The Effectiveness of Health Education Materials in Influencing HIV Testing Behavior: The UNLV-SIPHI Study

Rebecca Tsegay

University of Nevada, Las Vegas, tsegayr@unlv.nevada.edu

Follow this and additional works at: https://digitalscholarship.unlv.edu/thesesdissertations

Part of the Community Health and Preventive Medicine Commons, Epidemiology Commons, Public Health Education and Promotion Commons, and the Virus Diseases Commons

Repository Citation
https://digitalscholarship.unlv.edu/thesesdissertations/1785

This Thesis is brought to you for free and open access by Digital Scholarship@UNLV. It has been accepted for inclusion in UNLV Theses, Dissertations, Professional Papers, and Capstones by an authorized administrator of Digital Scholarship@UNLV. For more information, please contact digitalscholarship@unlv.edu.
THE EFFECTIVENESS OF HEALTH EDUCATION MATERIALS IN
INFLUENCING HIV TESTING BEHAVIOR: THE UNLV -SIPHI STUDY

By

Rebecca Tsegay

Bachelor of Science in Health Science
Trident University
2009

A thesis submitted in partial fulfillment
of the requirements for the

Master of Public Health

Department of Epidemiology and Biostatistics
School of Community Health Sciences
The Graduate College

University of Nevada, Las Vegas
December 2012
THE GRADUATE COLLEGE

We recommend the thesis prepared under our supervision by

Rebecca Tsegay

entitled

The Effectiveness of Health Education Materials in Influencing HIV Testing Behavior: The UNLV-SIPHI Study

be accepted in partial fulfillment of the requirements for the degree of

Master of Public Health
Department of Epidemiology and Biostatistics

Michelle Chino, Ph.D. Committee Chair

Tim Bungum, Ph.D. Committee Member

Patricia Cruz, Ph.D. Committee Member

Alan Simmons, Ph.D. Graduate College Representative

Tom Piechota, Ph.D., Interim Vice President for Research &
Dean of the Graduate College

December 2012
ABSTRACT

THE EFFECTIVENESS OF HEALTH EDUCATION MATERIALS IN INFLUENCING HIV TESTING BEHAVIOR: THE UNLV-SIPHI STUDY

By

Rebecca Tsegay

Dr. Michelle Chino, Thesis Committee Chair
Associate Professor of Public Health
University of Nevada, Las Vegas

The UNLV-SIPHI (Sexual Health Internet-Based Public Health Intervention) Study focused on HIV prevention by improving HIV testing behavior through the development and dissemination of health education materials. The goal of the UNLV-SIPHI Study was to develop effective, custom-made HIV health education materials that promote the knowledge, intention and practice of HIV testing among UNLV students. The UNLV-SIPHI Study was conducted during Spring 2012 semester in selected UNLV undergraduate classes. An online quasi-randomized-control trial (RCT) was used to measure the difference in HIV testing behavior contributing factors among students exposed to the health education materials. Several nonparametric tests were used to analyze the results of the study. The results showed a significant increase in the knowledge of HIV testing practice among participants in the post-test groups over the pre-test population (T=5.5, p<0.05) with higher scores present in the text-only health education material group (U=57.0, p<0.05). A validated assessment tool for HIV testing behavior was also developed as a result of this study. These results will offer insight into the development of effective HIV testing health education materials, and provide useful information to university health promotion planning programs.
TABLE OF CONTENTS

ABSTRACT...........................................................................................................................................iii

LIST OF TABLES.......................................................................................................................................v

CHAPTER 1 INTRODUCTION.........................................................................................................................1
  HIV/AIDS Case Definition, Transmission and Prevention.................................................................2
  Diagnosis and Case Definition...........................................................................................................3
  Epidemiological Assessment in US and Nevada..................................................................................4
  HIV/AIDS Assessment of Nevada Youth...............................................................................................6

CHAPTER 2 BACKGROUND AND SIGNIFICANCE .........................................................................................10
  HIV Testing Among Youth and Significance of Thesis Project..........................................................10
  Contributing Factors to Current HIV Transmission Trends Among Youth.......................................11
    Knowledge About HIV Testing Among College Students............................................................12
  The Use of Health Education Materials.............................................................................................13
  Health Behavior Theoretical Framework - The IMB Model..............................................................15
  Summary...............................................................................................................................................16

CHAPTER 3 METHODS................................................................................................................................18
  Hypotheses...........................................................................................................................................19
  Study Design........................................................................................................................................20
    Health Education Materials.............................................................................................................20
  Study Population................................................................................................................................22
    Sampling and Selection Criteria.......................................................................................................22
    Recruitment......................................................................................................................................23
  Data Management and Analysis........................................................................................................24
    WebCampus Advantages and Limitations.........................................................................................24
  Human Subjects Protection/Ethical Issues..........................................................................................26
  Assessment..........................................................................................................................................27
    Theoretical Basis for UNLV-SIPHI Study Questionnaire and Assessment Tool..............................27
      Items about Prevention Information.............................................................................................29
      Items about Motivation...................................................................................................................29
      Items about Behavioral Skills.........................................................................................................29
      Items about Preventative Behaviors..............................................................................................30
    Validity..............................................................................................................................................30
    Reliability.........................................................................................................................................31

CHAPTER 4 RESULTS...................................................................................................................................33
  Descriptive Statistics............................................................................................................................33
  Inferential Statistics...............................................................................................................................37
    Hypothesis 1 (a): Providing HEMs improves the knowledge, intention and behavioral skills that contribute to HIV test-taking behavior..............................37
Knowledge Items Results.................................................................37
Motivation and Behavioral Skills Item Results..............................38
Hypothesis 1 (b): The type of HEM provided makes a difference in the knowledge, intention and behavioral skills to take an HIV test.........39

CHAPTER 5 CONCLUSION..................................................................41
Discussion of Findings and Implications for Future Research........41
Strengths and Limitations of Study ..................................................43
Conclusion.........................................................................................45

APPENDICES.......................................................................................46
Appendix 1 UNLV-SIPHI Study Questionnaire.................................46
Appendix 2 UNLV-SIPHI Study Assessment Tool (USSAT)...............51
Appendix 3 Text-Only Health Education Material............................53
Appendix 4 Picture-Text Combination Health Education Material........54

REFERENCES....................................................................................55
Curriculum Vitae................................................................................60
LIST OF TABLES

Table 1 Comparison of Nevada and National HIV/AIDS Rates………………………………8
Table 2 Occurrence of New HIV/AIDS Cases in Nevada by Age…………………………8
Table 3 Classes Surveyed for UNLV-SIPHI Study...................................................22
Table 4 Content Validity Analysis.............................................................................32
Table 5 Pre-Test Population Demographics..............................................................34
Table 6 Post-Test Population Demographics............................................................35
Table 7 Relationship Between Pre-Test Question Items and Taking an HIV Test……36
Table 8 Non-Parametric Test Results......................................................................38
CHAPTER 1
INTRODUCTION

Since the first appearance of HIV/AIDS in the United States in the 1980’s, the propagation of this epidemic has been largely associated with non-heterosexual sexual activity (CDC-DHAP, 2012c). However, with the increase in HIV/AIDS rates among the general population, heterosexual transmission of HIV/AIDS has currently become the leading source of transmission worldwide (AVERT, n.d. b). Demographic groups that are at risk because of their engagement in unprotected heterosexual sexual activities, such as young adults, should be aware that they are at increased risk for contracting HIV and engage in HIV preventative measures to protect themselves (CDC-DHAP, 2011). In the US and in Nevada, youth ages 13-24 are the fastest growing demographic group for new HIV cases (CDC, 2011a; NSHD-STD/HIV/AIDS Control Program, 2010). While sexual health education programs in schools and in the community have had success with educating young adults about HIV facts and how to protect themselves from HIV, there is evidence from the literature that knowledge about HIV testing as an HIV prevention measure, in particular, is lacking among young adults (Hou and Wisenbaker, 2005). Several health behavior theories, predict that such knowledge deficiencies about HIV testing may be a contributing factor in the low HIV testing rates among young adults (Fisher and Fisher, 1994). A commonly used strategy to educate at-risk populations about HIV testing and other HIV prevention measures is to distribute health education materials in a variety of formats. However, the efficacy of such health education materials in promoting knowledge about HIV testing is largely unknown. Furthermore, the effectiveness in increasing HIV testing knowledge by incorporating pictures into such health education materials has not been measured. There is a need for more research to be
done that measures the impact of health education materials on HIV testing knowledge, in order for health promotion programs to develop the most effect materials possible that could educate young adults and other at-risk populations.

**HIV/AIDS Case Definition, Transmission and Prevention**

Human Immunodeficiency Virus (HIV) is a virus that weakens the human body’s immune system and its ability to fight off infections. The terminal stage of this disease is called Acquired Immune Deficiency Syndrome (AIDS). People with AIDS are left vulnerable to diseases because their immune systems are weak, and are no longer able to protect them from opportunistic infections and cancers. These opportunistic diseases take advantage of the individual’s weakened immune system and cause serious and fatal illnesses. Some of the unusual cancers and infections that are commonly seen in people with AIDS include Kaposi’s sarcoma and Candidiasis (AVERT, n.d. a).

HIV can be transmitted through bodily fluids such as blood, semen and vaginal secretions, and breast milk. The four main ways which HIV is transmitted is through:

- Unprotected sex with an infected partner
- Vertical transmission from an infected mother to child
- Sharing needles with an infected person
- Infected blood transfusions or contaminated blood products

(CDC-DHAP, 2012 a)

While HIV can be transmitted through all unprotected sex activities, the risk of HIV transmission differs by the type of sexual activity which a person engages in. Generally speaking, even though HIV can be transmitted through all types of sexual
activity, anal sex is the riskiest activity on the transmission spectrum, while vaginal sex and oral sex are considered to be less risky activities (Cichocki, 2010). Having another sexually transmitted infection (STI) also increases the chances of getting HIV/AIDS because they can cause open sores, which can expose a person to HIV/AIDS during unprotected intercourse (CDC-DHAP, 2010 b). Other risk factors for the transmission of HIV include having unprotected sex with multiple partners, men who have sex with men (MSM), infection drug users (IDU). These groups are considered to be at high-risk and are recommended to be tested for HIV at least once a year (CDC-DHAP, 2012 a).

Primary prevention for the transmission of HIV focuses on methods that keep uninfected people from being infected with HIV/AIDS. Such methods focus on the use of behavioral theory-based interventions to change risky behaviors and to promote risk-reduction behaviors. HIV/AIDS risk-reduction education usually involves the promotion of condom usage, HIV/AIDS testing, the reduction of multiple partners, safe use of injection drugs or drug-use cessation, and preventing substance abuse, especially before engaging in sexual intercourse (Fisher and Fisher, 1994).

**Diagnosis and Case Definition**

The main test which is used to detect HIV in the body is the antibody test. HIV antibody tests can use saliva, urine or blood from a person to see whether they carry antibodies against HIV. There is a time period, usually up to 3 weeks after infection, when an HIV test will show negative results because the person hasn’t yet developed HIV antibodies. If the test result is positive, a follow-up Western blot test is done in about 3 months to confirm the presence of the infection (Schneider et al., 2008).
According to the case definitions of the Nevada State Health Division, a person with HIV is defined as having a positive Western blot test and positive PCR in infants less than 18 months of age, and a person with AIDS is defined as having a CD4+ count of less than 200 (<14%) (NSHD-STD/HIV/AIDS Control Program, n.d). An AIDS diagnosis within 31 days of an HIV diagnosis is considered concurrent, so an individual diagnosed with both is included in the totals of both HIV diagnosis and AIDS diagnoses (NSHD-STD/HIV/AIDS Control Program, n.d).

**Epidemiological Assessment of HIV/AIDS in the US and in Nevada**

In the US, an estimated 1.2 million people are currently living with HIV infections, with 1 in 5 of the infected not being aware of their HIV status (CDC, 2012 a). In 2009, an estimated 42,011 people were diagnosed with HIV infection and 34,247 were diagnosed with AIDS (CDC, 2011 a). As of 2009, the number of HIV/AIDS cases in the United States was 20.9 per 100,000. Nevada had a similar rate of 19.5 per 100,000, ranking at #15 among states in HIV/AIDS new case rates (CDC, 2012 b). In Nevada, there has been a gradual decline in the number of new HIV cases. While in 2009, there were 418 new HIV cases in Nevada, there were only 370 new HIV cases in 2011 (rate of 13.6 per 100,000). (Kaiser State Health, 2011) So even though Nevada’s HIV/AIDS rate is improving, it still has more room for improvement in order to reach the Healthy People 2020 goal of 13 per 100,000 new HIV cases per year (DHHS, 2012).

In the US, the demographic distribution of the HIV/AIDS epidemic has been largely confined to certain segments of the population. By race/ethnicity, Blacks made up the majority of cases, followed by Hispanics/Latinos and Whites. Blacks make up only
14% of the US population, yet accounted for 44% of new HIV infections in 2009 (CDC, 2011a). By risk transmission category, men who have sex with men (MSM) are at highest risk for contracting HIV, accounting for 61% of new HIV diagnoses in 2009 (CDC, 2011a). Heterosexual transmission of HIV/AIDS has also been increasing steadily, and now accounts for a sizeable portion of new HIV cases. In the US, heterosexual sexual transmission accounted for over 26% of new HIV diagnoses in 2009 and for 72% of female HIV infections (AVERT, n.d. b). However, while heterosexual transmission of HIV is increasing, homosexual contact remains to be the primary source of HIV transmission.

By geographic distribution, the majority of AIDS cases occur in the South and Northeast of the US. In 2007, there were 35,962 new AIDS diagnoses (CDC, 2012b). Of these, 25% occurred in the Northeast, 11% occurred in the Midwest, 46% occurred in the South and 17% occurred in the West (CDC-DHAP, 2012b) (Figure 1). In Nevada, the HIV/AIDS epidemic has been largely confined to men who have sex with men, older individuals (over the age of 30 years) and injection drug users. However, the demographic distribution of HIV incidence has recently begun to change. More than 15% of new HIV cases are occurring among the 13-24 age group, with heterosexual contact accounting for a similar percentage of new cases in Nevada (NV-HIV/AIDS CPG, 2011). Heterosexuals and youth are some of the fastest growing demographic groups for the HIV incidence. The demographic distribution of the HIV/AIDS epidemic in the US is likely to follow a similar pattern as Nevada, as more heterosexuals and youth aged 13-24 are accounting for large proportions of new HIV and AIDS diagnoses (CDC, 2011a).
HIV/AIDS Assessment of Nevada Youth

The Nevada State Health Division 2010 HIV/AIDS annual reports highlight that youth ages 13-24 have one of the highest rates of new HIV cases in comparison to other groups in the state (NSHD-STD/HIV/AIDS Control Program, 2010). Youth made up about a quarter of new HIV/AIDS cases (Table 2). As a result of these statistics, youth have been identified as a key risk category for the transmission of STDs/HIV/AIDS. In order to prevent and to control the rate of STD/HIV/AIDS infection among this demographic group, state public health agencies have stated the need to develop more youth-targeted programs that focus on reducing risk-behaviors that lead to HIV/AIDS transmission. In Nevada, the Nevada HIV/AIDS Community Planning Group (NV-HIV/AIDS CPG), made up of the NSHD, the Northern Nevada HIV/AIDS Planning Council (NNPC) and the Community Planning Group of Southern Nevada (CPG-SoN), have come together to develop The Comprehensive Statewide HIV/AIDS Prevention Plan for 2011-2016 (NV-HIV/AIDS CPG, 2011). In this statewide assessment of HIV/AIDS needs, the need for more behaviorally-focused interventions that target youth populations has been highlighted as an important area of future growth for HIV/AIDS prevention efforts in the state. This document has outlined strategies for developing more youth-specific interventions primarily on the basis of targeted assessments and behavior-change interventions.
Figure 1 – Geographic Distribution of New HIV Cases in US, 2007 (CDC, 2012b)

Figure 2 – Trends in HIV/AIDS Diagnoses in US by Risk of Transmission Category, 1985-2010 (CDC-DHAP, 2012c)
Table 1 – Comparison of Nevada and National HIV/AIDS rates (NSHD-HSPER, 2011)

<table>
<thead>
<tr>
<th></th>
<th>HIV/AIDS Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nevada</td>
<td>10.4</td>
</tr>
<tr>
<td>US</td>
<td>14.4</td>
</tr>
<tr>
<td>Healthy People Target 2010</td>
<td>1.0</td>
</tr>
<tr>
<td>Nevada comparison with Target 2010</td>
<td>Improving</td>
</tr>
</tbody>
</table>

Table 2 – Occurrence of New HIV/AIDS Cases in Nevada 2010 by Age (NSHD-STD/HIV/AIDS Control Program, 2010)

<table>
<thead>
<tr>
<th>By AGE</th>
<th>HIV/AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 0-13</td>
<td>0%</td>
</tr>
<tr>
<td>Ages 13-24</td>
<td>22%</td>
</tr>
<tr>
<td>Ages 25-34</td>
<td>29%</td>
</tr>
<tr>
<td>Ages 35-44</td>
<td>25%</td>
</tr>
<tr>
<td>Ages 45+</td>
<td>24%</td>
</tr>
</tbody>
</table>
Figure 3 – Number of New HIV Infections by Age, Risk Transmission Category and Race (NV-HIV/AIDS CPG, 2011)
CHAPTER 2

BACKGROUND AND SIGNIFICANCE

HIV Testing Among Youth and Significance of Thesis Project

One of the ways to stop the spread of HIV among young adults is to encourage increased HIV testing for this demographic group. The CDC recommends that all Americans between the ages of 13-64 be tested for HIV at least once in their lifetime (CDC-DHAP, 2010a). While about 55% of adults have been screened for HIV, only about 36% of young adults, aged 18-24 have done so (CDC-DHAP, 2010c). Also, the CDC recommends that HIV testing be included as a part of the routine clinical care in all health-care settings, and high-risk individuals are recommended to get tested for HIV at least once annually. Because youth and young adults ages 13-24 make up about a quarter of all new HIV cases in Nevada, they are considered to be a high-risk target group for HIV/AIDS prevention (NV-HIV/AIDS CPG, 2011). This demographic group could be encouraged to increase their rates of HIV testing in order to routinely screen for HIV before engaging in activities that put them at risk for transmission. The goal of the undertaken thesis project was to provide effective health education for college-age young adults, which focuses on promoting HIV testing as an HIV preventative behavior. It is hoped that the results of this study will offer insight into how to improve HIV testing health education materials for this high-risk demographic group.
Contributing Factors to Current HIV Transmission Trends Among Youth

Adolescents and young adults (ages 13-24 years) are at high-risk for contracting sexually-transmitted infections (STIs), such as HIV, due to their increased participation in sexual activities at this age (CDC-DHAP, 2011). Even though there is increasing knowledge of HIV/STI facts, many adolescents and young adults underestimate their vulnerability to contracting an illness. Adolescents and young adults that are just becoming sexually active, in particular, may feel invincible to the risk of contracting a sexually transmitted infection (Shumaker, Ockene, Reikert, 2008, p. 259). Several health behavior theories, such as the Health Belief Model, show that low perceived-risk of contracting sexually transmitted infections often corresponds with less preventative behaviors that are taken to protect from contracting HIV or other STIs (Shumaker et al, 2008). Likewise, a low perceived-risk of contracting HIV and a low acknowledgement of one’s own risk behaviors has been associated with low HIV testing acceptance among college students (Hou and Wisenbaker, 2005).

Another factor that is contributing to increasing the rates of HIV testing among the youth is a possible lack of knowledge of HIV preventative behaviors and HIV testing facts among the youth. Critics of current sexual education curriculum in Nevada high schools attribute some of the observed STD/HIV/AIDS/teen pregnancy trends on the quality of sex education that is being given to students (KNPR, 2011). Results from the 2009 Youth Risk Behavior Survey seem to back up this claim, because although Clark County teenagers are being exposed to sexual health education materials, they are reportedly still more likely to have never been taught in school about HIV or STDs than other high school students in the nation (CDC, 2011). This is particularly disconcerting.
because according to the Healthy People Nevada 2010-2020 Report, Clark County, Nevada consistently had the highest rates of sexually transmitted infections/HIV/AIDS when compared to other parts of the state. Clearly Nevada, and Clark County teenagers in particular, could benefit from quality sexual health promotion materials to help educate and reinforce the importance of practicing safe sex practices, such as using condoms, engaging in monogamous relationships, and practicing routine HIV testing.

**Knowledge about HIV Testing Among College Students**

College-age young adults are a high-risk group for many unhealthy behaviors, such as risky sexual practices, that could potentially be prevented with health education. Many health education programs do target this demographic group and have had success in promoting many types of positive health behaviors. However, still this age group is showing a persistent trend in the amount of risky behaviors that they are undertaking. Among college-age young adults, studies have shown that the majority are engaging in sexual activities, HIV/AIDS perceived risk and knowledge about HIV testing is lacking. In a study by Hou and Wisenbaker (2005), only 7.7% of the sexually experienced but never tested undergraduate students in the study intended to get tested for HIV. Furthermore, the college students surveyed for this study were shown to have adequate knowledge about HIV facts but to have unsatisfactory knowledge about HIV testing (Hou and Wisenbaker, 2005). This is particularly concerning because youth and young adults, ages 13-29 make up the majority of the occurrence of new HIV/AIDS in Nevada and the US, thus making youth an ideal demographic group to benefit from health education that is targeted towards increasing HIV testing rates.
The Use of Health Education Materials (HEMs)

Health Education Materials (HEMs) are any education material that is used to educate the public about health concerns. This term covers a broad category of materials that utilize different media formats, including print factsheets, pamphlets, flyers, video, television advertisements and booklets. In this digital age, HEMs may also include more diffuse products such as webpages, blogs, online videos and social media posts. Research has shown that HEMs are effective in improving the health knowledge of their target audience. To some extent, even the provision of HEMs alone can influence the level of motivation and practice of health behaviors. Studies have shown that health education materials have also shown that stand-alone HEMs are effective in producing intentions and behavior change in people. For example, a study by Bull, Holt, Kreuter, Clark and Scharff (2001), showed that effectively-designed HEMs can influence people’s decisions to join a weight loss program. Participants reported that reading a well-designed booklet on weight loss made them more likely to engage in a weight-loss program than those that read a less attractively-designed HEM (Bull et al, 2001).

Incorporating color, pictures and other visual aids in HEM design are also strategies that can increase knowledge retention, and influence health behavior (Houts, Doak, Doak and Loscalzo, 2006). In a peer-reviewed study of existing studies on the use of pictures in health education materials, Houts et al. (2006), have found that pictures have mostly beneficial effects in increasing patient comprehension, attention, recall and retention of health information. However, this benefit was not seen in all of the health education studies that were included in the review. One of the studies reviewed, said that patients must relate the use of the pictures to the content in the health education materials
in order for them to increase their comprehension of the material (Houts et al., 2006). The review showed that the type of pictures that are used can also have a positive or negative effect on the emotional response to the material depending on the nature of the picture and the patients’ predisposition to the picture content (Houts et al., 2006). Furthermore, the use of pictures in health education materials was found to have conflicting effects on actual health behavior (Houts et al., 2006). These factors must be taken into consideration when using health education materials to increase a behavioral outcome, such as taking an HIV test. Houts et al. (2006), cites that more studies which use an experimental design, such as the one conducted by Delp and Jones (1996), are needed to measure the effects on knowledge and actual behavior by providing text-only health education materials in comparison with materials that utilize pictures along with text.

Health education materials that are designed in a variety of formats, both print and internet-based can potentially reach many young people with their health messages. In particular, the potential to reach the younger demographic groups with internet disseminated health education materials is very great, because this demographic group is already likely to seek out health information over the internet. The vast majority (92%) of young adults aged 18-29 years report using the internet to gather information on a regular basis (Glasgow and Bennet, 2009). About 80% of regular internet users use the internet to gather information about health-related topics (Mayman, Townsend and Grodzinski, 2009).

Most health education programs recommend the integration of effectively-designed HEMs as part of educational intervention strategies in order to effectively
improve health behavior of their populations (CDC-HIV/AIDS Guidelines, 2011). For this reason, the use of health education materials in a variety of formats was chosen as the strategy to convey information about HIV testing to the study population in the UNLV-SIPHI Study.

**Health Behavior Theoretical Framework – The IMB Model**

In order for the health education provided by the study to have the intended outcome, (i.e. to increase knowledge about HIV testing and overall HIV testing rates) it must be based in health behavior theory. The Information-Motivation-Behavioral (IMB) Model was chosen to be the theoretical framework for the UNLV-SIPHI Study because it identifies the determinants of HIV/AIDS preventative behaviors, and provides a blueprint for designing, implementing and evaluating AIDS risk reduction interventions.

Developed in 1992, the IMB Model states that individuals are likely to engage in HIV/AIDS preventative behaviors if they have adequate knowledge about the preventative measure and are adequately motivated to act upon it (Fisher and Fisher, 1992). The knowledge and intention components influence the behavioral skills component (such as self-efficacy), and all three of these components cause changes in HIV/AIDS preventative behaviors. In these ways, the IMB Model is similar to the other models, the Social-Cognitive Theory, the Theory of Reasoned Action, the Health Belief Model, and the AIDS Risk Reduction Model, from which it was derived (Fisher, Fisher, Williams & Malloy, 1994). Because IMB Model-based interventions have been shown to significantly change HIV/AIDS risk reduction, information, motivation and behavioral skills, the IMB Model served as the basis of the assessment that measured the education intervention outcome of the UNLV-SIPHI Study.
Health Education Material dissemination is a widely used strategy in healthcare to educate the population on specific health conditions and outcomes. In clinical settings, they are used either alone as a passive education strategy, or in combination with health interventions. Health education materials have been shown to improve knowledge and to produce varying degrees of behavior change among the population. In terms of HIV/AIDS education, health education materials play a vital role in educating individuals on how to protect themselves from contracting this disease. One way to prevent the spread of HIV is to increase the frequency of HIV testing among high-risk individuals. College-age young adults are a high-risk group for contracting HIV and other STIs due to high-risk sexual behaviors. This demographic group has been shown have a low perceived-risk for contracting HIV/AIDS and to have less knowledge about HIV testing than they do about HIV/AIDS in general. Therefore, college-age young adults can benefit from the development quality HIV prevention health education materials in different formats that promote the knowledge and practice of HIV preventative behaviors, such as routine HIV testing. The goal of this thesis project, the UNLV-SIPHI Study, is to develop health education materials that could promote HIV testing as way to prevent the spread of HIV among college-age young adults. By using a health behavior model which
accurately predicts HIV preventative behavior, such as the Information-Motivation Behavioral Skills (IMB) Model, the efficacy of the education materials that are developed in this study can be assessed quantitatively. The results from the UNLV-SIPHI Study can help to develop effective health education materials and programs that provide knowledge of HIV testing facts and that encourage routine HIV testing for youth as a high-risk demographic group.
CHAPTER 3
METHODS

Introduction

The UNLV-SIPHI Study began on April 9, 2012 after being approved by the UNLV Biomedical IRB on March 30, 2012 (Protocol # 1201-4018). An invitation letter was sent out between April 6th and April 9th to the students in selected classes by their course instructors. On April 9th, the UNLV-SIPHI Webcampus course was opened for all of the students in these classes. Students that wished to participate in the study read the instructions and the consent form in the course homepage before taking the assessments. The pre-test was available for students for only two weeks (April 9 – April 23, 2012). After taking the pre-test, the students were quasi-randomly allocated to three post-test groups with reading materials. The post-test was available for students starting April 12, and was open until the closing of the study on May 9, 2012.

The questionnaire that was used for both the pre-test and the post-test contained 28 questions. The first post-test group was the control group for the study, and it contained only a post-test without any health education materials. The second post-test group contained a post-test with a health education material on HIV testing and prevention based off of a standard brochure that is given to patients at the student health clinic in the Student Wellness and Recreation Center (SWRC). The third post-test group also contained the same brochure; however this brochure was modified to include pictures that were relevant to the text.

After taking the pre-test and the post-test, students were compensated with a $3.00 Baskin Robbins gift card, and were entered into a raffle drawing for a $50.00
Barnes and Noble e-gift card. Only students that took both assessments received the participation incentive and were entered into the raffle drawing. The UNLV-SIPHI study was removed from the student view on Webcampus on May 23, 2012.

**Hypotheses**

The research hypotheses aim to answer the following questions:

1. Do HEMs improve knowledge, intentions, and practice of selected HIV/AIDS risk-reduction behaviors?

2. Do pictorially-based Health Education Materials (HEMs) better improve the knowledge, intentions, and practice of selected HIV/AIDS risk-reduction behavior (i.e. HIV testing), when compared with text-based Health Education Materials?

The Research Hypothesis of the UNLV-SIPHI Study is as follows:

(a) Research Hypothesis 1: HEMs about HIV testing improve the knowledge, intentions and practice of HIV testing among college students.

Null Hypothesis: There is no difference between students that receive HEMs about HIV testing and those that do not receive HEMs.

(b) Research Hypothesis 2: Pictorially-based Health Education Materials (HEMs) better improve the knowledge, intentions, and practice HIV testing, when compared with text-based Health Education Materials.

Null Hypothesis: There is no difference between students that receive pictorial-based HEMs about HIV testing and students that receive text-based HEMs.
Study Design

The UNLV-SIPHI Study used a pre-test/post-test, quasi-randomized control design. All of the participants took the pre-test that measured their baseline knowledge, motivation, and ability to practice HIV testing. After taking the pre-test, participants were assigned to a post-test group. There were three post-test groups in this study: two intervention groups and a control group. Control group participants reviewed an HIV testing flyer as their reading material, which was used to advertise free HIV testing events on the UNLV main campus during the Spring 2012 semester. This flyer was also attached at the end of the pre-test in order to ensure that everyone had been exposed to the same information as the control group. Participants assigned to the two intervention groups reviewed either a text-only or a pictorial-text combination health education material before taking the post-test. Study participants were quasi-randomly allocated to a post-test group on the basis of whether or not they completed the pre-test first. The effectiveness of the intervention was measured by the differences in knowledge, intentions and behavior skills and HIV testing outcomes between the pre-/post-test evaluations of the experimental and control groups.

Health Education Materials

The OraQuick Rapid HIV ½ Antibody Test, is a rapid HIV test that takes a sample of oral mucosa in order to check for the presence of HIV antibodies. The standard brochure that comes with this test is given to all patients that come to the UNLV Student Health Clinic for HIV testing. For this reason, the information in this brochure served as the basis of the health education materials that were administered to students during the study. Two formats of this brochure were prepared: the standard text-only version and a
version that included pictures to accompany the text. The efficacy of the standard-care health education in providing information about HIV testing was assumed because this material is used to provide information about HIV testing in the clinical setting.

Since the timing of the UNLV-SIPHI Study was set to coincide with free HIV testing events on the main UNLV campus during the Spring 2012 semester, a flyer for this event was included in the assessments. The main purpose for this was to see if administering only a flyer without any health education materials influenced intentions to take an HIV test. Students that received health education materials were expected to show a greater intention to take an HIV test than those that did not receive any health education materials. Also, the students that received pictorially-based HEM’s were expected to show a greater intention to take an HIV test than those that received only a text-based HEM.
Study Population

Sampling and Selection Criteria

The study population was taken from UNLV undergraduate students, enrolled in selected UNLV undergraduate classes during the Spring 2012 semester (Table 3). A convenience sample of students was taken from the six classes that were selected to participate in the study. Six undergraduate classes were recruited for this study, three online classes and three in-person classes. However, because the study was conducted entirely online, there wasn’t any difference in the way that the participants from online or in-person classes were recruited or in the way that they participated in the study.

Table 3 – UNLV Undergraduate Classes that were surveyed for the UNLV-SIPHI Study

<table>
<thead>
<tr>
<th>Course Number and Title</th>
<th>Class Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>HED 165– Personal Health Across the Lifespan</td>
<td>In-person class</td>
</tr>
<tr>
<td>HED 165– Personal Health Across the Lifespan</td>
<td>In-person class</td>
</tr>
<tr>
<td>SOC 101– Principles of Sociology</td>
<td>Online class</td>
</tr>
<tr>
<td>SOC 101- Principles of Sociology</td>
<td>Online class</td>
</tr>
<tr>
<td>ANTH 101 – Introduction to Cultural Anthropology</td>
<td>In-person class</td>
</tr>
<tr>
<td>ANTH 102 – Introduction to Physical Anthropology</td>
<td>Online class</td>
</tr>
</tbody>
</table>

Every student in these selected classes received a study invitation flyer that was sent out through Rebelmail by the course instructors on behalf of the student researcher. After receiving the Rebelmail information flyer about the study, the students that wished to participate were asked to login to the UNLV-SIPHI Study WebCampus course page and to read the informed consent form and to agree to the terms of the study before proceeding to take the Pre-Test. A convenience sample was used because enrollment in
the study was optional for students in the selected classes. After taking the pre-test participants were quasi-randomly assigned to either of the two intervention groups, or to the control group. Each of the three post-test groups contained a different reading material along with the post-test. The intervention groups each received either a text-only health education material or a picture-text combination material, while the control group didn’t receive any health education materials. The control group instead received a flyer for free HIV testing events on the UNLV main campus during the Spring 2012 semester. The assignment to a post-test group was quasi-random, because the students were assigned in the order in which they completed the pre-test. A quasi-random method was used because it was more convenient to assign the students individually to a post-test group as they finished the pre-test, instead of waiting for the final sample size to be obtained and then to randomly assign students.

Study participant eligibility criteria include undergraduate student status and enrollment in one of the UNLV undergraduate classes that were selected for this study. Students that were not enrolled in the classes were not eligible for this study. At the end of the study, the participants were compensated for their time spent with a $3.00 Baskin Robbins gift card and were entered into a raffle drawing for the larger prize of the $50.00 Barnes and Noble gift card.

**Recruitment**

Participants were recruited online through their school e-mail address (Rebelmail) and were enrolled in the study through the UNLV-SIPHI course page on WebCampus. An invitation letter was sent out to all students in the participating classes by their course instructors through Rebelmail. Participants received information about the study in the
invitation letter, and again on the WebCampus course page. All participants were asked to read and to sign an informed consent form before proceeding to the pre-test. There wasn’t any need for physical contact between the researcher and the study participants since the study was conducted entirely online. Participants received updates through the Webcampus course announcements or through their Webcampus e-mail.

Data Management and Analysis

All of the participant data was collected and stored in a Webcampus course that was designed for this study. WebCampus is an online course management system that is used for classes at UNLV. Respondus software version 4.0 was used to upload the assessment questions into WebCampus. All data analysis was performed in SPSS 19.0. Descriptive statistics were used to analyze the demographic and baseline HIV/AIDS knowledge, and HIV/AIDS testing information from participants. Correlation Analysis was used to validate the measure the relationships between each question item and the overall constructs of IMB Model. Differences in knowledge, intentions and behavior between the three post-test groups were measured with the nonparametric equivalents of the paired t-test (Wilcoxon matched-pairs test) and independent t-test (Mann-Whitney test) because of the small sample size. At 95% Confidence Interval, results with a P-value<0.05 are considered to be statistically significant.

Webcampus Advantages and Limitations

Webcampus is a versatile tool for conducting student assessments. It allows for tracking individual student responses to assessments. It has selective criteria that can be set for who can take an assessment and when it will be available for them. The questions
can be imported/exported to/from Webcampus by using the Respondus software. Communication with participants is available through Webcampus e-mail/announcements/discussion board and chat. Student usage of course webpages, assessment grades and the time taken for each assessment can be monitored.

One of the limitations of using Webcampus as an assessment tool is that it would not randomize the participating students on the basis of whether or not they took the pre-test. Webcampus could not differentiate between participating and non-participating students, and would randomize students in all six classes regardless of whether or not they took the pre-test. For this reason, the students had to be manually quasi-randomly allocated to a post-test group on the basis of whether or not they took the pre-test, and this was a time-consuming process. For every day during the two-week window when that the pre-test was available, the pre-test results had to be checked in order to see if the students had fully completed them. Students had to wait to 1-3 days after taking the pre-test to be assigned into a post-test group. Also because WebCampus shows the graded assessment submissions alphabetically, instead of by date, finding and checking the most recent submissions was challenging. A further limitation was that the students could potentially start an assessment and then not finish it. In these cases, the assessment would have to be “force submitted” or re-set so that the student could take it a second time.

Overall participating and non-participating students expressed curiosity and interest in the novelty of the project because of its utilization of WebCampus as a survey method. Because some students were unfamiliar with the survey process through Webcampus, a “Frequently Asked Questions (FAQ’s)” section was set up on the course homepage to help answer questions.
Human Subjects Protection/Ethical Issues

All UNLV students, enrolled in the selected undergraduate classes were eligible for this study. Students below the age of 18 (minors) were excluded from this study for ethical research purposes. The goal of the UNLV-SIPHI Study was to provide informative HEM’s about HIV testing in order to improve overall HIV testing rates. For this reason dealing with the potentially controversial issue of sexual health education in a classroom setting was not a factor in this study. The IRB granted the UNLV-SIPHI Study exempt status because it was shown to be minimally invasive. Harm was not likely to occur because the information that was collected from this study is not sensitive in nature. The personal identifying information that was collected did not differ from the usual student information that is collected by instructors that use Webcampus as a course instruction medium.

The UNLV-SIPHI Study was conducted entirely online and there was no physical contact with the students. An invitation letter was sent to all of the participating classes via Rebelmail by the course instructors on behalf of the student researcher. The letter explained that the study was voluntary and that if they enroll in the study they will be compensated for their time spent. After the students in participating classes received the invitation letter, they were given access to the UNLV-SIPHI Study Webcampus course that was set up for the study. Students that chose to enroll in the study were required to read an informed consent form before proceeding to take the pre-test. The online informed consent form gave information about the study goals and potential study risks are involved in any type of research study. Furthermore, information about the study was also put on the homepage along with a Frequently Asked Questions (FAQs) section.
The privacy of the participant’s online communications was protected by keeping all of the participant data stored in the separate WebCampus course that had been created for this purpose of this study. Only demographic information and information about HIV testing was collected from the participants. The private information risks involved in this study were no more than the minimal risks that are involved in conducting education and assessments over WebCampus. Overall, this study used physically a non-invasive online method to assess knowledge and health education materials about HIV testing.

Assessment

The UNLV-SIPHI Study questionnaire consisted of 28 items. This questionnaire was used for both the pre-test and post-test assessments in order to compare the before-and after-differences between the experimental groups after exposure to the health education materials. Question items used either a 5-point Likert scale or a dichotomous (yes/no) / (true/false) scale.

Students had 45 minutes to take the questionnaire on WebCampus. Returning to previously answered questions was not allowed. Students also could not refer back to the health education materials once they had finished reading them. After students finished the pre-test they had to wait 1-2 days before they were assigned to a post-test group. Only students that completed both the pre-test and post-test were compensated for their time spent, and there records were analyzed in the study.

Theoretical Basis for UNLV-SIPHI Study Questionnaire and Assessment Tool

The UNLV-SIPHI Study questionnaire was based on the HIV Knowledge Questionnaire-45 (HIV KQ-45) and the IMB Model questionnaire. A few items (Items 10,12, 13-16, 26-28) were original questions designed by the student researcher, in order
measure specific outcomes. However, the use of mostly question items from previously-validated instruments was intended to increase the validity and reliability of the assessment tool.

The HIV KQ-45 is a general knowledge questionnaire that was designed to test respondents on their knowledge about prevention and consequences of HIV infection. The KQ-45 was originally tested with an adult population with a wide age spectrum, so the use of items from this assessment was appropriate for a young-adult population. All items are designed to be understandable to someone with an 8th grade education or less (Davis et al, 1998). Items 8, 9 and 11 on the UNLV-SIPHI Study questionnaire were taken from the KQ-45.

The IMB Model questionnaire is an assessment tool that is designed to measure different constructs of the IMB Model, and this questionnaire was used to validate this model in a multisession HIV/AIDS risk reduction intervention with college students (Davis et al, 1998). “Versions of these measures have been used in studies of AIDS preventative behavior determinants among gay men, heterosexual college students and ethnically diverse heterosexual high school students.” (p. 329, Davis et al, 1998). For this reason, the IMB questionnaire was chosen as a valid assessment tool basis for assessing the college-age population in the UNLV-SIPHI Study.

The individual items on the UNLV-SIPHI Study questionnaire were scored according to the following measures:
**Items about Prevention Information.**

On the questionnaire, items 8-16 were knowledge questions that tested HIV testing information. Items 8-12 were true/false questions and items 14-15 were yes/no questions, all of which were scored dichotomously as either 1 or 0. Items 13 and 16 were multiple choice questions scored as either 1 for the incorrect answer or 2 for the correct answer.

**Items about Motivation.**

The UNLV-SIPHI questionnaire items #18-22 tested the motivation of the participants to take an HIV test. Items #18 and 19 tested individual motivation and items #21 and 22 tested social motivation. These questions were scored on a Likert scale from 1-5 (e.g. very hard to very easy) All of these items were borrowed from the IMB Model questionnaire.

**Items about Behavioral Skills.**

Items #17-19, 20-22, 23-25 asked about HIV testing behavioral skills of the participants. Items 17-19 tested individual skills, while items 20-22 tested their partner’s skill level in taking an HIV test. Items #23-25 tested how hard it would be for them to take an HIV test and how effectively they could convince their partner to take an HIV test. These questions were scored on a Likert scale from 1-5. All of these were borrowed from the IMB Model questionnaire.
Items about Preventative Behaviors.

Items #26-28 asked about HIV testing outcomes (i.e. whether or not the student took an HIV test). Items #26 and 27 were scored dichotomously (yes=1, no=0). All of these were original items.

Validity

Because the UNLV-SIPHI Study questionnaire was primarily based upon previously-tested, valid questionnaires that were tested with diverse study populations, it was likely to show external validity with a diverse, college-age population. For this reason, it was not validated when initially administered to the study participants. However, in order to test the internal validity of the questionnaire, a correlation analysis was conducted to see if the question items accurately measured the constructs that they were proposed to measure. Spearman’s correlation was used to measure construct validity because of the small sample size and non-normal distribution of the data.

The construct validity analysis of the Knowledge question items (item 8-16) were measured using a correlation analysis of the relationships between the Knowledge questions and the main outcome variables, behavioral skills and actual behavior, according to the IMB Model. Using the pre-test data from the population that completed both the pre- and post-tests (N=46), Knowledge items 9 and 13 were significantly correlated with Behavioral Skill items 23 and 22 respectively. Knowledge item 9 was negatively correlated with Behavioral Skill item 23 (r_s=-0.3, p<0.05) after item 23 had been dichotomously recoded, showing an inverse relationship between them. Knowledge
item 13 was positively correlated with Behavioral Skill item 22 ($r_s=0.3$, $p<0.05$). Behavioral skill items 21, 22 and 23 were found to meet construct validity because they were significantly correlated with the actual behavior outcome, i.e. taking an HIV test, measured by item 26. Also, Motivation item 19 was the only motivation item that was significantly correlated with taking an HIV test ($r_s=0.38$, $p<0.01$). A summary of the construct validity findings are presented in Table 4. All motivation and behavioral skill items had to be dichotomously recoded from a Likert scale in order to show their relationship with the outcome variable (taking an HIV test) which was a dichotomous variable.

**Reliability**

A reliability analysis was conducted to test the precision of each of the subscale components of the validated assessment tool. Using the pre-test data from the participants that finished both the pre- and post-tests ($N=46$), Cronbach’s alpha ($\alpha$) was used to show the internal consistency as a measure of reliability of the assessment items (Di Iorio, 2005). Since the Knowledge subscale was scored dichotomously, the Kruder-Richardson Formula 20 was used to calculate their reliability (Di Iorio, 2005). Using SPSS, this formula is equivalent to Cronbach’s alpha. Using the pre-test data for the population that completed both the pre-test and the post-test, the reliability the UNLV-SIPHI Study Assessment Tool had a Cronbach’s $\alpha = 0.61$. With the removal of Knowledge item 9, the reliability of the assessment tool increased to Cronbach’s $\alpha = 0.65$. Therefore, the single knowledge item (item 13), along with the single motivation item (item 19), the three behavioral skills items (items 21, 22 and 23) and the behavioral outcome measure (item 26) were shown to be reliable and were included in the final assessment tool. These
results show that the UNLV-SIPHI Study Assessment Tool is a valid and reliable instrument for use with similar college-age populations (Appendix 2).

Table 4 – Content Validity Analysis

<table>
<thead>
<tr>
<th></th>
<th>Q9</th>
<th>Q13</th>
<th>Q19</th>
<th>Q21</th>
<th>Q22</th>
<th>Q23</th>
<th>Q26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9</td>
<td>1</td>
<td>.112</td>
<td>.043</td>
<td>.011</td>
<td>-.078</td>
<td>-.276</td>
<td>-.130</td>
</tr>
<tr>
<td>Q13</td>
<td>.112</td>
<td>1</td>
<td>.077</td>
<td>.382**</td>
<td>.304*</td>
<td>-.036</td>
<td>-.083</td>
</tr>
<tr>
<td>Q19</td>
<td>.043</td>
<td>.077</td>
<td>1</td>
<td>.177</td>
<td>.327*</td>
<td>.275</td>
<td>.484**</td>
</tr>
<tr>
<td>Q21</td>
<td>.011</td>
<td>.382**</td>
<td>.177</td>
<td>1</td>
<td>.741**</td>
<td>.068</td>
<td>.088</td>
</tr>
<tr>
<td>Q22</td>
<td>-.078</td>
<td>.304*</td>
<td>.327*</td>
<td>.741**</td>
<td>1</td>
<td>.08</td>
<td>.258</td>
</tr>
<tr>
<td>Q23</td>
<td>-.276</td>
<td>-.036</td>
<td>.275</td>
<td>.068</td>
<td>.08</td>
<td>1</td>
<td>.49**</td>
</tr>
<tr>
<td>Q26</td>
<td>-.130</td>
<td>-.083</td>
<td>.484**</td>
<td>.088</td>
<td>.258</td>
<td>.49**</td>
<td>1</td>
</tr>
</tbody>
</table>

a. Spearman’s Correlation (r_s) *p<0.05, **p<0.01
CHAPTER 4
RESULTS

Descriptive Statistics

A total of 64 students (n=64) took the pre-test between April 9 and April 23. The mean age of the students was 22.78 years, and there were an approximately equal number of students (about 25%) from each year of undergraduate study (Table 5). The pre-test participants were predominantly white (56.25%), female (70.3%), and either Liberal Arts or Science majors (51.3% combined) (Table 6). The post-test group also had a similar demographic makeup as the pre-test group with a mean age was also 23 years; the majority of students were also white, females, science or liberal arts majors. The post-test was completed by a total of 46 students (n=46) between April 12, 2012 and May 9, 2012.

Among the pre-test group, a total of 30.65% of participants had taken an HIV test within the past year, while in the post-test group about 30.44% had taken an HIV test. A chi-square analysis showed that students who answered true/very true or easy/very easy to all of the motivation and behavioral skills assessment items on the pre-test were more likely to have taken an HIV test within the past year (Table 7). However, knowledge item scores on the assessment were not significantly associated with the likelihood of taking an HIV test. About 45.2% of pre-test data respondents reported having “good” or better knowledge of HIV testing practices. However, self-reported HIV testing knowledge was not a good predictor of actual knowledge scores on the assessment or of the likelihood of taking an HIV test. Chi-square analyses showed that students with “good” or better self-reported knowledge of HIV testing practices were not more likely the main knowledge item correctly ($\chi^2(1)=.053$, ns p=.818) and were no more likely to
have taken an HIV test than the students with less self-reported knowledge ($\chi^2(1) = .617$, ns p=.432).

Table 5 – Pre-Test Population Demographics

<table>
<thead>
<tr>
<th>PRE-TEST POPULATION CHARACTERISTICS</th>
<th>RESPONDENTS (%), (N=64)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>18(28.1)</td>
</tr>
<tr>
<td>Female</td>
<td>45(70.3)</td>
</tr>
<tr>
<td>Other/Decline to answer</td>
<td>1(1.6)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>18-20</td>
<td>33(51.6)</td>
</tr>
<tr>
<td>21-25</td>
<td>18(28.1)</td>
</tr>
<tr>
<td>26-30</td>
<td>8(12.5)</td>
</tr>
<tr>
<td>31-51</td>
<td>5(7.8)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>Asian/Hawaiian/Pacific Islander</td>
<td>7(10.9)</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>9(14.1)</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>7(10.9)</td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>36(56.25)</td>
</tr>
<tr>
<td>Other</td>
<td>5(7.8)</td>
</tr>
<tr>
<td><strong>Year of Study</strong></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>13(29.7)</td>
</tr>
<tr>
<td>Sophomore</td>
<td>18(28.1)</td>
</tr>
<tr>
<td>Junior</td>
<td>16(25)</td>
</tr>
<tr>
<td>Senior</td>
<td>17(26.6)</td>
</tr>
<tr>
<td><strong>Major</strong></td>
<td></td>
</tr>
<tr>
<td>Hotel Administration</td>
<td>5(7.8)</td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>17(26.6)</td>
</tr>
<tr>
<td>Sciences</td>
<td>16(25)</td>
</tr>
<tr>
<td>Urban Affairs</td>
<td>8(12.5)</td>
</tr>
<tr>
<td>Undecided</td>
<td>6(9.4)</td>
</tr>
<tr>
<td>Other</td>
<td>12(18.8)</td>
</tr>
</tbody>
</table>
Table 6 – Post-Test Population Demographics

<table>
<thead>
<tr>
<th>POST-TEST POPULATION CHARACTERISTICS</th>
<th>RESPONDENTS (%) (N=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>11 (23.9)</td>
</tr>
<tr>
<td>Female</td>
<td>35 (76.1)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>18-20</td>
<td>25 (54.3)</td>
</tr>
<tr>
<td>21-25</td>
<td>12 (26.1)</td>
</tr>
<tr>
<td>26-30</td>
<td>5 (10.9)</td>
</tr>
<tr>
<td>31-51</td>
<td>4 (8.7)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>Asian/Hawaiian/Pacific Islander</td>
<td>7 (10.9)</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>9 (14.1)</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>7 (10.9)</td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>36 (56.25)</td>
</tr>
<tr>
<td>Other</td>
<td>5 (7.8)</td>
</tr>
<tr>
<td><strong>Year of Study</strong></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>10 (21.7)</td>
</tr>
<tr>
<td>Sophomore</td>
<td>13 (28.3)</td>
</tr>
<tr>
<td>Junior</td>
<td>12 (26.1)</td>
</tr>
<tr>
<td>Senior</td>
<td>11 (23.9)</td>
</tr>
<tr>
<td><strong>Major</strong></td>
<td></td>
</tr>
<tr>
<td>Hotel Administration</td>
<td>4 (8.7)</td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>13 (28.3)</td>
</tr>
<tr>
<td>Sciences</td>
<td>11 (23.9)</td>
</tr>
<tr>
<td>Urban Affairs</td>
<td>7 (15.2)</td>
</tr>
<tr>
<td>Undecided</td>
<td>5 (10.9)</td>
</tr>
<tr>
<td>Other</td>
<td>6 (13)</td>
</tr>
</tbody>
</table>
Table 7 – Relationship Between Pre-Test Question Items and Taking an HIV Test

<table>
<thead>
<tr>
<th>Question Item</th>
<th>Taken an HIV Test and Answered Correctly (%)</th>
<th>Test-Statistic ($\chi^2(1)$)\textsuperscript{a}</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 13</td>
<td>25.8</td>
<td>.84</td>
<td>.36</td>
</tr>
<tr>
<td>Question 19</td>
<td>11.5</td>
<td>8.42</td>
<td>.004**</td>
</tr>
<tr>
<td>Question 21</td>
<td>8.1</td>
<td>4.39</td>
<td>.036*</td>
</tr>
<tr>
<td>Question 22</td>
<td>8.1</td>
<td>8.68</td>
<td>.003**</td>
</tr>
<tr>
<td>Question 23</td>
<td>27.4</td>
<td>6.67</td>
<td>.01**</td>
</tr>
</tbody>
</table>

\textsuperscript{a.} Degrees of freedom (df) = 1 *p<0.05, **p<0.01
Inferential Statistics

Because of the limited sample size and non-normally distributed data, nonparametric methods were used to analyze the results of the study. Wilcoxon-Matched Pairs Tests were used to compare whether providing health education materials increases the test scores for all items on the post-test in comparison to the pre-test. Mann-Whitney (U) tests were used to see if the type of health education material provided made a difference in HIV testing rates between the three different types of post-test groups (picture-text, text-only, and control).

Hypothesis 1 (a): Providing HEMs improves the knowledge, intention and behavioral skills that contribute to HIV test-taking behavior

All question items were assessed by Mann-Whitney tests that measured the difference the control group and the different health education materials (HEM) groups. The differences between the two HEM groups (picture-text and text-only) were also analyzed with Mann-Whitney tests using a two-tailed significance level criterion of $\alpha < 0.05$.

Knowledge Items Results.

On the validated UNLV-SIPHI Study Assessment Tool, item 13 tested knowledge about HIV testing. On question 13, 25.8% of those who have taken an HIV test answered correctly. So answering correctly to question 13 was not associated with taking an HIV test (Table 7).
A Wilcoxon matched-pairs test showed an improvement in scores for Knowledge item 13 in the post-test groups over the pre-test group (T=5.5, p<0.05, r=-0.57). A large effect size was seen, with r=-0.57. Upon further analysis, Mann-Whitney tests showed that the difference laid in scores between the text-only HEM group (Group 2) and the picture-text HEM group (Group 3). Students scored higher on item 13 after reading the text-only pamphlet, while the picture-text combination pamphlet had lower scores. This suggests that the provision of a text-only pamphlet is a better way to provide students with information about HIV testing than a picture-text combination pamphlet.

**Motivation and Behavioral Skills Item Results.**

Students that reported having greater behavioral skills in taking an HIV test were more likely to take an HIV test than those with less self-reported behavioral skills. Descriptive statistical analysis showed that there was a significant association between the motivation and behavior skill items and taking an HIV test (Table 7).

A significant difference was also found between the control group (Group 1) and the picture-text Post-Test group (Group 3) in regards to how hard it would be to take an HIV test. Mann-Whitney (U) tests showed that participants in Group 3 (Mdn=11.67) reported that it was more difficult to take an HIV test in comparison to those to the control group (Mdn=18.74) (U=62.0, z=-2.195, p<0.05, r=-0.49). A borderline large effect size was seen here (r=-0.49) for the difference between the control group and Group 3, using the benchmark criteria of 0.5 (Field, 2009). It can be concluded that exposure to the picture-text health education materials decreased the ability of participants to take an HIV test when compared with those in the control group (Table 8). This demonstrates that the picture-text health education material was not only unable to
convey information as well as the text-only format it also did not encourage the ability of students to take an HIV test.

**Table 8—Non-Parametric Test Results**

<table>
<thead>
<tr>
<th>Question Item</th>
<th>*Test Statistic</th>
<th>Significance Level</th>
<th>Median Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Question 13</td>
<td>T=5.5</td>
<td>P&lt;0.05</td>
<td></td>
</tr>
<tr>
<td>Pre-Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>U=57.0</td>
<td>P&lt;0.05</td>
<td>16.20</td>
</tr>
<tr>
<td>Group 3</td>
<td></td>
<td></td>
<td>11.25</td>
</tr>
<tr>
<td>Behavioral Skills Question 23</td>
<td>U=62.0</td>
<td>P&lt;0.05</td>
<td>18.4</td>
</tr>
<tr>
<td>Group 1</td>
<td></td>
<td></td>
<td>11.67</td>
</tr>
<tr>
<td>Group 3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Wilcoxon signed-rank test (T), Mann-Whitney test (U)*

**Hypothesis 1 (b): The type of HEM provided makes a difference in the knowledge, intention and behavioral skills to take an HIV test**

A significant difference was seen in the knowledge of how an HIV test works between the pre-test and post-test groups. A Mann-Whitney (U) test was used to show the difference between Group 2 and Group 3 in terms their responses to knowledge question item 13. The result shows that more students in Group 3 answered this question incorrectly (Mdn=16.20) than in Group 2 (Mdn=11.25) (U= 57.0, p<0.05). This result implies that the picture-text HEM was less effective in educating the students about a key aspect of HIV testing knowledge, i.e. knowing whether an HIV test can be conducted using various bodily fluids. This is a significant finding for health promotion programs that aim to use picture-text based designed pamphlets as opposed to text-only in order to
educate a college-age population about HIV testing. A text-only pamphlet design may be more educationally beneficial and will cost less financially to reproduce. It must be noted that, this finding should be viewed cautiously in light of the fact that almost all of the Post-Test group scores were lower than for the Pre-Test groups. This indicates the possibility of test fatigue in the respondents as a confounder of this finding and more follow-up research may be needed as a result.

Among students that took the post-test, no differences were seen in the HEM groups in regards to motivation or behavioral skills. Students in the picture-text HEM group were no more motivated or able to take an HIV test than the students in the text-only HEM group or in the control group. From these findings we can conclude that the different formats of a health education material that was provided in the research study did not make a significant difference in the likelihood of taking an HIV test. Both students in the picture-text and text-only HEM groups did not show any improvement in their HIV test-taking behavior over the control group after exposure to the health education materials. Therefore, this hypothesis of the UNLV-SIPHI Study has been supported by the results of a key knowledge assessment item result, but not by the results from the other areas of the study assessment results. This is an expected result as health education materials alone do not usually produce a change in behavior outcomes, even though they are an important part of behavior change interventions.
DISCUSSION AND CONCLUSION

Discussion of Findings and Implications for Future Research

Although the health education materials (HEMs) used in the study did not increase HIV testing rates, HEMs were found to help increase the knowledge of an individual to take an HIV test. This is a significant finding that can influence the decision to provide Health Education Materials when promoting HIV testing among college-age students. According to the Information-Motivation Behavioral Skills Model, improvements in knowledge can translate into increased chances of actually taking an HIV test. In the clinical setting, HIV testing is provided usually with a brief pamphlet that explains about the HIV testing procedure, what the results mean and other HIV prevention measures. The results of the UNLV-SIPHI Study suggest that the distribution of such pamphlets among a general college student population is beneficial in providing HIV testing information.

The results of the UNLV-SIPHI Study are also important to remember when designing future HIV testing Health Education Materials so that they adequately address the factors that contribute to HIV testing, such as knowledge, motivation and behavioral-skills. Health Education Materials that adequately address these factors that contribute to HIV testing may improve HIV testing rates among the youth. For this study, the information from an HIV testing standard-care brochure served as the basis for the intervention’s health education materials. However the efficacy of this brochure in improving key areas of HIV testing knowledge has been shown to be limited, except in
one key measure of HIV testing knowledge. The brochure had no impact on the
motivation or ability to take an HIV test. In future interventions, the use of materials with
content different from that which was used in this study may produce improved results.
Therefore, there is a need for further studies to compare the difference between the
standard-care HIV testing brochure and a brochure with content that is more likely to
address all of the necessary information about HIV testing, as well as the other factors
that contribute to HIV testing behavior.

Finally, the study results have shown that using a text-only format pamphlet was
better at conveying information about HIV testing than a combination picture-text
pamphlet. This finding is contradictory to the majority of the scientific literature on this
subject matter, which supports the use of picture in health education materials as a way to
increase the comprehension, retention and recall of information (Houts et al., 2006).
There may be various reasons for the finding of the UNLV-SIPHI Study, and future
follow-up studies may be needed to further explain and support this finding. A possible
explanation for this finding may be related to the type of pictures used in the study.
Houts et al. (2006) mentions a similar result in a reviewed meta-analysis, where pictures
interfered with comprehension of the text, especially among poor readers (pp. 180). This
meta-analysis by Fillippatou and Pumfrey (1996) showed that if the reader does not
understand the information that is being integrated, the picture itself is meaningless.
Readers may end up using pictures to incorrectly guess the meaning of the text and get
distracted by irrelevant details of the pictures. For this reason only simple pictures, which
fully integrate understandable text are recommended to facilitate comprehension (Houts
et al., 2006, p. 180). More pilot studies may be needed to determine reader
comprehension levels when using different types of pictures, and how reader emotions and preferences to pictures affect the understanding of the health education messages.

**Strengths and Limitations of Study**

The randomized-control trial design of the UNLV-SIPHI Study added to the overall strength of the study and the obtained results. The presence of a control group allowed for the accurate comparison of the differences caused by the experiment. The control group was also useful in creating the validated assessment tool. The use of a commonly distributed, free HIV testing flyer in both the pre-test and as the control group HEM worked to equalize the exposure to the idea of taking an HIV test. Since everyone had a chance to view the flyer, the effect of the experimental health education materials could be measured clearly.

The use of previously validated questionnaire items about HIV testing in the study assessments also worked to increase the strength of the study. Because the majority of the items on the UNLV-SIPHI Study Assessment Tool (USSAT) were taken from previously from the IMB Model Questionnaire which was tested with a college-age population, they were likely to be appropriate to be used in this study.

Using an internet-based application (i.e. WebCampus) to conduct the study was also beneficial in this study in that it minimized the possibility of recall and interviewer bias by reducing the amount of contact with the participants. If there was face-to-face contact of the student researcher with the participants, there was the possibility that the participants could have changed their answers, especially since sexual health topics can be difficult to discuss. The chance for recall bias was also not likely because taking an
HIV test is not usually an easily forgettable procedure. However, because the participants were quasi-randomly allocated instead of randomly allocated to the post-test groups, the possibility for selection bias was introduced into the study.

Limitations of the study included the small sample size for the data collected. Since participation in the UNLV-SIPHI Study was voluntary, students in the surveyed classes could choose not to participate if they wanted to do so. The study population further diminished during the post-test assessment because of a loss of interest by the participants. After taking the pre-test participants had to wait 1-3 days before being manually assigned to a post-test group. This waiting time to be assigned to a post-test group was a factor that could have reduced the interest of participants during the post-test assessment, and may have led to the reduced post-test population. For this reason, the population size that was obtained in the study did not reach the level where it could lend sufficient power to detect differences in variables that possibly were significant. Similar future studies, with a larger sample size, may be able to detect more differences in the level of knowledge improvement of the participants.

Another limitation of this study was the time constraints and limited hypotheses of this study. Future, larger studies should give sufficient time to look at the effect of the health education materials on actual testing behavior. A follow-up period after administering the intervention is necessary to see how much information is retained after reading the HIV testing health education materials and how this affects the person’s decision to take an HIV test.
Conclusion

The use of health education materials plays a beneficial role in increasing HIV testing rates as a part of health promotion interventions. However, the results of the UNLV-SIPHI Study indicate that health education materials alone do not increase an individual’s intention or ability to take an HIV test. School health promotion programs that are trying to increase HIV testing rates among their students would be best served by health education materials by using them as the education portion of their program. Other activities that are commonly used in evidence-based health interventions, such as counseling and group discussions should be used in combination with health education materials in order to produce the desired outcomes.

The format of the health education materials that are to be used also appears to make a difference in conveying information to students. In this study, a text-only format health education material seems to have been better at conveying information about HIV testing than a material that combines the use of both pictures and text. There could be various reasons for this finding, and further studies are needed to support this claim. Health clinics and health promotion programs should consider conducting interventions similar to this one in order to test the effectiveness of their HIV testing health education materials, and which format is best able to convey information to their target population. In this way the health education materials that are to be distributed will be in a format which best conveys information, as well as demonstrating the overall ability the materials to effectively provide knowledge about HIV testing.
Appendix 1: UNLV-SIPHI Study Questionnaire

1  How old are you:_______________

2  Are you:
   a. Male
   b. Female
   c. Other/Not Listed/Decline to Answer_______________________

3  What is your race/ethnicity?
   a. White
   b. Black
   c. Hispanic
   d. Asian
   e. American Indian/Alaska Native
   f. Other/Not Listed/Decline to Answer_______________________

4  Mark the department to which your major belongs to (mark undecided if not yet decided):
   a. Allied Health Sciences
   b. Business
   c. Community Health Sciences
   d. Education
   e. Engineering
   f. Fine Arts
   g. Hotel Administration
   h. Liberal Arts
   i. Nursing
   j. Sciences
   k. Urban Affairs
   l. Academic Success Center
   m. Undecided
   n. Other/Not Listed

5  Are you a:
   a. Freshman (1st year)
   b. Sophomore (2nd year)
   c. Junior (3rd year)
   d. Senior (4th year)
   e. Graduate Student
f. Non-Degree Program

6 Please self-rate your HIV/AIDS knowledge level:
   a. Poor
   b. Fair
   c. Good
   d. Very Good
   e. Excellent

7 Please self-rate your knowledge of HIV testing practices.
   a. Poor
   b. Fair
   c. Good
   d. Very Good
   e. Excellent

8 Taking a test for HIV one week after having sex will tell a person if she or he has HIV.
   a. True
   b. False

9 Women are always tested for HIV during their Pap smears.
   a. True
   b. False

10 The CDC recommends that all individuals between 13-64 years be tested for HIV at least once within their lifetime.
   a. True
   b. False

11 If a person tests positive for HIV, then the test site will have to tell all of his or her partners.
   a. True
   b. False

12 Most HIV/AIDS tests work by detecting HIV antibodies in a person’s body fluids.
   a. True
   b. False

13 An HIV/AIDS screening test can be performed using sample of:
   a. Blood
   b. Saliva
   c. Urine
   d. All of the above can be used to perform HIV/AIDS tests

14 If a person tests negative, does that mean for certain that they don’t have HIV?
   a. Yes
   b. No
15 If a person tests positive, does that mean that their partner is also positive?
   a. Yes
   b. No

16 Who is at high-risk for HIV/AIDS, and should get tested for once a year?
   a. MSM (Men who have sex with men)
   b. IDU (Injection Drug Users)
   c. A person who has a history or STDs, hepatitis, and TB
   d. Anyone who has unprotected sex with multiple partners
   e. Anyone who has unprotected sex with someone who fits the above choice categories
   f. Yes to all of the above

17 Getting an HIV test during the next month to check whether I have HIV would be:
   a. Very Hard
   b. Hard
   c. Neutral
   d. Easy
   e. Very Easy

18 Most people who are important to me think I should get an HIV test during the next month to check whether I have the virus that causes AIDS.
   a. Very Untrue
   b. Untrue
   c. Neutral
   d. True
   e. Very True

19 I intend to get an HIV test during the next month to check whether I have the human immunodeficiency virus (HIV).
   a. Very Untrue
   b. Untrue
   c. Neutral
   d. True
   e. Very True

20 Asking my partner(s) to get a blood test during the next month to check whether they have the human immunodeficiency virus (HIV), is:
   a. Very Hard
   b. Hard
   c. Neutral
   d. Easy
   e. Very Easy
   f. No Partner
21 Most people who are important to me think I should ask my partner(s) to get a blood test during the next month to check whether they have the human immunodeficiency virus (HIV).
   a. Very Untrue
   b. Untrue
   c. Neutral
   d. True
   e. Very True
   f. No Partner

22 I intend to ask my partner(s) to get a blood test during the next month to check whether they have the human immunodeficiency virus (HIV).
   a. Very Untrue
   b. Untrue
   c. Neutral
   d. True
   e. Very True
   f. No Partner

23 How hard would it be for you to take an HIV test?
   a. Very Hard
   b. Hard
   c. Neutral
   d. Easy
   e. Very Easy

24 How hard would it be for you to discuss taking an HIV test with your partner?
   a. Very Hard
   b. Hard
   c. Neutral
   d. Easy
   e. Very Easy
   f. No Partner

25 How effectively could you persuade your partner to get an HIV test with you?
   a. Very Ineffectively
   b. Ineffectively
   c. Neutral
   d. Effectively
   e. Very Effectively
   f. No Partner
26 I have had an HIV test to check whether I have been exposed to the human immunodeficiency virus (HIV) within this past year (from 2011 until present).
   a. Yes
   b. No

27 I have made an appointment to get an HIV test to check whether I have been exposed to the human immunodeficiency virus (HIV) since the beginning of the Spring 2012 semester.
   a. Yes
   b. No

28 If you have taken an HIV test, where did last you take this test?
   a. Doctor’s Office
   b. UNLV Student Health Center
   c. Public Health Department Clinic
   d. Other
   e. Have not had an HIV test yet
Appendix 2: UNLV-SIPHI Study Assessment Tool (USSAT), tested for validity and reliability

1 An HIV/AIDS screening test can be performed using sample of:
   a. Blood
   b. Saliva
   c. Urine
   d. All of the above can be used to perform HIV/AIDS tests

2 I intend to get an HIV test during the next month to check whether I have the human immunodeficiency virus (HIV).
   a. Very Untrue
   b. Untrue
   c. Neutral
   d. True
   e. Very True

3 Most people who are important to me think I should ask my partner(s) to get a blood test during the next month to check whether they have the human immunodeficiency virus (HIV)
   a. Very Untrue
   b. Untrue
   c. Neutral
   d. True
   e. Very True
   f. No Partner

4. I intend to ask my partner(s) to get a blood test during the next month to check whether they have the human immunodeficiency virus (HIV).
   a. Very Untrue
   b. Untrue
   c. Neutral
   d. True
   e. Very True
   f. No Partner

5. How hard would it be for you to take an HIV test?
   a. Very Hard
   b. Hard
   c. Neutral
   d. Easy
   e. Very Easy
6. I have had an HIV test to check whether I have been exposed to the human immunodeficiency virus (HIV) within this past year (from 2011 until present).
   a. Yes
   b. No
Appendix 3: Text-Only Health Education Materials (HEMs)

What are HIV and AIDS?
HIV is the human immunodeficiency virus. AIDS is the disease caused by HIV. A person who has HIV can develop AIDS if the virus attacks the immune system and weakens the body's ability to fight infections. It is possible for a person to have the virus for months or years before any signs of illness appear. The virus attacks the body's ability to fight off infections. As a result, people with AIDS develop serious infections and cancers. These illnesses make them very ill and can eventually kill them.

How does someone get HIV?
HIV spreads through contact with blood, semen, vaginal fluid, or breast milk from infected people. Contact can occur from unsafe sex. It can also occur from sharing used needles and syringes (infected women can pass the virus to their babies during pregnancy, childbirth, and breastfeeding). It is also possible to become infected with the HIV through a blood transfusion, although this is now very rare.

While HIV can be transmitted through all unprotected sex activities, the risk of HIV transmission differs by the type of sexual activity which a person engages in. Oral sex is generally lower risk than vaginal sex, which is lower risk than anal sex. People that engage in high-risk activities such as those who have sex with men (MSM), injection drug users (IDUs), and individuals that engage in unprotected sex with multiple sex partners are recommended to be tested at least once a year.

Even these in monogamous relationships can be at risk for HIV/AIDS if they have partners that are at high risk.
People do not become infected with HIV through everyday casual contact with people at school, work, home, or anywhere else in the community. The virus is not spread from contact with sweat, tears, saliva, or a casual kiss from an infected person (even if the "French" kissing is not achieved). Nor can people become infected from contact with bats, cats, dogs, or other animals used by someone who is infected with HIV. People do not become infected by using food prepared by an HIV-infected person. People have not become infected with HIV through insect bites.

How can I avoid becoming infected?
The best way to avoid getting HIV is to avoid activities that would allow the virus to be passed to you. By following these suggestions, you will lower your risk of getting HIV:
• The only way to avoid sexual exposure to HIV is to have sex with an uninfected partner or as a couple.
• If you are not certain that your sex partner is uninfected, you should use a condom correctly every time you have sex.
• Do not share needles or syringes.

It is important to find out if you are infected with HIV so that you do not infect someone else. If you know you are infected with HIV, you can avoid any activity that may pass it on.

Why should I get tested?
You cannot generally tell by looking at someone whether he or she has an HIV infection. A person can be infected with HIV and not know it. There are times when an infected person may be able to tell others that he or she is infected. An infected person may tell others that he or she is infected. The only way to be sure is to test and be sure. The only way to be sure is to test and be sure.

The CDC recommends that all people between the ages of 13-64 be tested for HIV at least once within their lifetime, and that those who are known to be infected with HIV be tested every year. Consider taking the HIV test with your partner before engaging in unprotected sexual activity to stay safe from getting HIV.

How does the Oral Rapid HIV test work?
The oral rapid HIV test takes a sample of oral fluid from your cheeks or gums in your mouth and measures the presence of HIV antibodies in your saliva. There is a "window period" of between 3-6 months after exposure when a person's HIV test result is negative because they may not be producing HIV antibodies yet, but they are still infected.

What does a Preliminary Positive result mean?
A preliminary positive result suggests that the antibody to HIV may be present in your blood or oral fluid. A follow-up blood test in 3-6 months is required to confirm the presence of HIV. A positive test result means that you will be referred to counseling in order to be assessed to treatment and to ensure your sexual partners are not infected.

What does a Preliminary Negative result mean?
A negative test result means that the test did not detect HIV antibodies in your blood or oral fluid. However, some cases of HIV infection cannot be ruled out completely. If you recently (within 3 months) had any of the symptoms described in the "How should I get tested" section of this pamphlet, it may still be possible that you are infected with HIV. If you have been exposed to HIV, be sure to consult a health care provider to determine the best course of action.
Appendix 4: Picture-Text Combination Health Education Materials (HEMs)

What does a Preliminary Positive result mean?
A preliminary positive result means that antibodies to HIV may be present in your blood or oral fluid. However, in some cases HIV infection cannot be ruled out completely. If you recently (within 3 months) had any of the contacts described in the “How does someone get HIV?” section of this pamphlet, it is still possible that you are infected with HIV. This is because your body can take several months after you are infected to make HIV antibodies. You should consider getting tested again in three to six months to be sure you are not infected.

What are HIV and AIDS?
HIV is the human immunodeficiency virus; it is the virus that causes AIDS (acquired immunodeficiency syndrome). It is possible for a person to have the virus for months or years before any signs of disease appear. The virus weakens the body’s ability to fight infections. As a result, people with AIDS develop serious infections and cancers. These illnesses make them very ill and eventually kill them.

How does someone get HIV?
The most common methods of transmission of HIV are:
- Unprotected sex with an infected partner
- Sharing packets with an infected person
Almost eliminated as risk factors for HIV transmission are:
- Transmission from infected mother to fetus
- Infection from blood products

Some HIV/AIDS myths
- HIV/AIDS can be transmitted in a hairbrush
- HIV/AIDS can be transmitted in a needle or syringes

HIV/AIDS Prevention - Abstinence
- Abstinence is the only sure way of preventing infection with HIV/AIDS
- Management (two to five other conventional methods) is the most sure way of preventing HIV/AIDS

HIV/AIDS Prevention - Condoms
- Latex condoms provide most protection in preventing sexual transmission of HIV/AIDS
- A latex condom is uninflamed, penetration is established and transmission is rare

Why should I get tested?
A person can be infected with HIV and not know it. The virus may take time to show its effects. A person can have HIV for ten years or more before the symptoms of AIDS appear.

Who’s At Risk from HIV/AIDS?
- Hispanic and Asian. Many, if not most, of the sexual transmission cases are among these groups

Avoid sharing needles because they also can transmit HIV AIDS.
REFERENCES


CDC-DHAP (2012c). HIV Epidemiology Slide Set. Retrieved from
http://www.cdc.gov/hiv/topics/surveillance/resources/slides/general/index.htm

http://www.cdc.gov/hiv/resources/guidelines/herrg/pub-info_educational.htm


Oaks, CA.

=22

CA : Josey-Bass.

Thousand Oaks, CA.


Information-Motivation-Behavioral Skills Model of AIDS preventative behavior with


CURRICULUM VITAE

EDUCATION

Associate of Science in Biology (AS) - Pre-Pharmacy, May 2006
Macon State College - Macon, GA

Bachelor of Science in Health Science (BSHS) - Health Education, Dec. 2009
Trident University International - Cypress, CA

AWARDS & HONORS

UNLV GPSA Spring 2012 Research Grant Award Dec. 2011
Graduate Summa Cum Laude – Trident University International Dec. 2009
Dean’s List – University of Georgia School of Public Health Aug. 2006
Dean’s List – Macon State College Aug. 2005
Dean’s List – Macon State College Aug. 2004