationship status (single or never married; living with a domestic partner; married; divorced or separated; widowed; other), and health insurance coverage (yes; no; don't know/not sure).

Prior to initiating data collection with P.R.I.D.E Alliance members, the survey was pilot tested with five P.R.I.D.E. Alliance executive board members. They were asked to comment on survey items with regard to comprehension, clarity, and acceptability using a Respondent Debriefing Questionnaire (see Appendix E). After completing the survey, participants also were encouraged to make general suggestions to improve the survey. Revisions were made based on members' feedback before the final survey was distributed to main study participants.

2.3 Data Collection, Management, and Analysis

Students on P.R.I.D.E. Alliance's list serve were emailed a brief description of the study with a link to the web-based survey (using SurveyMonkey®). The survey was available for one week. During the data collection period, students attending P.R.I.D.E. Alliance meetings were also given the option of completing the web-based survey via computers available at the meeting location.

Students who chose to participate in the study were given the opportunity to enter a drawing for one of four \$25 gift certificates. Personal information for the drawing was collected separate from the survey to maintain participant confidentiality. The drawing was held at the end of the data collection period, after which all personal contact information provided by participants was destroyed.

Data from the web surveys was exported into Microsoft Excel spreadsheet. Descriptive statistics for the data were then analyzed using PASW v. 18.0. For all analyses, statistical significance was defined at the conventional 95% level ($p = .05$ or lower; $\alpha = .05$, two-tailed).

SECTION 3: RESULTS

3.1 Demographics

Of the 623 P.R.I.D.E. Alliance students who were emailed the survey link, 155 were recruited for this study. The majority of the participants were female (72.3%), white (59.1%), single or never married (77.4%), college seniors (29.9%), and between the ages of 18 and 21 (69.2%). The average age was 21.2 years (SD = 3.2; range = 18 to 46). Approximately one-third of participants self-identified as homosexual (33.6%), followed by bisexual (29.2%) and heterosexual (27.0%). The majority of participants are not considering a career in a health-related field (60.3%) and had health insurance (82.5%) (Table 1).

Table 1. Sample Demographic Characteristics

	n (%) ^a
Gender (n=137)	
Female	99 (72.3)
Male	32 (23.4)
MTF Transgender	2 (1.5)
FTM Transgender	1 (.7)
Other	3 (2.2)
Ethnic identity (n=137)	
White	59.1 (81)
Hispanic or Latino	20 (14.6)
More than one race	15 (10.9)
Black or African American	13 (9.5)
Asian	4 (2.9)
American Indian or Alaska Native	1 (0.7)
Other	1 (0.7)
Prefer not to answer	2 (1.5)

Table 1. Sample Demographic Characteristics (continued)

	n (%) ^a
Sexual Orientation (n=137)	
Heterosexual	37 (27.0)
Homosexual	46 (33.6)
Bisexual	40 (29.2)
Questioning	9 (6.6)
Other	5 (3.6)
Current Relationship Status (n=137)	
Single or Never Married	106 (77.4)
Living with a Domestic Partner	19 (13.9)
Married	1 (0.7)
Divorced or Separated	2 (1.5)
Other	9 (6.6)
Health Insurance (n=137)	
Yes	113 (82.5)
No	21 (15.3)
Don't Know/ Not Sure	2 (1.5)
Prefer not to answer	1 (0.7)
Age (n=130)	
18-21	90 (69.2)
22-25	29 (22.3)
26+	11 (8.5)
College Level (n=137)	
Freshman	25 (18.2)
Sophomore	29 (21.2)
Junior	34 (24.8)
Senior	41 (29.9)
Graduate Student	8 (5.8)
Considering Career in Health-Related Field (n=136)	
Yes	48 (35.3)
No	82 (60.3)
Don't Know/ Undecided	6 (4.4)
College Major (n=137)	
Science	25 (18.2)
Liberal Arts	21 (15.3)
Business	12 (8.8)
History	4 (2.9)
Social Sciences	29 (21.2)
Education	7 (5.1)
Other	39 (28.5)

^a Percentages may not add up to 100 due to rounding error and/or missing data.

3.2 HPV Knowledge

Almost all participants indicated that they had heard of HPV (95.5%). In addition, the majority of participants correctly answered more than half of the items evaluating HPV-related knowledge, with the greatest portion of participants answering 51-75% of the items correctly (Table 3).

Three items most frequently answered correctly included: “You can always tell when someone has HPV,” “You can have HPV without knowing it,” and “HPV can cause cervical cancer,” by 93.4%, 95.6%, and 95.6% of participants, respectively. Items that participants were least likely to correctly answer included: “Most HPV infections clear on their own,” “Females who have been diagnosed with HPV infection should not be given the HPV vaccine,” and “A ‘complete STD screen’ includes testing for HPV,” by 20.6%, 31.1%, and 30.4% of participants, respectively.

With respect to perceived LGBT risk of HPV infection, the majority of participants answered correctly that there were HPV posed health risks for gay men (76.3%) and lesbians (88.1%). The majority of participants (52.6%) either were not sure or incorrectly answered that lesbians were at a much lower risk for getting HPV than women who have sex with men (Table 2).

Table 2. HPV Knowledge

Statement	True n (%) ^a	False n (%) ^a	Not Sure/Don't Know n (%) ^a
a. HPV can cause HIV/AIDS. <i>False</i> (n=136)	12 (8.8)	99 (72.8)	25 (18.4)
b. You can always tell when someone has HPV. <i>False</i> (n=136)	0 (0.0)	127 (93.4)	9 (6.6)
c. HPV can cause abnormal Pap smears/ Pap tests. <i>True</i> (n=136)	94 (69.1)	11 (8.1)	31 (22.8)
d. Only women get HPV. <i>False</i> (n=136)	13 (9.6)	111 (81.6)	12 (8.8)
e. HPV can cause herpes. <i>False</i> (n=136)	34 (25.0)	69 (50.7)	33 (24.3)
f. HPV can cause genital warts. <i>True</i> (n=136)	87 (64.0)	20 (14.7)	29 (21.3)
g. You can have HPV without knowing it. <i>True</i> (n=136)	130 (95.6)	3 (2.2)	3 (2.2)
h. HPV is a sexually transmitted infection (STI) or sexually transmitted disease (STD). <i>True</i> (n=136)	119 (87.5)	6 (4.4)	11 (8.1)
i. HPV can cause cervical cancer. <i>True</i> (n=136)	130 (95.6)	2 (1.5)	4 (2.9)
j. HPV can cause oral cancer. <i>True</i> (n=136)	58 (42.6)	32 (23.5)	46 (33.8)
k. HPV can cause anal cancer. <i>True</i> (n=136)	57 (41.9)	30 (22.1)	49 (36.0)
l. Antibiotics can cure HPV. <i>False</i> (n=136)	10 (7.4)	97 (71.3)	29 (21.3)
m. HPV is rare. <i>False</i> (n=136)	9 (6.6)	112 (82.4)	15 (11.0)
n. Condoms fully protect against HPV. <i>False</i> (n=136)	17 (12.5)	93 (68.4)	26 (19.1)
o. Most HPV infections clear on their own. <i>True</i> (n=136)	28 (20.6)	88 (64.7)	20 (14.7)
p. The HPV vaccine protects against all HPV infections. <i>False</i> (n=135)	13 (9.6)	102 (75.6)	20 (14.8)
q. At least 50% of sexually active men and women get HPV at some point in their lives. <i>True</i> (n=135)	73 (54.1)	11 (8.1)	51 (37.8)
r. HPV can be transmitted through oral sex. <i>True</i> (n=134)	84 (62.7)	13 (9.7)	37 (27.6)
s. Some typical symptoms of HPV include painful sores and discharge. <i>False</i> (n=135)	68 (50.4)	26 (19.3)	41 (30.4)
t. Only women can get vaccinated against HPV. <i>False</i> (n=135)	40 (29.6)	68 (50.4)	27 (20.0)
u. Females who have been diagnosed with HPV infection should not be given the HPV vaccine. <i>False</i> (n=135)	32 (23.7)	42 (31.1)	61 (45.2)
v. A "complete STD screen" includes testing for HPV. <i>False</i> (n=135)	49 (36.3)	41 (30.4)	45 (33.3)
w. There are no health risks of HPV for gay men. <i>False</i> (n=135)	5 (3.7)	103 (76.3)	27 (20.0)
x. There are no health risks of HPV for lesbians. <i>False</i> (n=135)	2 (1.5)	119 (88.1)	14 (10.4)
y. Lesbians are at a much lower risk for getting HPV than women who have sex with men. <i>False</i> (n=135)	27 (20.0)	64 (47.4)	44 (32.6)

^a Percentages may not add up to 100 due to rounding error and/or missing data.

Table 3. HPV Knowledge Scores

% of Questions Answered Correctly	# Answered Correctly	Frequency (n=134)
0-25%	0-5	6
26-50%	6-11	37
51-75%	12-16	49
76-100%	17-22	42

3.3 Sexual Health Behaviors

The majority of participants indicated that they were sexually experienced (77.6%) with both males and females (38.4%) and have had one to five sexual partners (55.4%). Slightly less than half of female respondents reported ever having a cervical Pap test (43.3%), with two-thirds (66.1%) have had a cervical Pap test within the past 12 months by a physician, and 72.6% have not had an abnormal Pap test result.

The vast majority of participants indicated they had not heard of (79.4%) or had an anal Pap test (98.6%), and the main reason they have not gotten an anal Pap test is that they did not know enough about it (50.7%).

The majority of participants reported no prior diagnosis of HPV infection or genital warts (89.4%), and out of those who had been diagnosed, the majority reported having heard of HPV or genital warts prior to their diagnosis. Approximately two thirds of participants did not report having a close friend or family member diagnosed with HPV infection or genital warts (64.1%).

Among those reporting a close friend or family member diagnosed with HPV or genital warts, the majority of participants indicated that they had heard of HPV or genital warts prior to learning of their friend or family member's diagnosis.

Slightly more than half of participants reported using condoms (55.6%) as a safer sex barrier method (i.e., male condom, female condom, dental dam). Among those engaging in sexual activity the most common reason for not using a safer sex barrier method was "they just don't feel the same." While the majority of participants reported asking their sexual partner(s) if they had been tested for STIs/STDs (68.5%), among those who did not ask the main reasons selected were "my partner and I are in a monogamous relationship" (30.9%), and "I'm embarrassed to ask" (27.3%) (Table 4).

Table 4. Sexual Health Behaviors

	n (%)^a
Sexually experienced (have had vaginal, anal, or oral sex) (n=143)	
Yes	111 (77.6)
No	30 (21.0)
Don't Know/ Not sure	2 (1.4)
Sexually experienced with: (n=112)	
Males	42 (37.5)
Females	27 (24.1)
Both	43 (38.4)
Number of sexual partners (n=112)	
1-5	62 (55.4)
6-10	23 (20.5)
11-15	9 (8.0)
16-20	4 (3.6)
21-25	4 (3.6)
26-30	2 (1.8)
>30	8 (7.1)

Table 4. Sexual Health Behaviors (continued)

	n (%) ^a
Have had cervical Pap test/ Pap smear (n=141)	
Yes	61 (43.3)
No	58 (41.1)
Don't Know/Not Sure	2 (1.4)
Not applicable	20 (14.2)
Length since last cervical Pap test/ Pap smear (n=62)	
Less than 12 months ago	41 (66.1)
1-2 years ago	16 (25.8)
2-3 years ago	3 (4.8)
Don't Know/Not Sure	2 (3.2)
Have had abnormal Pap test result (n=62)	
Yes	17 (27.4)
No	45 (72.6)
How often see physician for a Pap test result (n=62)	
Once every 6 months	5 (8.1)
Once a year	39 (62.9)
Once every 2 years	7 (11.3)
Once every 4 of more years	1 (1.6)
Don't Know/ Not Sure	5 (8.1)
Not applicable	2 (3.2)
Other	3 (4.8)
Heard of anal Pap test or anal Pap smear (n=141)	
Yes	27 (19.1)
No	112 (79.4)
Don't Know/Not Sure	2 (1.4)
Had anal Pap test (n=142)	
Yes	2 (1.4)
No	140 (98.6)
Most recent anal Pap test (n=2)	
Less than 12 months ago	1 (50.0)
Don't Know/ Not sure	1 (50.0)

Table 4. Sexual Health Behaviors (continued)

	n (%)^a
Reasons for NOT getting an anal Pap test (n=136)	
I don't know enough about it	69 (50.7)
Asking for the test or getting it might be embarrassing	44 (32.4)
It might hurt	32 (23.5)
Test might not be accurate	4 (2.9)
Test costs too much	56 (41.2)
I don't have transportation to get to doctor's office	11 (8.1)
I don't want this information in my medical chart	6 (4.4)
Not applicable	29 (21.3)
Other	14 (10.3)
Diagnosed with HPV/genital warts (n=142)	
Yes	12 (8.5)
No	127 (89.4)
Don't Know/ Not sure	3 (2.1)
Heard of HPV/genital warts before being diagnosed with it (n=12)	
Yes	9 (75.0)
No	2 (16.7)
Don't Know/ Not sure	1 (8.3)
Close friend/ family member diagnosed with HPV/genital warts (n=142)	
Yes	31 (21.8)
No	91 (64.1)
Don't Know/ Not sure	20 (14.1)
Heard of HPV/genital warts before close friend/ family member diagnosed with it (n=31)	
Yes	26 (83.9)
No	4 (12.9)
Don't Know/ Not sure	1 (3.2)
Regularly practice the following safer sex methods (n=133)	
Condoms (on penis or sex toys)	74 (55.6)
Gloves (for vaginal/anal sex)	4 (3.0)
Dental dams (for oral sex)	4 (3.0)
Change fingers/hand between vagina/anus	23 (17.3)
Not applicable	49 (36.8)
Other	8 (6.0)

Table 4. Sexual Health Behaviors (continued)

	n (%) ^a
Why don't you and partner use male condoms (n=88)	
They are unnecessary	13 (14.8)
They are annoying	8 (9.1)
They just don't feel the same	17 (19.3)
I don't think about wearing them	6 (6.8)
I am embarrassed to suggest wearing them	3 (3.4)
I don't have access to them	1 (1.1)
They are too expensive	1 (1.1)
I do not engage in sexual activity that requires a male condom	54 (61.4)
Other	15 (17.0)
Why don't you and partner use female condoms or dental dams (n=126)	
They are unnecessary	29 (23.0)
They are annoying	16 (12.7)
They just don't feel the same	11 (8.7)
I don't think about wearing them	22 (17.5)
I am embarrassed to purchase them	2 (1.6)
I am embarrassed to suggest wearing them	6 (4.8)
I don't know where to find them	15 (11.9)
I have never heard of them	6 (4.8)
I don't have access to them	10 (7.9)
They are too expensive	6 (4.8)
I do not engage in sexual activity that requires a female condom or dental dam	54 (42.9)
Other	18 (14.3)
Ask sexual partner(s) if they have been tested for STIs/STDs (n=127)	
Yes	87 (68.5)
No	23 (18.1)
Sometimes	18 (13.4)
Reasons why don't ask sexual partner(s) if they have been tested for STIs/STDs (n=55)	
I don't think about it	8 (14.5)
I use condoms	9 (16.4)
I'm embarrassed to ask	15 (27.3)
I trust my partner(s)	12 (21.8)
My partner and I are in a monogamous relationship	17 (30.9)
I haven't been tested myself	9 (16.4)
Not applicable	19 (34.5)
Other	5 (9.1)

^a Percentages may not add up to 100 due to rounding error and/or missing data.

3.4 HPV Vaccine

While almost all participants indicated having heard of the HPV vaccine (96.5%), the majority reported not having received the vaccine (62.7%). Among those who had not initiated HPV vaccination, half reported that they were uncertain about future intention to get the HPV vaccine. The main barriers to vaccination included cost (41.6%) and perception that the vaccine was too new (31.5%) (Table 5).

Table 5. HPV Vaccine

	n (%) ^a
Heard of HPV vaccine (n=142)	
Yes	137 (96.5)
No	4 (2.8)
Don't Know/ Not sure	1 (0.7)
Received the HPV vaccine (n=142)	
Yes	50 (35.2)
No	89 (62.7)
Don't Know/ Not Sure	3 (2.1)
Number of shots received in the HPV vaccine series (n=50)	
1	5 (10)
2	6 (12)
3	36 (72)
Don't Know/Not sure	3 (6)
Plan on getting the HPV vaccine if already haven't gotten it (n=92)	
Yes	13 (14.1)
No	26 (28.3)
Don't Know/ Not Sure	46 (50.0)
Not applicable	7 (7.6)

Table 5. HPV Vaccine (continued)

	n (%) ^a
Reasons why haven't gotten the HPV vaccine (n=89)	
Cost	37 (41.6)
I did not think about it	25 (28.1)
I had not heard of the HPV vaccine	2 (2.2)
I am not at risk for HPV	15 (16.9)
I have already had HPV	1 (1.1)
I don't believe in vaccines	4 (4.5)
I don't like injections	10 (11.2)
Vaccine is too new	28 (31.5)
I don't want my parents to know I'm sexually active	6 (6.7)
I am not eligible to receive the vaccine	7 (7.9)
Other	16 (18.0)

^a Percentages may not add up to 100 due to rounding error and/or missing data.

3.5 Attitudes, Beliefs, and Perceptions

Over half of participants disagreed or strongly disagreed with the susceptibility items (“It is extremely likely that I will get HPV in my lifetime;” “My current behaviors put me at risk for HPV”), indicating that they did not perceive themselves to be at risk for contracting HPV. Over 80% of participants agreed or strongly agreed that HPV, cervical cancer, and penile cancer were serious conditions. Several facilitators of vaccination were highlighted, with the majority of participants agreeing or strongly agreeing with the following statements: “Getting the HPV vaccine could save my life;” “Knowing that HPV affects people like me would encourage me to get the HPV vaccine;” and “Knowing more about HPV would encourage me to get the HPV vaccine.” Over half of participants disagreed or strongly disagreed that cost, fear of needles, and vaccine efficacy were barriers to vaccination. Regarding normative beliefs, roughly half of

participants neither agreed nor disagreed that mother, grandmother, and friend approval of the HPV vaccine would directly translate to personal approval of the vaccine (see Table 6).

Table 6. Attitudes, Beliefs, and Perceptions

Statements	Strongly Disagree n (%)^a	Disagree N (%)^a	Neither Agree nor Disagree n (%)^a	Agree n (%)^a	Strongly Agree n (%)^a
a. It is extremely likely that I will get HPV in my lifetime. (n=137) (susceptibility)	31 (22.6)	41 (29.9)	39 (28.5)	12 (8.8)	14 (10.2)
b. My current behaviors put me at risk for HPV. (n=138) (susceptibility)	61 (44.2)	36 (26.1)	21 (15.2)	15 (10.9)	5 (3.6)
c. HPV is a serious infection. (n=137) (severity)	3 (2.2)	3 (2.2)	15 (10.9)	55 (40.1)	61 (44.5)
d. Cervical cancer is a serious disease. (n=138) (severity)	3 (2.2)	1 (.07)	3 (2.2)	16 (11.6)	115 (88.3)
e. Cancer of the penis is a serious disease. (n=136) (severity)	3 (2.2)	2 (1.5)	8 (5.9)	13 (9.6)	110 (80.9)
f. I get scared when I think of getting HPV. (n=138) (barriers)	7 (5.1)	19 (13.8)	38 (27.5)	46 (33.3)	28 (20.3)
g. I couldn't afford to get the HPV vaccine. (n=138) (barriers)	37 (26.8)	39 (28.3)	36 (26.1)	21 (15.2)	5 (3.6)
h. I would not get the HPV vaccine because I am afraid of needles. (n=138) (barriers)	86 (62.3)	28 (20.3)	15 (10.9)	8 (5.7)	1 (0.7)
i. I don't think vaccines work. (n=138) (barriers)	70 (50.7)	40 (29.0)	21 (15.2)	3 (2.2)	4 (2.9)
j. Getting the HPV vaccine could save my life. (n=138) (facilitators)	5 (3.6)	3 (2.2)	40 (29.0)	64 (46.4)	26 (18.8)
k. Knowing that HPV affects people like me would encourage me to get the HPV vaccine. (n=138) (facilitators)	7 (5.1)	4 (2.9)	28 (20.3)	74 (53.6)	25 (18.1)
l. Knowing more about HPV would encourage me to get the HPV vaccine. (n=138) (facilitators)	5 (3.6)	7 (5.1)	34 (24.6)	62 (44.9)	30 (21.7)
m. If my mother approved of the HPV vaccine then I would approve of it also. (n=138) (normative beliefs)	10 (7.2)	17 (12.3)	66 (47.8)	31 (22.5)	14 (10.1)
n. If my grandmother approved of the HPV vaccine then I would approve of it also. (n=138) (normative beliefs)	13 (9.4)	20 (14.5)	69 (50.0)	25 (18.1)	11 (8.0)
o. If my friends approved of the HPV vaccine then I would approve of it also. (n=138) (normative beliefs)	10 (7.2)	15 (11.6)	80 (58.0)	22 (15.9)	10 (7.2)

^a Percentages may not add up to 100 due to rounding error and/or missing data.

3.6 Health Care Experiences

Slightly more than half of participants reported believing their doctor to be heterosexual (73.5%) and female (56.6%). Additionally, 41.6% indicated that they believed their doctor knew their sexual orientation because they disclosed it without being asked (47.4%). Among those that did not disclosing their sexual orientation, 41.3% they reported that they did not find it necessary to do so. The majority of participants (84.2%) felt their doctor to be very comfortable with their sexual orientation and with 40.1% believing that it somewhat important that their doctor know their sexual orientation.

The majority of participants believed that their doctor knew their identity (83.1%) because he or she probably assumed it (81.8%). The majority reported that their doctor was very comfortable with their gender identity (94.5%), and one-third felt it was very important that their doctor knew their gender identity. The most commonly cited reason for not disclosing gender identity was that participants felt it was unnecessary.

Approximately two-thirds of participants reported feeling comfortable discussing sexual health with their doctor (67.9%). Almost half said that their doctor talked to them about HPV (48.1%), and more than half said their doctor talked to them about risks of other STIs/STDs (63.7%). The majority of participants said their doctor talked to them about the HPV vaccine (52.2%), and out of those, 88.7% said their doctor recommended the vaccine (see Table 7).

Table 7. Health Care Experiences

	n (%) ^a
Doctor's gender (n=136)	
Female	77 (56.6)
Male	46 (33.8)
MTF Transgender	1 (0.7)
Don't Know/ Not Sure	12 (8.8)
Doctor's sexual orientation (n=136)	
Gay/Lesbian/Homosexual	2 (1.5)
Bisexual	1 (0.7)
Straight/Heterosexual	100 (73.5)
Don't Know/ Not Sure	33 (24.3)
Believe that your doctor knows your sexual orientation (n=137)	
Yes	57 (41.6)
No	53 (38.7)
Don't Know/Not sure	27 (19.7)
How does your doctor know your sexual orientation (n=57)	
He or she probably assumes it	15 (26.3)
Someone else told him or her	2 (3.5)
I disclosed it without being asked	27 (47.4)
I disclosed it because my doctor asked me	13 (22.8)
Comfort of doctor with your sexual orientation (n=57)	
Very comfortable	48 (84.2)
Somewhat comfortable	9 (15.8)
Importance that your doctor knows about your sexual orientation (n=137)	
Very important	36 (26.3)
Somewhat important	55 (40.1)
Somewhat unimportant	16 (11.7)
Not at all important	30 (21.9)
Reasons why you didn't disclose your sexual orientation (n=126)	
Not necessary	52 (41.3)
Nervous	3 (2.4)
He/She wouldn't agree/understand	3 (2.4)
Don't want my parents to know	8 (6.3)
Uncertain of my sexual orientation	9 (7.1)
Not applicable	42 (33.3)
Other	9 (7.1)

Table 7. Health Care Experiences (continued)

	n (%) ^a
Believe that your doctor knows your gender identity (n=136)	
Yes	113 (83.1)
No	9 (6.6)
Don't Know/Not sure	10.3 (14)
How does your doctor know your gender identity (n=110)	
He or she probably assumes it	90 (81.8)
Someone else told him or her	2 (1.8)
I disclosed it without being asked	13 (11.8)
I disclosed it because my doctor asked me	5 (4.5)
Comfort of doctor with your gender identity (n=109)	
Very comfortable	103 (94.5)
Somewhat comfortable	5 (4.6)
Somewhat uncomfortable	1 (0.9)
Importance that your doctor knows about your gender identity (n=132)	
Very important	44 (33.3)
Somewhat important	39 (29.5)
Somewhat unimportant	16 (12.1)
Not at all important	33 (25.0)
Reasons why you didn't disclose your gender identity (n=125)	
Not necessary	51 (40.8)
Nervous	1 (0.8)
He/She wouldn't agree/understand	1 (0.8)
Don't want my parents to know	2 (1.6)
Uncertain of my sexual orientation	4 (3.2)
Not applicable	61 (48.8)
Other	5 (4.0)
Comfort discussing sexual health with doctor (n=137)	
Very comfortable	51 (37.2)
Somewhat comfortable	42 (30.7)
Somewhat uncomfortable	32 (23.4)
Not at all comfortable	13 (9.5)
Doctor talked about HPV (n=135)	
Yes	65 (48.1)
No	61 (45.2)
Don't Know/ Not Sure	9 (6.2)
Doctor talked about risks of other STIs/STDs (n=135)	
Yes	86 (63.7)
No	42 (31.1)
Don't Know/ Not Sure	7 (5.2)

Table 7. Health Care Experiences (continued)

	n (%) ^a
Doctor talked about HPV vaccine (n=136)	
Yes	71 (52.2)
No	58 (42.6)
Don't Know/ Not Sure	7 (5.1)
Doctor recommended the HPV vaccine (n=71)	
Yes	63 (88.7)
No	4 (5.6)
Don't Know/ Not Sure	4 (5.6)

^a Percentages may not add up to 100 due to rounding error and/or missing data.

SECTION 4: DISCUSSION

4.1 Overview

This study helps to fill gaps in the HPV and HPV vaccine literature by exploring and describing the degree of knowledge; attitudes, beliefs, and perceptions; and sexual health behaviors related to HPV and HPV vaccination among LGBT students and Allies. Although many studies have surveyed students about HPV and HPV vaccination, to our knowledge no other studies have explored this topic in an LGBT student population. The results of this study gave insight into participant knowledge, participant attitudes, and participant behaviors concerning HPV and the HPV vaccine.

4.2 Participant Knowledge

Regarding knowledge, almost all participants (95.5%) had heard of HPV, and the overall knowledge score was comparable to other studies of HPV knowledge among college students

(e.g., (Bendik, Mayo, & Parker, 2011; Bynum, 2009). On average, the participants answered approximately 59% of the questions correctly.

Interestingly, almost all participants (95.6% and 93.5%, respectively) answered correctly that “You can have HPV without knowing it” and “You can’t always tell when someone has HPV,” yet 50.4% of respondents falsely thought that “some typical symptoms of HPV include painful sores and discharge.” Also, only 20.6% of participants knew that most HPV infections clear on their own. Almost all participants (95.6%) knew that HPV can cause cervical cancer, yet fewer than half of participants knew that HPV can cause oral and anal cancer. These results indicate a high general knowledge of HPV, but when it comes to specific details, participants seem to be less clear on the facts. These findings are consistent with previous research. For example, Bendik and colleagues (2011) demonstrated that most college women tended to know that HPV can be asymptomatic and may cause cervical cancer, yet few knew the details of HPV, including the consequences of HPV and its mode of transmission. While the results suggest that overall respondents were aware of HPV related risks to the gay and lesbian community, they were less clear about the magnitude of the risk, with over half of participants incorrectly responding the lesbians are at much lower risk for HPV infection than heterosexual females.

Risks for the lesbian community are similar to heterosexual women. The vast majority of women who have sex with women (WSW) have had sex with men as well (Information, 2007). HPV has also shown to be transmissible through sex between women, as it can be passed on through oral sex and genital-to-genital contact, and cervical cancer has been seen in women who have had sex exclusively with women (CDC, 2009; Information, 2007). Even though it is possible that the risk of HPV infection is slightly lower for women who exclusively have sex with women than in exclusively heterosexual women, WSW are less likely to utilize preventive

health services, such as Pap screenings, increasing their risk of HPV-related diseases (Information, 2007; Power et al., 2009).

HPV is very common in gay and bisexual men. One study detected 61% of HIV-negative and 93% of HIV-positive gay and bisexual men with HPV (Palefsky et al., 2000). Gay and bisexual men are at an increased risk for anal cancer; the incidence of anal cancer in homosexually active men is actually higher than that for cervical cancer in women (Palefsky et al., 2000).

Additionally, the current study demonstrates that there is limited awareness about the role of HPV in cancers beyond cervical cancer. In Pitts' study of gay men's knowledge of HPV and anal cancer screening, it was also shown that participants knew very little about anal cancer and HPV (2007).

Given current studies that have firmly established the link between HPV infection and oral and anal cancers (Daling et al., 2004; Gillison et al., 2000; Smith et al., 1998), education about these risks in the LGBT community is critical. In addition, most participants are unaware of screening and early detection methods for these other HPV associated cancers. In Pitts' study of gay men's knowledge of HPV and anal cancer screening, a little over half (55.1%) of participants had never heard of an anal pap smear, compared to well over half (79.4%) of the participants in our study (2007).

There are currently no standardized screening guidelines for anal cancers. Some clinicians recommend yearly anal Pap smears for MSM, and in particular HIV-positive MSM (Network, 2011; Rosa-Cunha et al., 2011). The most recent recommendations from the CDC state that "Anal cytology screening of HIV-infected men who have sex with men . . . might become useful preventive measures. However, studies of screening and treatment programs for

anal HSILs need to be implemented before recommendations for anal cytology screening can be made” (Prevention, 2002). As guidelines become more established for at risk groups (e.g., homosexual men), our study suggest that lack of knowledge may be one barrier to uptake.

Importantly, only half of respondents were aware that HPV vaccination was also available to men. The FDA approved the use of Gardasil in males aged 9 to 26 years for prevention of genital warts in October 2009 and for the prevention of anal cancer in December 2010 (FDA, 2009). Previous research has indicated that anal cancer is prevalent in about 57% of HIV-negative MSMs and that Gardasil may prevent as much as 80% of anal carcinomas (Chin-Hong et al., 2004; Hoots, Palefsky, Pimenta, & Smith, 2009). Furthermore, in addition to health consequences, genital warts are linked to psychological and emotional effects among men (Maw, Reitano, & Roy, 1998). Increasing knowledge about the availability of HPV vaccination for men may influence uptake, thereby decreasing incidence of genital warts and anal cancer.

4.3 Participant Attitudes

By evaluating participant attitudes, our study identified important attitudinal beliefs, barriers, facilitators, and normative beliefs that may influence uptake of HPV vaccination among LGBT students.

In terms of perceived susceptibility, overall participants did not perceive themselves to be at risk for contracting HPV. The majority of participants agreed that their current behaviors do not put them at risk for HPV, yet most are sexually active, and although most use condoms, condoms do not fully protect against HPV. This ties back into the lack of knowledge about the specifics of HPV, as only 68.4% of people knew that condoms do not fully protect against HPV.

From the knowledge section, most correctly answered that more than 50% of sexually active men and women will get HPV at some point in their lives, yet the majority of participants disagreed that “It is extremely likely that I will get HPV in my lifetime.” There seems to be a disconnect between what they know is true and how they apply that information to themselves. The participants seem to perceive themselves as having a more positive outcome (in this case, being at a lower risk to get HPV) than others in the similar circumstances, which is known as “unrealistic optimism” (Clarke, Lovegrove, Williams, & Machperson, 2000). Other studies have found that sexually active adolescents display a strong optimistic bias about avoiding STDs as well (Cohn, MacFarlane, Yanez, & Imai, 1995; Whaley, 2000).

In terms of perceived severity, the majority of participants agreed that HPV and HPV-associated diseases (e.g. cervical cancer and penile cancer) were serious conditions. In terms of facilitators, participants agreed that knowing more about HPV would encourage them to get the HPV vaccine. In Bendik’s HPV study surveying college women, both knowledge and an increased perceived severity of HPV and cervical cancer were associated with receiving the vaccine (2011). Given the previous research on knowledge and vaccine uptake, perhaps increasing HPV knowledge in this population could increase vaccine uptake.

Another facilitator that participants agreed with was “knowing that HPV affects people like me would encourage me to get the HPV vaccine.” There is not much literature about HPV specifically directed towards the LGBT community, as most educational material is geared towards heterosexual individuals. Adding educational material about HPV specifically for the LGBT population could be beneficial for vaccine uptake as well.

The main barrier was getting scared when thinking about HPV. The majority of participants disagreed that cost was a barrier (“they couldn’t afford to get the HPV vaccine”), yet

out of the participants who hadn't gotten the HPV vaccine, cost was reported to be one of the main reasons why. In Bendik's study, out of the participants who had not yet received the vaccine, almost 20% indicated that finding a way to pay for the vaccine would motivate them to receive the vaccine the most (2011).

In terms of normative beliefs, the participants were neutral as to whether mother, grandmother, and friend approval of the HPV vaccine would cause them to approve of it also. Yet, results from Bendik's study showed that those who had parent approval, as well as those who had friend approval, were more likely to receive the vaccine (2011).

4.4 Participant Behaviors

Participants' behaviors and practices also bring up some interesting issues. A total of 35.2% of participants have received the HPV vaccine. This is consistent with a previous study by Bendik and colleagues concerning HPV vaccination among college students in which approximately 37.7% of students received the HPV vaccine (Bendik et al., 2011). Yet, in Bendik's study, approximately 50% of students who had not yet received the HPV vaccine intended to do so, compared to 14.1% of students in this study (Bendik et al., 2011). Although 30% chose to get the HPV vaccine, a main concern is that over twice as many are not. As previously discussed, participants agreed that knowing more about HPV would encourage them to get the HPV vaccine, so the extra information could influence some of those in the "not sure" category. Also, doctor recommendation could encourage some to get the HPV vaccine (Reiter et al., 2010; Rosenthal et al., 2011). In this study, over half of participants reported talking to their doctor about the HPV vaccine, and out of those, 88.7% reported that their doctor recommended the HPV vaccine. Out of the 50 participants who reported receiving the HPV vaccine, 42 of

those also reported their doctor recommending the HPV vaccine to them (data not shown), which may provide further evidence for the importance of physician recommendation.

Some safer sex barrier methods were much more popular than others. Condom use was reported by 55.6% of participants, whereas only 3% use dental dams and gloves. These results are consistent with Power and colleagues' (2009) study, which also found that dental dams and gloves were the least popular safer sex method barrier method. It is also apparent that many lesbians do not regularly practice any form of safer sex, which is consistent with several previous studies (Cox & McNair, 2009; Hyde, Comfort, Brown, McManus, & Howat, 2007; Power et al., 2009; Richters, Song, G., Clayton, & Turner, 2005). Regarding dental dams, 11.9% said they did not know where to find them, 4.8% had never heard of them, and 7.9% said they did not have access to them, although the USF Student Health Center provides free condoms and dental dams to students; however, the male condoms are visibly placed on the counter at the front desk for students to take, whereas students have to specifically ask for female condoms/dental dams. Having to inquire for female condoms/dental dams may be embarrassing and could impede students from asking. Moreover, free male condoms from the health center are advertised around campus, whereas the free female condoms and dental dams are not typically advertised. These findings have important implications for interventions designed to increase use of safer sex methods. Such interventions could focus on increasing awareness of the availability of female condoms and dental dams on campus. The majority of applicable participants (68.5%) ask their sexual partners if they have been tested for STIs/STDs, which could also be why participants feel at such a low risk for HPV because they have asked their participants if they have been tested. However, HPV is not included in a "complete STD screen," which only 30.4% of participants knew and correctly answered in the knowledge section, and HPV does not usually

show any signs or symptoms, therefore, the majority of people do not even know they have it (CDC, 2009).

SECTION 5: CONCLUSION

5.1 Findings and Implications

There is a need to gather knowledge, attitudes, and behaviors regarding HPV and the HPV vaccine in order to understand, and eventually design interventions to remove barriers to HPV vaccine uptake in a LGBT college student population. Regarding HPV knowledge, while almost all of the college students surveyed indicated they had heard of HPV, many demonstrated a suboptimal level of knowledge about HPV and the HPV vaccine. This suggests this population of students understands the general concept, but is less clear on the specifics. It is possible this reduced understanding is based on the information promoted through media coverage, which could also explain why knowledge of HPV health risks specific to the LGBT community is low. Regarding attitudes, participants agreed HPV is serious and very common, yet they do not believe they are at high risk. Also, they agreed that knowing that HPV affects people like them would encourage them to get the vaccine. Therefore, personalizing HPV, which could include educational material directed at an LGBT-specific population, could help them understand their risks and encourage them to get the HPV vaccine. In terms of behaviors, the majority of participants have not gotten the vaccine, yet they reported that knowing more information about HPV would encourage them to get the vaccine, so increasing knowledge and education could increase vaccine uptake. Also, the majority of participants reported using male condoms,

whereas other safer sex methods (i.e., dental dams and gloves) were much less common. This could also be due to the lack of sexual health education specifically for women who have sex with women.

By conducting this exploratory survey, we were able to identify and understand factors associated with preventive sexual health measures (i.e., HPV vaccination), which may serve as an important step toward developing and planning interventions to promote these measures in the future. Knowledge appears to be a major barrier associated with pursuing these preventative measures. More LGBT-specific education related not only to HPV, but sexual health in general, could increase these preventative measures and benefit the overall health of this population.

5.2 Limitations

While this study provides important information regarding the LGBT community, it must be considered in light of certain limitations. First, this study was based on self-reported data. Although the survey was confidential, sexual health is a sensitive topic; therefore, social desirability bias could have compromised the validity of certain responses. Additionally, responses could have been subjected to recall bias whereby participants did not accurately recall their own behaviors. Another limitation was the use of convenience sampling, which may limit the generalizability of study findings. Also, the sample included a mix of LGBT students and Allies and therefore did not focus exclusively on LGBT students; however, this mix allows for the future comparison of responses from heterosexual, bisexual, and homosexual participants.

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APPENDIX A:

THESIS SURVEY
CONSENT FORM
<p>Thank you for taking the time to complete the anonymous survey. This survey is part of a research study I am conducting for my Honors College thesis that hopes to improve sexual health knowledge and education for the lesbian, gay, bisexual, and transgender (LGBT) community. By taking this survey, you are giving your consent to participate in this research study.</p> <p>All of the information that you share is confidential and anonymous. We are not collecting any personal identifiers (i.e., your name) on this survey. We anticipate that it will take you 20 minutes to complete this survey. Your participation is completely voluntary. There is no penalty for not participating. You may stop participating at any time.</p> <p>Although there are no direct benefits to you for participation, our study may be of benefit to the community, since information we learn may help improve health education for the lesbian, gay, bisexual, and transgender people. Some people may be uncomfortable thinking about some of the issues in this survey. We anticipate that this discomfort should be minimal.</p> <p>You have the option of being entered into a drawing for four \$25 gift cards as a token of appreciation for your participation. Please see last page of survey for more information.</p> <p>You may contact Andrea Larson (email: aelarson@mail.usf.edu) if you have any questions about the survey or related to your participation in this study.</p> <p>Again, thank you for your participation. Your time and efforts are appreciated.</p>

APPENDIX B:**STUDENT SURVEY**

This survey is being conducted to assess college students' knowledge, attitudes, and practices concerning human papillomavirus (HPV) and the HPV vaccine. Do not write your name or any other type of identifying information. This survey will be kept confidential.

1. For each question in this survey, please bubble in the appropriate box OR write your answer in the space provided.
2. Unless the instructions tell you otherwise, please select only one response for each question.
3. While we would like for you to complete the entire survey, you can skip any question that you do not wish to answer.
4. If a question does not apply to you, skip it and proceed to the next question.
5. Some answers will ask you to skip to a different question. Please follow the skip patterns.

Thank you for your input.

Section 1: HPV KNOWLEDGE

1. Have you ever heard of HPV? HPV stands for human papillomavirus.
 - Yes
 - No: **Skip to question 3**

2. **Please indicate whether you think the statement is true or false by marking the appropriate box.**

Statement	True	False	Not Sure/ Don't Know
a. HPV can cause HIV/AIDS.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. You can always tell when someone has HPV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. HPV can cause abnormal Pap smears/ Pap tests.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Only women get HPV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. HPV can cause herpes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. HPV can cause genital warts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. You can have HPV without knowing it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. HPV is a sexually transmitted infection (STI) or sexually transmitted disease (STD).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. HPV can cause cervical cancer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. HPV can cause oral cancer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. HPV can cause anal cancer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Statement	True	False	Not Sure/ Don't Know
l. Antibiotics can cure HPV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. HPV is rare.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Condoms fully protect against HPV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Most HPV infections clear on their own.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. The HPV vaccine protects against all HPV infections.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. At least 50% of sexually active men and women get HPV at some point in their lives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r. HPV can be transmitted through oral sex.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s. Some typical symptoms of HPV include painful sores and discharge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t. Only women can get vaccinated against HPV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u. Females who have been diagnosed with HPV infection should not be given the HPV vaccine.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. A "complete STD screen" includes testing for HPV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
w. There are no health risks of HPV for gay men.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
x. There are no health risks of HPV for lesbians.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
y. Lesbians are at a much lower risk for getting HPV than women who have sex with men.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 2: SEXUAL HEALTH BEHAVIORS

Please answer the following questions about your sexual health behaviors to the best of your ability. If a question does not apply to you, please skip it and move on to the next question.

3. Are you sexually experienced (have had vaginal, anal, or oral sex)?
 - Yes
 - No (**skip to question 6**)
 - Don't know/Not sure

4. If so, are you sexually experienced with males, females, or both?
 - Males
 - Females
 - Both

5. In your lifetime, with how many different people have you had vaginal, anal, or oral sex?
 _____ (please fill in a number)

6. Have you ever had a cervical Pap test (also known as a Pap smear)?
 - Yes

- No (**skip to question 10**)
 - Don't know/Not sure (**skip to question 10**)
 - Not applicable
7. How long has it been since you had your last Pap smear?
- Less than 12 months ago
 - 1-2 years ago
 - 2-3 years ago
 - 3-5 years ago
 - Don't know/Not sure
8. Have you ever had an abnormal Pap test result?
- Yes
 - No
 - Don't know/Not sure
9. Approximately how often do you see a physician for a Pap test?
- Once every 6 months
 - Once a year
 - Once every two years
 - Once every three years
 - Once every four or more years
 - Other _____ (please specify)
 - Don't know/Not sure
 - Not applicable
10. Have you ever heard of an anal Pap test or anal Pap smear?
- Yes
 - No
 - Don't know/Not sure
11. Doctors can use an anal Pap test to identify anal cancer. An anal Pap test is when a doctor collects cells from the anus using a swab (like an extra long Q-tip) and examines them for changes. An anal Pap test is not the same as a test for anal gonorrhea, a colonoscopy, or a digital rectal exam.
- Have you ever had an anal Pap test?
- Yes
 - No (**skip to question 13**)
 - Don't know/Not sure (**skip to question 13**)
12. If you have had an anal Pap test, when was your most recent one?
- Less than 12 months ago
 - 1-2 years ago
 - 2-3 years ago
 - 3-5 years ago

- Don't know/Not sure
13. If a local doctor or clinic provided anal Pap tests, what would be your reasons for not getting one? (Check all that apply)
- I don't know enough about it
 - Asking for test or getting it might be embarrassing
 - It might hurt
 - Test might not be accurate
 - Test costs too much
 - I don't have transportation to get to doctor's office
 - I don't want this information in my medical chart
 - Not applicable
 - Other _____ (please specify)
14. Have you ever been diagnosed with HPV or genital warts?
- Yes
 - No (**skip to question 16**)
 - Don't know/Not sure (**skip to question 16**)
15. If you answered yes to the previous question, had you ever heard of HPV or genital warts before you were diagnosed with it?
- Yes
 - No
 - Not applicable
16. Do you have a close friend/family member that has been diagnosed with HPV or genital warts?
- Yes (**skip to question 18**)
 - No (**skip to question 18**)
17. If you answered yes to the previous question, had you ever heard of HPV or genital warts before your close friend/family member was diagnosed with it?
- Yes
 - No
 - Not applicable
18. Do you regularly (most or all of the time) practice any of the following safer sex methods? (Check all that apply)
- Condoms (on penis or sex toys)
 - Gloves (for vaginal/anal sex)
 - Dental dams (for oral sex)
 - Change fingers/hand between vagina/anus
 - Not applicable
 - Other _____ (please specify)

19. If you or your partner do not use male condoms, why? (Check all that apply)
- They are unnecessary
 - They are annoying
 - They just don't feel the same
 - I don't think about wearing them
 - I am embarrassed to purchase them
 - I am embarrassed to suggest wearing them
 - I don't have access to them
 - They are too expensive
 - I do not engage in sexual activity that requires a male condom
 - Other _____ (please specify)
20. If you or your partner do not use female condoms or dental dams, why? (Check all that apply)
- They are unnecessary
 - They are annoying
 - They just don't feel the same
 - I don't think about wearing them
 - I am embarrassed to purchase them
 - I am embarrassed to suggest wearing them
 - I don't know where to find them
 - I have never heard of them
 - I don't have access to them
 - They are too expensive
 - I do not engage in sexual activity that requires a female condom or dental dam
 - Other _____ (please specify)
21. If you are sexually active, do you ask your sexual partner(s) if they have been tested for sexually transmitted infections (STIs) or sexually transmitted diseases (STDs)?
- Yes (**skip to question 23**)
 - No
 - Sometimes
22. If you do not ask your sexual partner(s) if they have been tested for sexually transmitted infections (STIs) or sexually transmitted diseases (STDs), why not? (Check all that apply)
- I don't think about it
 - I use condoms
 - I'm embarrassed to ask
 - I trust my partner(s)
 - My partner and I are in a monogamous relationship
 - I haven't been tested myself
 - Not applicable
 - Other _____ (please specify)

Section 3: HPV VACCINE

Please answer the following questions about the HPV vaccine to the best of your ability. If a question does not apply to you, please skip it and move on to the next question.

23. Before this survey, had you ever heard of the HPV vaccine? This vaccine is also referred to as the HPV shot, GARDASIL, or CERVARIX.
- Yes
 - No
 - Don't know/Not sure
24. Have you received the HPV vaccine?
- Yes
 - No (**skip to question 26**)
 - Don't know/Not sure (**skip to question 26**)
25. How many shots in the series have you received (there are 3 total)?
- 1
 - 2
 - 3 (all of them)
26. If you haven't already gotten the HPV vaccine, do you plan on getting the vaccine?
- Yes
 - No
 - Don't know/Not sure
27. What are some reasons you have not gotten the HPV vaccine? (Check all that apply)
- Cost
 - I did not think about it
 - I had not heard of the HPV vaccine
 - I am not at risk for HPV
 - I have already had HPV
 - I don't believe in vaccines
 - I don't like injections
 - Vaccine is too new
 - I don't want my parents to know I'm sexually active
 - I am not eligible to receive the vaccine
 - Other _____ (please specify)

Section 4: ATTITUDES, BELIEFS, AND PERCEPTIONS

28. This section asks about your beliefs and perceptions about HPV and the HPV vaccine. Please tell us whether you agree or disagree with the following statements (from “strongly disagree” to “strongly agree”).

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a. It is extremely likely that I will get HPV in my lifetime.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. My current behaviors put me at risk for HPV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. HPV is a serious infection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Cervical cancer is a serious disease.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Cancer of the penis is a serious disease.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. I get scared when I think of getting HPV.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. I couldn't afford to get the HPV vaccine.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. I would not get the HPV vaccine because I am afraid of needles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. I don't think vaccines work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Getting the HPV vaccine could save my life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Knowing that HPV affects people like me would encourage me to get the HPV vaccine.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Knowing more about HPV would encourage me to get the HPV vaccine.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. If my mother approved of the HPV vaccine then I would approve of it also.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. If my grandmother approved of the HPV vaccine then I would approve of it also.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. If my friends approved of the HPV vaccine then I would approve of it also.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 5: HEALTH CARE EXPERIENCES

Please answer the following questions about your doctor, relationship with your doctor, and health care experiences. By *doctor*, we are referring to your *current* primary care physician, nurse practitioner, or physician assistant who treats your physical health. If you do not currently have a primary care provider, then please consider your most recent primary care provider when answering these questions.

29. What is your doctor's gender?
- Female
 - Male
 - MTF (*Male to Female*) Transgender
 - FTM (*Female to Male*) Transgender
 - Don't know/Not sure
30. Do you think your doctor is:
- Gay/Lesbian/Homosexual
 - Bisexual
 - Straight/Heterosexual
 - Don't know/Not sure
31. Do you believe your doctor knows what your sexual orientation is?
- Yes
 - No (**skip to question 34**)
 - Don't know/Not sure (**skip to question 34**)
32. How does your doctor know your sexual orientation?
- He or she probably assumes it.
 - Someone else told him or her.
 - I disclosed it without being asked.
 - I disclosed it because my doctor asked me.
33. How comfortable does your doctor seem to be with your sexual orientation?
- Very comfortable
 - Somewhat comfortable
 - Somewhat uncomfortable
 - Not at all comfortable
34. How important do you think it is that your doctor know about your sexual orientation?
- Very important
 - Somewhat important
 - Somewhat unimportant
 - Not at all important

35. If you did not disclose your sexual orientation, why not? (Check all that apply)
- Not necessary
 - Nervous
 - He/She wouldn't agree or understand
 - Don't want my parents to know
 - Uncertain of my sexual orientation
 - Not applicable
 - Other _____ (please specify)
36. Do you believe your doctor knows what your gender identity is?
- Yes
 - No (**skip to question 39**)
 - Don't know/Not sure (**skip to question 39**)
37. How does your doctor know your gender identity?
- He or she probably assumes it.
 - Someone else told him or her.
 - I disclosed it without being asked.
 - I disclosed it because my doctor asked me.
38. How comfortable does your doctor seem to be with your gender identity?
- Very comfortable
 - Somewhat comfortable
 - Somewhat uncomfortable
 - Not at all comfortable
39. How important do you think it is that your doctor know about your gender identity?
- Very important
 - Somewhat important
 - Somewhat important
 - Not at all important
40. If you did not disclose your gender identity, why not? (Check all that apply)
- Not necessary
 - Nervous
 - He/She wouldn't agree or understand
 - Don't want my parents to know
 - Uncertain of my gender identity
 - Not applicable
 - Other _____ (please specify)
41. How comfortable are you with discussing sexual health with your doctor?
- Very comfortable
 - Somewhat comfortable
 - Somewhat uncomfortable
 - Not at all comfortable

42. Has your doctor ever talked to you about HPV?
- Yes
 - No
 - Don't know/Not sure
43. Has your doctor ever talked to you about risks of other sexually transmitted infections (STIs) or sexually transmitted diseases (STDs)?
- Yes
 - No
 - Don't know/Not sure
44. Has your doctor ever talked to you about the HPV vaccine?
- Yes
 - No (**skip to question 46**)
 - Don't know/Not sure (**skip to question 46**)
45. If yes, did your doctor recommend the vaccine?
- Yes
 - No
 - Don't know/Not sure

Section 6: DEMOGRAPHIC INFORMATION

46. What is your gender?
- Female
 - Male
 - MTF (*Male to Female*) Transgender
 - FTM (*Female to Male*) Transgender
 - Other _____ (please specify)
47. What is your ethnic identity?
- American Indian or Alaska Native
 - Asian
 - Black or African American
 - Hispanic or Latino
 - Native Hawaiian or other Pacific Islander
 - White
 - More than one race
 - Other
 - Prefer not to answer
48. What is your age? _____

49. What best describes your major?

- Science
- Liberal Arts
- Business
- History
- Social Sciences
- Math
- Education
- Other _____ (please specify)

50. Are you considering a career in a health-related field?

- Yes
- No
- Don't know/Undecided

51. What is your college level?

- Freshman (0-29 credit hours)
- Sophomore (30-59 credit hours)
- Junior (60-89 credit hours)
- Senior (90+ credit hours)
- Graduate Student

52. Which of the following best describes your current relationship status?

- Single or Never married
- Living with a Domestic Partner
- Married
- Divorced or Separated
- Widowed
- Other _____ (please specify)

53. Which of the following best describes your sexual orientation?

- Heterosexual
- Homosexual
- Bisexual
- Questioning
- Other _____ (please specify)

54. Do you have health insurance?

- Yes
- No
- Don't know/Not sure
- Prefer not to answer

APPENDIX C:

THESIS SURVEY**\$25 Gift Card Raffle Information**

As a token of appreciation for participating in this study, we will be raffling off four \$25 gift cards to study participants. Please email your contact information (either a phone number or an email address that we can reach you at) to aelarson@mail.usf.edu if you are interested in participating in the raffle. It is completely optional. Your contact information will not be linked in any way to your survey. The raffle will take place after the survey collection period has ended.

APPENDIX D:

October 26, 2010

To Whom it May Concern:

HPV is the cause of most cervical cancers and has also been linked to anal cancer as well, which is especially important in the gay and bisexual population. The HPV vaccine has been shown to prevent several of the cancer-causing strains of HPV for both men and women. HPV vaccination uptake in the LGBT population is something we know very little about, and I am appreciative that Andrea Larson has taken an interest in this issue.

As the president of P.R.I.D.E. Alliance at USF, a LGBT advocacy group at USF, I give my permission to Andrea Larson to email out a web-based survey link through P.R.I.D.E. Alliance's list serve, and to distribute paper surveys during P.R.I.D.E. weekly meetings for her Honors Thesis study. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Lara McDermott", written over a light blue horizontal line.

Lara McDermott
President
P.R.I.D.E. Alliance
lmmcderm@mail.usf.edu

APPENDIX E:**Respondent Debriefing Questionnaire**

After completion of each section of the interview, participants will be asked the following questions to illicit feedback about the survey instrument in terms of clarity, comprehensiveness, and acceptability. The research assistant will be encouraged to expand on these questions according to the responses from the participant.

Name of Respondent: _____

Name of Interviewer: _____

Start Time: _____

Stop Time: _____

1. Overall, how did you feel about this survey?

2. Were the instructions clear and easy to follow?

a) If not, can you tell me how we could improve the instructions?

3. Where any sections of the survey unclear or difficult to navigate?

a) Do you have any suggestions as to how we could improve the section?

4. Where any specific questions unclear or need further explanation?

a) Do you have any suggestions as to how we could improve the question?

5. Were the answer choices able to accurately capture your feelings about the topics?

a) If not, what response items need to be added or altered to better capture your desired response?

6. Approximately how long did it take you to complete the survey?

a) How did you feel about the time?

7. Do you have any other comments, questions, or suggestions you would like to share about the survey?

APPENDIX F:



DIVISION OF RESEARCH INTEGRITY AND COMPLIANCE
 Institutional Review Boards, FWA No. 00001669
 11501 Bruce B. Downs Blvd., MDC0035 • Tampa, FL 33612-1799
 (813) 974-8638 • FAX (813) 974-5613

March 22, 2011

Andrea Larson
 Honors College
 15501 Bruce B. Downs Blvd
 Apt 3709

RE: **Expedited Approval for Initial Review**
 IRB#: Pro00002747

Title: **The knowledge, attitudes, and behaviors of gay, lesbian, bisexual, and transgender University of South Florida (USF) students concerning human papillomavirus (HPV) and the HPV vaccine**

Dear Ms. Larson:

On 3/22/2011 the Institutional Review Board (IRB) reviewed and **APPROVED** the above referenced protocol. Please note that your approval for this study will expire on March 22, 2012.

Approved Items:
 Protocol Document(s):

[Appendices to the SRC Protocol](#)
[SRC Protocol](#)

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR 56.110. The research proposed in this study is categorized under the following expedited review category:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your study qualifies for a waiver of the requirements for the documentation of informed consent as outlined in the federal regulations at 45CFR46.116 (d) which states that an IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent, or waive the requirements to obtain informed consent provided the IRB finds

and documents that (1) the research involves no more than minimal risk to the subjects; (2) the waiver or alteration will not adversely affect the rights and welfare of the subjects; (3) the research could not practicably be carried out without the waiver or alteration; and (4) whenever appropriate, the subjects will be provided with additional pertinent information after participation.

Your study qualifies for a waiver of the requirement for signed authorization as outlined in the HIPAA Privacy Rule regulations at 45 CFR 164.512(i) which states that an IRB may approve a waiver or alteration of the authorization requirement provided that the following criteria are met (1) the PHI use or disclosure involves no more than a minimal risk to the privacy of individuals; (2) the research could not practicably be conducted without the requested waiver or alteration; and (3) the research could not practicably be conducted without access to and use of the PHI.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-9343.

Sincerely,

A handwritten signature in black ink that reads "John A. Schinka, Ph.D." The signature is written in a cursive style with a large initial 'J' and 'S'.

John A. Schinka, Ph.D.
Chairperson, USF IRB